Report
on
Role of ECGC in Export Performance of India: A firm level analysis with a special focus on the MSME Sector

Submitted to

ECGC Limited, Mumbai

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Role of ECGC in Export Performance of India: A firm level analysis with a special focus on the MSME Sector

Project Team

Dr. Vijay Prakash Ojha
Dr. Areej Aftab Siddiqui
Dr. Biswajit Nag
Dr. Kashika Arora

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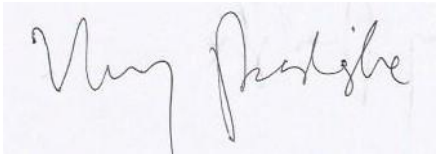
Preface

Export Credit Insurance and its role in fostering exports is gaining importance rapidly in modern times. Firms of all sizes, and at all levels in the value chain, have started understanding the importance of Export Credit Insurance in providing impetus to their exports. Most notable among these firms are the Micro, Small and Medium Enterprises (MSMEs) which make a major contribution to industrial output, employment, and exports in India. In this context, ECGC, as a policy arm of the Government of India in the domain of export promotion, has taken the initiative of sponsoring this study on the role of export credit insurance in promoting exports from the country, with a special focus on the MSME firms, is indeed timely.

This study conducted by the Indian Institute of Foreign Trade (IIFT), New Delhi, focuses on how MSMEs can be protected against risks in exporting their products and concludes with some recommendations for stakeholders in their policy formulations. We hope the recommendations of this report will be useful to strengthen the export credit framework leading to faster growth of exports from the country.

We would like to thank the entire personnel of ECGC for providing crucial support at all stages in the writing of this report. At the same time, special thanks are due to Shri Sristiraj Ambastha, Vivek Tiwari, Swadesh Deepak, Shivam Tiwari, and Ankit Pathak.



(Dr. Vijay Prakash Ojha)
ECGC Chair Professor

Executive Summary

Micro, Small and Medium Enterprises (MSMEs) form a vast network of about six crore enterprises, contributing approximately 45 percent to manufacturing output, 40 percent to exports, around 30 percent to GDP, and creating employment for about 11 crore people — which is second only to employment creation in agriculture. MSMEs, therefore, are amongst the strongest drivers of India's economy. To improve the competitiveness of MSMEs in international markets filled with political and commercial risks, which include extreme risks of default in payment for exports, export credit insurance (ECI), provided by private or public banks or financial institutions or by other specialised governmental agencies, has to play a supportive role[1]. In the Indian context, it is the ECGC Limited that plays the most important role in providing export credit insurance (ECI) to exporters. ECGC offers credit insurance covers to both banks and exporters and charges premiums in return for insuring their risks. This study is dedicated to evaluating the role of ECGC in the export performance of India employing a firm-level analysis with a special focus on the MSME sector.

The first chapter of the report provides the introduction and significance of selecting MSME firms for this study. Moreover, the role of ECGC, the type of insurance policies it provides and the trend and pattern of the value of its business covered, insurance premium received and the amount of claims paid are explained in this chapter. Along with this, the relevant literature covering export financing and export credit insurance schemes impacting the export performance of different sectors in different countries is analysed. This provides the basis and also the context and terms of reference of the present study. Finally, the methodology using both primary and secondary data analysis is discussed.

The second chapter deals with exports and markets for insurable exports, where, firstly, the listing of the sectors which are MSME-specific and have been insured by ECGC is done. The maximum export growth as witnessed from 2007 to 2017 pertains to engineering goods, chemical & allied products, handicrafts and agriculture and allied products. The growth of exports from these sectors is measured in terms of intensive (measuring export growth of existing trade) and extensive (diversification of export) margins. Secondly, the empirical investigation in the form of a dynamic panel analysis is undertaken for ten sectors focussing

[1] The roles of ECAs differ from country to country. In some countries, a single organization offers both services, specifically export credit and export credit insurance. In other, these services are provided by two or more different institutes.

on the impact of ECGC cover on exports while considering the issue of endogeneity by taking lagged export propensity as a dependent variable to capture the path-dependency of exports. Further, this chapter classifies sectors into three categories, namely, ECGC cover impacting export propensity, export propensity impacting ECGC cover and both ECGC cover and export propensity reinforcing each other. This allows for more informed and focussed policymaking for individual sectors.

The third chapter undertakes empirical analysis using firm-level data to perform efficiency analysis for two years 2007-08 & 2017-18. By segregating firms according to MSME classification, the stochastic frontier analysis is used to explore the impact of the interaction of exports and ECGC cover on the technical efficiency of firms. The determinants of technical efficiency in the form of technology imports, expenditure on R&D, forex earnings and other firm-specific variables provide additional characterization to micro, small and medium firms. The analysis shows that when firms simultaneously export and spend on ECGC cover their technical efficiency improves. Also, the top-most efficient firms are largely export-oriented and rely the most on ECGC cover.

The fourth chapter contains the major highlights of this project, which are the results of a primary survey of MSMEs conducted to study the impact of ECGC on their export performance. This chapter begins with a brief description of the survey design and the nature of the MSMEs participating in the survey. It is followed by a discussion on the importance of export credit insurance and export performance, and factors determining the usage of ECGC policies based on specific information about the various ECGC policies taken by the firms and the major challenges faced. While determining the awareness/availability of ECGC policies, this chapter delves into the details of how export credit insurance schemes impact the export performance of MSMEs, credit risk management practices, feedback from policyholders and non-policy holders for improvement in various ECGC policies. Finally, based on the findings of the research, this study suggests important policies for Indian MSMEs that can be undertaken by the ECGC. These suggestions are about raising awareness further about ECGC policies, making them sector-specific, introducing new insurance products, simplification of the procedure in obtaining export credit insurance, increasing the digital presence of ECGC, initiating collaborations of exporters with export consulting firms and industry associations. They are discussed in detail below.

The fifth chapter presents the comparison of India's nodal ECA – which is ECGC Ltd. - with other such agencies in the rest of the world, providing a host of information on the working style, types of insurance products, risks covered, business performance etc. This chapter takes into consideration selected ECAs which are all members of the global association for export credit and investment insurance industry, popularly known as Berne Union. This is a union of 83 members and 2 guests across the world, representing the traits of the export credit insurance industry globally irrespective of whether they are owned privately or by the state. The Berne Union provides for a standard set of parameters for comparisons of the performance and efficiency of ECAs. These parameters have been employed to compare the performance and efficacy of ECGC with the ECAs elsewhere in the world with a view to yield suggestions for improvement in the ECI policies of ECGC.

Finally, the conclusion chapter of this study stresses on the issues/challenges faced by MSMEs in obtaining ECGC policies and the major risks that need to be covered through these policies. To meet this challenges, sector specific ECGC policies with varying premiums and benefits need to be framed. Also, to achieve the government of India's target of two trillion-dollar exports by 2030[2], an action plan needs to be formulated. This could include, firstly, creating an awareness of various ECGC policies through social media, appointing agents for recommending ECGC policies and creating a system of replying to queries companies might have regarding specific requirements of policies. Secondly, to increase the share of insurable export credit, ECGC needs to introduce new insurance products & policies with the changing times and market dynamics. Thirdly, procedural simplification must be done to reduce the time taken for the issuance of policies which must appear to be customer-friendly. Fourthly, possibilities of tie-ups of exporters with reputed export consulting firms or consultants, logistics companies, transport operators along with industry associations like ACMA, EEPC, Chemexcil, Rubber Industries Association, etc, for better marketing of exports need to be explored. Once such tie-ups materialize, ECGC can consider introducing special credit insurance schemes for members of such reputed industry associations. This would eventually expand business for both exporters and the ECGC. Lastly, the increase in digital presence can be complemented by issuing online policies and providing a selection opportunity to the customer for considering policies as per his need and his ability to pay premium. Also, innovative short-term and medium-term policies can be designed to take care of exigencies like

[2] https://pib.gov.in/PressReleasePage.aspx?PRID=1904401#:~:text=The%20Minister%20urged%20ECGC%20to,services%20and%20in%20goods%20each.

Covid 19 and the consequential loss of business. Thus, better distribution and management of risks, better outlook for many key markets and greater accountability and transparency of the financial statements shown to be the key points of potential improvement in the formulation of ECGC policies.

Chapter 1
Introduction

1.1 Introduction

With a strong belief in exports being a major driver of a country's economic growth and development, many countries in the world have set up their own Export Credit Agencies (ECAs), in order to support and promote their respective export industries. These ECAs have devised comprehensive Export Credit Insurance Schemes, which serve as a major policy tool to mitigate the risks faced by exporters in international markets due to financial, economic and political uncertainties and instabilities and thus enhance their abilities to export. Generally, such export credit insurance covers are either directly provided by public entities or by banks or some agencies on behalf of the government.

Export credit insurance schemes are there both in developed and developing countries. One such institution set up by the Government of India (GoI) in 1957 to promote exports from the country by providing credit risk insurance and related services for exports is ECGC Limited (ECGC), formerly known as Export Credit Guarantee Corporation of India Ltd., wholly owned by GoI. ECGC helps Indian exporters to improve their competitiveness by providing them services like export credit insurance covers for possible credit risks in exporting goods and services. Also, ECGC provides cover to banks and financial institutions against the export credit extended by them to the exporters. Exporters need short-term, medium-term and long-term credit insurance covers depending upon the type of exports they specialise in. The study will cover the businesses of ECGC in different types of insurance covers.

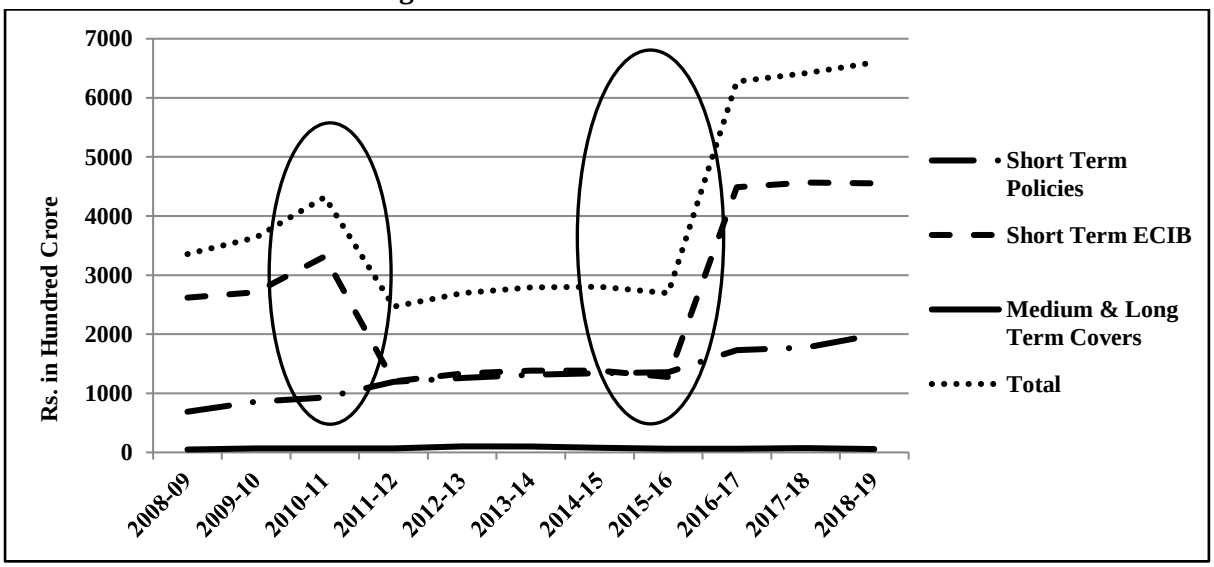
Trends in ECGC Policies/Insurance cover

ECGC offers coverage to both banks and exporters and charges premiums in return for insuring their risks. The trends in the value of business covered by ECGC, the premium charged, and claims paid by it over a period of 10 years have been summarised in the form of various charts.

- **Value of Business Covered**: In figure 1.1 it is very evident that the share of the value of Medium-and-Long term (MLT) covers in the total value of business covered by ECGC is very small and somewhat stagnant over the period 2008-09 to 2018-19, while the share of the value of short-term policies in the total value of business covered is large and rising continuously over this period of past ten years. However, Short Term ECIBs (Export Credit Insurance for Banks) seem to be a

major component of the total value of business covered, and as shown in figure 1.1, not only are the short term ECIBs more fluctuating in nature but also seem to be the cause of fluctuations in total value of business covered. In other words, banks are availing more the facility of ECGC insurance cover than the exporters. So, we need to look for the reasons of firstly, this sudden fall in 2011-12 and equally sudden rise in 2015–16 in the value of business covered by short term ECIBs and, secondly, for the gap between the value of ECGC insurance provided to exporters and banks.

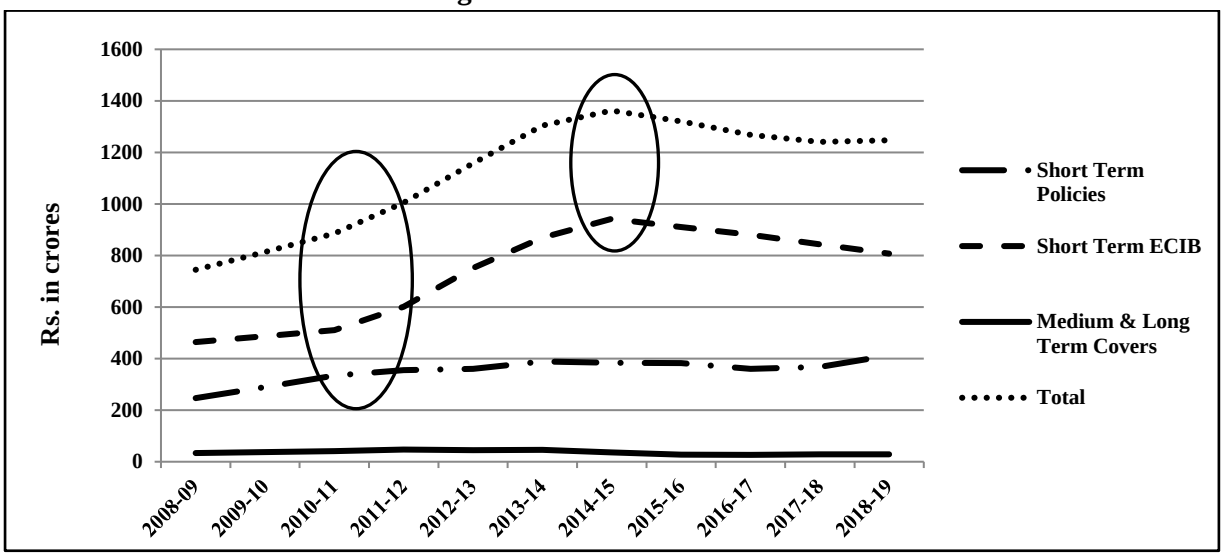
Figure 1.1 Value of Business Covered



Source-ECGC Data

- **Premium Income:** In figure 1.2, it is observed that a major part of the total premium income of ECGC is coming from short term ECIBs, which is a corollary of the fact highlighted in figure 1.1, namely, the short term ECIBs form a major part of the total value of ECGC business covered. Moreover, there is big jump in the share of short-term ECIBs in the total premium income suddenly in 2010-11. The share of short-term policies in the total premium income is much lower than that of short term ECIBs and also more or less stagnant during the ten-year period, from 2008-09 to 2018-19. Finally, the share of medium- and long-term insurance covers in the total premium income earned by ECGC is miniscule and stagnant during the period, 2008-09 to 2018-19. Hence, reasons - political, economic, or other - must be sought for the sudden increase in premium income earned from short term ECIBs since 2010-11. This can possibly shed light on the more substantive question of how can premium income earned by ECGC be increased by increasing the insurance coverage through other short, medium and long term ECGC policies.

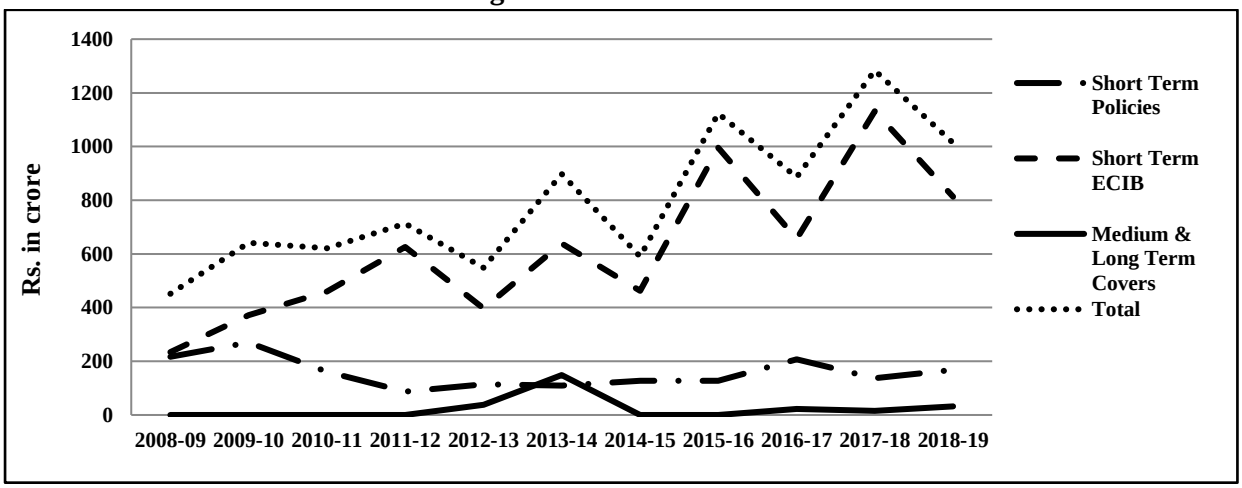
Figure 1.2 Premium Income



Source-ECGC Data

- **Claims paid:** Figure 1.3 shows that the total value of claims paid by ECGC has a rising trend but with wide fluctuations. These fluctuations appear to be the result of similar fluctuations seen in claims through short term ECIBs, as this type of claim accounts for the majority of the total value of claims on ECGC. The percentage of the former in the latter is 52% (i.e., 234.19 / 451.42) in 2008-09, 88% (i.e., 626 / 713.03) in 2011-12, and 89% (i.e., 995.52 / 1122.84) in 2015-16 and finally reaches 80% (i.e., 813.39 /1013.31) in 2018-19. On the other hand, claims paid on account of short-term policies are much less in value and declined sharply since 2009-10.

Figure 1.3 Claims Paid



Source-ECGC Data

Thus, the above three charts clearly show that Short-term ECIBs are the most important in terms of business for ECGC, and thus various business indicators of ECGC fluctuate as per the fluctuations in the business indicators of Short Term ECIBs. In order to understand the impact of ECGC on the export performance of the Indian economy it is very important to analyse and expound the major commercial and political reasons responsible for sudden rise and fall in export insurance covers taken by exporters and how can their confidence be boosted so that they can enhance their export performance by insuring their export credit risks.

1.2 Context

The export business of India is doing well both in the goods and services sector and in 2013 Indian exports accounted for approximately one-fourth of the Indian GDP, though this share of exports in GDP recently dropped to one-fifth. Amiti and Weinstein (2011) argue that financial frictions affect international transactions more strongly than the domestic ones. Risks arising from the vagaries in the domestic product and financial markets is an underlying feature of any business. At the same time, businesses engaged in global trade are not only exposed to local risks but also the international risks, like international financial crisis, currency appreciation/depreciation risks, political risks, etc. Hence, existence of agencies like ECGC to protect exporters from these risks for promotion of Indian exports is necessary. ECGC generally insures losses due to credit risks that may be arising due to commercial or political uncertainties, and, in addition to offering insurance protection to exporters, it assists exporters in various ways. ECGC provides cover to banks and financial institutions against the loans given to the Indian exporters for export purposes and thus facilitates export finance to exporters by banks. It provides guidance in export related activities in various ways, such as, by holding workshops/seminars for exporters and banks, furnishing information on credit worthiness of overseas buyers, creating a platform for assessing country risk to facilitate market selection.

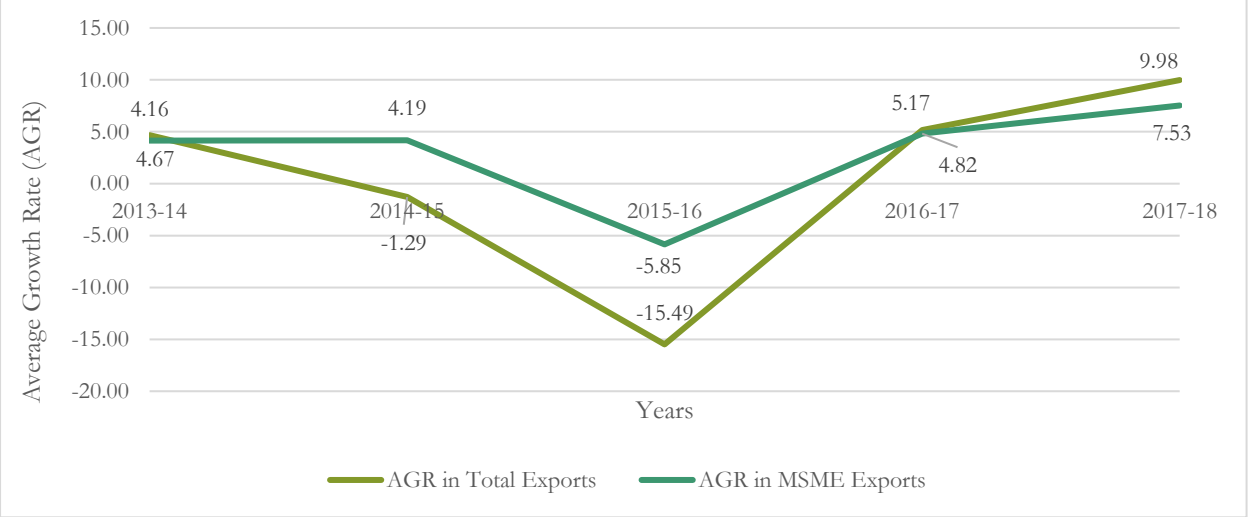
This research study aims at analysing the impact of such export credit insurance schemes provided by ECGC on the export performance of India using both primary and secondary data. The research will also try to analyse which sectors are availing the services of ECGC the most and answer the question of whether there are there any significant improvements in export performance of the sectors or firms availing the ECGC services in comparison to those who are not doing so. And finally, the performance and functions of ECGC will be compared with

ECAs of other nations with a view to learn what changes can be made in the former's policies to improve the export performance of the country.

1.2.1 Trends in MSMEs Growth

The role of micro, small and medium enterprises (MSMEs) in the economic and social development of India is well established. As per the NSSO survey 2015-16, the total number of MSMEs in India are around 6.30 crore (which is 98.50% of all the industrial units in India) employing over 111 million persons. With almost 51 percent of the MSMEs based in rural areas, the sector contributes towards the economic empowerment and social inclusion of the marginalized through the generation of employment. It is the second largest employer after agriculture. The MSME sector accounts for 45 % of total industrial production, 40% of total exports and contributes 30% of the country's GDP. The figure1.4 shows the trend in growth of MSME exports is in line with the total exports of the country. The MSME exports grew by 4.19% in 2014-15, which declined to -5.85 % in 2015-16. During the same period, total exports also declined from -1.29% to -15.49%. During 2016-17 and 2017-18 there was positive growth in case of both MSME exports and total exports.

Figure 1.4 Export growth of MSMEs in comparison to total exports



Source- RBI and DGCIS

As per the Index of Industrial Production (IIP), there are approximately 21 sectors and over 7,500 commodities produced by the MSMEs. The significance of the sector is evident from the government's numerous initiatives to boost its growth for overhauling the entire MSME ecosystem towards making it more robust, competitive, and resilient in the national as well as the global scenarios.

The MSME sector has demonstrated remarkable resilience in the face of trailing global and domestic economic circumstances. The major challenges facing this sector require targeted policies and institutional interventions in the areas of infrastructure development, formalisation, technology adoption, backward and forward linkages, credit gap reduction and timely payments to MSMEs and their effective implementation. Government interventions have so far tended to be supply-side oriented and unable to effectively meet the challenges arising due to demand conditions in the market.

However, from the aspect of exporting goods and services in the international market, this sector faces several challenges, such as, limited information about products & services in demand in the foreign markets, difficulties in obtaining access to affordable trade finance, high logistics costs – airport, shipping costs and other transport-related costs, time-consuming and cumbersome documentation process required to comply with foreign and domestic market regulations, etc.

Impediments in accessing credit handicap the ability of MSMEs to connect to global value chains (GVCs). Access to insured trade credit is a dire need to meet the challenges posed by hard bargaining by buyers for steep discount, default in payments, higher cost of production, tighter lending norms against uninsured payments and others. In such scenarios, financial instruments such as Trade Credit, Trade Credit Insurance, Cash in Advance and others help MSMEs to certain extent[3].

1.3 Trade effects of Export Credit Insurances: Review of Literature

The theoretical argument for the likely favourable effects of export credit insurance on exports is a simplistic one. Export credit insurance can be informally thought of as a reduction in both fixed and variable trade costs, which would imply an increase both in the extensive and the intensive margins of international trade in standard new trade theory models with heterogeneous firms (Melitz, 2003). Reduction in costs for exporters would naturally enhance their competitiveness.

Empirically, the role of public export credit insurance in supporting export activity cannot be said to be sufficiently well researched. However, there are several significant firm-level studies on this topic which demand attention.

[3] RBI estimates on access to formal credit.

In a two-stage estimation, Manova (2008) finds that credit constraints reduce firm-level exports of US firms, limit export product variety, and increase product churning for countries with less developed financial markets. Bellone *et al* (2010) link financial factors to a firm's export behaviour for a set of French manufacturers. In addition to differences in productivity, heterogeneity in financial constraints helps to explain the selection of firms into exporters and non-exporters.

Moser *et al* (2008) estimate the effect of public export credit insurance in a static and dynamic panel model for Germany and find a statistically and economically significant positive effect of public export credit insurance on exports. Moreover, political risk turns out to be an important obstacle for exports in this model. Egger and URL (2006) also find a mildly positive effect of public export credit insurance on exports. Using disaggregated panel data for goods exports from Austria over the period 1996 to 2002, they show that public export credit insurance has a less than proportional positive effect on international trade volume. They predominantly affect the country's structure of foreign trade but leave the industry specialisation almost unchanged.

Chor and Manova (2012) studied the collapse of international trade flows during the global financial crisis using detailed data on monthly US imports. They show that credit conditions were an important channel through which the crisis affected trade volumes. Countries with higher interbank rates and thus tighter credit markets exported less to the US during the peak of the crisis. This effect was especially pronounced in sectors that require extensive external financing, have limited access to trade credit, or have few collateralizable assets. Their quantitative estimates for trade volumes underscore the large real adverse effects of financial constraints on exports and the potential gains from policy intervention to resolve these constraints. Policies for export credit insurance are studied more directly by Heiland and Yalcin (2021). They argue that support to credit-constrained exporters comes mostly from state credit insurance as private financial agents are limited in their abilities to provide insurance due to costs of risk diversification, liquidity management, and coordination among creditors.

Moreover, government's greater effectiveness in recovering claims in foreign countries endows the state with a cost advantage in dealing with the risks involved in large export projects. These hypotheses were tested using monthly firm-level data combined with official transaction-level data on covered exports of German firms. Suggestive evidence was found that positive effects on trade are due to mitigated financial constraints: State credit insurances

benefit firms that are dependent on external finance, if the value at risk which they seek to cover is large, and at times when refinancing conditions in the private financial market are tight. Similar results are found in another empirical study on Germany by Felbermayr *et al* (2013). By exploiting the sectoral structure of a rich three-way panel data set of German exports, they find a robust export-increasing effect of insurances, which is larger for export markets with poor financial institutions and in sectors that rely more on external finance. 2015).

Badinger and Url (2013) analyse a cross-section of 178 Austrian exporting firms, some of which acquired insurance covers for the year 2008, and found that there are economically and statistically significant positive effects of export credit insurance usage on firm-specific export performance. Findings of various other studies are supportive of this positive relationship between export credit insurance usage and export performance. (Berman and Héricourt, 2010, Forlani, 2014, Muûls, 2015, Minetti and Zhu, 2011).

Extension of trade credit to exporters by financial intermediaries is not discrimination-free. Financial intermediaries usually require a strong balance sheet or particular collaterals before providing credit to exporters. Such requirements may disfavour less productive firms and firms in industries with less collateral (OECD, 2013, USITC, 2010, Manova, 2013). Smaller firms may be particularly disadvantaged in accessing external financing (Riding et al., 2012, Ang, 1991, Beck and Demirguc-Kunt, 2006, Carpenter and Petersen, 2002). The less productive, less collateralised, and smaller firms may need trade credit to engage freely in trade but are unable to obtain it. Hence, they restrict their trade to "safe" counter-parties (Eck et al., 2015). The least productive firms are forced to abstain from international trade altogether. Also, as trade finance tends to dry up during financial crises, facilitating trade finance via insurance may become especially important in such times (Ahn et al., 2011). Recently, Lodefalk, *et al* (2018) found how credit insurance improves firms' exports, jobs and value added by using uniquely detailed and exhaustive transaction-level panel data on credit insurance and granular information on trade as well as on exporters and foreign buyers, by performing difference-in-difference matching estimations. Overall, the evidence suggested a causal link between credit insurance and firm export performance.

Summing up, there are strong theoretical reasons, along with some supportive empirical evidence, to assume that public export credit insurance help to overcome market failures related to asymmetric information by providing credit insurance where no private markets exist. Credit insurances, therefore, mitigate financial constraints, facilitate the provision of trade credit to

exporters and their customers, and reduce uncertainty and trade costs, such that one would expect an effective system of public export credit insurances to promote international trade both at the intensive and extensive margin.

However, in the Indian case, the studies have been rather scarce in proving the impact of credit insurance schemes on exports; they are scarcer for medium and small enterprises. This raises the question of their effectiveness as a tool for promoting international competitiveness and exports.

1.4 Terms of Reference (TOR)

1. To classify sectors and markets for Indian exports with a view to identify the market for insurable exports.
2. To analyse the export orientation of firms in developing their competitive positions in the world from the standpoint of nature of risks undertaken and challenges faced in reaching out to foreign markets.
3. To identify and examine the determinants of ECGC usage by firms in India.
4. To critically examine the impact of ECGC insurance cover on export performance of firms.
5. To compare the performance of ECGC with its peers on select identified parameters and operational environment.
6. To evolve a comprehensive strategy for ECGC to improve its effectiveness and availability of insurance covers to export-oriented firms.

1.5 Methodology and Data Sources

To address the ToR, research on primary and secondary data was carried out. Export performance was considered as a function of the rise in values of exports and also in terms of accessing new markets by the exporting firms. To identify the determinants of ECGC usage by firms in India, a primary survey using in-depth interviews/surveys was carried out. The primary survey was extremely helpful in analysing the export orientation of firms and the risks faced by them. From the responses in the primary survey, the impact on export performance of ECGC policies and a comprehensive strategy for ECGC has been elicited. The phase-wise methodology is as follows:

1.5.1 Phase-1: Primary data research

In-depth interviews/surveys with various MSME exporters and ECGC officials were conducted to understand:

- The sector-wise and state-wise MSME clusters.
- The size of firms and the distinction between policy & non-policy holders.
- The factors linking export credit and export performance by exports.
- The factors determining the usage of ECGC policies by collecting specific items of information about the various ECGC policies undertaken by the firms.
- The major challenges faced in obtaining the claims.
- The awareness and availability of ECGC policies
- The details of insurance schemes impacting export performance of MSMEs.
- Credit risk management practices
- Feedback from policyholders and non-policyholders for improvement in various ECGC policies.
- Policy prescriptions and action plans for ECGC to boost the potential of Indian MSMEs to export.

1.5.2 Phase-2: Secondary data research

- After the classification of MSMEs, the contribution of Indian MSMEs in the production of top exporting sectors was ascertained.
- Analysing the trends and patterns of ECGC insurance covers to exporters.
- The composition and destination of Indian exports and the sectors for which ECGC insurance covers are mainly preferred were identified.
- At the sectoral level, with the use of descriptive statistics, the export performance of all those sectors availing the benefits of ECGC and those sectors were compared for different years.
- Trade competitiveness indicators, mainly the intensive and extensive margins were used to analyse the export performance of different sectors.
- Secondly, the empirical investigation in the form of a dynamic panel econometric analysis was undertaken for the sectors considered for the assessment of the impact of

ECGC cover on exports. Lagged export propensity was included as a dependent variable to capture the path-dependency of exports.

- Further, the sectors were classified into three categories, namely — ECGC cover impacting export propensity, export propensity impacting ECGC cover and both ECGC cover and export propensity reinforcing each other. This made possible an informed and focussed discussion on policy making for individual sectors.
- Also, the stochastic frontier analysis was used to compare the technical efficiency of MSME firms undertaking ECGC cover with those who were not.
- The extent of reliance on ECGC cover of the top efficient firms were compared with that of the least efficient firms (see section 3.4).

1.6 Analysis and Recommendations

- Based on a detailed analysis of the information collected during research, recommendations have been made for addressing the challenges faced in attempting to improve MSME's export competitiveness.
- Policy measures have been suggested to ECGC to make the credit insurance covers more attractive for enhancing exports especially for the MSME sectors.

Chapter 2

Exports and Markets for Insurable Exports

2.1 Introduction

Although the use of export credit insurance is associated with reduction in fixed costs in terms of effort, administrative procedures, and costs of obtaining information, it is plausible to assume that these costs are less relevant for larger firms (Badinger and 2013) but are important for smaller firms. Also, the effects of financial constraints tend to be more severe for MSMEs. Hence, export insurance can provide greater relief to these enterprises (Chauffour and Farole, 2009). Further, as export insurance covers mainly commercial and political risks, which are greater for the medium, small and micro firms, it aids mostly these MSMEs in increasing the probability to export their products to a foreign destination (Natasha et.al, 2018).

2.1.1 Trends & Pattern of MSME Sectors

1. Assessment of exports of Sectors Insured by ECGC

According to the data provided by ECGC on Short-term Policy holders, MSMEs pertaining to the sectors that have been insured are presented in table 2.1, where the maximum export growth pertains to Engineering goods, chemical & allied products, handicrafts and agriculture and allied products.

Table-2.1 Growth in Value of Exports of Sectors Insured by ECGC

Sector	CAGR (2007-2017)
Agriculture and allied products	10.6%
Engineering goods	13.23%
Chemicals and allied products	12.07%
Textile & articles	6.59%
Leather and leather manufactures	6.46%
Handicrafts	11.35%
Gems & jewelry	7.09%
Miscellaneous	9.36%

2. Trade Margins

The export credit insurances can be informally thought of as a reduction in both fixed and variable trade costs, which would imply an increase both in the extensive and the intensive margins of international trade in standard new trade theory models with heterogeneous firms (Melitz, 2003). Using these concepts, export growth for different trade margins is explained for the MSME sectors.

2.2 Identification of India's Export Sectors and Markets

2.2.1 Data and Variables

The sector-wise classification of MSMEs is neither given by the Ministry of MSMEs upfront, nor has there been any recent primary survey pertaining to MSMEs which could aid in picking out the sectors. However, the definition of expenditure on plant and machinery given by the Ministry of MSMEs is used to firstly classify firms belonging to manufacturing sector according to the MSME definition of June 2020, where these firms are aggregated into various sectors.

The major sectors chosen for the analysis at NIC 2-digit classification are: (i) Manufacture of food products, (ii) Manufacture of textiles, (iii) Manufacture of chemicals & chemical products, (iv) Manufacture of pharmaceutical products, (v) Manufacture of Base metals, (vi) Manufacture of rubber & plastic products, (vii) Manufacture of computer, electronic & optical products, (viii) Manufacture of electrical equipment, (ix) Manufacture of machinery and equipment and (x) Manufacture of motor vehicles and trailers.

The analysis pertains to a 10-year period, from 2007-08 to 2017-18 with sector-wise firms as the cross-section for each of the ten years leading to a panel data. The dependent variable in this regression analysis is the export intensity (i.e., value of exports as a proportion of sales) of firms the main explanatory variable of interest is expenditure on other insurance premium as a proportion of sales. This variable according to CMIE pertains to expense incurred on paying insurance premium to ECGC. All variables are sector-specific and listed in table 2.2.

Table 2.2 Description of Variables

S.No.	***Dependent Variable (Regressand)***	***Description***
1.	Export Intensity ($EXPINT_{it}$)	Value of Exports as a proportion of sales
	Explanatory Variables (Regressors)	*Description*
1.	Other Insurance premium ($ECGC_{it}$)	Expenditure on insurance premium as a proportion of sales
2.	Import intensity of capital goods ($IMPCG_{it}$)	Expenditure on import of capital goods as a proportion of sales
3.	Import intensity of final goods ($IMPFG_{it}$)	Expenditure on import of final goods as a proportion of sales
4.	R&D intensity ($R\&DINT_{it}$)	Expenditure on research & development as a proportion of sales
5.	Import intensity of raw material ($IMPRM_{it}$)	Expenditure on import of raw material as a proportion of sales

2.2.2 Empirical specification

It is the ECGC Ltd. which mostly provides export credit insurance to Indian exporters against non-payment risks. The first explanatory variable, therefore, is "other insurance premium ($ECGC_{it}$)", which is exporters' expenditure on ECGC insurance premium as a proportion of sales.

In studying the impact of taking ECGC covers for exports through a regression analysis, there arises an endogeneity issue wherein the sectors with greater exports are more likely to apply for the ECGC cover overtime. This creates a measurement error and because of this, to estimate dynamic models of panel data, the differenced Generalized Method of Moments (GMM) from Arellano and Bond (1991) is used. Because the effects of an economic policy unfold over time, it is important to analyse economic policymaking in a dynamic framework.

Hence, we include a lagged dependent variable, export intensity, among the explanatory variables on the right-hand side. By including a lagged dependent variable, the standard

estimators become inconsistent, and the consistent estimators can be found using the GMM estimator. The dynamic panel specification that we estimate is as follows:

$$EXPINT_{i,\,t} = \alpha_1 EXPINT_{i,\,t-1} + \alpha_2 ECGC_{it} + X_{it}\beta + \delta_i + \mathcal{E}_{it} \qquad \ldots (1)$$

where $EXPINT_{i,\,t}$ represents export intensity for sector i at time t. $ECGC_{it}$ represents the ratio of expenditure on insurance premium to sales. *Xit* represent control variables to test the robustness of the model. δ_i represent the individual fixed effects specific to each sector and it is constant in time. $\mathcal{E}_{it}$ is random disturbance term.

For estimating equation (1) by GMM, the first step involves removing the individual effects by creating a differenced version of equation (1):

$$(EXPINT_{i,\,t} - EXPINT_{i,\,t-1}) = \alpha_1 (EXPINTi_{,\,t-1} - EXPINT_{i,\,t-1}) + \alpha_2 (ECGC_{i,\,t} - ECGC_{i,\,t-1}) + \beta (X_{it} - X_{it-1}) + (\mathcal{E}_{it} - \mathcal{E}_{it-1}) \qquad \ldots . (2)$$

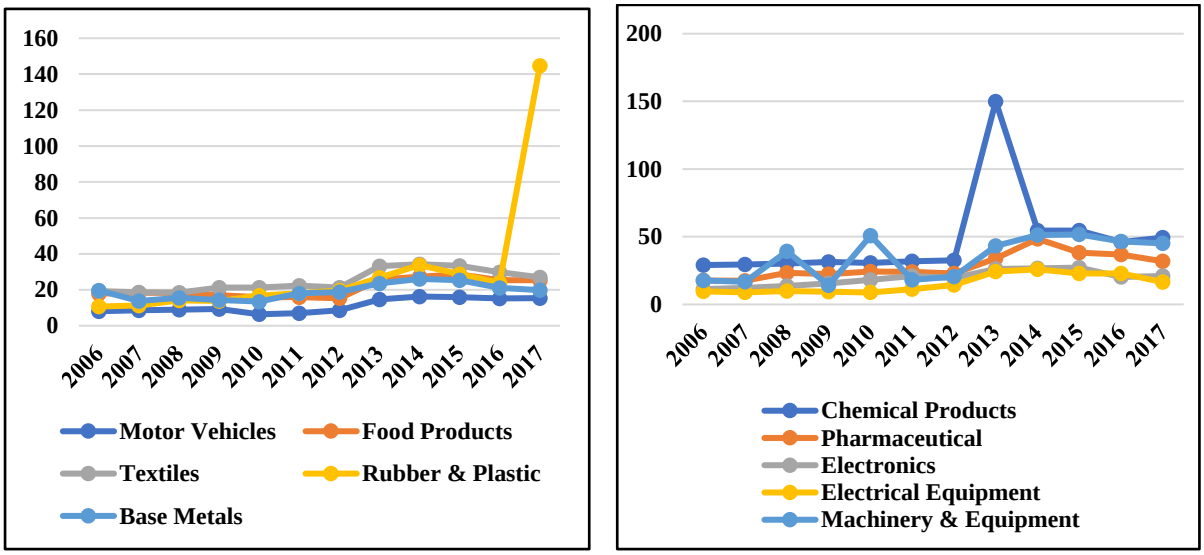
In the differenced equation (2), there still exists the problem of correlation between the errors and the independent variables, which has to be corrected by instrumenting. Since finding valid external instruments is not easy, GMM draws instruments from within the dataset, as lags of the instrumented variables. More precisely, the instruments used are the lagged values of the dependent variables and the lagged values of the independent variable in case of endogeneity. The normal assumption to be imposed is the exogeneity of instruments confirmed by Sargan test.

2.3 Descriptive Analysis

The Table 2.3 provides the mean values of the various indicators used for analysing ten different sectors corresponding to the maximum number of MSME firms. Considering first the dependent variable, on an average the export intensity ($EXPINT_{it}$) is relatively higher for the following three sectors: manufacture of pharmaceuticals (sector iv), textiles (sector ii) and rubber & plastics (sector vi). On the other hand, export intensity was least for manufacture of electrical equipment (sector viii) and motor vehicles (sector x). Turning to the explanatory variables, the expenditure on other insurance premium variable ($ECGC_{it}$) capturing the effect of expenditure on ECGC cover, on an average was high for manufacture of textiles (sector ii), pharmaceuticals (sector iv) and food products (sector i). This indicates that sectors with high export intensity on an average tend to undertake more amount of ECGC cover and/or sectors that are already taking ECGC cover tend to export more.

In figure 2.1, the export intensity of different sectors is presented. Among all the low-tech (sectors i and ii) and medium-tech (sectors iii, v, vi, viii, ix and x) sectors, almost a similar pattern is observed over the 10-year period. Moreover, it's the export of rubber & plastic, a medium-tech sector, which shows a clear jump in 2017. Both the low-tech sectors, i.e., textile and food sectors, also had high exports during the same time-period. Among the medium-tech sectors[4], chemicals and chemical products (sector iii) has the maximum export intensity. On the other hand, medium-tech sectors, such as, electrical equipment comprising of electric circuits, motors, generators (sector viii) and high-tech sectors like electronics, computer & optical products (sector vii) have a low export intensity throughout the ten-year period.

Figure 2.1 Export Intensity of Sectors

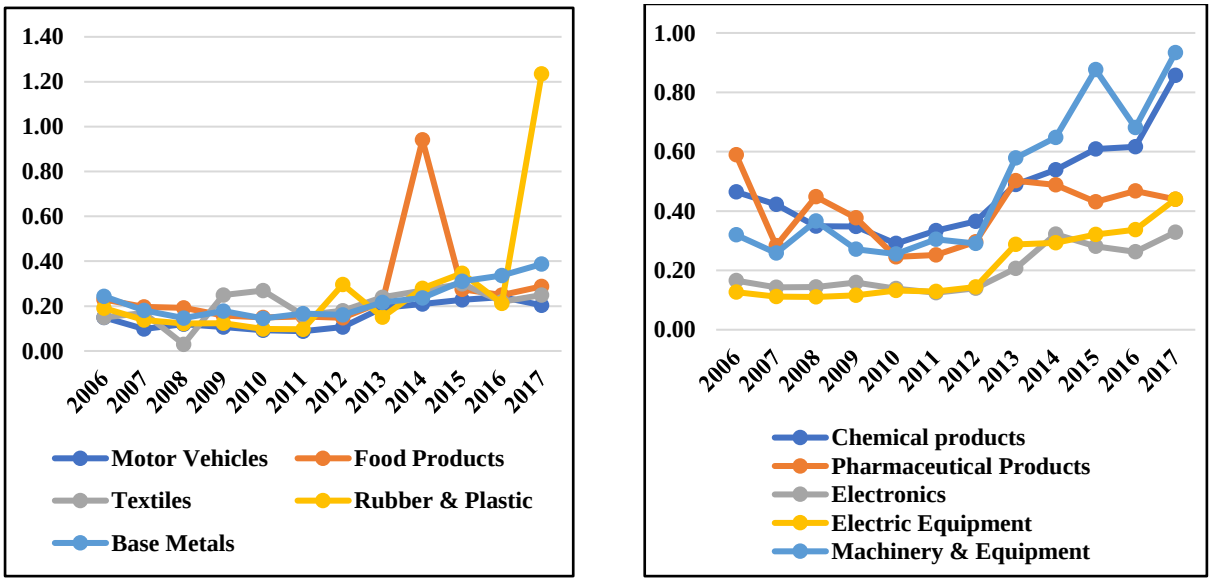


Source-Prowess, CMIE

In figure 2.2, the sectoral performance in terms of undertaking ECGC cover captured through expenditure on other insurance premium variable is presented. As can be seen, low-tech sectors like food and textiles spend the most on ECGC cover. Among medium-tech sectors, a rising trend can be observed for all the sectors, especially for machinery & equipments and chemical products. Rising trend is also seen for both the high-tech sectors - electronics and pharmaceuticals. Thus, except for the medium-tech machinery and equipment sector which has a low export intensity despite high expenditure on other insurance premium, sectors with relatively high export intensity also spend more on the other insurance premium variable.

[4] OECD classification of technology industries https://www.oecd.org/sti/ind/48350231.pdf

Figure 2.2 Sectoral expenditure on ECGC Insurance Premium



Source-Prowess, CMIE

Taking account of the other variables, (from Table 2.3) the import intensity of capital goods for the manufacture of machinery and equipment is maximum on an average whereas it is the lowest for the manufacture of food products. Both the import of capital and final goods relates to the import of technology embodied goods. Hence, it is important to look at the import intensities of final goods of the ten sectors. The import intensity of final goods is on an average maximum for manufacture of computer and electronics and is the lowest for manufacture of food products. For import intensity of raw materials too, the highest position is occupied by the computer and electronics sector also imports the maximum raw material inputs, indicating that this sector is heavily dependent on imports for its exports to increase.

The figure 2.3 below, presents the average expenditure on import intensity of raw material, capital and final goods over the time period considered. As can be seen, the import intensity of raw material input is highest among the sectors (especially for chemical products, base metals and electronics sector), except for the capital input for machinery & equipment sector.

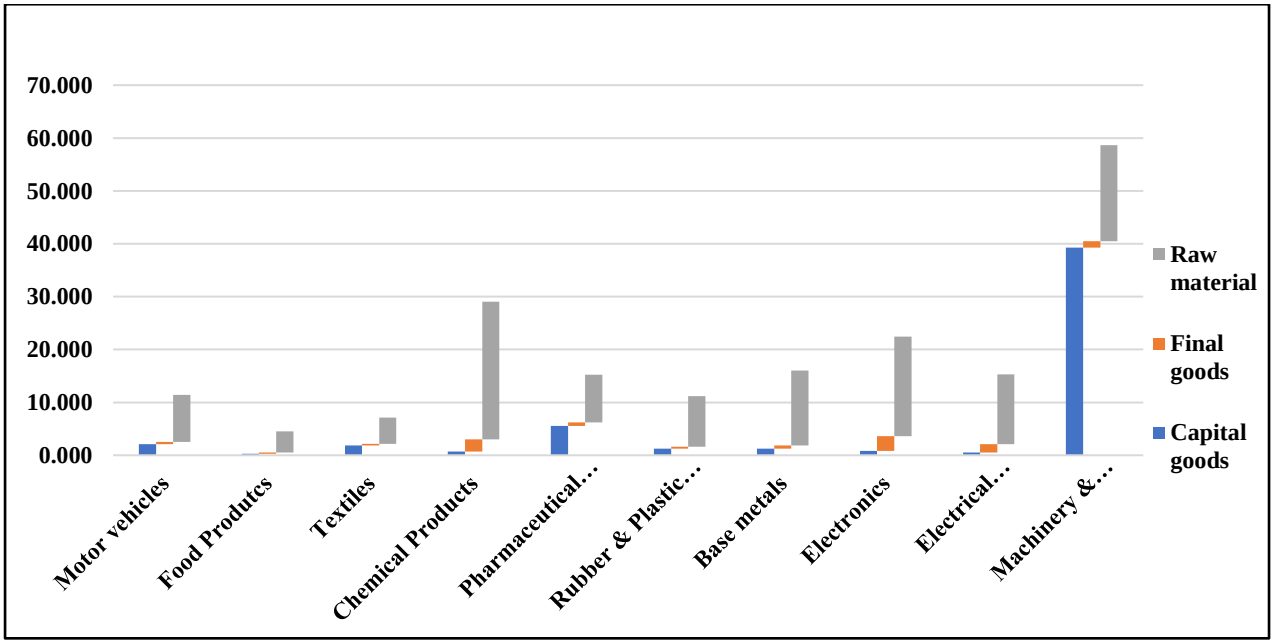
In terms of R&D intensity, the pharmaceutical sector has the maximum value (Table 2.3).

Finally, the foreign ownership share variable reveals that on an average, out of all the ten sectors, the textile sector has the maximum number of foreign firms among the MSMEs. The automobiles sector has the maximum number of domestic firms among the MSMEs.

Although, most of the MSMEs corresponding to different sectors have maximum number of firms incorporated after 1991, it is the pharmaceutical sector with most of the firms incorporated before 1991. However, some firms, such as small-sized or young firms, may be disadvantaged, even if highly productive, either due to the small scale of their current production and trade, which can result in high or even prohibitive average fixed costs in foreign trade, or because of their inability to access external financing (Berman and Héricourt, 2010, Forlani, 2014, Muûls, 2015, Minetti and Zhu, 2011).

On the other hand, being part of a multinational enterprise (MNE) reduces the incentive to use export insurances, as these firms become resource-rich and also due to intra-firm information flows and improved access to information on foreign markets and trading partners.

Figure 2.3 Sectoral Average Expenditure on Imports Intensity of Inputs



Source-Prowess, CMIE

Table 2.3 Summary Statistics-Mean Values

(*Blocks having the blue background contain highest values along rows***)**

Variables	(i) Manufacture of food products	(ii) Manufacture of textiles	(iii) Manufacture of Chemical & chemical Products	(iv) Manufacture of Pharmaceutical Products	(v) Manufacture of Base metals	(vi) Manufacture of rubber & plastic products	(vii) Manufacture of computer, electronic & optical products	(viii) Manufacture of electrical equipment	(ix) Manufacture of machinery and equipment	(x) Manufacture of motor vehicles, trailers
Export Intensity (*Dependent Variable*)	0.1432	0.1612	0.1527	0.1663	0.1073	0.1607	0.1337	0.0805	0.1168	0.0926
Explanatory Variables:										
Expenditure on other insurance premium	0.0018	0.0092	0.0015	0.0023	0.0013	0.0015	0.0014	0.0011	0.0016	0.0013
Import intensity of capital goods	0.0019	0.0120	0.0022	0.0324	0.0069	0.0068	0.0057	0.0026	0.1328	0.0172
Import intensity of final goods	0.0018	0.0019	0.0075	0.0038	0.0035	0.0019	0.0190	0.0085	0.0040	0.0037
R&D intensity	0.0003	0.0016	0.0023	0.0447	0.0004	0.0002	0.0077	0.0010	0.0018	0.0010
Import intensity of raw material	0.0274	0.0320	0.0838	0.0531	0.0796	0.0508	0.1299	0.0691	0.0614	0.0735
Age Dummy D=1, incorporated after 1991, 0=incorporated before 1991	0.5685	0.5419	0.5563	0.5380	0.6292	0.6277	0.6621	0.5969	0.6115	0.6281
Ownership (foreign Share)	7.9963	14.4771	10.7163	13.2957	12.8300	10.4316	7.1063	6.9294	6.8630	6.4223

2.4. Assessment of exports of sectors insured by ECGC

The dynamic panel analysis is mainly conducted to remove the endogeneity issues from the data on exports and other insurance premium variable. The inclusion of the lagged value of the dependent variable helps to better deal with the autocorrelation of the disturbances in the panel estimation, with time-invariant sector characteristics correlated with explanatory variables, and with some regressors that may be predetermined variables rather than strictly exogenous ones. It also helps to infer if there exists export path-dependency (i.e., aggregate exports in various products tend to last once they have started) of firms.

The Sargan test for the over-identification of restrictions, i.e., for checking the validity of instruments reveals that this model does justice to the data. Thus, Table 2.3 provides the estimation of results for ten different sectors with dependant variable taken as the export intensity. The past values of exports certainly impact the present values of exports, as stated by Reinstaller and Reschenhofer (2015), the path-dependencies in systems of production having a dual role of not only being a source of structural lock-in, but also a potential starting point for new developments, could be an important source of competitiveness for traded commodities in the form of learning-by-exporting. In this way, the major sectors like the manufacture of textiles and food products harness the maximum benefit from learning-by-exporting capabilities and techniques. And, thus, any further increase in their export propensity induces them to undertake ECGC cover even more.

For the present regression analysis, we have considered, *inter alia*, lagged values of the expenditure on other insurance premium variable, ECGC, to capture the effect on the sectoral export intensity to the maximum possible extent.

For sectors like manufacture of chemical & chemical products and rubber & plastic products, the lagged value of export intensity has come out to be negative and correlation between ECGC variable and export intensity has come out to be positive, this indicates that rather than the past experience of exporting, it is the present impact of ECGC variable that prods higher export intensity in these sectors. Therefore, the government casts export credit insurance as a useful tool to foster domestic export industries and therefore the economy (In Young, 2014).

For the other six sectors namely, manufacture of pharmaceutical products, base metals, electrical equipment, electronics & computer, machinery & equipment and motor vehicles, the path dependency is significantly positive and even the impacts of both the current and the lagged ECGC variables on export intensity are found to be positive and significantly so. Therefore, for these sectors the relationships between these variables, reinforce each other to promote higher expenditure on ECGC cover and exports.

The extent of import intensity of capital goods provides clues about the firm's affordability of inputs and its performance in financial terms. In any case, finance must be sought for employment of physical capital which necessarily entails risks. Hence capital usage depends on firms' ability to take loans which, in turn, is related to the extent of collateral that a firm can provide to cover risks of default (Bester, 1985). Except for manufacture of pharmaceuticals, textiles and base metals, all other sectors have positive correlation between import intensity of capital goods and export intensity.

The import intensity of raw materials and final goods indicate the firm's position in the value chain. That is, higher the firms on the value chain, the greater is their export intensity and greater the willingness to diversify exports and hence higher will be their usage of export insurances. For sectors like rubber & plastics, base metals and machinery & equipment, the import intensity of both final goods and raw material inputs is positive as well as significantly high, and so is the coefficient of ECGC which is positively and significantly correlated with export intensity.

Finally, for the R&D intensity, the possible explanation is that technologically more advanced firms have a higher motivation for using export credit insurances as these are more likely to boost their export performance. Thus, for the sectors like pharmaceutical, base metals, computer and electronics and machinery & equipment having statistically significant and positive association with exports, the impact of ECGC on export intensity is significantly positive and increasing.

Table-2.4 Result of Dynamic Panel Analysis

Variables	(i) Manufacture of food products	(ii) Manufacture of textiles	(iii) Manufacture of Chemical & chemical Products	(iv) Manufacture of Pharmaceutical Products	(v) Manufacture of Base metals	(vi) Manufacture of rubber & plastic products	(vii) Manufacture of computer, electronic & optical products	(viii) Manufacture of electrical equipment	(ix) Manufacture of machinery and equipment	(x) Manufacture of motor vehicles, trailers
$EXPINT_{it}$ (-1)	0.508*	0.532*	-0.008*	0.091*	0.187*	-0.029	0.401*	0.392*	0.006*	0.296*
$IMPCG_{it}$	0.747*	-0.019	0.494***	-0.272*	-1.001*	0.578	0.749*	0.837*	0.020*	0.018**
$IMPFG_{it}$	2.375*	0.819**	0.019	0.392*	1.801*	29.189*	-0.548*	0.018	1.711**	1.671*
$ECGC_{it}$	-0.017		24.344*			0.049		8.448**	51.712*	27.344*
$ECGC_{it}$ (-1)				0.581*	4.116*		4.138*			
$ECGC_{it}$ (-2)		0.001*								
$R\&DINT_{it}$	-0.573	-0.001*	-1.223	0.133*	27.250*	-5.989*	0.170	-1.486	27.107*	-0.566**
$IMPRM_{it}$	0.027*	0.562*	-0.361	0.690*	0.482*	1.340*	0.568*	0.386*	0.542*	0.428*
Prob(J-statistic) Sargan test	0.242	0.318	0.929	0.256	0.557	0.237	0.543	0.423	0.119	0.410

(*, **, *** values are at 1%, 5% & 10% level of significance)

2.5 Summary

ECGC is a Government of India enterprise for providing export credit insurance covers against credit risk in exports of goods and services. By doing this, it has helped significantly in promoting exports in India. However, there is scope for fine tuning of its policies towards different sectors so as to be more effective in fostering overall export growth in India. In this chapter while highlighting the export growth taking place at both intensive and extensive margins for different sectors, we see that sectors like textile & clothing, base metals, electrical machinery and motor vehicles show positive growth at intensive margin mainly for the category of "existing products growing in the established markets". And it is mainly leather, base metal, electric machinery, motor vehicles and chemical sector showing growth at the extensive margin. Further, a dynamic panel regression model is employed to estimate the impact of expenditure on ECGC insurance cover, import intensity of capital goods, import intensity of final goods, import intensity of final goods and R&D intensity on the export intensity of ten exporting sectors.

Turning to results of the regression analysis of the impact of expenditure on ECGC cover on sectoral export propensity or *vice-versa*, the Table 2.5 provides the summary where the greater and significant coefficients of these variables are taken.

Table 2.5 Sector-Wise Summary

Sectors	ECGC cover impacting export propensity	Export propensity impacting ECGC cover	Both ECGC cover and export propensity reinforce each other
Manufacture of Food Products		✓	
Manufacture of Textiles		✓	
Manufacture of Chemical & chemical Products	✓		
Manufacture of Pharmaceutical Products	✓		✓
Manufacture of Base metals	✓		✓
Manufacture of rubber & plastic products	✓		
Manufacture of computer, electronic & optical products	✓		✓
Manufacture of electrical equipment	✓		✓
Manufacture of machinery and equipment	✓		✓
Manufacture of motor vehicles, trailers	✓		✓

Thus, the sectors which need to get the maximum attention in terms of policy making, belong to the fourth column where both ECGC cover and export intensity impact each other positively for further growth. Although, sectors in the third column are highly-export intensive, a robust targeting by ECGC can be done to further increase their exports. For the sectors which are highly dependent on ECGC cover, mainly chemicals & chemical products and manufacture of rubber & plastics need to be carefully covered by ECGC owing to the immense risks they face from foreign buyers.

This leads to the need of formulating sector-specific policies aiming at facilitating and promoting export performance by careful consideration of the intricacies involved. Every sector is different in terms of relying on export credit insurance, as can be seen from the analysis. The other aspects which are intertwined are in the form of readiness of claim re-payment, credit limit, premium charged etc. The targeting of sectors and providing export credit insurance facilities for their different segments of supply chain can be another way, for example, storage related insurance covers for pharmaceutical sector, helping in inventory management for machinery related sectors and providing coverage of foreign exchange risks. These innovative approaches can be easily adopted by ECGC policies.

Chapter 3: Firm efficiency and Exports of Indian MSMEs: An Empirical Analysis

3.1 Introduction

The present chapter employs the Resource Based View for assessing the determinants of firm level efficiency. The resource-based view suggests that a firm improves its performance by utilising its resources for optimal production (Peteraf and Barney 2003). This view is based on two assumptions, first that firms are heterogenous with respect to resources and their capabilities; second, and resource heterogeneity pattern may be changing overtime. The resources in this view are further divided into tangible and intangible assets. Tangible assets may consist of financial assets like investments, bank deposits, insurance, insurances and physical assets like land, plant, machinery, stocks and equipment's. Intangible assets consist of intellectual property, contracts and networks (Fahy and Smithee 1999). Tangible assets cannot be easily transferred as compared to intangible assets from one unit to another and are difficult to duplicate, measure and trade. While capability of a firm is referred to as the firm's ability to integrate resources for better performance, performance of firms and specifically of the MSME firms can be assessed through various indicators like employment generation, output growth, value and volume of exports and financial barometers (Bartlett, 2004; Chen et al., 2007; Kimura and Kiyota, 2007; Liedholm, 2002; Park et al., 2009; Tambunan, 2008).

Efficiency, whether allocative, i.e., reducing marginal cost to become equal to price (in a perfect market), or technical, i.e., indicating maximum output from a given technology using a minimum quantity of inputs, prevails when firms are operating on the production efficiency frontier (Arunsawadiwong, 2007; Coelli et al., 2005; Herrero and Pascoe, 2002; Murillo-Zamorano, 2004). A firm is technically inefficient when it is located beneath the frontier. the most common approaches for estimating efficiency are Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA) approaches (Coelli, 1996a,1996b; Coelli *et al*, 2005; Mortimer, 2002). On comparing DEA with SFA, it is seen that DEA is a nonparametric approach for measuring technical efficiency by using linear programming to construct a production efficiency frontier while SFA is a parametric approach and it estimates production function statistically (Assaf, 2007; Coelli, 1996b; Coelli et al., 2005; Cooper et al., 2006; Kontodimopoulos *et al*., 2010; Lee, 2011, 2013, Admassie and Matambalya, 2002; Arunsawadiwong, 2007; Murillo-Zamorano, 2004; Vu, 2003; Zahid and Mokhtar, 2007).

DEA employs a deterministic approach and, therefore, does not incorporate random errors, while SFA, is a statistically tested measure of efficiency which accounts for random shocks outside the firm as well as firm specific inputs and characteristics that may influence the output of the firm, and is also consistent with the theory of production function (Coelli, 1996a; Coelli et al., 2005; Cooper et al., 2006; O'Donnell et al., 2009; Le and Harvie, 2010; Major, 2008; Wadud, 2003). Hence, Stochastic Frontier Analysis (SFA) is preferred as it is based on both sound theory and empirics.

Export credit insurance can be informally thought of as a reduction in both fixed and variable trade costs, which would imply an increase in both the extensive and the intensive margins of international trade in standard new trade theory models with heterogeneous firms (Melitz, 2003). Credit constraints reduce firm-level exports, limit export product variety, and increase product churning for countries with less developed financial markets. Hence, heterogeneity in financial constraints is an important factor in the explanation of the division of firms into exporters and non-exporters (Bellone et al., 2010; Manova, 2008). Though the role of public export credit insurances in facilitating export activity is not well researched, it has been shown that political risk has a detrimental effect on international trade (Moser et al., 2008; Egger and Url, 2006) which may be averted by export credit insurances. As credit constraints strongly affect exports, export credit insurances may lead to a more than proportional increase in exports of firms (Chor and Manova, 2011; Heiland and Yalcin, 2015; Felbermayr et al., 2012; Badinger and Url, 2013; Magnus, et al, 2018).

The relationship between exporting and productivity is treated as synonymous with the relationship between efficiency and productivity. Exporting enhances productivity and efficiency of firms by either learning by exporting (Bigsten and Soderbom 2006; Wagner, 2007 and 2012; Martins and Yang, 2009) or by competing with exports from highly productive firms from other countries (Melitz, 2003; Melitz, & Ottaviano, 2008). Some firms, such as small-sized or young firms, may be disadvantaged, even if highly productive, either due to the potentially small scale of their involvement in foreign trade, which can result in high or even prohibitive average fixed costs in foreign trade, or because of their inability to access external financing (Berman and Héricourt, 2010, Forlani, 2014, Muûls, 2015, Minetti and Zhu, 2011).

However, to obtain export credit insurances, a strong balance sheet or a particular type collateral maybe required which may disfavour less productive firms and firms in industries with less collateral (OECD, 2013, USITC, 2010, Manova, 2013). Smaller firms may be particularly disadvantaged for being liquidity constrained and having difficulties in accessing external financing (Riding et al., 2012, Beck and Demirguc-Kunt, 2006, Carpenter and Petersen, 2002). The less productive, less collateralised and smaller-sized firms may not have the required trade credit to engage in competitive foreign trade. Hence, they are compelled to restrict their trade to "safe" counter-parties (Eck et al., 2015). The least productive firms abstain from foreign trade altogether. Also, facilitating trade finance via insurances may be especially important in financial crises, as trade finance is more important in foreign than in domestic trade and as trade finance tends to dry up during such crises (Ahn et al., 2011).

Hence, there are strong theoretical reasons, along with some empirical evidence, to assume that public export credit insurances help to overcome market failures arising from asymmetric information by providing insurance where no private markets exist. They, thereby mitigate financial constraints by facilitating the provision of trade credit to exporters, and thus reduce uncertainty and trade costs, to promote international trade both at the extensive and the intensive margins. However, in the Indian case, studies have been rather scarce in proving the impact of credit insurance schemes on exports and that too for medium and small enterprises. This raises the question of the effectiveness of such schemes as a tool for promoting international competitiveness and exports.

3.2 Methodology

For investigating the relationship between export credit insurance covers and participation in exporting, we perform a stochastic frontier analysis (SFA) of the efficiency of MSME firms. The SFA employs a parametric approach and statistically tests the estimated relationship between inputs and outputs based on known functional forms. In SFA, we can also simultaneously estimate a stochastic frontier production function and a technical inefficiency effects model.

3.2.1 The analytical model

A two-stage approach is adopted in this study where in the first stage, firm technical inefficiency scores are estimated for the sample of MSME firms using a stochastic frontier production function based on the Cobb-Douglas specification (Battese and Coelli, 1992; Kumbhakar and Lovell, 2000; Alvarez and Crespi, 2003).

In the second stage, the estimated technical inefficiency scores are regressed against hypothesized explanatory variables to estimate the technical inefficiency effects model (Battese and Coelli, 1992; Battese and Coelli, 1995; Kumbhakar and Lovell, 2000; Admassie and Matambalya, 2002; Alvarez and Crespi, 2003; Kim, 2003; Coelli *et al*., 2005; Amornkitvikai and Harvie, 2011;). The regressions of the two stages are in fact estimated simultaneously using the econometric package FRONTIER version 4.1 [5].

I First Stage

A three-input and one output Cobb–Douglas production function in logarithmic form is estimated from cross-sectional data and is expressed as follows:

$$\ln Y_i = \beta_0 + \beta_1 \ln(K_i) + \beta_2 \ln(L_i) + \beta_3 \ln(RM) + (V_i - U_i) \quad (1)$$

$i = 1,\ldots, N,$

where:

Subscript i refers to firms,

N = Total number of firms in the sample,

Y_i = value of output of firm i,

K_i = the net value of fixed assets of firm i,

L_i = the total number of employees of firm i,

RM_i = the material input of firm i,

V_i = a random error term for firm i. V_i is assumed to be an independently and identically distributed normal random variable with zero mean and variance, σ_v^2, and,

U_i = a non-negative random variable for firm i, accounting for technical inefficiency in the stochastic frontier production function and is assumed to be independently distributed such that U_i is defined by the truncation of the normal distribution with mean μ_1 and variance σ_u^2,

V_i and U_i are also assumed to be independently distributed for all firms (Battese and Coelli, 1995; Coelli, 1996a; Coelli *et al*., 2005). If U_i is equal to zero the firm is defined as being totally technically efficient and is at its maximum output level given the inputs used. If Ui is greater than zero the firm is defined as being technically inefficient (Coelli, 1996a; Kumbhakar and Lovell, 2000; Tran *et al.*, 2008). Here, β_0 represents the intercept term, β_1, β_2 and β_3 represent the coefficient estimates of capital, labor and material inputs.

II Second Stage

[5] A software package, FRONTIER 4.1 developed by Coelli (1996) for simultaneous estimation of the stochastic frontier production function and the technical inefficiency effects model commonly used in the literature is also used in this study.

In the second stage, the U_i s of the stochastic frontier production function of stage-1 are in turn regressed on firm-specific input variables for the sample of Indian MSME firms. The explanatory variables (quantitative and categorical) in this regression are the following: (1) age of the firm (learning by doing hypothesis), (2) firm ownership type (domestic or foreign), (3) intensity of expenditure on marketing & advertising, (4) disembodied technology imports intensity, (5) R&D expenditure intensity, (6) export dummy capturing exporting or non-exporting type of firm, (7) interaction of export dummy (6) with spending on other insurance premium variable, (8) forex earning as a proportion of the total income of the firm, (9) raw material imports intensity (10) capital goods imports intensity. Table 3.1 below gives the elaborate definitions of these variables and their expected signs.

The maximum likelihood method is used to analyze the coefficients of the stochastic frontier production function and technical inefficiency effects model. The maximum likelihood function is defined in terms of the variance parameters as follows (Battese and Corra, 1977; Coelli et al., 2005):

$$\sigma^2 \equiv \sigma_v^2 + \sigma_u^2 \quad \text{and } \gamma \equiv \sigma_u^2/\sigma^2 \qquad \text{…….(2)}$$

where:

σ_v^2 = a random error variance;

σ_u^2 = a technical inefficiency effects variance.

γ represents the share of technical inefficiency in the overall residual variance. Value of γ being close to zero means that deviations from the frontier are largely attributable to noise, whereas a value close to unity indicates that deviations from the frontier are largely attributable to technical inefficiency (Coelli et al., 2005; Tran et al., 2008).

3.3 Data and Variable Construction

3.3.1 Data Sources and Description of Variables

The empirical estimation uses firm-level data taken from the Prowess IQ, online corporate database (Centre of Monitoring Indian Economy) for the years 2007-08 and 2017-18. According to the definition given by Ministry of MSMEs, a sample covering micro, small and medium enterprises is taken. This definition which got revised in June 2020, segregates firms according to the gross investment in plant and machinery. According to the new categorisation, micro enterprises are those with investment less than Rs one crore; small enterprises are the ones with investment less than Rs 10 crores, and, finally, firms with investment less than Rs 20 crores are identified as medium enterprises.

To capture the impact of ECGC variable on export performance of MSMEs, we consider "expenditure on other insurance premium" variable as it proxies the involvement of firms undertaking ECGC policy. At 4-digit National Industrial Classification 2008 (NIC-2008), the total number of Indian manufacturing MSMEs included in the years 2007-08 and 2017-18 are 3556 and 3646, respectively. Almost 50% of the firms got deleted because of the misreporting of a major variable of interest, namely, expenditure on other insurance premium.

Size: One of the most important determinants of the innovative activities is the size of the firm. We have disaggregated the firms according to the investment in plant and machinery. Because of the existence of scale economies (Cohen & Levinthal, 1989), the large firms are able to spread the fixed cost of capital over large sales volume, thus reducing the per unit fixed cost substantially. Hence, it is reasonable to expect a positive relation between firm size and technical efficiency. We have, therefore, estimated the stochastic production function and the inefficiency effects regression model separately for each of the three types – micro, medium and small - of enterprises for the years 2007-08 and 2017-18.

The construction of the dependent variable, Y, for the stochastic frontier production function (stage-1) is explained below.

Output (Y): The database supplies the value of the output of the firm, but we considered production value as the output variable, which consists of total sales in the year and the change in stocks of finished and semi-finished goods.

The explanatory variables of the stochastic production function model are elicited from the database as follows:

1. Capital (K): The database supplies the Gross Fixed Assets (GFA) of the firm and its various components at historical cost. By considering the depreciation of GFA, we calculated the capital stock using the perpetual inventory method.

2. Labour (L): Prowess provides the data on compensation to the employees. We take the average wage from the ASI data for the years 2007-08 and 2017-18 and then divided compensation to the employees by this wage rate. This generated the number of employees for each of the firms. 3. Raw materials (RM): The raw material input includes all expenditure on intermediate inputs and energy consumed in the process of production for each of the firms as provided in Prowess.

The inefficiency effects model (stage-2) is represented by the regression equation below:

$$\underline{U}_i = \delta_0 + \delta_1 (Age_i) + \delta_2 (Ownership_i) + \delta_3 (ExpM\_A_i) + \delta_4 (ExpRoyalty_i) + \delta_5 (ExpR\&D_i)$$
$$\delta_6 (ExportD_i) + \delta_7 (DXECG_i) + \delta_8 (ForexEarn_i) + \delta_9 (ImpCap_i) + \delta_{10} (ImpRM_i) + (\omega_i)$$

…….(3)

Table 3.1 Description of Explanatory Variables of Inefficiency Effects Model

S.No	Explanatory Variables	Description	Expected Signs
1.	Age_i	1- firms incorporation after 1991 (new firms) 0- firms incorporation before 1991 (old firms)	+/-
2.	$Ownership_i$	1- Foreign Promoter 0- Indian Promoter	+
3.	Intensity of expenditure on Advertising and Marketing ($ExpM\_A_i$)	Expenditure on advertising and marketing as a % of net sales	+
4.	Disembodied technology imports intensity ($ExpRoyalty_i$)	Royalties and technical fees paid as a proportion of firm's net sales	+
5.	Intensity of expenditure on R&D ($ExpR\&D_i$)	Ratio of R&D expenditure to net sales	+
6.	Export Dummy ($ExportD_i$)	1- firms exporting 0- firms not exporting	+
7.	Interaction of export dummy and other insurance premium variable ($DXECG_i$)	1- firm's undertaking both exports and spending on other insurance premium. 0- firm's participation in either of the activities or none of the activities.	+
8.	Forex earnings ratio ($ForexEarn_i$)	Ratio of forex earning to total income of the firm	+
9.	Capital goods imports intensity ($ImpCap_i$)	Value of imports of machinery and equipment as a proportion of net sales	+
10.	Raw material Imports intensity ($ImpRM_i$)	Ratio of the value of raw materials imported to the total value of raw materials used in production in a year.	+
	ω_i	is a random error term defined by the truncation of the normal distribution $N(0, \sigma_\omega^2)$	

The construction of the explanatory variables for the inefficiency effects regression model of stage-2 is explained below.

1. Age (Age_i): To control for the effect of experience of the firm on technical inefficiency, the age of the firm is included in the model. Thus, age is expected to have a favourable impact on TE. On the other hand, if a firm's age reflects the plant vintage and/or rigidity in outlook or inflexibility towards the changing market conditions, it is expected to have a negative influence on TE. Thus, *a priori,* the relationship between age and TE cannot be predicted.

2. Ownership ($Ownership_i$): The studies about the innovative activities of MNCs indicate that most of these activities are carried out in their home countries (Cantwell, 1989, Gustavsson & Poldhal, 2003). However, the access to such efficiency enhancing technologies and skills is very much extended to their corresponding MNC affiliates. This leads to higher level of efficiency for FDI affiliated firms in comparison to domestic firms in the industry. We use foreign promoters' share[6] to capture the effect of foreign equity participation.

3. Advertising and marketing intensity ($ExpM\_A_i$): Advertising and marketing are important for creating product differentiation by promoting corporate image, brand equity and customer loyalty. Hence, higher expenditure on marketing and advertising may lead to higher sales, giving an efficiency advantage to a firm.

4. Technology imports ($ExpRoyalty_i$): The major source of technology transfer is through import of technology either in the embodied form or disembodied type. Data on embodied technology consists of imports of capital goods, while that on disembodied technology refers to royalties, licensing, and technical fees paid by domestic firms for using the technology of foreign firms. This explanatory variable, ExpRoyalty, takes into only the latter expenditure, as the expenditure on imports of capital goods is being considered in a separate explanatory variable. Based on the results of the previous studies, Agarwal and Goldar (1999), Driffield and Kambhampati (2003), Parameswaran (2002) and Keshari (2012), we postulate a positive relationship between technology imports and technical efficiency.

5. Research & Development expenditure intensity ($ExpR\&D_i$): Firm's efforts to develop, adapt and absorb new technology is measured by its R&D intensity, i.e., ratio of R&D expenditure to net sales. Higher R&D intensity has been found to lead to higher TE (Driffield and

[6] We define foreign firms as those with foreign promoters' share greater than 10% (Reserve Bank of India's definition).

Kambhampati (2003); Wu *et al*. (2007); Keshari (2012). Therefore, a positive relationship is expected between R&D and TE.

6. Export Dummy ($ExportD_i$): Exporting firms interact with demanding foreign buyers and have to face stiffer competition in foreign markets *vis-a-vis* domestic markets. This leads to immense learning which eventually increases the efficiency of these firms. Many empirical studies have found exporting to have a positive association with technical efficiency (Rankin, 2001; Kim, 2003; Granér and Isaksson, 2009). Here, the export dummy has been taken. We assume a positive relation between exports and technical efficiency of firms.

7. Interaction of exports dummy and ECGC proxy variable ($DXECG_i$): Insurance means protection against future contingent losses. In the business context, it is a contract in which the insured party makes a periodic payment to another party, known as an insurer, with the agreement that the insurer will compensate for or bear the insured's losses, or a part thereof. This contract is called as insurance policy. Thus, to compensate for losses when importer fails to repay exporters, the role of ECGC comes into play. And it is for all these firms, that export and payment of insurance premium is simultaneously accounted by the interactive dummy. *A priori*, we postulate that technical efficiency (TE) should increase if firms take ECGC cover leading to an increase in exports.

8. Ratio of the total forex earnings to the total income of firms ($ForexEarn_i$): Total forex earnings include exports of goods, services and dividend and interest income in foreign exchange. A high ratio of foreign exchange to total income in a company means that it is dependent on export markets to generate revenue. Hence, it will be referred to as an export-oriented firm. Such firms are expected to be more technically efficient than those with no exports.

9. Capital goods imports intensity ($ImpCap_i$): Imported capital goods because they embody the latest technology, enhance the efficiency of the firm employing them. Therefore, a firm with higher capital goods import intensity (i.e., value of imports of machinery and equipment as a proportion of net sales) is likely to boost output proportionately more than it swells costs. Hence, a positive relationship is hypothesized between capital goods imports intensity and TE.

10. Raw material imports intensity ($ImpRM_i$): The import of raw materials also including spare parts and stores, adds to the technological strength of a firm while fulfilling the special quality or production requirements of the final goods which could not be met with domestically produced raw materials (Driffield and Kambhampati (2003); Goldar, Renganathan, and Banga (2004); Ray (2006); Keshari (2012)). Therefore, a firm with higher import intensity of raw materials (i.e., value of raw materials imported to total value of raw materials used in

production) is likely to produce output with greater value addition. Hence, a positive relationship is hypothesized between raw material import intensity and TE.

3.3.2 Descriptive Statistics

Table 3.2 provides the summary statistics of the key indicators included in our empirical analysis. A comparison of the mean values of the following indicators: (i) compensation to employees, (iii) gross fixed assets. (iv) Net sales, and (v) expenditure on power & fuel among MSMEs show that between 2007-08 and 2017-18 the expenditure on these indicators increased. Larger the size of firms, greater is sales and expenditure.

The difference between expenditure on labour and capital by the micro firms is on an average not large, whereas this difference for medium firms is large. For energy consumption, micro and medium firms have huge differences. Apart from showing levels of absolute expenditure, table 3.2 also depicts the expenditure intensity of indicators (i.e., as a proportion of net sales). In 2017-18, the number of foreign firms decreased among MSMEs, the fewest being for micro firms. In the same year, for small sized firms, an overall decline in number of firms was witnessed. This trend could be because of higher number of small firms converting into medium sized firms. Also, in 2017-18, many new MSMEs incorporating after 1991 came into existence.

For small firms, on an average both intensity of R&D and that of import of raw materials increased in 2017-18. But marketing & advertising intensity witnessed a decline in 2017-18. However, on an average the expenditure on other insurance premium and foreign exchange earnings as a proportion of the total income increased in 2017-18.

The micro enterprises relied more on disembodied technology imports than on embodied technology imports. But R&D intensity for the two years considered has remained at the same low level for all the types of firms. The import intensity of raw material although being quite high on an average in 2007-08 has declined in 2017-18 for micro and medium enterprises. The expenditure on other insurance premium increased in 2017-18 for both micro and medium enterprises. However, the number of firms doing exports and paying other insurance premium increased for micro firms but declined for medium firms. The export intensity for medium sized firms also declined in 2017-18. It seems that although the medium firms are major undertakers of ECGC cover, they are not able to achieve much higher export intensities *vis-à-vis* micro and small firms. In comparison to year 2007-08, marketing & advertising as a proportion of net sales for both micro and medium firms witnessed a decline in the year 2017-18.

Table 3.2 Selected Indicators Across Three Of Types Of Firms (Mean Values)

S.no.	Indicators	2007-08			2017-18		
		Micro	Small	Medium	Micro	Small	Medium
(i)	Compensation to employees (in Rs million)	13.11	24	60	41	63	151
(ii)	No. of labourers (L)	14	31	78	45	64	158
(iii)	Gross fixed assets (K) (in Rs million)	22.15	61	234	41	125	353
(iv)	Net sales (in Rs million)	361	510	1048	585.50	927.50	2160
(v)	Expenditure on Power & fuel (in Rs million)	2.21	12.86	40	2.73	15	53
1.	Age group- 0, Before 1991 1, After 1991	0-114, 1-179	0-740, 1-829	0-825, 1-869	0-107, 1-252	0-456, 1-837	0-757, 1-1227
2.	Ownership- 0, Domestic firms 1, Foreign firms	0-291, 1-2	0-1548, 1-21	0-1656, 1-38	0-358, 1-1	0-1278, 1-20	0-1951, 1-23
3.	Mkt & advert. expenditure / net sales (ExpM_A)	0.409	0.192	0.026	0.008	0.007	0.009
4.	Disembodied technology imports intensity (ExpRoyalty)	0.938	0.013	0.008	0.018	0.007	0.009
5.	R&D exp. / net sales (ExpR&D)	0.002	0.001	0.002	0.001	0.003	0.002
6.	Export Intensity (value of exports / net sales)	0.080	0.105	0.146	0.111	0.112	0.114
7a.	Expenditure on other insurance premium (in Rs million)	70.46	1131.21	903.89	126.63	1411.16	1326.94
7b.	No. of firms doing exports and paying other insurance premium	91	588	965	99	469	912
8.	Total forex earnings / Total income (ForexEarn)	0.081	0.109	0.139	0.093	0.439	0.197
9.	Capital goods imports intensity (ImpCap)	0.003	0.006	0.121	0.003	0.003	0.008
10.	Raw material imports intensity (ImpRM)	0.309	0.109	0.139	0.069	0.410	0.092

3.4 Empirical Results

3.4.1 Estimation results for input elasticities, gamma parameters and technical efficiency

Maximum likelihood estimates (MLE) of the parameters of the stochastic frontier production function and technical inefficiency effects models (Eqs. (1) and (3)) are obtained simultaneously using the Frontier Version 4.1 developed by Coelli (1996b).

Table 3.3 presents the results for the size of manufacturing MSMEs in 2007-8 and 2017-18. For 2007-08 both labour (β_2) and raw material inputs (β_3) have positive coefficients and are significant at the 1% and 10% level for micro and small enterprises. Medium sized MSMEs have positive coefficients for capital (β_1), labour (β_2) and raw materials (β_3). All these three coefficients are also statistically significant at 1% level of significance. However, its only small sized enterprises that exhibit marginal increasing returns to scale as the sum of the estimated input coefficients ($\beta_1 + \beta_2 + \beta_3$) is greater than unity (1.04). By contrast, micro and medium sized MSMEs operate around constant returns to scale. While input elasticities differ among MSMEs, the elasticities of raw material inputs (β_3) which includes all expenditure on intermediate inputs and energy consumed in the process of production in the stochastic production functions are much higher than those for capital (β_1) and labour (β_2).

From Table 3.3, it can be seen that the elasticities of labour (β_2) in micro, small and medium sized firms in 2007-08 are equal to 0.20, 0.11 and 0.05, respectively, indicating that micro firms are particularly labour dependent in their production. The elasticities of capital (β_1) in micro, small and medium sized firms in 2007-08 are 0.30, 0.27 and 0.19, respectively. This indicates that micro sized firms are more dependent on capital input than small and medium firms in their production. Raw material input (β_3) elasticities for micro, small and medium sized firms are 0.38, 0.60 and 0.70 respectively. This shows that that medium sized firms are more dependent on raw material input. Further, the inefficiency parameter (γ) for micro, small and medium sized firms are equal to 0.07, 0.05 and 0.04 in 2007-08, respectively, indicating a low degree of technical inefficiency in production for medium sized firms.

The results of estimation by size of manufacturing MSME in 2017-18 indicates that, all inputs, capital (β_1), labour (β_2) and raw material (β_3) have positive coefficients and are significant at the 1% level for all firms. Again, the elasticity of raw material (β_3) input is the highest among different sized firms. For micro firms the elasticities of capital (β_1), labour (β_2) and raw material (β_3) in 2017-18 are 0.12, 0.38 and 0.51 respectively and are significant at the 1% level. Except for capital input, other two inputs have larger contribution to production in 2017-18 in

comparison to 2007-08. Also, these firms now exhibit increasing returns to scale in production as the sum of the input coefficient exceeds unity (1.04).

The estimated γ for micro MSMEs in 2017-18 is 0.05 indicating a low degree of technical inefficiency but is significant at 10% level. For small sized firms the elasticities of capital (β_1), labour (β_2) and raw material (β_3) in 2017-18 are 0.08, 0.21 and 0.61, respectively, and are significant at the 1% level, and except for capital input, other inputs have higher contribution to production compared to 2007-08. Also, small enterprises have increasing to scale (1.01). However, the estimated γ of 0.14 is showing high technical inefficiency for small firms. For medium sized firms in 2017-18, the elasticities of capital (β_1), labour (β_2) and raw material (β_3) are 0.10, 0.16 and 0.65 respectively and are significant at 1% level. Even for medium enterprises, except for capital input, other inputs have higher contribution to production compared to 2007-08. The same is true for increasing returns to scale (1.03) witnessed by medium sized firms in 2017-08.

Table 3.3 Maximum Likelihood Estimates For Parameters Of The Stochastic Frontier Production Function And Technical Inefficiency Effects Of Msmes

Years	**2007-08**						**2017-18**					
Variables	**Micro enterprises**		**Small enterprises**		**Medium enterprises**		**Micro enterprises**		**Small enterprises**		**Medium enterprises**	
No. Of Observations	**293**		**1569**		**1694**		**359**		**1293**		**1984**	
STOCHASTIC FRONTIER PRODUCTION FUNCTION												
	coefficient	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**
Constant (β_0)	2.10	*0.73*	1.19	*0.24*	1.05	*11.54*	1.62	*9.08*	1.16	*18.52*	0.90	*11.29*
Capital (β_1)	0.30	*0.58*	0.27	*0.78*	0.19	*11.30**	0.12	*3.17**	0.08	*5.94**	0.10	*4.84**
Labour (β_2)	0.20	*1.64****	0.11	*2.61**	0.05	*7.04**	0.38	*8.52**	0.21	*20.17**	0.16	*21.74**
Raw Material incl. Power & Fuel (β_3)	0.38	*6.12**	0.60	*3.71**	0.70	*79.01**	0.51	*22.36**	0.61	*77.49**	0.65	*83.39**
TECHNICAL INEFFICIENCY EFFECTS MODEL												
	coefficient	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**	**coefficient**	**t-ratio**
Constant (δ_0)	0.26	*0.04*	0.00	*0.00*	0.17	*7.30*	0.17	*1.27*	-3.01	*-26.39**	0.05	*0.37*
Age group (δ_1)	-0.18	*-0.09*	0.02	*0.02*	0.02	*0.66*	-0.10	*-1.77****	-0.01	*-0.19*	0.05	*0.60*
Ownership (δ_2)	-0.05	*-0.03*	0.00	*0.00*	-0.06	*-0.86*	-2.39	*-2.88**	1.06	*5.79**	-0.34	*-0.30*
Mkt. & Advertising/net sales (δ_3)	0.02	*0.30*	-0.01	*-0.03*	-0.01	*-0.27*	0.00	*0.03*	0.00	*0.00*	0.00	*0.00*
Disembodied technology imports intensity (δ_4)	0.06	*0.05*	0.01	*0.01*	0.00	*0.03*	0.17	*0.73*	1.00	*0.99*	-0.07	*-0.28*
R&D intensity (δ_5)	0.01	*0.01*	0.00	*0.00*	1.84	*2.49***	1.98	*1.12*	3.39	*3.35**	-0.18	*-0.17*
Export Dummy (δ_6)	0.01	*0.00*	-0.02	*-0.02*	-0.22	*-9.36**	-0.20	*-1.97***	-3.80	*-29.44**	-0.03	*-0.74*
DXECG (δ_7)	-0.01	*-2.73**	-0.01	*-0.29*	-0.01	*-3.83**	-0.01	*-1.48*	-0.01	*2.27***	-0.01	*-2.15***
Total forex earnings / Total income (δ_8)	-0.22	*-0.06*	0.00	*0.00*	0.13	*3.82**	0.29	*1.96****	0.08	*3.97**	0.01	*3.12**
Capital goods imports intensity (δ_9)	0.04	*0.03*	0.01	*0.01*	0.02	*4.86**	2.80	*1.68****	7.49	*7.15**	0.11	*2.63**
Raw material imports intensity (δ_{10})	-0.03	*-0.08*	-0.01	*-0.01*	-0.09	*-1.88****	-0.19	*-0.98*	-0.01	*-0.17*	-0.23	*-1.11*
sigma-squared (σ^2)	1.30	*1.68****	0.42	*1.23*	0.25	*30.71**	0.73	*12.24**	0.92	*27.40**	0.14	*24.53**
gamma (γ)	0.07	*0.61*	0.05	*0.04*	0.04	*0.03*	0.05	*1.74****	0.14	*51.42**	0.05	*1.61*
LR Test	22.01		11.29		12.50		15.40		282.39		32.40	
log likelihood function	-453.27		-1534.67		-1236.80		-457.53		-967.49		-820.46	
Returns to scale	0.89		1.04		0.96		1.04		1.01		1.03	
Average Technical Efficiency	0.80		0.92		0.88		0.90		0.87		0.92	

Source : CMIE Data base – Prowess IQ. *, ** and *** indicate that the coefficients are statistically significant at 1%, 5% and 10%, respectively.

3.4.2 Estimation results from the technical inefficiency effects model

Table 3.3 summarises the estimated results from the technical inefficiency effects model. Negative coefficient signs indicate technical efficiency. In comparison to year 2007-08, more firm-specific variables in year 2017-18 for all MSMEs significantly impact technical efficiency. According to the age variable, the firms incorporated after 1991 are associated with higher technical efficiency in comparison to those firms which were incorporated before 1991 (mainly for micro and small enterprises). However, it is the micro firms incorporated after 1991 that significantly impact technical efficiency in 2017-18. For medium enterprises, in both 2007-08 & 2017-18, the firms incorporated before 1991 impact technical efficiency. In the case of ownership, foreign firms although being few, micro firms with foreign ownership have positive and statistically significant impact on technical efficiency. For small enterprises, domestic ownership in 2017-18 seems to be increasing efficiency.

Technological growth in a firm takes place through both embodied and disembodied technology imports and R&D performed by the firm itself. Table 3.3 shows that disembodied technology import intensity didn't help much in improving technical efficiency for any MSME during 2007-08. However, in 2017-18, the technical efficiency for medium firms increased somewhat even though not significantly. In fact, the import intensity of capital goods led to significantly higher technical inefficiency among MSMEs in 2017-18. The import intensity of raw materials also led to improvement in technical efficiency for all MSMEs in 2017-18.

The medium sized firms in 2007-08 and micro and small firms in 2017-18 improved their technical efficiency by exporting. For micro firms in 2007-08, exports didn't improve technical efficiency. But when all these MSME firms simultaneously exported and spent on other insurance premium (a proxy for ECGC cover), their technical efficiency significantly improved both in 2007-08 and 2017-18. Thus, this interaction of ECGC cover and firms doing exports implies that by purchasing insurance cover provided by ECGC, the MSMEs enable themselves to increase their technical efficiency.

With the above analyses focussing on the determinants of technical efficiency, the next section turns to a comparison between top and bottom 25% of the efficient firms.

3.4.3 Comparison of top 25% and bottom 25% efficient firms

In this study, we have chosen all those MSME firms which spent on other insurance premium in 2007-08 and 2017-18. The total number of micro, small & medium firms in 2007-08 were 293, 1569 & 1694, respectively, while the total number of micro, small & medium firms in 2017-18 are 359, 1293 and 1984, respectively. Thus, in 2017-18, except for small sized firms, micro and medium sized firms increased in number. In Table 3.4, we take the top and bottom 25% of the most and least efficient number of firms for comparison among the determinants affecting technical efficiency.

The comparison of mean values of key variables for the top 25% and bottom 25% of firms in terms of technical efficiency for year 2007-08 suggests that the top efficient firms among MSMEs tend to export more (i.e., they have a higher number of exporting firms), are larger in size, have higher forex earning (as a proportion of total income) and raw material import intensity, spend low on marketing & advertising per unit of sales. But, equally importantly, the most efficient firms have both higher exports earnings and spend more on other insurance premium. Also, both small and medium firms incorporated before 1991 were more efficient. The opposite was true for micro firms. Moreover, foreign owned firms had higher efficiency in 2007-08. For the same year, the bottom 25% of the efficient firms among MSMEs incorporated after 1991 (for small & medium firms), are domestically owned, spend high on marketing & advertising and disembodied technology imports. And these firms are less export oriented and thus spend less on insurance premium.

In 2017-18, the top 25% of efficient firms among MSMEs were micro firms in comparison to medium and small sized firms. The efficient firms were those which were incorporated after 1991 (especially for micro firms). Also, these were the export-oriented firms (micro & small firms dominate) with higher expenditure on insurance premium. Medium firms earned maximum forex earnings. But the bottom 25% of efficient firms (small firms being least efficient) were mostly incorporated after 1991, spent more on royalty and technical know-how fees, were less export oriented and didn't spend much on insurance premium.

Table 3.4 Comparison of top 25% and bottom 25% of efficient firms: Mean values of variables

	2007-08						2017-18					
Variables	**Micro**	**Small**	**Medium**	**Micro**	**Small**	**Medium**	**Micro**	**Small**	**Medium**	**Micro**	**Small**	**Medium**
	Top 25% of firms	**Top 25% of firms**	**Top 25% of firms**	**Bottom 25% of firms**	**Bottom 25% of firms**	**Bottom 25% of firms**	**Top 25% of firms**	**Top 25% of firms**	**Top 25% of firms**	**Bottom 25% of firms**	**Bottom 25% of firms**	**Bottom 25% of firms**
Average Technical efficiency	0.86	0.94	0.98	0.71	0.92	0.75	0.99	0.92	0.95	0.82	0.80	0.89
Age group Dummy (Age_i)	0.90	0.13	0.38	0.04	0.97	0.64	0.77	0.60	0.44	0.23	0.71	0.98
Ownership Dummy ($Ownership_i$)	0.00	0.02	0.07	0.00	0.00	0.00	0.01	0.01	0.07	0.00	0.02	0.00
Mkt. and advert. Exp./net sales ($ExpM\_A_i$)	0.03	0.47	0.02	1.52	0.23	0.03	0.00	0.00	0.00	0.03	0.00	0.00
Disembodied technology imports intensity ($ExpRoyalty_i$)	0.00	0.02	0.00	0.00	0.02	0.02	0.01	0.01	0.03	0.06	0.01	0.00
R&D intensity ($ExpR\&D_i$)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Export Dummy ($ExportD_i$)	0.51	0.80	0.98	0.25	0.02	0.01	0.78	0.94	0.75	0.06	0.01	0.05
DXECG (in Rs Million**)** ($DXECG_i$)	276.66	4403.21	2689.73	0.47	0.02	0.14	454.08	750.11	4093.47	1.18	0.08	11.76
Total forex earnings / Total income ($ForexEarn_i$)	0.24	0.21	0.15	0.01	0.01	0.01	0.09	0.23	0.23	0.10	0.03	0.31
Capital goods imports intensity ($ImpCap_i$)	0.00	0.00	0.02	0.01	0.01	0.44	0.00	0.00	0.00	0.00	0.00	0.03
Raw material imports intensity ($ImpRM_i$)	1.04	0.20	0.29	0.05	0.05	0.01	0.06	0.14	0.31	0.13	0.03	0.00

Source: CMIE Data base – ProwessIQ

3.5 Summary

The findings are important as manufacturing MSMEs remain pivotal to future growth and employment generation in India. In fact, many MSMEs contribute to the country's larger industrial wheel and are important suppliers of inputs to various factories. The effort of ECGC in covering the risks of exporters while these firms strive to augment their exports has helped in further empowering the MSMEs. In this study, the data collected is from prowessIQ identifying expenditure on ECGC insurance cover as that on 'other insurance premium'.

The descriptive statistics indicates that in 2017-18, MSMEs relied on ECGC to minimise their export losses and that simultaneously led to increase in exports starting from year 2007-08. Except for small firms, this study shows an upgradation in the technical efficiency of manufacturing MSMEs in 2017-18 in comparison to year 2007-08. The analysis of technical efficiency presents that new medium firms with foreign ownership and significant raw material import intensity exhibited enhanced technical efficiency. Similarly, the new micro enterprises with foreign ownership and having high dependence on imported raw materials have improved their efficiency in 2017-18. But when all these MSME firms simultaneously exported and spent on other insurance premium (a proxy for ECGC cover), their technical efficiency significantly improved both in 2007-08 and 2017-18.

Taking export credit insurance as one of the determinants in capturing technical efficiency of Indian firms in general and MSMEs in particular is relatively new in literature. The comparison of mean values of some of the key variables for the top 25% and bottom 25% of firms in terms of technical efficiency for years 2007-08 and 2017-18 reveals that mainly medium-sized, export-oriented firms spending on ECGC insurance cover and having high expenditure on imports of raw materials and disembodied technology are among the top 25% of MSMEs. This, shows why production among the MSMEs should be based on innovation, knowledge and skill intensive activities for R&D, disembodied technological imports and raw materials imports (embodied technologies) intensities too significantly and positively impact technical efficiency.

Features like firm size, age and experience in certain sectors will not guarantee future success in contemporary economic environment if adaptability and flexibility to rapidly changing market circumstances are not kept in mind. That is why in the entrepreneurial endeavour of "local for global", MSMEs play a major role in making local products popular in the rest of the world. Also, the risks of payment default covered through ECGC insurance can easily count for one additional concrete benefit to exporters under the foreign trade policy (FTP) package

for them. In other words, ECGC credit insurance is effectively an added incentive to encourage exports by MSMEs.

Chapter 4: Constraints on the Performance of ECGC policies: Evidence from Primary Survey

4.1 Introduction

The key role of a primary survey in the execution of a study is to obtain and analyse first-hand information which can be procured through direct observation, especially, though not necessarily, when the problem under focus does not have a rich source of published information. In any case, for an understanding of issues at the local level, it is best to conduct a unit level analysis based on firm-level first-hand information. Thus, to develop an understanding of the impact of various export credit insurance schemes on export performance of MSMEs, this chapter mainly focuses on specific information about the various ECGC policies undertaken by the firms and the major challenges faced in deriving benefits from them.

To carry out this survey, ten major MSME clusters (Mumbai/Pune/Maharashtra, Chennai, Kerala, Delhi/NCR, Rajasthan, Hyderabad, Bangalore, Kolkata, Ahmadabad/Gujarat, Chandigarh/Punjab) focusing on ten major sectors, namely, (i) food products, (ii) textile and clothing, (iii) chemical and chemical products, (iv) pharmaceuticals, (v) base metals, (vi) rubber and plastic products, (vii) computer & electronics, (viii) electric equipment, (ix) machinery and equipment and (x) motor vehicles and trailers, were considered.

The chapter begins with a brief description of the survey design and the nature of the MSMEs participating in the survey. This is followed by a discussion on how export performance can be improved through enhanced usage of ECGC export credit insurance. This discussion extends further to identification of other factors which can promote the usage of ECGC policies. Most important, this discussion is based on specific information collected through the primary survey about the various ECGC policies undertaken by the firms and the major difficulties encountered in obtaining their benefits. While determining the awareness and the availability of ECGC policies, this chapter delves into the details of how credit insurance schemes impact export performance of MSMEs, credit risk management practices, feedback from policy holders and non-policy holders for improvement in various ECGC policies. And finally, there are suggestions, based on the survey research findings, to ECGC on policy formulations for the Indian MSMEs.

4.2 Survey Design

A multi-stage sampling procedure was adopted to select target MSMEs for this survey. A mix of purposive and snowballing sampling techniques were adopted for the selection. Total sample of 300 companies[7] was covered across the nation from pre-selected geographies (Table 4.1). The respondents are the senior managers or any other senior officials of the company who have a holistic knowledge about the various aspects related to undertaking of ECGC policies.

[7] We acknowledge the data collection support provided by Genesis Management & Market Research Pvt. Ltd (GMMR).

Table 4.1 Sample Size

State/Sector	Food	Textile	Chemicals	Pharma	Metals	Rubber & Plastic	Electronics	Electrical equipment	Machinery & Equipment	Automobiles	**Total**
Andhra Pradesh	2	1		1	1				2		7
Assam	1										1
Chhattisgarh										1	1
Goa			2								2
Gujarat	3	3	10	8	1	4			5	1	35
Haryana	7		1	1				1	1	3	14
Karnataka	3	1		1		1		2	4	1	13
Kerala	9	1				6			1		17
Madhya Pradesh	1		1	1							3
Maharashtra	12	8	7	11	4	8	17	12	22	12	113
Punjab	1			1	1	1		1			5
Rajasthan	1	3		2	6				1		13
Tamil Nadu		5	2	2	6	2			3	4	24
Telangana	3	1	1		1					2	8
Uttar Pradesh		3				5	1	2			11
West Bengal	5			1	2	1		1	1		11
Delhi	6	6	1	2		1		2		2	20
Jammu and Kashmir				1							1
Puducherry			1								1
Total	54	32	26	32	22	29	18	21	40	26	**300**

Source: Primary Survey

The state-wise coverage can be seen in Table 4.1, which shows that maximum MSMEs belonged to Maharashtra with majority of firms belonging to machinery and equipment sector. Also, it is observed that as high as 72% were non-policy holders in Maharashtra as compared to only 28% companies holding some policies. This shows that in the state of Maharashtra, ECGC needs to pay attention to increase the number of policy holders. The situation is better in Tamil Nadu, Uttar Pradesh followed by Karnataka, Rajasthan, Gujarat, and Kerala.

Table 4.2 Questionnaire Analysis

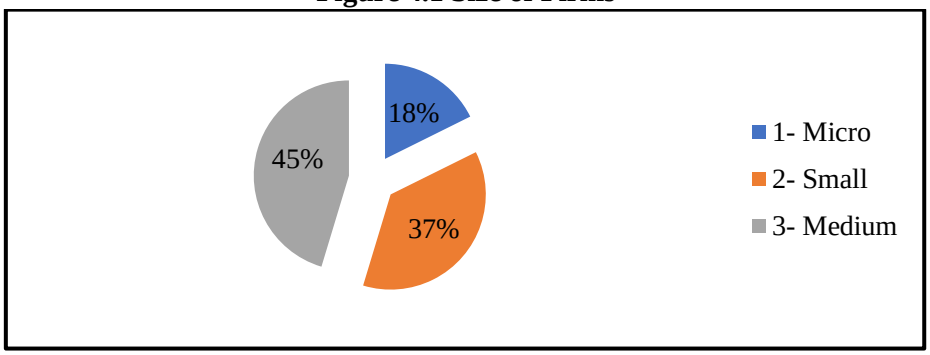
Section A: General Information about firms	● Company details ● Factors driving ECI policies & export performance ● Credit risk insurance management practices ● Reasons for not obtaining ECI polices
Section B: Specific information about ECGC policies	● Usage ● Risks identified ● Importance of ECGC policies in increasing export performance
Section C: Availability of information about ECGC policies	● Sources of Information
Section D: Important factors & challenges in obtaining ECGC policies	● Important Factors ● Challenges faced by the firms ● Factors to improve policies
Section E: Policies, claims and export performance	● Improvement in the Quality/Quantity of Output ● Usage of claims ● Performance improvement

The questionnaire consists of five sections (Table 4.2). Both qualitative and quantitative questions were asked to the respondents. Section A includes firm-specific information along with the importance of factors driving export credit insurance (ECI) policies and export performance, credit risk management practice, and the reasons for not obtaining ECI policies. Section B provides specific information about ECGC policies, involving its usage, identifiable risks associated with it and the importance of these policies in increasing exports after participation in international trade. In section C, firms are asked about the availability and awareness of existing ECGC policies. Section D identifies the important factors and challenges faced in obtaining ECGC policies. And finally, section E describes the relation between policies, claims and export performance.

4.3 Category of Firms and Related Details

This section provides the information on firms' key characteristics such as company details on being policy and non-policy holders, sectoral distribution and sector-wise comparison of firms.

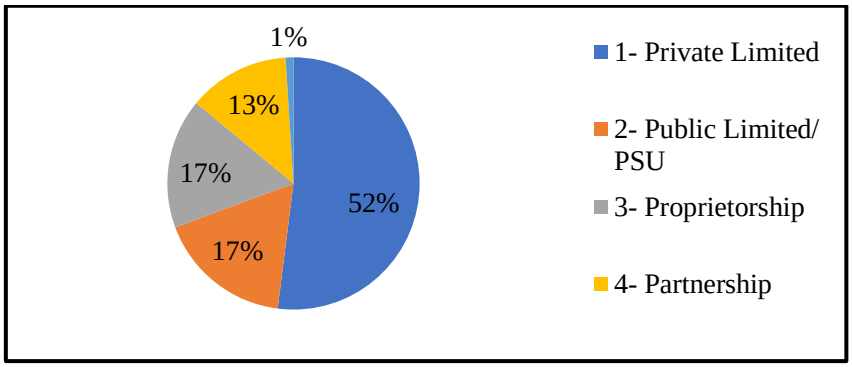
Figure 4.1 Size of Firms



Source: Primary Survey

Starting with characterising the firms according to their size, Figure 4.1 shows that the largest number of firms were of medium size (45%) followed by small (37%) and micro sized firms (18%).

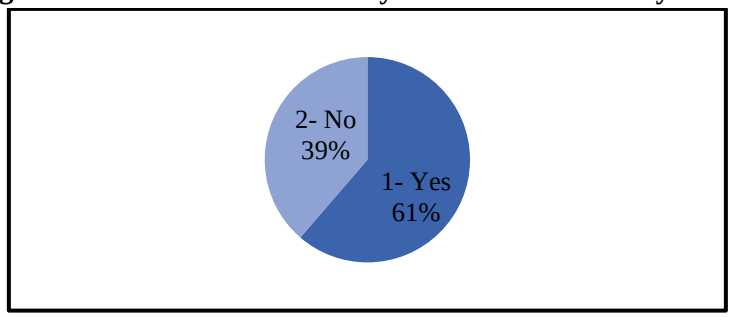
Figure 4.2 Types of Organization



Source: Primary Survey

The types of organisations as seen in Figure 4.2 shows that out of the total sample covered, as many as 52% companies were private limited followed by public limited/PSUs and proprietorships forming 17% each of the total number of companies.

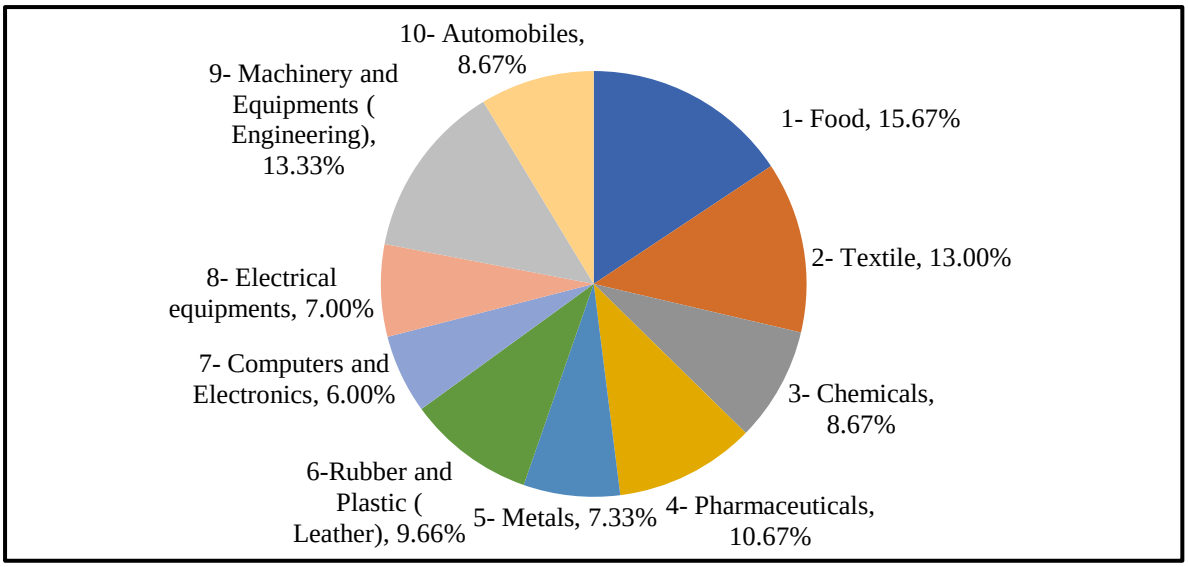
Figure 4.3 Whether ECGC Policy Holder or Non-Policy Holder



Source: Primary Survey

Next, Figure 4.3 presents the proportion of policy and non-policy holders, where out of the total sample covered, 61% were ECGC Policy holders whereas 39% were not holding any type of ECGC policies.

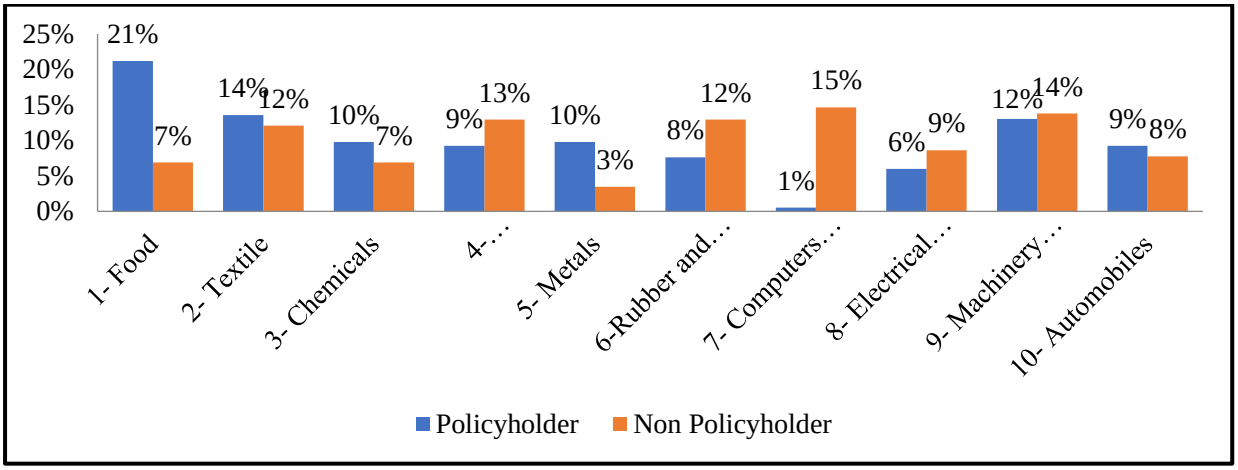
Figure 4.4: Sector wise Coverage



Source: Primary Survey

Figure 4.4 presents the sector-wise firms share in the total sectors covered in the survey. As can be seen, the maximum MSMEs belonged to food, textiles, machinery and equipments, pharmaceuticals, rubber and plastic and automobiles sectors.

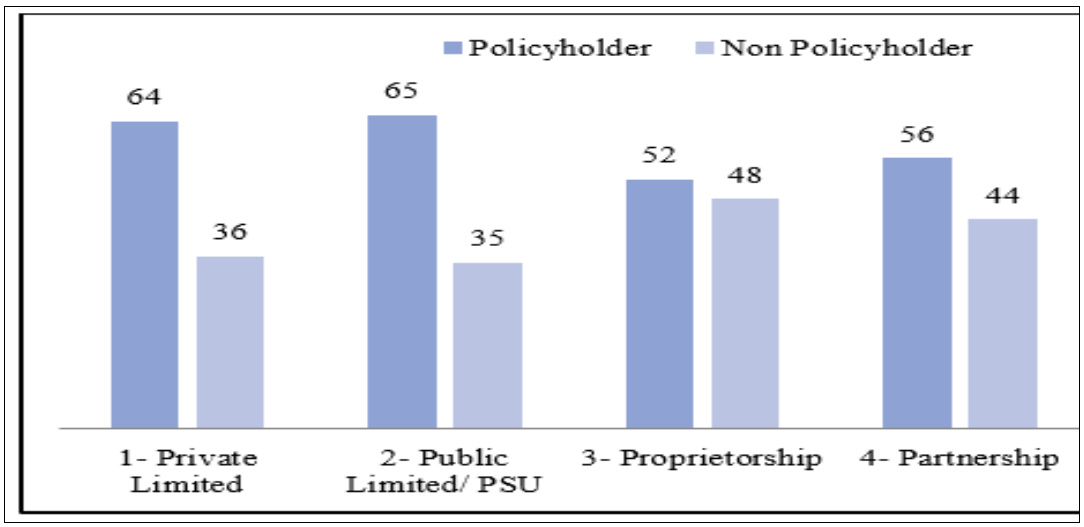
Figure 4.5 Sector-wise Comparison between Policyholders and Non-Policyholders



Source: Primary Survey

The sector-wise comparison between policy holders and non-policy holders as shown in Figure 4.5 reveals that the maximum percentage of ECGC policy holders (21%) were from the food sector, followed by textile sector (14%). The percentage of non-policy holders exceeded that of policy holders in computers and electronics, electrical equipments, machinery and engineering equipments, and pharmaceuticals. Indeed, in computers and electronics sector the percentage of non-policy holders was as high as 15% as compared to that of only 1% for policy holders.

Figure 4.6 Type of Organization wise Comparison (in %)



Source: Primary Survey

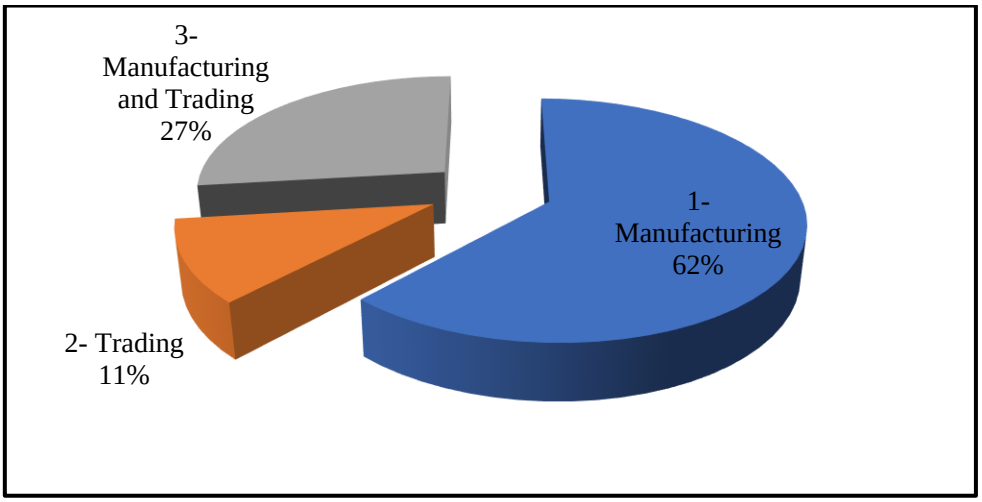
Figure 4.6 shows the comparison between policy and non-policy holders for the type of organisation where the total public limited /PSUs covered for the study, 65% of the companies

were policy holders whereas 35% were non-policy holders. Almost same trend was noticed for private limited companies followed by partnership firms.

Also, from the above chart it is clear that in case of proprietorships nearly half of the units were policyholders and rest were non-policy holders. Thus, the number of policy holders exceed non-policy holders for every type of organisation surveyed in this study.

4.4 Identification particulars of the organization

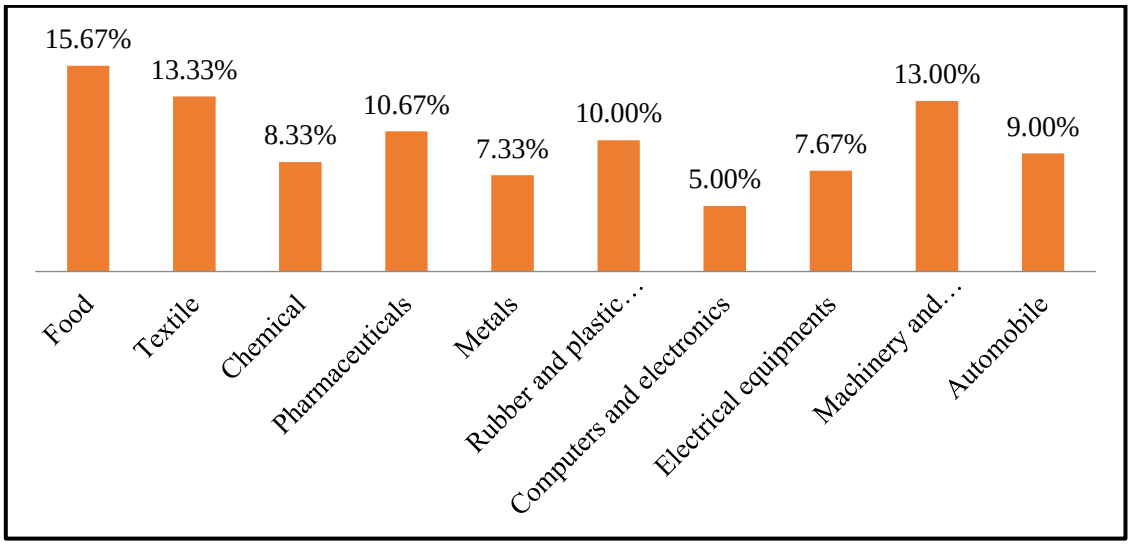
Figure 4.7 Activity of the organisation



Source: Primary Survey

The MSMEs were found to be mostly involved in manufacturing activity (62%). Whereas there were only 27% firms involved in both manufacturing as well as trading activities, only 11% were doing only trading activity.

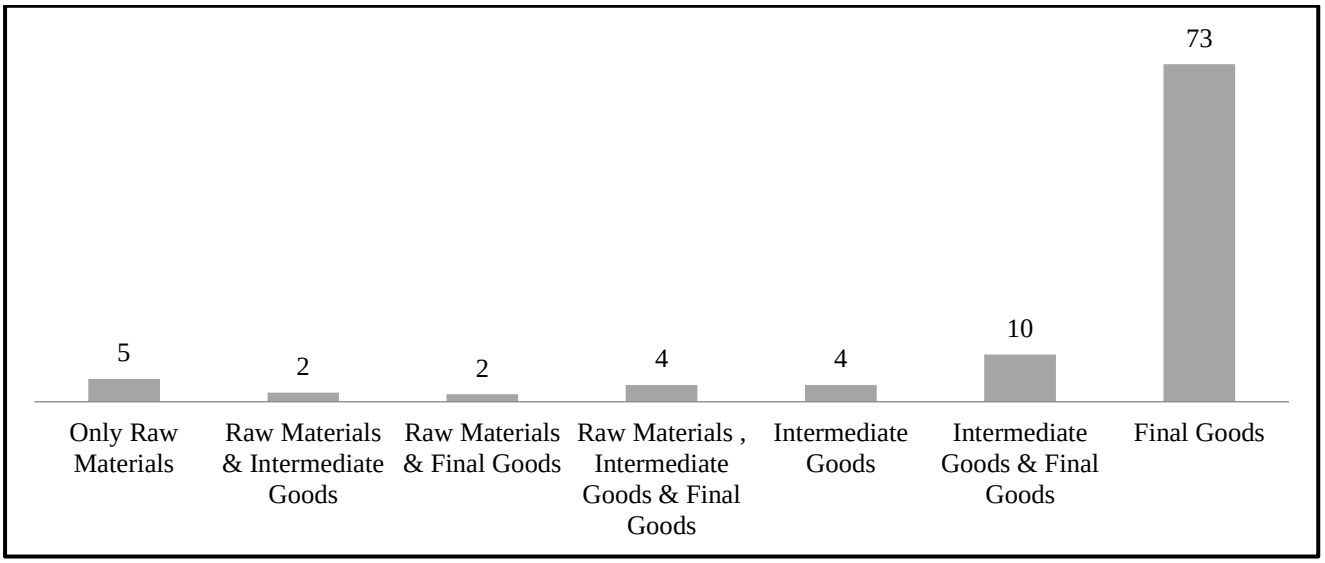
Figure 4.8 Sector-Wise Shares In Total Value Of Exports



Source: Primary Survey

The sector-wise export (Figure 4.8) trend shows that food sector witnessed maximum export share (in total value of exports) of around 16% followed by textiles (13.33%) and machinery and equipments (Engineering) at 13%. Computers and electronics sector showed the minimum export share of 5%.

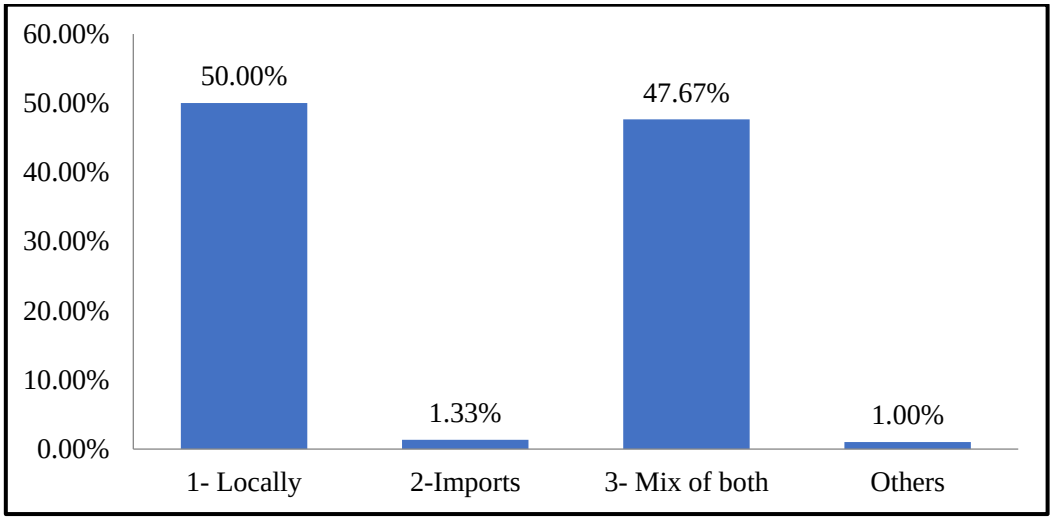
Figure 4.9 Exports According To Stages Of Processing (%)



Source: Primary Survey

After considering the sector-wise export share, the export share according to the different stages of processing reveals that export of final goods by all these firms was high as 73% while 10% of them were exporting intermediate goods. Only, 5% of the responding companies were exporting raw materials. However, raw materials, intermediate goods & final goods together were exported by 4% companies.

Figure 4.10 Sourcing of Raw Materials

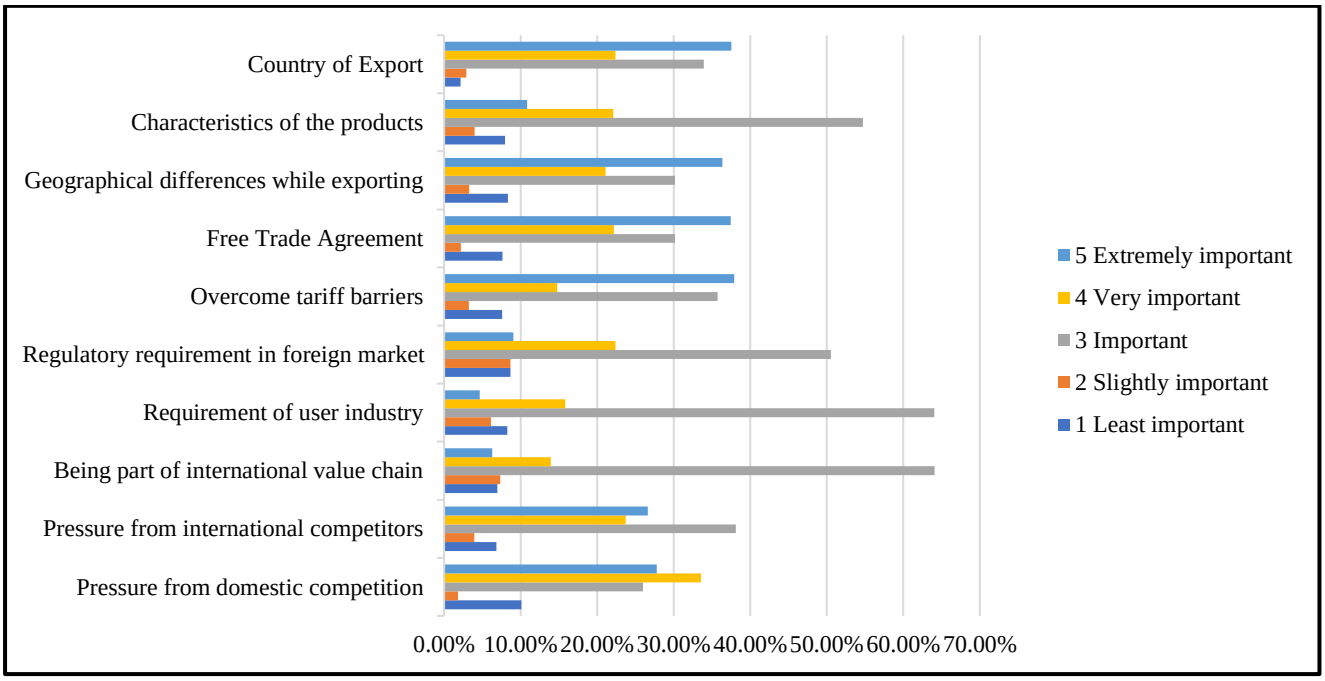


Source: Primary Survey

The sourcing of raw materials plays an important role as can be seen from Figure 4.10 below, 50% of the firm's sourced raw material from local sources completely, while only 1.33% were imported. This shows that demand for local raw materials is considerable in all the sectors. Even though companies are using imported raw material, they are relying only partially on imported raw materials.

4.5 Factors driving export credit insurance policies and export performance

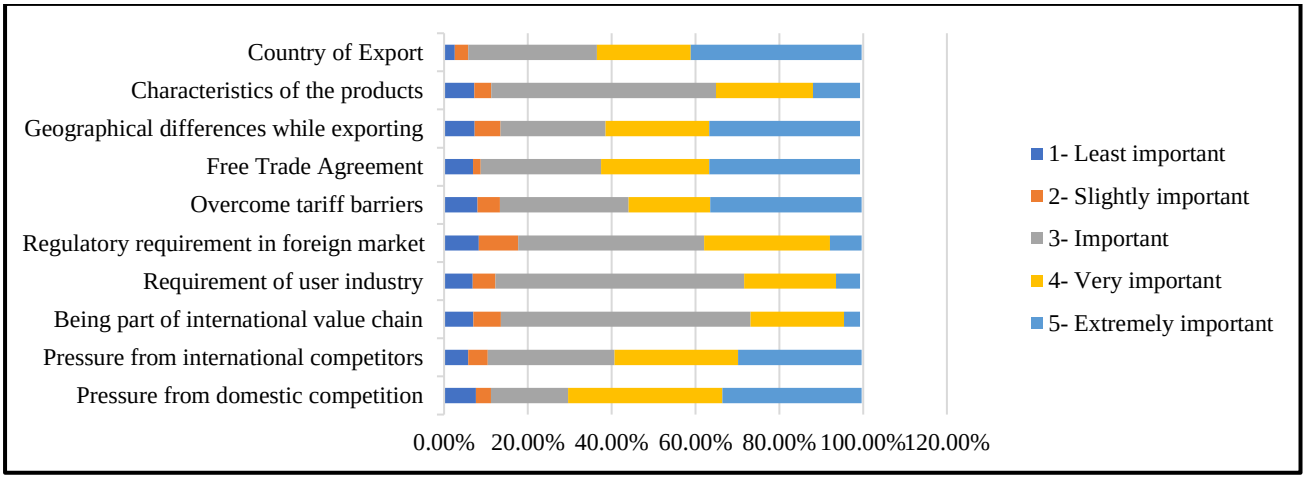
Figure 4.11 Factors Driving Demand For Export Credit Insurance Policies



Source: Primary Survey

Figure 4.11 presents the factors driving the demand for export credit insurance policies. As can be seen, the three dominating drivers are the overcoming of tariff barriers (37.90%), country of export (37.55%) and free trade agreements (37.40%). And the least important factors are regulatory requirements in foreign markets (8.66%) and pressure from domestic competition (10.11%). Thus, reducing tariff barriers (enhancement in the ease of doing trade) and selection of countries of exports can greatly boost the demand of ECGC credit insurance policies.

Figure 4.12 Factors driving export performance



Source: Primary Survey

For MSMEs the most important factor driving export performance (Figure 4.12) relate to the selection of countries of exports (40.79%) followed by overcoming of tariff barriers (36.10%) and free trade agreements (36%). Also, the least important factor in this regard was the regulatory requirements in foreign markets (8.30%).

From Figures 4.11 & 4.12, it can be inferred that the most important factors driving the demand of export credit insurance policies and export performance are the same. This indicates the possibility of a positive association between these two aspects of the exporting activity of the MSMEs.

4.6 Credit Risk Insurance Management Practice

The next feature depicts the mode of transportation deemed risky by the MSMEs.

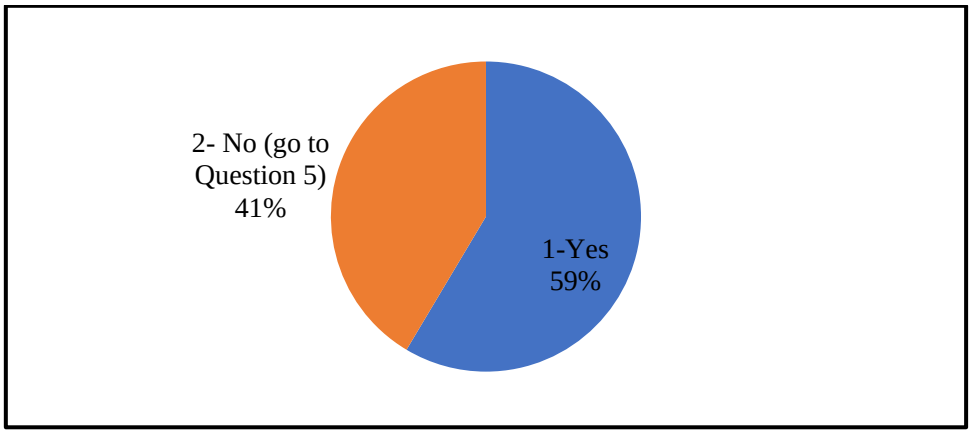
Table 4.3 Riskier transportation mode (%)

Sr. No.	Mode of Transport	Frequency (in %)
1.	Air	24
2.	Water	57
3.	Road	9
4.	None	10

Source: Primary Survey

As can be witnessed from Table 4.3, water transport is considered the riskiest by 57% of the respondents due to various reasons, namely, natural calamities like storms, long hours of traveling to reach the destination causing serious damage to the goods etc. Then there exists fear of piracy by attackers and the resulting theft of the cargo. Also, exporters through sea transport have to adhere to the detention period. Air transport was also considered risky by 24% of the companies due to the fear of missing cargo in the transit. This mode also being expensive is not preferred by many. However, only 9% of the respondents considered road transport risky due to the possible risks of road accidents, fear of leakage and spillage of the goods. Finally, 10% were of the opinion that if we take all necessary precautions, none of the transport mode is risky.

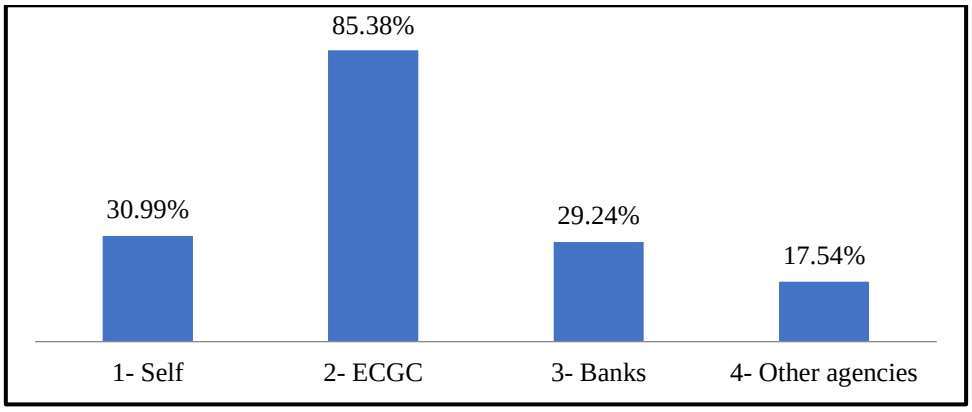
Figure 4.13 Whether Risk Management Practiced By The Firm



Source: Primary Survey

The association of risk with exports to different countries gives rise to the need of ECGC policies by the firms. Firstly, we determine how many firms practice risk management. As can be seen from Figure 4.13, around 59% of the firms practice formal risk management mechanisms whereas 41% did not adopt formal risk management methods.

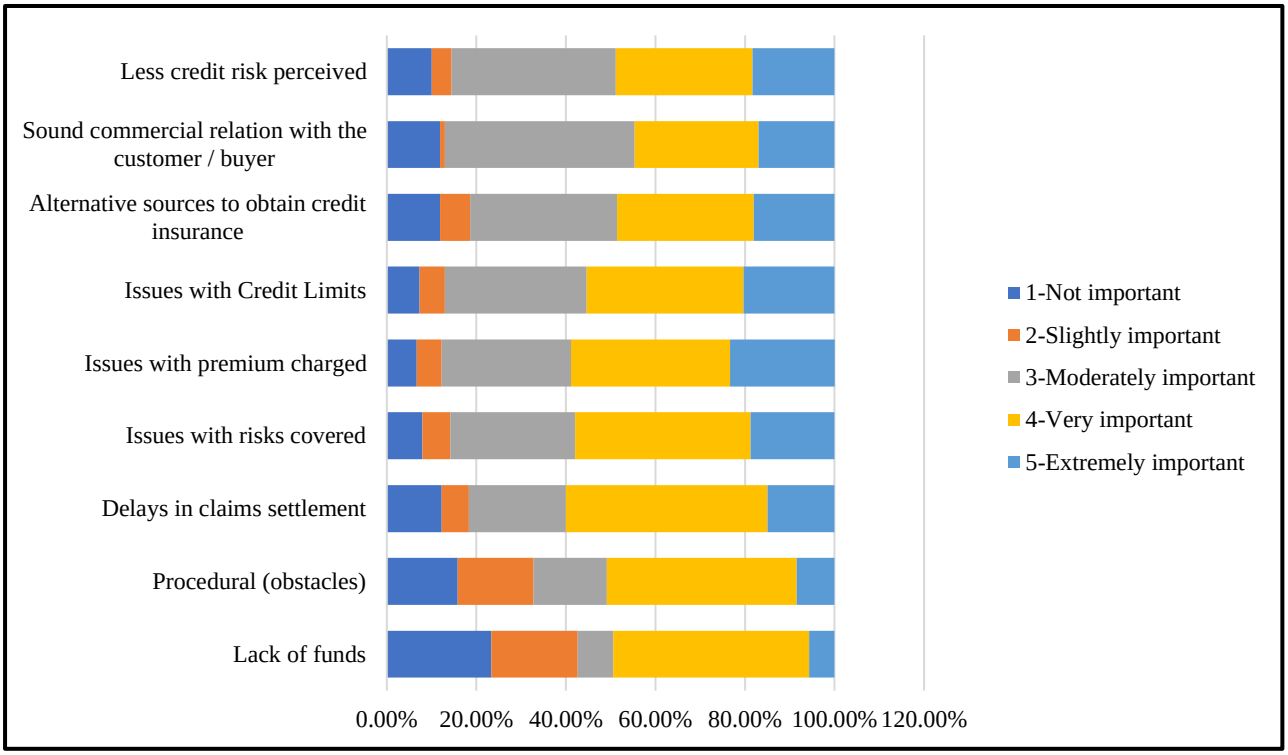
Figure 4.14 Sources Chosen by the Firms to cover Risks



Source: Primary Survey

Figure 4.14 shows the sources chosen by the firms in mitigating risks. To cover risks such as non-payment risks, around 85.38% chose ECGC policies. To cover their finance risks, 30.99% of the firms found their own way (and mentioned "self" as their source for covering risks), 29.24% of the firms chose banks[8], 17.54% relied on other financial agencies.

Figure 4.15 Reasons For Not Obtaining Export Credit Insurance Policies



Source: Primary Survey

[8] Banks are not direct sources of risk coverage chosen by firms. Banks, on the other hand, provide indirect coverage as they cover financial risks.

In Figure 4.15 it is witnessed that the major reasons for not obtaining export credit insurance policies were the issues pertaining to premium charged, credit limits and the risks covered.

4.7 Specific information about ECGC policies

This section provides information on the usage of ECGC policies.

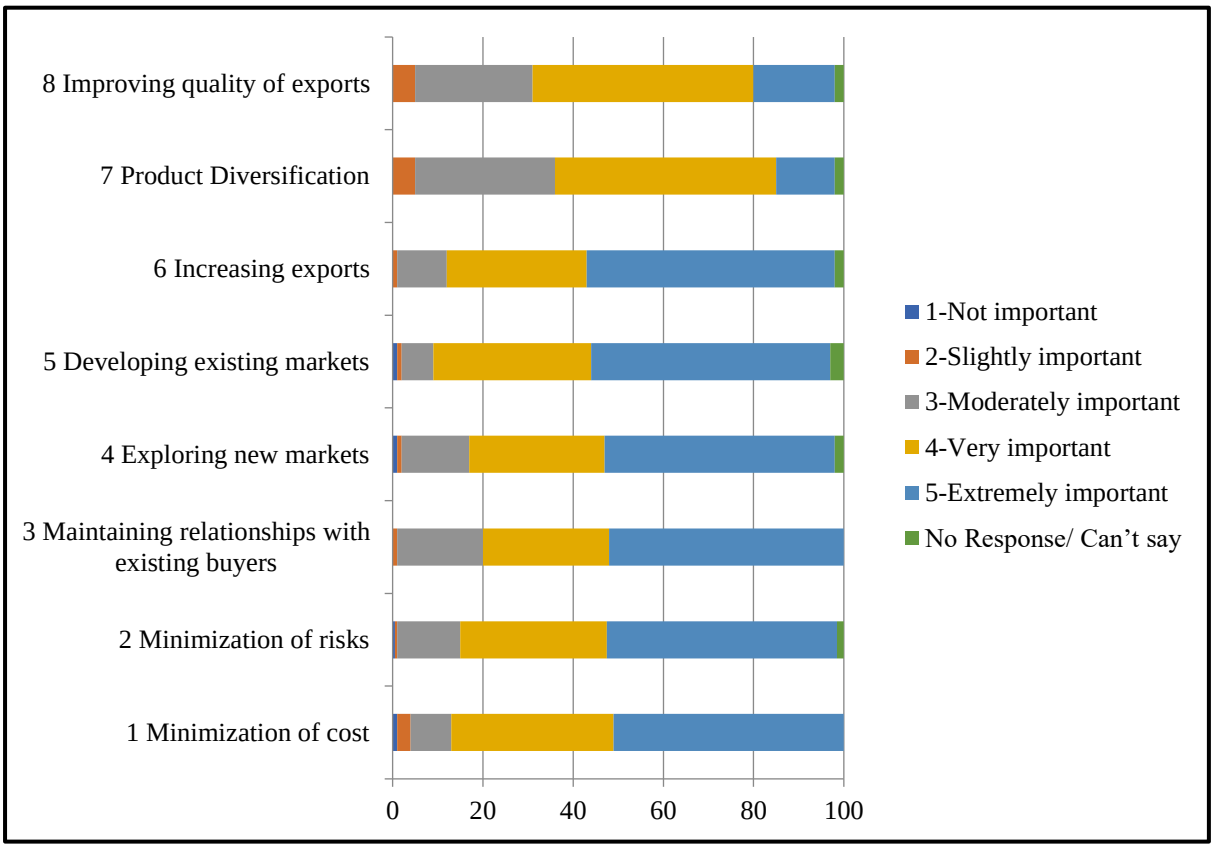
Table 4.4 Usage of ECGC policies (in %)

Agreement / Disagreement	Minimization of cost	Minimization of risks	Maintaining relationships with existing buyers	Exploring new markets	Developing existing markets	Increasing exports	Product Diversification	Improving quality of exports
Yes	63	69	64	69	70	69	32	35
No	37	31	36	31	30	31	68	65

Source: Primary Survey

From Table 4.4, it can be seen that 70% of the companies agreed that ECGC policies are useful for developing and consolidating the existing markets. This was followed by other uses of ECGC policies such as increasing exports, exploring new markets and minimization of risks.

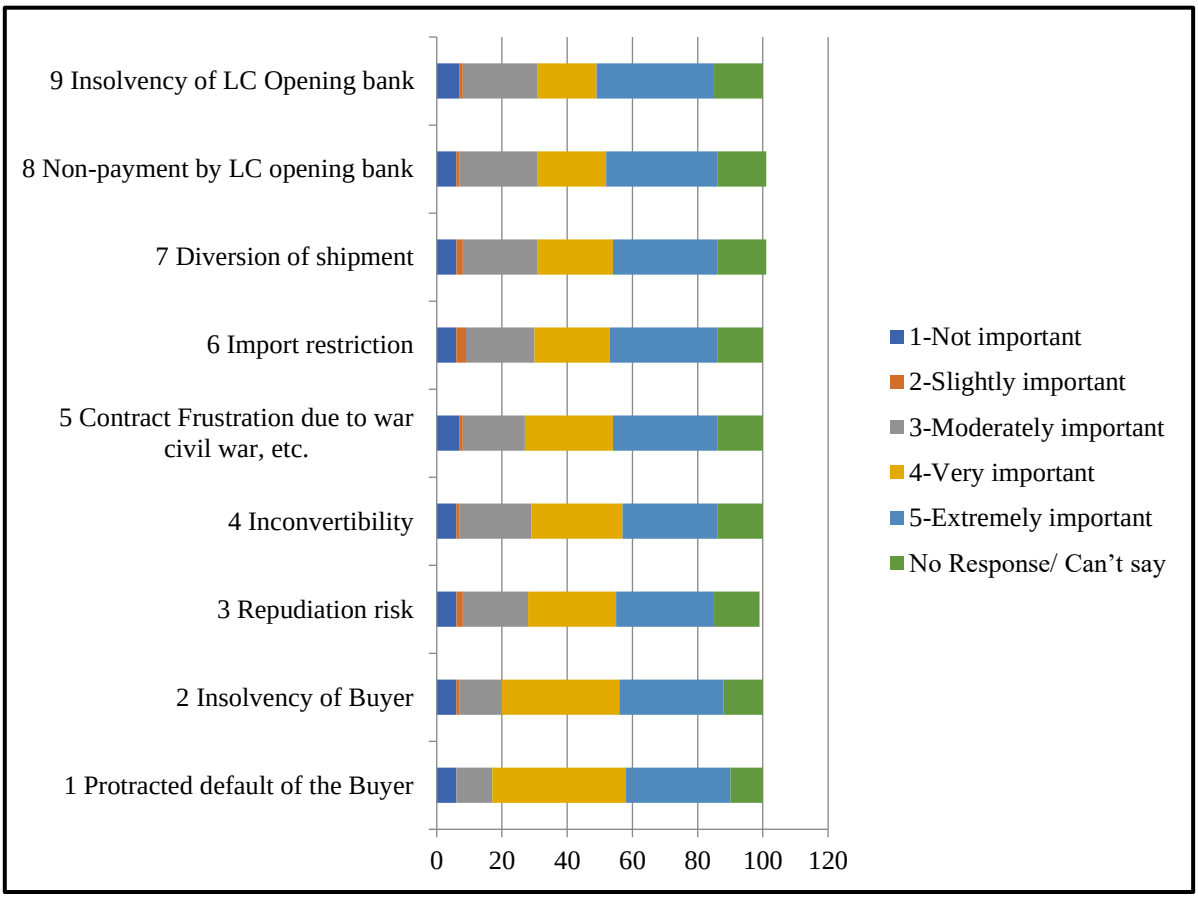
Figure 4.16 Important Considerations for ECGC policies



Source: Primary Survey

After ascertaining the number of firms agreeing to use the ECGC policies, Figure 4.16 highlights the importance of ECGC policies for specific factors. Thus, developing existing markets, increasing exports, and maintaining relationships with existing buyers emerge as the top three important for considerations for ECGC policies.

Figure 4.17 Importance Of Risks Considered For Using ECGC Policies



Source: Primary Survey

Besides detailing the factors responsible for undertaking ECGC policies, we focus on risks considered while opting for ECGC policies. In this matter, Figure 4.17 indicates that most of the firms considered insolvency of LC Opening bank and Non-payment by LC opening bank to be extremely important.

Table 4.5 Importance of Credit Insurance Policies for Increasing Exports After Participating in International Trade

Factors	Policy Importance Rating (Mean)	Export Improvement Rating (Mean)
1. Risk Mitigation	18.6	18.4
2. Cost Minimization	17.8	17.8
3. Increase in production	17.4	17.6
4. Increase in quantity of exports	17.8	17.8
5. Improvement in quality of exports	17.4	17.4
6. Increase in buyer base of the existing markets	17.4	17.4
7. Increase of new buyers of new markets	17.0	17.2
8. Extending the product range	17.4	17.4
9. Hiring a greater number of workers	17.2	17.4

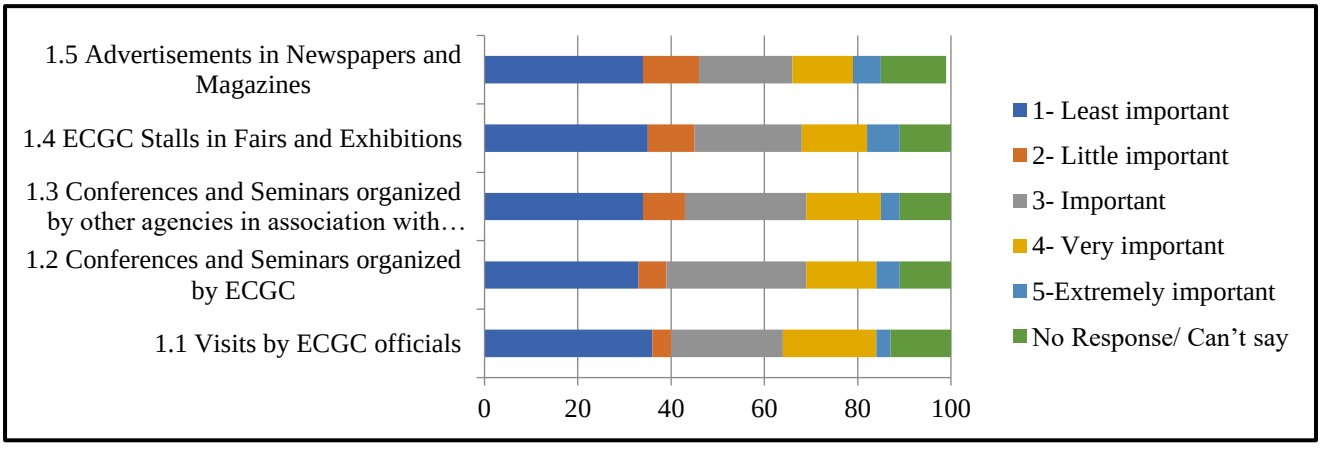
Source: Primary Survey

After participation in international trade, majority of the MSMEs (from Table 4.5) indicate that the mean of the important factors such as risk mitigation and cost minimization were the most important factors for which export credit insurance policies were taken with a view to increase exports. Also, same factors were important in further improving the export performance after participating in international trade.

4.8 Availability of information on ECGC

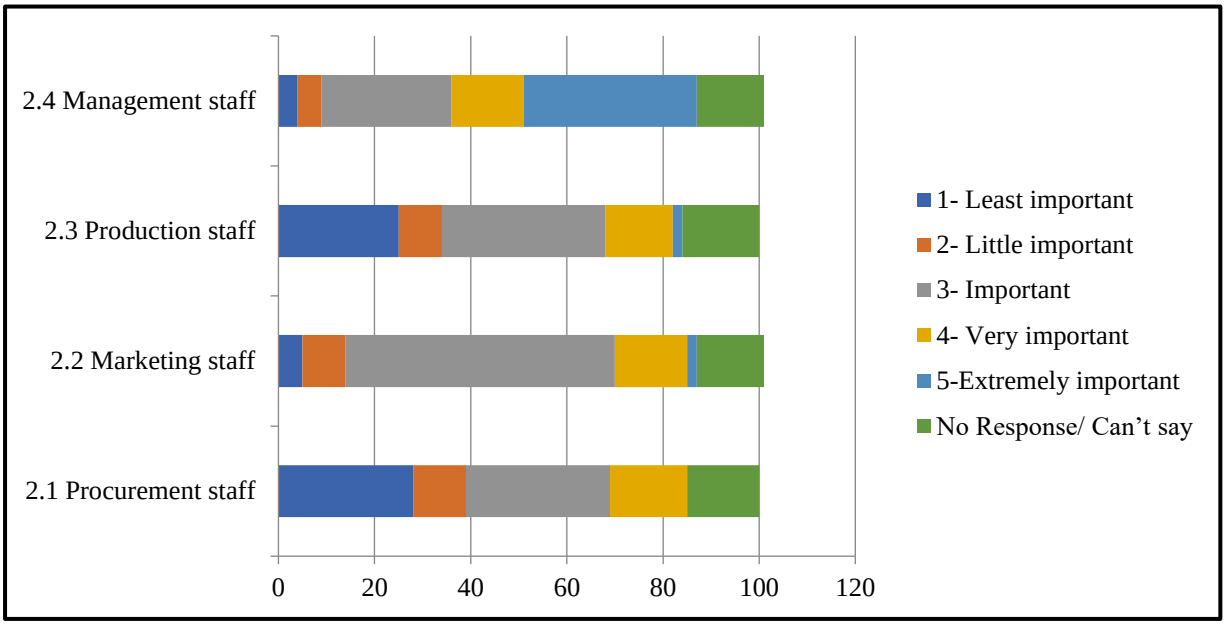
This section presents the sources of information that made firms aware about the ECGC policies.

Figure 4.18 Marketing Efforts by ECGC (in %)



Starting first with the marketing efforts by ECGC, it is observed that ECGC needs to pay greater attention towards marketing efforts as in the last three years ECGC officials were not seen to be an important source of information. Hence, ECGC is well advised to spread awareness about its credit insurance policies through five major publicity modes (i) Visits by ECGC officials, (ii) Conferences and Seminars organized by ECGC, (iii) Conferences and Seminars organized by other agencies in association with ECGC, (iv) ECGC stalls in Fairs and Exhibitions, (v) Advertisements in Newspapers and Magazines.

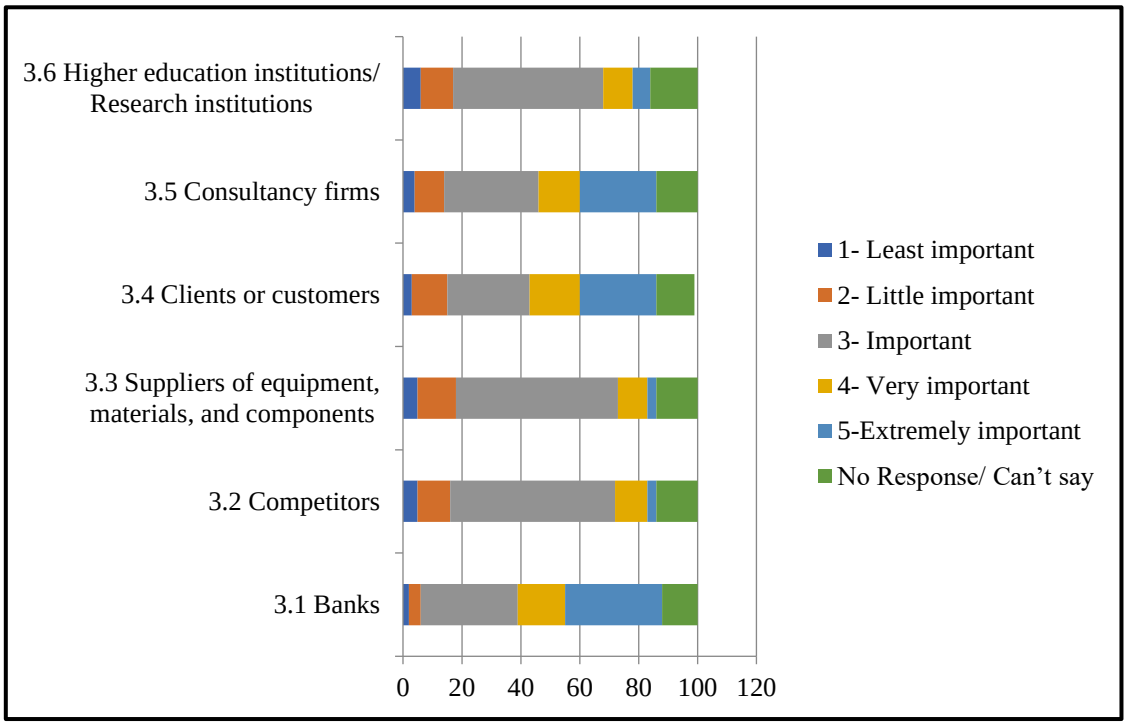
Figure 4.19 Internal Sources Within the Firm or Business Group (in %)



Source: Primary Survey

Figure 4.19 presents the factors relating to internal sources for the awareness of ECGC policies. Factors such as management staff and marketing staff were considered to be the most important internal sources of information within a firm or business group.

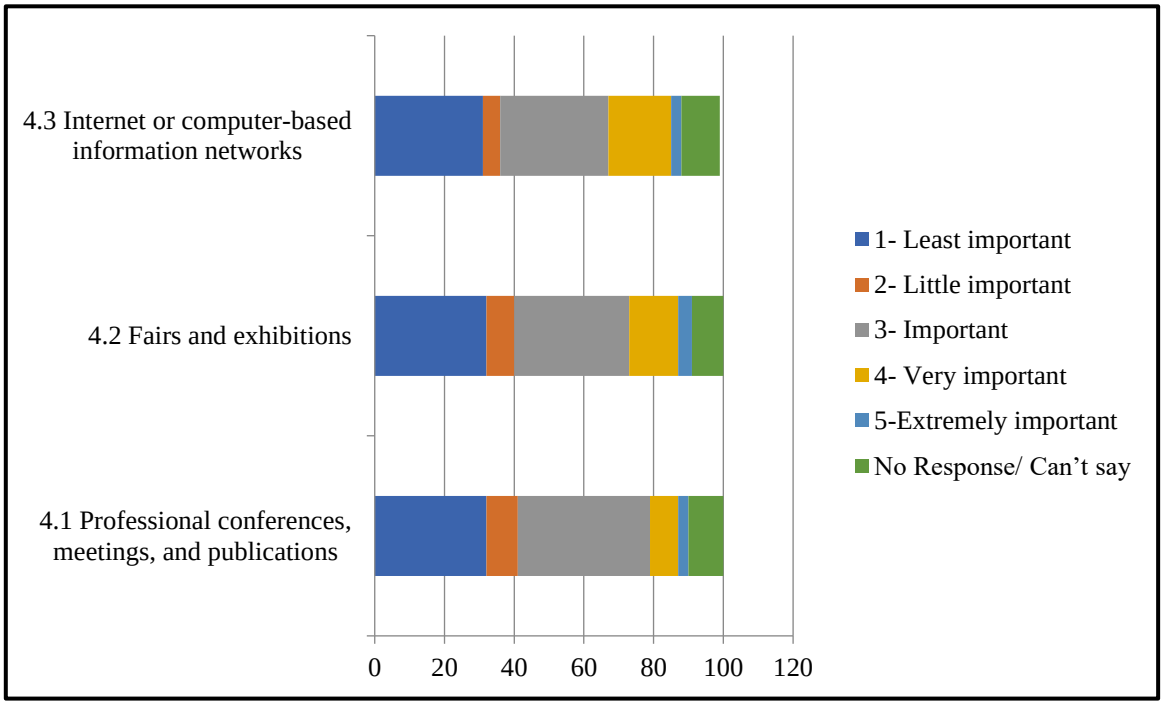
Figure 4.20 External Sources of Information (In %)



Source: Primary Survey

As shown in Figure 4.20, out of all the external sources of information, banks were found to be the most important followed by clients or customers and consultancy firms.

Figure 4.21 Publicly Provided Information (In %)



Source: Primary Survey

For publicly provided information, ECGC needs to make optimum use of professional conferences, meetings, and publications, fairs and exhibitions and internet or computer-based information networks (see Figure 4.21). For making information available regarding various ECGC policies and their importance no such channel played any important role in the last three years.

4.9 Important factors & challenges in obtaining ECGC policies

This section mainly deals with difficulties and challenges faced in general by the MSMEs and, specifically, while obtaining policies from ECGC.

Table 4.6 Factors considered in obtaining policies from ECGC

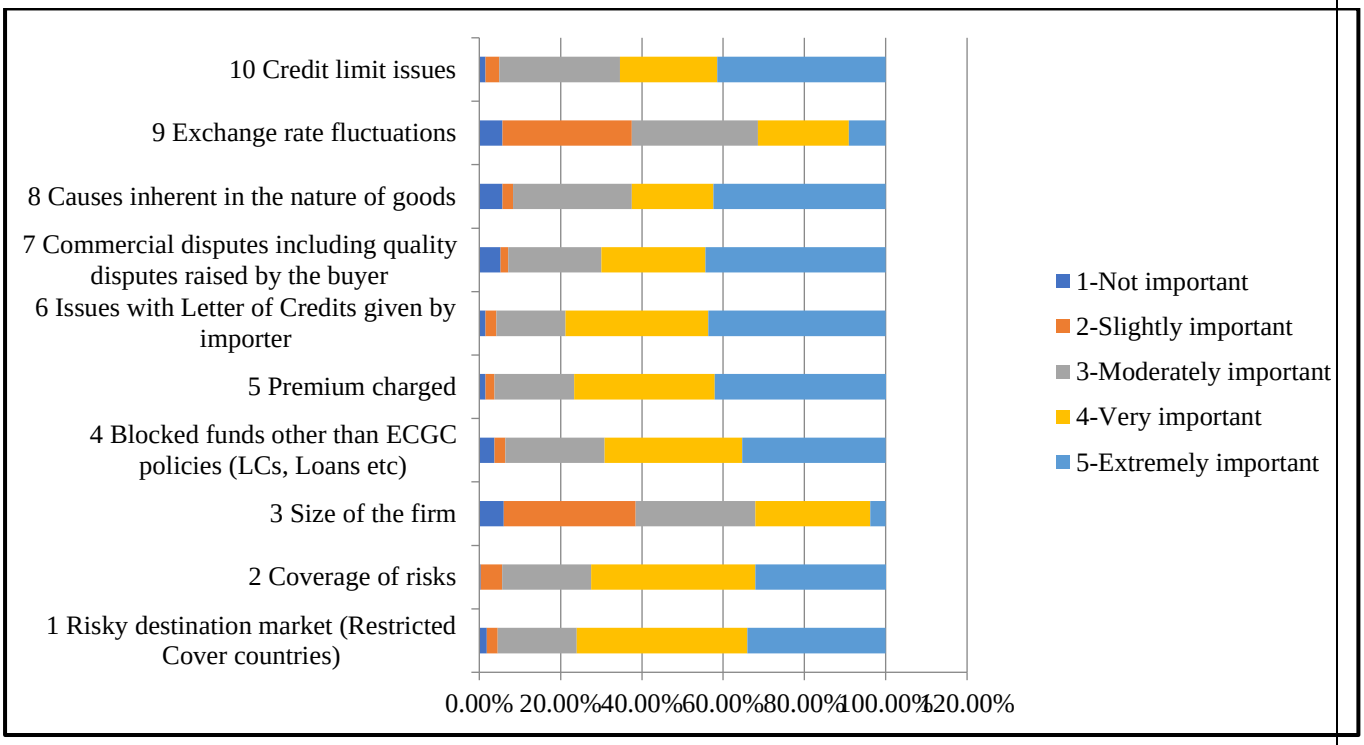
	Importance in General (mean)	**Importance for obtaining ECGC Policies (mean)**
1 Cost factors	**19.61%**	**19.42%**
1.1 Availability of finance within your enterprise	19.92%	19.70%
1.2 Availability of finance from outside sources	19.85%	19.78%
1.3 Innovation cost	19.92%	19.77%
1.4 Premium charged	19.85%	19.70%
1.5 Blocked funds in essentials other than ECGC policies (LCs, Loans etc.)	19.92%	19.77%
2 Time related issues	**19.68%**	**19.58%**
2.1 Time taken to obtain claims	19.78%	19.85%
2.2 Time taken to obtain ECGC policy / Credit Limit	19.93%	19.85%
2.3 Time for ascertainment of loss	19.92%	19.70%
2.4 Issues with Time for filing claim	19.85%	19.85%
2.5 Issues with Closure of policy	19.92%	19.85%
3 Market factors	**19.89%**	**19.68%**
3.1 Market dominated by established players	19.92%	19.77%
3.2 To overcome problems in entering new markets	19.92%	19.85%
3.3 Government policy constraints	19.85%	19.85%
3.4 Currency risk	19.93%	19.85%
3.5 Transportation time and cost	19.92%	19.84%

Source: Primary Survey

As can be seen from Table 4.6, from the various factors considered, market factors on an average dominate and are most important. And, out of these market factors, currency risk factor is the most important. Among time related factors, which is second most important, time taken to obtain ECGC policy / Credit Limit is the most important.

Also, as far as various factors in obtaining policies from ECGC are concerned, the market factors on an average dominate, out of which, factors such as currency risk, transportation time and cost, and overcoming problems in entering new markets are the important ones. The ordering of the importance (i.e., mean values) of these general factors and that of the factors specifically related to obtaining ECGC policies are similar.

Figure 4.22 Difficulties/Challenges faced even after obtaining ECGC policy



Source: Primary Survey

After obtaining the ECGC policies, the types of challenges faced by MSMEs (from Figure 4.22) are mostly the issues with letters of credit given by importer, commercial disputes including quality disputes raised by the buyer, premium charged, credit limit issues and causes inherent in the nature of goods.

Table 4.7 Risk Analysis and Its Relationship with Challenges

Factors	Yes	No
Risky destination market (Restricted Cover countries)	19.53%	20.00%
Coverage of risks	19.30%	20.00%
Size of the firm	19.41%	19.82%
Blocked funds other than ECGC policies (LCs, Loans etc)	19.53%	19.81%
Premium charged	19.41%	18.71%
Issues with Letter of Credits given by importer	19.53%	19.82%
Commercial disputes including quality disputes raised by the buyer	19.30%	19.82%
Causes inherent in the nature of goods	19.30%	19.82%
Exchange rate fluctuations	19.30%	19.82%
Credit limit issues	19.17%	19.82%

Source: Primary Survey

For the firms practicing formal risk management (see Figures 4.13 & 4.14), the mean level of importance of challenges faced by these firms after obtaining ECGC policies show that risky market destinations, blocked funds and issues with LCs given by importers are the issues which matter the most to the MSMEs (Table 4.7).

Table 4.8 Importance of the factors to improve ECGC policies

Factors	Importance (Mean)
1. Timely availability of insurance covers	9.6
2. Cost differences in terms of premiums charged	17.4
3. Ease in obtaining claims	17.6
4. Availability of timely information about import entities / export destinations	17.2
5. The extent of risks covered	17.6
6. Coverage of risk according to nature of goods exported	16.8

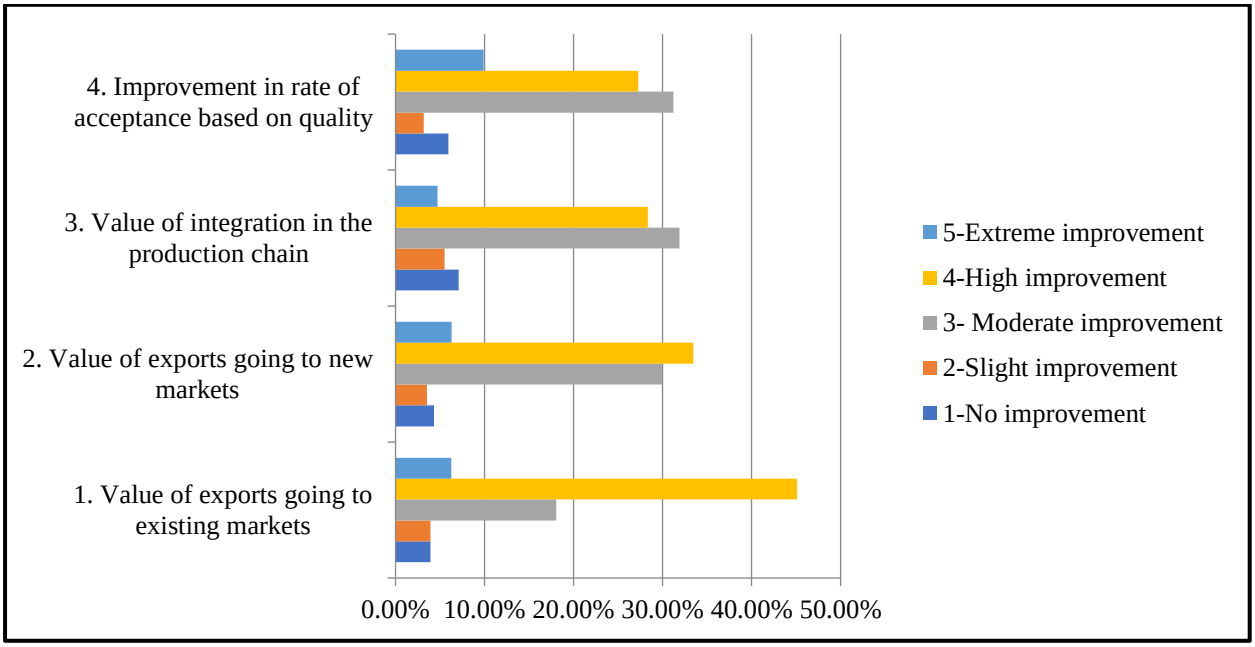
Source: Primary Survey

The last question of this section deals with factors to improve ECGC policies. As can be seen from Table 4.8, on an average, MSMEs want improvement in the factors such as the extent of risks covered, ease in obtaining claims and cost differences in terms of premiums charged.

4.10 Policies, claims and export performance

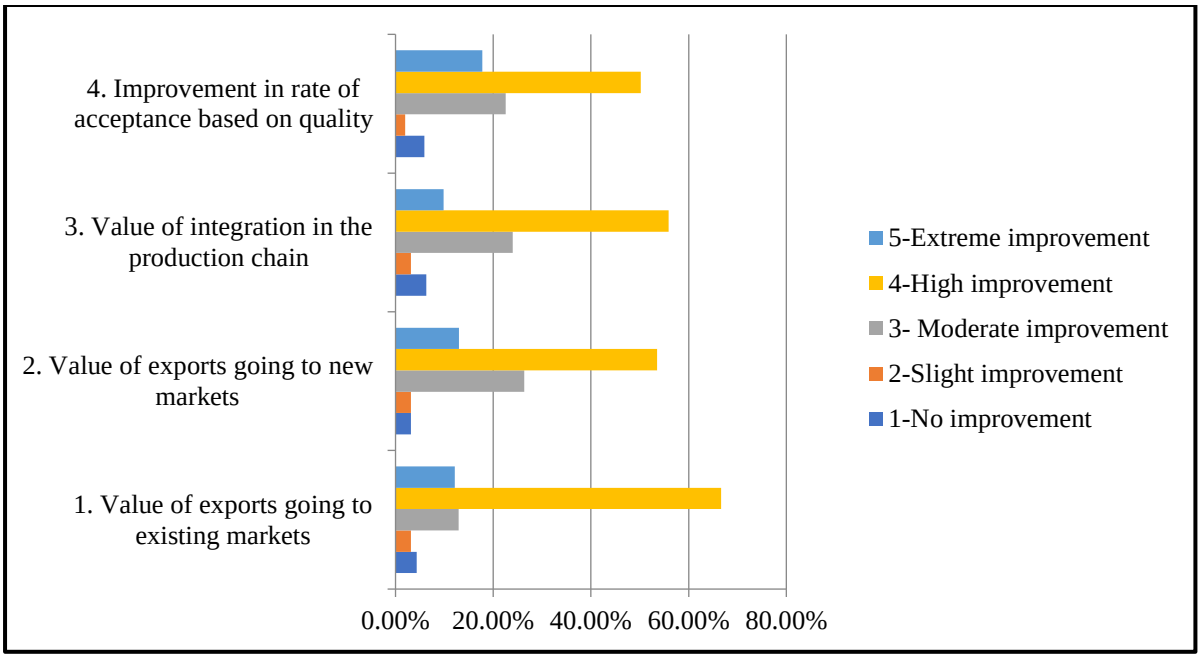
This section deals with information related to ECGC policies, claims and the performance of the firm in terms of quantity and quality of production and that of exports.

Figure 4.23 Improvement in Production Efficiency Without/Before ECGC Policies



Source: Primary Survey

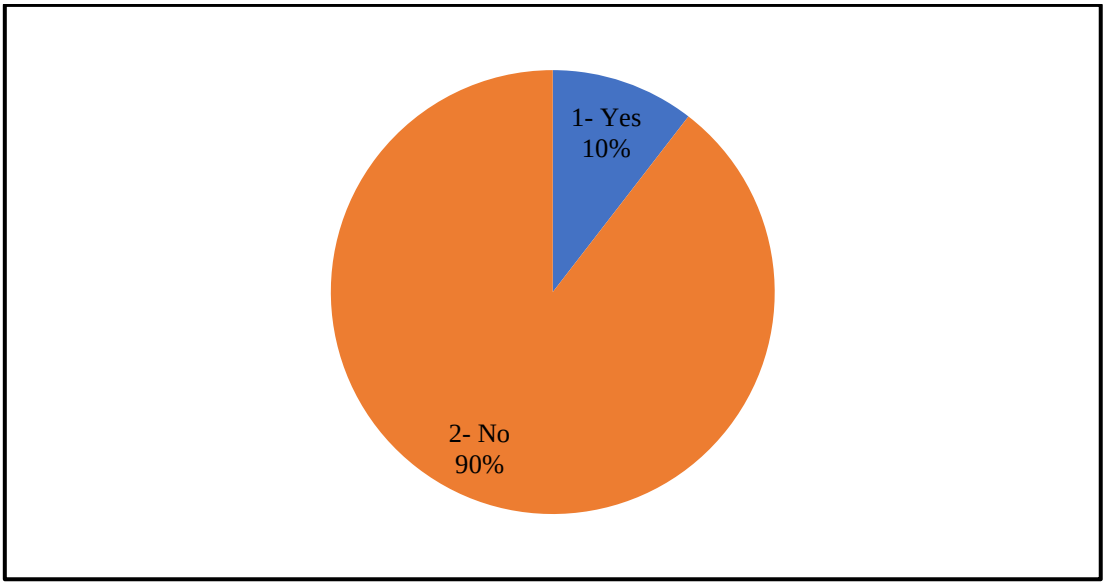
Figure 4.24 Improvement in Production Efficiency after Usage of ECGC Policies



Source: Primary Survey

The comparison of Figures 4.23 & 4.24 reveals that there is a high improvement in the value of exports going to existing markets and new markets, value of integration in the production chain and also for quality betterment. Respondents who could not perceive any improvement after obtaining ECGC policies were very few.

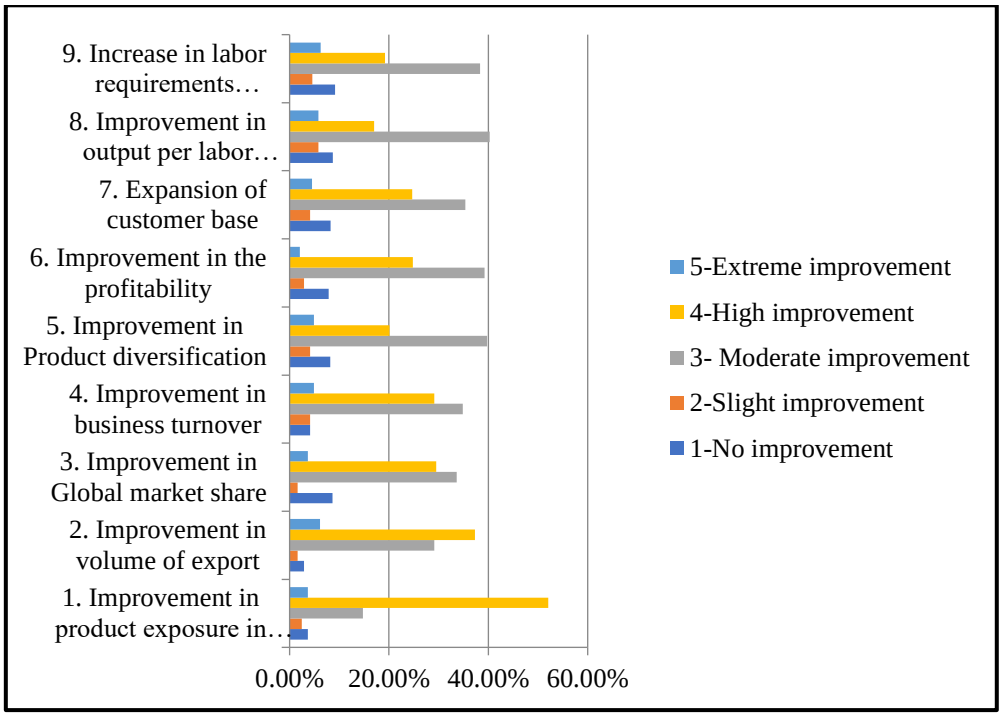
Figure 4.25 Companies Availing Claims In The Last Five Years From ECGC



Source: Primary Survey

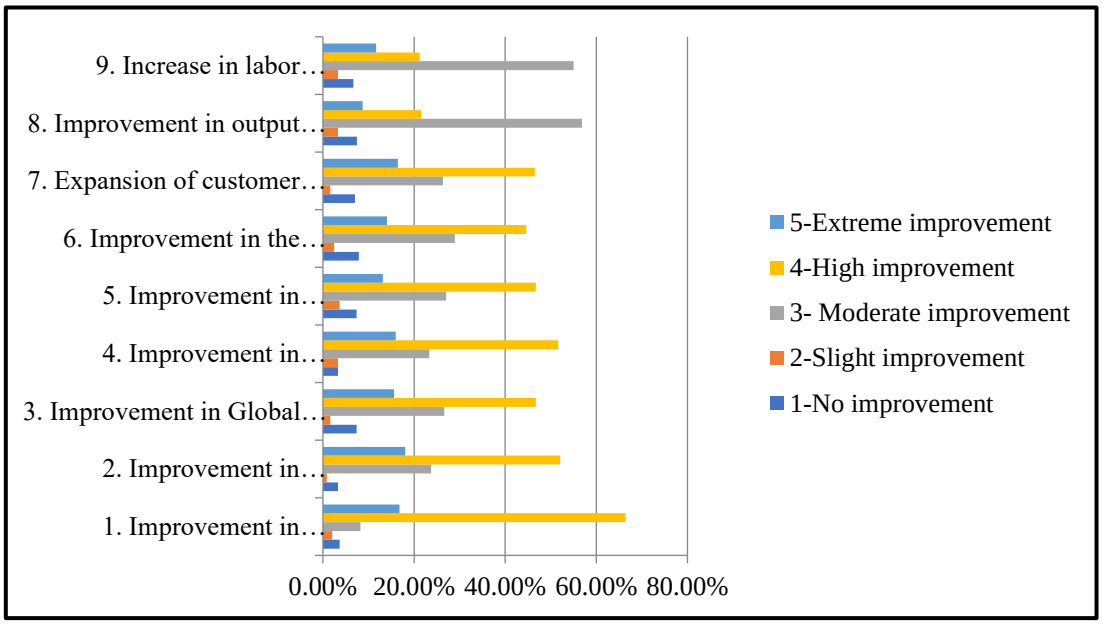
Next, we sought information regarding the claims received. As can be seen from the Figure-4.25, almost 90% of the companies never availed any claim from ECGC in the last five years whereas only 10% availed claim.

Figure 4.26: Improvement in Firms' Performance without/before ECGC Policies



Source: Primary Survey

Figure 4.27: Improvement in Firms' Performance after ECGC Policies



Source: Primary Survey

Finally, in this section the improvement in firm's performance in terms of metrics other than the production efficiency before and after using the ECGC policies is ascertained. The comparison between Figures 4.27 & 4.28 depicts that maximum increase in improvement after utilization of ECGC policies can be seen for product exposure in export markets (Market Access), for business turnover and in export volume.

4.11 Comparative export performance

This section presents few notable differences among the policy holders and non-policy holders in terms of the factors enhancing the export performance. As far as export performance of policy holders is concerned, factors such as country of export, geographical differences while exporting and free trade agreement are deemed extremely important factors as shown by their mean importance levels. According to the non-policy holders, pressure from domestic and international competitors were most important factors on an average.

Table 4.9 Export performance of policyholders *versus* non-policyholders

Sr. No.	Factor	Policy Holder (mean)	Non-Policy Holder (mean)
1	Pressure from domestic competition	25.86%	25.89%
2	Pressure from international competitors	23.43%	18.88%
3	Being part of international value chain	10.79%	11.40%
4	Requirement of user industry	11.79%	11.11%
5	Regulatory requirement in foreign market	14.32%	16.67%
6	Overcome tariff barriers	24.80%	15.93%
7	Free Trade Agreement	26.33%	17.99%
8	Geographical differences while exporting	27.16%	16.22%
9	Characteristics of the products	15.34%	11.80%
10	Country of Export	27.07%	14.29%

Source: Primary Survey

Thus, for non-policyholders the most compelling factors affecting export performance do not show the requirement of ECGC polices upfront. Direction to the ECGC to further attract MSMEs into using ECGC policy covers is better revealed in Table 4.9 on the mean importance levels of the factors that can improve ECGC policies.

4.12 Conclusion

The primary survey focussed on major MSME clusters, covering ten major sectors, to obtain concrete and comprehensive information on issues and challenges faced in obtaining ECGC policies, the kind of risks faced in exporting and the extent to which they are covered by ECGC policies and the impact of ECGC insurance covers on export performance.

Findings of the study

- **Expanding the scope of ECGC export credit insurance policy business:** Only 61% of the MSME firms were holding ECGC policies indicating a vast scope for further increasing the number of ECGC policyholders. The percentage of policy holders was highest for the food sector followed by textile and machinery & equipments sector. Computers and electronics sector had the least number of policyholders among all other sectors covered in this study. Maximum number of MSMEs were situated in Maharashtra with majority of firms belonging to machinery and equipments sector. Furthermore, it was observed that as high as 72% were non-policyholders in Maharashtra as compared to only 28% companies holding some insurance policy. This shows that in the state of Maharashtra, ECGC can find scope for increasing the number of policyholders and hope to achieve encouraging results. The export credit insurance policy holding seems to be better in Tamil Nadu, Uttar Pradesh followed by Karnataka, Rajasthan, Gujarat, and Kerala. Additionally, it emerges from the primary survey that the number of policyholders were more in case of public limited companies followed by private limited ones and even fewer in case of proprietorships.
- **Sector wise exports:** The survey found that the sector-wise shares in the total value of exports of MSMEs belonged to food sector (16%) followed by textile (13.33%) and machinery and equipments (13%) sector.
- **Risk management practice:** Only 59% of the firms practised formal risk management. For sources chosen by firms it was found that, to cover risks such as non-payment risks, around 85% firms chose ECGC policies. To cover their finance risks, 30.99% of the firms found their own way (and mentioned “self” as their source for covering risks), 29% of the firms chose banks, and 18% relied on other financial agencies. For the firms practicing formal risk management, the responses on the importance of challenges faced by these firms after obtaining ECGC policies show that risky market destinations, and issues with LCs given by importers are the most serious problems for the MSMEs.

- **Factors driving export performance:** The factors leading to improvement in export performance as reported by the respondents were mainly related to the selection of countries for export, reducing tariff barriers and the creation of free trade agreements. The same three factors are cited to be the factors driving the demand for export credit insurance policies. Moreover, 70% of the companies agreed that ECGC policies served well as risk-minimizing instruments and thus as enablers for the development of existing markets and new markets, which in turn led to an enhancement of their export capabilities. This indicates the possibility of a positive association between adoption of ECGC insurance covers and increase in exports. In fact, maximum improvement after utilization of ECGC policies is reported for product exposure in export markets (Market Access), export volumes, and business turnover.
- **Important factors considered for ECGC policy adoption:** For participating in international trade, risk mitigation and cost minimization were the top most important factors for which export credit insurance policies were utilized by firms for increasing exports. The kind of risks motivating firms to opt for ECGC policies are related to protracted default in payment by the buyer due to reasons such as the insolvency of the buyer, repudiation risk, non-payment by LC opening bank, insolvency of LC opening bank. Market related factors were reported to be most important considerations for ECGC policy adoption. Among the market factors are: currency risk, overcoming problems in entering new markets and markets dominated by established players, transportation time and cost. Also important are cost factors. Among them are availability of finance from outside sources, funds blocked in essentials other than ECGC policies (LCs, Loans etc.), premium charged. Other factors of importance were enabling increase in the quantity of exports, buyer base of the existing markets and the new markets and in the number of new buyers.
- **Barriers to ECGC Policy Adoption:** The major deterrents for usage of ECGC insurance cover are firms' constraint on funds, issues pertaining to premium charged, credit limits, the risks covered, and procedural obstacles. Moreover, excessive time taken for obtaining ECGC export credit insurance policies, for settlement of claims, and issues with closure of policies were reported to be the top three time-related deterrents in the adoption of ECGC policies.

- **Threats/Challenges Faced by firms in Exporting:** After obtaining ECGC policies, the major threats/challenges faced by firms were commercial disputes including quality related disputes raised by the buyer, issues with letters of credit given by importer, the premium charged and credit limit issues were found to be significant impediments in exporting.
- **ECGC's outreach to exporters:** Besides the utilization of ECGC funds, the awareness of its policies and their positive implications were also examined through this survey. It emerged that the management staff was regarded as the most important internal source of information within the firm or business group. Also, banks were found to be the most important external source of information followed by clients or customers and consultancy firms in spreading the information about ECGC policies. However, ECGC needs to pay a lot more attention towards its marketing efforts.

4.13 Way Forward

A few MSME units have mentioned in the primary survey that ECGC policies are not economically viable for commodities having low margins like onions, sugar, potatoes, grapes etc. But for high-value items having greater margins, e.g., cashew nuts, peanuts, dry fruits, engineering products, electronics, ECGC policies have been reported to be worthwhile. Thus, sector-wise and sector-specific adjusted ECGC policies with varying premiums and benefits is likely to be more effective in boosting the exports of MSMEs.

From the responses in the primary survey, certain other suggestions to improve the existing ECGC policies follow. These suggested improvements are in the direction of extending the extent of risks covered, adjusting the coverage of risks according to nature of goods exported, making available insurance covers smoothly and swiftly, making available timely information about import entities/export destinations, promoting ease in settling claims. Ninety per cent of the companies never availed a claim from ECGC in the last five years. However, most firms perceived significant improvement after obtaining ECGC policies in the value of exports going into existing and new markets, value of integration in the production chain, and in quality enhancement, Improvement after obtaining ECGC policies was also reported for volume of export, product exposure in export markets (Market Access), and in business turnover.

Furthermore, to achieve government of India's target of two trillion-dollar exports by 2030, an action plan needs to be formulated. This would involve, firstly, creating an awareness of various ECGC policies through social media, appointing agents for recommending ECGC

policies and creating a system for answering any queries companies might have regarding specific requirements of policies. Secondly, ECGC needs to introduce new insurance products and policies to retain effectiveness in changing times and market dynamics. The time taken for issuance of policy needs to be reduced to 2-3 days at the most. To achieve this efficiency in the issuance of ECGC policies, procedural simplification is a must. Thirdly, possibilities of tie-ups of exporters with reputed export consulting firms or consultants, logistics companies, transport operators along with industry associations like ACMA, EEPC, Chemexcil, Rubber Industries Association, etc, for better marketing of exports need to be explored. Once such tie-ups materialize, ECGC can consider introducing special credit insurance schemes for members of such reputed industry associations. This would eventually expand business for both exporters and the ECGC. Lastly, the increase in digital presence can be complemented by issuing online policies and providing a selection opportunity to the customer as per his specific exporting risks cover needs and capabilities to pay insurance premiums.

Chapter 5: Comparison of ECGC with other ECAs

5.1 Introduction

Export Credit Agencies (ECAs) play an important role in a globalized world, a world where economic growth of a country depends on economic activities performed within the territory of the country as well as outside the country in the rest of the world. As it is, trade in goods and services in itself is full of risks and uncertainty even when it is done within the local territory. It is quite obvious that in moving from domestic trade to international trade in goods and services, the uncertainties and risks get immensely compounded. The risk component involved in foreign trade is much higher than that in domestic trade as the former involves huge credit risks, political risks, and risks related to foreign exchange, etc. Hence, it becomes important to insure the risks involved in international trade and provide related services to those engaged in international trade. Facilitating international trade is vital to accelerate the economic growth of countries. ECAs are entities which facilitate international trade by providing government-backed loans and insurance to the exporters in order to lessen their risks of non-payment. ECAs also undertake many activities like providing easier access to finance, disseminating market knowledge, covering risks involved in the exporting country and the risks in acquiring imports that are essential inputs for the production of exports.

5.2 Identifying Export Credit Agencies globally

ECAs may belong to the private or public sector. The private ECAs include commercial banks, private insurance companies and financial institutions that provide their services on their own account. They are not aided by the government in any way. The ECAs in the public sector, on the other hand, are either publicly owned or simply supported by the government[9]. In this study we focus on only the ECAs in the public sector[10]. Hence, public ownership or at least governmental support of ECAs has been considered as one of the criteria for identifying the Export Credit Agencies for this study. It is obvious that any loan or insurance provided by a public ECA of a country is backed by its government. Another criterion of identifying the ECAs for this study is to include those ECAs which undertake their activities in accordance with the rules which are agreed upon by the OECD countries. According to this agreement,

[9] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2687601

[10] An export credit insurance agency is a corporation that provides loans (in a few countries such as Export Development Canada, Euler Hermes Aktiengesellsc haft, ECGC, Swiss Export Risk Insurance etc.), insurance, and other export-facilitating services. The primary goal of such an organisation is to assist exporters while also promoting international trade by removing credit risk or uncertainty.

public ECAs are expected to offer their financing and insurance solutions to insure the exporters against certain risks and potential losses which private ECAs usually are unwilling or unable to offer and insure[11].

The third criterion to be fulfilled for the selected ECAs is that they must be from member countries of the global export credit and investment insurance industry, popularly known as Berne Union (BU). The Berne Union, also known as The International Union of Credit & Investment Insurers, is an international non-profit association and community for the global export credit and investment insurance industry. Berne Union Members are a diverse mix of government-supported export credit agencies (ECAs), multilateral financial institutions and private insurers of credit and political risk. Together, BU Members comprise the global export credit and investment insurance industry. At present, there are 83 Members and 2 Guests[12]. The fourth criterion for the selected ECAs is that they must be from major trading economies. The fifth criterion is that the chosen ECAs must have reliable and easily accessible data required for a meaningful comparison of them.

Hence, on the basis of all of the five above-mentioned criteria, following public ECAs have been identified for this study.

Table 5.1 ECAs selected from the Berne Union List

Country	**ECA**
Canada	Export Development Canada (EDC)
Germany	Euler Hermes Aktiengesellsc haft
India	ECGC Limited
Switzerland	Swiss Export Risk Insurance (SERV)
South Korea	KSURE (Korea Trade Insurance Corporation, Korea Rep.)
South Africa	Export Credit Insurance Corporation of South Africa SOC LTD
Turkey	TURK Exim Bank, or Export Credit Bank of Turkey
United States	Export-Import Bank of US
United Kingdom	UK Export Finance

[11] Export Credit Agencies and Global Energy: Promoting National Exports in a changing world.

[12] https://www.berneunion.org/Members

5.3 Identifying key operational parameters for comparison

In order to better understand how exporters in India get benefitted by policies and functions of ECGC, it becomes desirable to understand and compare how many other well performing ECAs function and benefit their respective nation's exporters, and in what ways ECGC acts differently from them. ECAs were historically developed to mainly help home countries' exporting industries to enter the global markets by providing finance, investment, risk mitigation services, etc. to them. In addition to financial services provided by them in the form of loans, investments, etc., they also provide insurance services and thus protect their customers from the losses which the latter may incur under export contracts due to various risks and charge some premium in return. Based on the major activities performed and services provided by them for exporters against premium charged from the latter, various ECAs selected in the previous section has been compared on the basis of various key parameters in Table 5.2.

As can be discerned from Table 5.4, the **services provided are** among the most important parameters that throw light on what sort of activities are being performed by the selected ECAs. In addition to providing export credit insurance, ECAs play an important role in financing pre-export working capital, project financing, and special export structures (e.g., leases, aircraft financing, on-lending credit facilities, and so on).[13]

One key service provided by all ECAs is the **insurance service**. However, not all ECAs provide exactly similar insurance services to their customers. Most ECAs focus on covering non-payment risks due to insolvency of the buyer and other commercial and political risks However, some ECAs also cover risks stemming from natural disasters such as hurricanes, floods, etc. in addition to commercial and political risks.

In order to understand how ECGC performs in comparison to its counterparts in the rest of the world, it is imperative to understand if **risks covered** by ECGC are similar and equal to those covered by other ECAs. If not, ECGC needs to widen its risk category to be covered in order to help exporters more. As can be seen from Table 5.2, the ECAs in the rest of the world are covering many risks in addition to those covered by ECGC. These are administrative risks, currency risks and natural calamity risks.

Another key parameter that must be compared across ECGC and other ECAs in the world is the costs of services rendered by them, i.e., premiums charged from the exporters as

[13] https://www2.gwu.edu/~ibi/minerva/Fall2011/Raquel.pdf

compensation for the services they benefit from. Generally, it's the premium and other costs to exporters which determines if the exporters are able or willing to avail ECGC or other ECAs services, as the case maybe. Hence, it is important to analyze how much premium and other payable costs are charged by ECGC as compared to other ECAs of the world. Most other ECAs charge premium on a case-by-case basis. However, the ECA in Germany, charges administrative fees over and above the premium amount, where the level of premium charged depends mainly upon factors like order value, terms of payment, length of contract, insured percentage, country risk category, currency, collateral, etc. In addition to premium charges, another key consideration for all the exporters availing services of other ECAs of the world is what part of losses are being insured by them and how much insurance cover they will be given in case of occurrence of losses. For most ECAs in the world, it is around 80 to 95 percent.

Another key parameter which determines the effectiveness of ECAs (and ECGC in particular) in benefiting the exporters is whether all the export sectors and their destination countries are covered or only a select few of them. That is, if a section of exporters is being denied the services or if exports to certain countries areas are being excluded from coverage because of high risk, then the effectiveness of the concerned ECA diminishes. This discriminatory approach is mostly seen in privately owned ECAs who shy away from helping exporters who sell their products in volatile markets. Thankfully, the government run export credit institutions do not show such bias and selectivity. They cover even the exporters producing in unremunerative sectors and selling in extremely risky and volatile markets.

There are now thousands of ECAs worldwide, both privately held and government-run, and they have become a leader in global financing post-financial crisis. The latter type is rapidly increasing in importance. In any case, the ECAs considered here are all government or quasi-government agencies. This means that they are under the purview of government authorities if not directly run by them and also have access to taxpayer funds. At the same time, increasingly there is a move towards autonomy. However, even as ECAs acquire more and more autonomy, they are governed to varying degrees by generic insurance regulators in their respective countries. A comparison of the structure of some leading ECAs is provided in Table 5.2.

Table 5.2 Comparison with some leading ECAs governed by generic insurance regulators

ECAs	Insurance regulatory authority in respective country	Involvement of Government representatives in respective ECAs Governance
Export Development Canada (Canada)	Federal and/or provincial regulators, called Superintendents of Insurance	Government decided in 2006 to remove deputy ministers from the EDC board. However, some other Crown corporations with financial responsibilities continue to have government representatives on their boards. NOTE: This decision was ostensibly intended to address a possible conflict of interest between the role of board members to serve the interests of the corporation, and the role of deputies in providing advice to and carrying out the decisions of their minister.
Euler Hermes Aktiengesellschaft (Germany)	Federal Financial Supervisory Authority (BaFin)	
Export Credit Guarantee Corporation of India (India)	Insurance Regulatory and Development Authority of India (IRDAI)	It functions under the administrative control of Ministry of Commerce & Industry, and is managed by a Board of Directors comprising representatives of the Government, Reserve Bank of India, banking and insurance and exporting community.
Swiss Export Risk Insurance (Switzerland)	Swiss Financial Market Supervisory Authority (FINMA)	It is independent in its organization and management and conducts its own accounts (Art. 3 SERVG). In accordance with Art. 24 SERVG, the SERV Board of Directors (BoD) prepares the financial statements as well as the annual report and publishes these following the approval by the Federal Council.
Export-Import Bank of US (US)	Insurance is regulated primarily by the states, and not by the US federal government.	EXIM is an independent federal agency.
UK Export Finance (UK)	Regulated by both the Prudential Regulation Authority (PRA) and the Financial Conduct Authority (FCA).	It is a ministerial department of state established and governed by the Export and Investment Guarantees Act 1991 (EIGA). The department reports to the Secretary of State for International Trade.
Sinosure (China)	China Banking and Insurance Regulatory Commission (CBIRC)	It is an independent legal person/entity.
NEXI (Japan)	Japanese Financial Services Agency	For 50 years since its establishment, Trade and Investment insurance program was directly managed by Govt. of Japan. Then in 2001, NEXI was created as a 100% state-owned agency to efficiently manage this program in unity with the Government, where govt. remains in charge of overall planning and negotiation between countries. After 16 years, NEXI has been transformed into a 100% government-owned special stock company.
Turk EXIM Bank	Ministry of Treasury and Finance (MTF)	The Supreme Advisory and Credit Guidance Committee of Turk EXIM Bank are chaired by the affiliated Ministers to Government.

In case of most of the ECAs discussed above the involvement of government representatives in the respective ECAs' governance has been either reduced over the time (for example, Export Development Canada, NEXI, etc.) or it has always been quite low (as in case of (SERV, etc.), as compared to ECGC and Turk EXIM bank. It shows that that more and more ECAs are moving towards seeking more autonomy, not just in terms of its organization and management but also in performing the most important functions of theirs. This does not seem to hold in case of ECGC of India. Similarly, in terms of claim settlement, a brief comparison is depicted in Table 5.3.

Table 5.3 Comparison of Claim Settlement across various ECAs

ECAs	**Claim settlement**
Export Development Canada (Canada)	In case of EDC, it is the Management which exercises judgment in respect of the premium and claims liabilities.
Euler Hermes Aktiengesellsc haft (Germany)	When all the required documents for the acknowledgement of the claim for indemnification have been submitted to the Federal Government, the claim will be processed within two months' time. Claims payment will be smoothly made within five banking days not later than one month after announcement of claims settlement, provided that the policyholder has accepted the claims settlement.
Export Credit Guarantee Corporation of India (India)	Time taken in paying claims depends on the nature of policies.
Swiss Export Risk Insurance (Switzerland)	SERV pays indemnification within 30 days of acknowledging an insured event.
Export-Import Bank of US (US)	EXIM US will pay claims within 60 days of receiving a satisfactorily completed and documented proof of loss.
NEXI (Japan)	Insurance claims will be paid within two months from the date of the claim.
Turk EXIM Bank	In case of Turk Exim Bank, loss is deemed to be finalized after 4 months of either irrevocable discharge of debt by depositing the amount to be transferred to Turkey or upon completion of formalities whichever is later.

In order to benefit the exporters more and more and boost the reach of ECGC's services, it becomes imperative to further simplify the claim settlement procedure by ECGC.

Almost all ECAs discussed here charge a premium based on certain features, terms, and conditions of the contract. In the case of non-payment to exporters, they cover credit risk in the short term and medium- and long-term exports. However, in spite of many such similar traits of these ECAs, the value of business covered by them varies a lot. Value of business covered by ECGC in 2018-19 is much lower than what has been covered by other ECAs discussed here. UKEF, in 2018-19, has covered about 10 times more than the business covered by ECGC in the same period, and likewise EXIM US and SERV have also covered much more business than ECGC has done. Hence important steps need to be taken by ECGC to increase the spread of its services across the nation. This will help in raising the value of business covered by ECGC. On the other hand, it will help the exporters by providing them with insurance cover for their risks and other required services.

With many developed countries in the world creating their own export credit agencies, collectively these agencies have a tremendous impact on world trade. But, because of the moral hazard and adverse selection problems, ECAs tend to attract the most difficult transactions, whereas less risky transactions are handled by private players or are self-insured. It is obvious that this business of covering risks in exporting would require large economic capital to sustain high and prolonged losses. This business must also be profitable, it has to continue. To ensure the profitability of the business of ECAs, it is imperative for them to go for greater diversification of their overall portfolio both by reaching new markets and introducing new products, as well as by introducing modern techniques of risk management.

Table 5.4 Comparison across selected Export Credit Agencies

ECAs	ECGC	UK Export Finance	Export-Import Bank of US	Swiss Export Risk Insurance (SERV)	Euler Hermes Aktiengesellschaft (ECA in Germany)	Export Development Canada (EDC)
Owned by	Wholly owned by the Government of India.	A government department.	An independent federal agency.	State owned insurance company.	Federal Republic of Germany	Govt. of Canada
Services Provided	It provides credit insurance and trade related services to Indian exporters of goods and services. In addition, it also provides export credit insurance covers to the banks and other financial institutions, to enable them to serve exporters better.	Supports UK exporters by providing risk protection insurance, facilitating finance and supporting loans to overseas buyers.	EXIM provides trade financing solutions – including export credit insurance, working capital guarantees, and guarantees of commercial loans to foreign buyers – to empower exporters of U.S. goods and services.	SERV protects Swiss exporters from default, facilitate export financing and support companies in obtaining low-interest loans or higher credit limits. It offers a comprehensive range of insurance and guarantee products for individual transactions in relation to the export of goods and services over the entire life cycle of an export business.	It supports its exporters and provides them protection against bad debt losses in connection with supplies to difficult and risky markets. And in particular supports SMEs in establishing trade relations abroad and provides them easier access to export finance.	Supports Canadian exporters by protecting them from risk of non-payment due to various reasons, help in financing deals and working capital needs and share the market knowledge with their customers.
Insurance Service	It provides Export credit insurance policy which support the Indian exporters by assuring them of non-payment by a foreign buyer (of	Export Insurance Policy protects the exporters from losses incurred under insured export contracts due to: Credit risk, political risk or some	Export Credit Insurance assures U.S. exporters that their business' bottom line will be protected if their foreign customer(s) fail to pay, due to	Major one: Buyer Credit Insurance (BCI): It protects the financial institution against the risk of the foreign borrower´s payment default caused by Political causes, Insolvency or non-	Export Credit Guarantee (or Hermes Cover): it protects export transactions against a payment default for commercial and/or political reasons. Investment Guarantees: protects direct investment of German Cos.	EDC Credit Insurance protects the exporters' insured losses against the risk of non-payment due to a variety of events.

ECAs	ECGC	UK Export Finance	Export-Import Bank of US	Swiss Export Risk Insurance (SERV)	Euler Hermes Aktiengesellschaft (ECA in Germany)	Export Development Canada (EDC)
	some certain pre-specified risks). Export Credit Insurance cover is also given to the Banks against pre- and post-shipment advances made to Indian exporters.	administrative decision.	certain reasons, and in such a situation, portion of its loss will get reimbursed.	repayment by buyer, hurricanes, floods, etc. There are many more insurances for exporters, service providers, and financial institutions as well.	In emerging markets and developing countries from political risks. Untied Loan Guarantees: support financing of raw materials projects abroad and secure the supply of raw materials to German industry.	
Risks Covered	It covers Commercial and Political Risks under policies issued to the exporters. Some of the risks which are not covered include: Risk due to Foreign Exchange Fluctuations, loss due to failure of exporter to fulfill the contract terms or negligence on his part, or due to commercial dispute	Covers costs incurred if the export contract is terminated because the buyer defaults before the goods are delivered, or if the buyer fails to pay due to specified political, economic or administrative risks including import/export restrictions and currency transfer restrictions. It also covers the risk of loss due to changing market	Protects US exporters' foreign accounts receivable against commercial and political risks. It also offers foreign currency denominated guarantees to mitigate risks associated with foreign currency fluctuations.	-Political risks, Commercial risks, Transfer Risks, Force Majeure. It does not cover Exchange rate risk, as it can be hedged.	It covers commercial and political risks. It also covers credit risk (risk pertaining to foreign currencies) against an additional premium surcharge of 10% under certain conditions.	Protects its customers' risk of non-payment due to various commercial and political risks like: customer bankruptcy, contract cancellation, hostilities in a market that prevent customers from paying, etc. It also covers risks related to currency conversion or transfer in buyer's country.

ECAs	ECGC	UK Export Finance	Export-Import Bank of US	Swiss Export Risk Insurance (SERV)	Euler Hermes Aktiengesellschaft (ECA in Germany)	Export Development Canada (EDC)
	including quality dispute raised by buyer, etc.	prices, such as fluctuations in foreign exchange rates, and to lesser extent interest rates. It does not cover risks incurred during transportation.				
Premium charged (cost) and insurance cover	The cover for commercial risk ranges from 80% to 95% under difference policies. The premium rates are fixed and based on the type of policy, terms of payment, and destination country, etc.	Exporters taking out export insurance may receive up to 95% cover. EXIP premiums start from £250 and are determined on a case-by-case basis. The market, length of time we are on risk and status of the buyer are all factors which influence the premium rate.	In case of non-repayment, exporters will be reimbursed 85-95% of their invoice amount.	Maximum cover ratio is 95 per cent. SERV does not charge minimum premium, it does charge risk-based premiums and expense premiums.	Generally, 85-95% of the risk is being covered, i.e., uninsured risk ranges from 5-15%, depending on the type of insurance cover. Charges administrative fees and the premium amount, where level of premium charged mainly depends upon factors like: order value, terms of payment, length of contract, insured percentage, country risk category, currency, collateral, etc.	EDC generally covers 90% of the insured losses.
Sectors covered	All	No business sectors or types of export are excluded provided that, where	EXIM is prohibited from financing the export of defense articles and	SERV insures all industries with its main focus on transactions by exporting companies in the rolling	Hermes Cover is available to all German export companies	It serves Canadian companies of all types and sizes.

ECAs	ECGC	UK Export Finance	Export-Import Bank of US	Swiss Export Risk Insurance (SERV)	Euler Hermes Aktiengesellschaft (ECA in Germany)	Export Development Canada (EDC)
		applicable, relevant export licensing requirements have been fulfilled. All UK-based exporting companies of goods and/or services, including SMEs can avail this export insurance policy.	services. There are exceptions for "dual use" items (that is, items used for both military and commercial or civilian applications).	stock and railway sector, the machinery sector, as well as in the electrical and metal industry.	irrespective of the company's size or line of business.	
Countries covered	ECGC covers all the countries, but has classified the countries into three categories (i) open cover countries, (ii) Restricted cover group - I countries, and (iii) Restricted cover group – II countries. Also, there are seven different ratings	EU countries (except currently Greece) and certain other high-income markets (Australia, Canada, Iceland, Japan, New Zealand, Norway, Switzerland and the USA) are excluded unless the length of the contract (including the pre-credit and credit period) exceeds two	EXIM can support exports to most markets. There are some export destinations, however, that are not eligible for support, the list of which can be easily accessed[14].	Its main activities relate to export business with Eastern Europe and Central Asia, Western Europe, the Middle East and North Africa. SERV provides their instruments in most countries and only a few countries are not covered.	In 2019, The Federal Government provided cover for exporters to 154 countries (and 153 countries in 2018), and has classified them on certain risk basis.	It covers most of the countries and has classified them into four categories: Open, Open on restricted basis, Open on highly restricted basis and closed countries. EDC solutions are not provided for Closed countries.

[14] The details of countries covered and excluded by EXIM bank US can be accessed at http://www.exim.gov/tools/countrylimitationschedule/.

ECAs	ECGC	UK Export Finance	Export-Import Bank of US	Swiss Export Risk Insurance (SERV)	Euler Hermes Aktiengesellschaft (ECA in Germany)	Export Development Canada (EDC)
	that are assigned to these countries based on their quantum of risk i.e. ranging from Insignificant risk to Very high-risk countries.	years, in which case cover may be possible.				
Value of Business covered	In 2018-19, value of business covered by ECGC amounts to Rs 6,59,926 cr, approximately equal to $873.61million.	In 2018-19, UKEF provided a record amount of support 6.8billion pounds (or $8323.88 million) for UK exports.	During the fiscal year ended 30-09-2018, EXIM authorized $3,323.2 million of loan guarantees, insurance, and direct loans in support of its US export sales.	In 2018, SERV covered new commitments of around 4028 CHF millions ($4176 million), of its exports.	In 2018-19, goods and services worth 20.998 billion euros (or $23,807.85 million) were backed by export credit guarantees in Germany.	In 2019, EDC facilitated exports worth $102.6 billion of Canadian dollars.

ECAs	TURK Exim Bank, or Export Credit Bank of Turkey	Export Credit Insurance Corporation of South Africa SOC LTD	KSURE (Korea Trade Insurance Corporation, Korea Rep.)	SINOSURE (China Export and Credit Insurance Corporation)-China	NEXI (Nippon Export and Investment Insurance)-Japan
Owned by	Fully owned by Turkish Govt.	Fully state owned.	Fully state owned.	State owned.	Fully state owned
Services Provided	It provides its customers fully integrated services as it provides all, i.e. credit, guarantee, and insurance products to its customers. It provides export credit insurance scheme to the exporters so as to protect them from the commercial and political risks embedded. Also provides various products and services which helps exporters meet their credit and financing needs, and some products also offer guarantees to financial institutions.	It supports S. African exporters and investment by providing major services of Export credit insurance, Investment insurance, bond insurance, etc.	It benefits their exporters by providing them various services like export credit insurance for Short term, Medium term and long term, offers guarantees to financial institutions so that they advance their financial services, insures overseas investment so as to promote Korea's overseas investment, also provides service of Foreign exchange risk insurance (Forward) which as per K-SURE especially helps SMEs with weak foreign exchange capabilities, and other services.	It aims at promoting Chinese exports of goods, technologies and services (especially of high-tech and high-value-added capital products). Major products and services include: medium and long-term export credit insurance, overseas investment insurance, domestic trade credit insurance, consultation services, etc. SINOSURE expands its coverage of export credit insurance and plays an important role in supporting the Belt and Road Initiative, Supporting Made in China and supporting Small Business.	It provides its customers varied varieties to promote the sound development of foreign trade and other external transactions, through the establishment of a system of insurance against restrictions on exchange transactions and other risks for which ordinary insurance cannot provide relief, that arise in foreign trade and other external transactions. For that purpose, NEXI provides major insurance and credit related services for short term and medium and long term businesses.
Insurance Service	Export Credit Insurance: Provides two insurance schemes: Short-Term Export Credit Insurance Program covers	**Export Credit Insurance** protects exporters of capital goods and/or services against the political and commercial risks involved and also offer	**Export credit insurance** covers exporters (and financial institutions in case of Medium and Long term) against risk of non-	Provides a varied range of Insurance services to its customers like medium and long-term export credit insurance, overseas	It provides a varied range of insurances services both for Short term business (like Export Credit Insurance,

ECAs	TURK Exim Bank, or Export Credit Bank of Turkey	Export Credit Insurance Corporation of South Africa SOC LTD	KSURE (Korea Trade Insurance Corporation, Korea Rep.)	SINOSURE (China Export and Credit Insurance Corporation)-China	NEXI (Nippon Export and Investment Insurance)-Japan
	commercial and political risks from the cross-border sales of exporters. Medium- and Long-Term Export Credit Insurance Scheme	foreign exchange risk cover if desired. **Investment insurance** covers those S. African entities which seek to invest in foreign countries	payment due to commercial and political risks. **Overseas Business Credit Insurance** helps Korean companies and financial institutions participate in overseas business activities and provides them covers for loan principal and interests for medium and long term. **Overseas Investment insurance** covers overseas investment in stocks, properties, loans, etc. to promote Korea's overseas investment. **Foreign Exchange Risk insurance** which is offered to SMEs and mid-sized companies hedge the risks related to currency fluctuations.	investment insurance, short-term export credit insurance, domestic trade credit insurance, etc.	Export Credit Insurance for SMEs and AFF Sector, Trade Insurance for Standing Orders from Specific Buyer, Comprehensive Export Insurance with Simplified Procedure, Export Bill Insurance and Prepayment Import Insurance) and for medium and long term business (like Buyer's Credit Insurance, Overseas Untied Loan Insurance, Overseas Investment Insurance, Investment and Loan Insurance for Natural Resources and Energy)

ECAs	TURK Exim Bank, or Export Credit Bank of Turkey	Export Credit Insurance Corporation of South Africa SOC LTD	KSURE (Korea Trade Insurance Corporation, Korea Rep.)	SINOSURE (China Export and Credit Insurance Corporation)-China	NEXI (Nippon Export and Investment Insurance)-Japan
Risks Covered	Turk Exim bank insurance programs provide Turkish exporters with coverage against their commercial (importer) and political (importing country) risks. It also provides protection against exchange rate risk by providing derivative products Forward and Option.	Export Credit Insurance: covers both commercial and political risks. In addition, foreign exchange risk in US Dollar dominated transactions is also covered by ECIC (prerequisite for obtaining foreign exchange is to obtain exporters/contractor's cover). Investment insurance covers only political risks.	**Export Credit Insurance** covers commercial (like buyers' insolvency, failure to pay due amount, etc.) and political risks like war, civic unrest, and currency inconvertibility. **Overseas Investment insurance** covers risks like Force majeure risks like flood, typhoon, risks of failure to continue/execute the agreement, expropriation risks, etc. **Foreign Exchange Risk insurance** covers risk to exporters due to currency fluctuation.	**M/LT Export Credit Insurance and ST Export Credit Insurance** covers Commercial and Political risks. **Overseas Financial Leasing Insurance** provides protection from Political risk and Lessee's breach of contract (when lessee fails to pay the lessor the agreed rent under the Lease Agreement when due for any reason other than force majeure.) **Overseas Investment Insurance** covers risks like expropriation, exchange restrictions, war, political riot and breach of contract in the country where investment is made.	It covers political and commercial risks. As NEXI provides various Trade Insurances, Marine Insurance, Investment Insurance, hence it covers various risks that may arise from trade transactions, overseas investment, etc. As NEXI may underwrite exchange rate insurance, under which it also covers exchange rate risks.
Premium charged (cost) and insurance cover	Premium rates vary according to criteria like risk classification of the buyer's country, payment terms, credit length, etc. and it increases as the risk classification	Premium charged by ECIC depends upon the political and/or commercial risks involved in respective	Premiums are based on factors including exporter credit-worthiness, payment terms of the	**ST Export Credit Insurance** provides cover of up to 90% loss against the insured risks, except under the export credit insurance	No details available

ECAs	TURK Exim Bank, or Export Credit Bank of Turkey	Export Credit Insurance Corporation of South Africa SOC LTD	KSURE (Korea Trade Insurance Corporation, Korea Rep.)	SINOSURE (China Export and Credit Insurance Corporation)-China	NEXI (Nippon Export and Investment Insurance)-Japan
	of the buyer's country rises and/or as the payment terms are longer. Short Term Export Credit Insurance Program compensate 90% of loss of its insured entity, while Medium- and Long-Term Export Credit Insurance Scheme covers up to 95% of potential losses.	policies, length of delivery, repayment period. Export credit insurance provides cover of up to 100% and 95% of loan amount against political and commercial risks, or both 100% cover in case of corporate and sovereign borrowers or guarantors. Investment insurance provides cover which is limited to 90% of loss suffered by investors.	export contract, tenor length, risks involved, etc.	(forfaiting) policy up to 100% insurance cover is provided. **M/LT Export Credit Insurance** provides cover up to 90 and 95% against various risks involved. **Overseas Financial Leasing Insurance** provides cover of up to 90% of actual loss if the insured is a non-financial institution, and up to 95% if the insured is a financial institution. **Overseas Investment Insurance** provides insurance cover of up to 95% of the losses incurred.	
Sectors covered	All	All	All	Services provided by SINOSURE cover all the major sectors.	
Countries covered	It provides its services and insures exports to 238 countries with its insurance programs.	It uses an internal country risk method, so as to ascertain the country level risk, and with internal ratings along with ratings of international credit rating agencies assess the political		Services provided by SINOSURE cover all the countries	It covers most of the countries (somewhat around 219) and classifies them in various risk categories in accordance with OECD Country Risk Expert Meeting, which assesses each

ECAs	TURK Exim Bank, or Export Credit Bank of Turkey	Export Credit Insurance Corporation of South Africa SOC LTD	KSURE (Korea Trade Insurance Corporation, Korea Rep.)	SINOSURE (China Export and Credit Insurance Corporation)-China	NEXI (Nippon Export and Investment Insurance)-Japan
		environment in countries they cover, and the ones they are planning to cover.			county's risk by discussing a number of factors like debt repayment, economy and financial conditions.
Value of Business covered	In 2018, TURK Exim Bank provided financial support to Turkish exporters worth USD 44.2 billion[15] ($44,152 million) in 2018 (consisting of USD 27.3 billion of credit and USD 16.9 billion of insurance support), which accounts for 26% of its total exports in 2018.		In 2018 K-SURE provided about KRW 149 trillion of trade insurance and guarantee support for Korean companies, of which K-SURE's SME support record stood highest at 35% of total support by KSURE.	According to the statistics of Berne Union, since ever 2015, the total insured amount of SINOSURE has been continuously ranking top among ECA members.	In 2018, NEXI provided its underwritten facilities of worth JPY 6.3 trillion (or USD 56901.13 million), which has substantially fallen as compared to past year.

[15] In 2018, Turk Exim Bank provided huge financial support to Turkish exporters which could be largely motivated by a major restructuring which took place in 2017, as per which the Bank acquired a structure that will allow it to work with the exporters directly. As a result, Turk Exim bank converted its liaison offices into branches in order to provide on-site service to more exporters.

5.4 Summary

Just like other public ECAs of the world, ECGC is also a state-owned entity, which provides export credit insurance and trade related services to its customers (exporters). Unlike UK Export Finance and EXIM bank US, ECGC and SERV of Switzerland do not provide insurance cover for the risks faced by the exporters due to foreign exchange fluctuations. Almost all ECAs discussed here charge premium on the basis of certain features and terms and conditions of the contract and cover the finance and non-payment risks in short, medium and long terms' exports. However, in spite of many similarities in the functioning of these ECAs, value of business covered by them varies a lot. Value of business covered by ECGC in 2018-19 is much lower than what has been covered by other ECAs discussed here. For example, UKEF, in 2018-19, has covered about 10 times more than the business covered by ECGC in the same period. Similarly, EXIM US and SERV have also covered much more business than ECGC has done. Hence important steps need to be taken by ECGC to increase the spread of its services across the nation. This will help in raising the value of business covered by ECGC. On the other hand, it will help the exporters by providing them with insurance cover for their risks and other required services.

The need for introducing certain policies in ECGC to strengthen the export credit and insurance system in India has also been felt by other concerned departments of the Government of India (GoI).

By comparing ECGC with some of the leading ECAs of the world, following important policy suggestions for the former emerge:

- ECGC may introduce a few policies which would encourage banks to make more credit available to exporters, as they persistently complain of lack of credit. Other than this, ECGC can put in place some policies which try to provide preferential coverage to MSMEs. ECGC may also consider providing some more premium discount to MSMEs to encourage them to avail more of ECGC services with a view to export more.
- ECGC can simplify its procedures further so that even small exporters can take advantage of its policies and do something similar to what KSURE (Korea Trade Insurance Corporation, Korea Rep.) has done for Korean exporters. KSURE keeps in close contact with its customers, offers useful management and personalized consulting services, and has even opened a Trade Sure Consulting Center for supporting SMEs exports. ECGC can diversify its services to our MSME exporters in an analogous manner.

- Many of the leading Export Credit Agencies of the world, whether they belong to developed countries or developing countries, cover their exporters (especially the SME exporters) for risk of foreign exchange rate fluctuations in addition to commercial and political risks. KSURE of Korea, for example, provides foreign exchange rate insurance to SMEs and mid-size companies. ECGC and SERV do not protect their customers from the potential risk from fluctuations in the foreign exchange rate. ECGC should consider taking steps in future to cover risk arising from foreign exchange rate fluctuations in addition to various commercial and political risks covered by them.

Export credit insurance can not only help exporters boost their international sales, but also empower them to better manage their business and easily bear the burden of credit management. The revival of export factoring business for MSMEs without which leading exporting countries would not have been able to make a mark in global trade and ECGC being asked by the government to provide a credit insurance cover for foreign currency lending to MSMEs, further point to the fact that an improved ECGC policy should have a graded premium system depending on the political and/or commercial risks covered, the length of delivery (logistics) and repayment time-period of MSMEs, of the kind that is seen in the policies of other ECAs of the world.

There is also scope for helping exporters who have existing customers that would buy more with an extension of credit terms, or an increase in the credit line offered. Further, a safety net for business' foreign receivables would allow exporters to seize opportunities to increase sales. An identification of the current export prone sectors and of future new markets is likely to be of immense help to our exporters. There can be differential premiums for insurance cover provided for exporting to old and new markets favoring those who are daring to enter the latter in future.

Other lessons from other ECAs of the world for ECGC lie in providing overseas covers in investment insurance, covering risks like force majeure risks such as flood, typhoon, risks of failure to continue/execute the agreement, and expropriation risks.

Chapter 6: Conclusion and Policy Implications

6.1 Introduction

This study is dedicated to evaluating the role of ECGC in the export performance of India employing a firm-level analysis with special focus on the MSME sector. The study begins with expounding the role of ECGC, the type of insurance policies it provides and the trend and pattern of the value of its business covered, insurance premium received and the amount of claims money paid. Along with this, the relevant literature covering export financing and export credit insurance schemes impacting export performance of different sectors in different countries is analysed. The methodology of the study includes both secondary data analysis and research based on a primary survey. In the secondary data analysis, a stochastic frontier model was developed to compare the technical efficiency of MSME firms undertaking ECGC cover with those who were not. Subsequently, the extent of reliance on ECGC cover of the top efficient firms were compared with that of the firms which are least efficient. Further, a primary survey using in-depth interviews/surveys was carried out, to identify the determinants of ECGC usage by firms in India. Primary survey was extremely helpful in analysing the export orientation of firms and the risks faced by them. From the responses of the primary survey, the impact on export performance of ECGC policies and a comprehensive strategy for ECGC has been elicited. This study also presents a comparison of India's nodal ECA – which is ECGC Ltd. - with other such agencies in the rest of the world, providing a host of information into the working style, types of insurance products, risks covered, business performance etc.

The summary of findings of the study carried out as outlined above is presented in the next section, which is section 6.2. Finally, section 6.3 provides the policy implications of the study.

6.2 Findings of the study

By considering the sectoral export propensity impacted by ECGC insurance cover or vice-versa, the regression analysis shows that the sectors which need to get the maximum attention in terms of policy making are those in which both ECGC insurance cover and export intensity impact each other positively and thus help in accelerating export growth. And these sectors are pharmaceuticals, base metals, computer, electronics & optical products, electrical equipments, machinery & equipment's and automobiles & trailers. Food and textile are already highly export intensive sectors. That, however, does not mean that they have already reached the peak of their potential. ECGC can do a lot to help them to further increase their exports.

The primary survey conducted in this study has clearly revealed that the maximum number of MSMEs belonged to the food and textile sectors. Factors such as country of export, overcoming of tariff barriers and the support of free trade agreements served extremely well as enhancers in their export performance. For the sectors which are highly dependent on ECGC cover to improve their export intensity, mainly rubber & plastics and chemical & chemical products need to be carefully covered by ECGC owing to the immense risks they face in foreign markets. The firm-level regression analysis conducted in this study indicates that when all these MSME firms simultaneously export and spend on other insurance premium (a proxy for expenditure on ECGC insurance cover), their technical efficiency (TE) significantly improves. This, however, can imply bi-directional causation. In other words, the cause-and-effect chain maybe working in either one or both of the following two opposite ways. The MSMEs, engaged in international trade, obtained ECGC insurance cover so as to increase their TE to become internationally more competitive, or, conversely, the firms were purchasing ECGC insurance cover to enable them to increase their exports, which in turn lead to improvements in their TE because of exposure to foreign competition. Both the cause-and-effect chains maybe true, but the latter one is more likely if we take into account the results of the primary survey of this study.

According to the results of the primary survey, for the MSMEs, engaged in international trade, two top-most concerns were risk mitigation and cost minimization[16], which they addressed primarily by purchasing ECGC insurance covers. Most important, the MSME respondents in the primary survey reported high improvements in the value of exports going to existing markets, new markets, value of integration in the production chain and also the enhancement in the quality of production after obtaining ECGC policies.

Export credit insurance as one of the determinants of the technical efficiency of Indian firms is relatively new in literature. A comparison of mean values of the key variables for the top 25% and bottom 25% of firms in terms of technical efficiency was undertaken in this study. It reveals that the top 25% of MSMEs are mostly medium-sized, export-oriented firms spending on ECGC insurance cover. Put another way, it means that export-orientation and spending on ECGC insurance cover has helped medium-sized firms in being at the top in terms of technical efficiency. These firms utilize considerable amounts of funds on purchase of ECGC insurance,

[16] ECI policies help to reduce costs by allowing traders to trade safely on open terms rather than using costly Letters of Credit. It enables exporters to sell to new customers and expand into new geographies where the exporter does not have much information on the Buyers Credit History. It contributes to cost reduction by making more loans available at low interest rates.

imported raw materials and disembodied technology. It follows that the production among MSMEs should be based to the extent possible on knowledge, innovation and skill intensive activities for R&D intensity and technological variables too significantly and positively impact technical efficiency. Features like firm-size, age and experience in certain sectors will not guarantee future success in contemporary economic environment if adaptability and flexibility to rapidly changing market circumstances are not continually practised. That is why in the process of transforming local to global, MSMEs play a major role. They have been successfully making local products popular all over the world.

Improvement after obtaining ECGC policies was also reported for volume of export, product exposure in export markets (Market Access), and in business turnover.

6.3 Policy Implications

- **Extending Support across Various Sectors:** Corrective sector-wise and sector-specific ECGC policies with varying premiums and benefits need to be framed. The sectors which need to get the maximum attention in terms of policy making are pharmaceuticals, base metals, computer, electronics & optical products, electrical equipment, machinery & equipment's and automobiles & trailers.
- **Increasing the share of ECGC business:** To increase the share of insurable export credit, ECGC needs to include in its policy package (product range) new products & policies in tune with the changing times and market dynamics.
- **Simplified and customer friendly policies:** ECGC can simplify its procedures so that even small exporters can take advantage of its policies and do something similar to what KSURE (Korea Trade Insurance Corporation, Korea Rep.) has done for Korean exporters. KSURE keeps in close contact with its customers, offers useful management and personalized consulting services, and has even opened a Trade Sure Consulting Centre for supporting SMEs exports. ECGC can diversify its services to our MSME exporters in an analogous manner.

  Moreover, the time taken for issuance of policy needs to be reduced and should be issued in 2-3 days at the most. In general, procedures in obtaining ECGC policies need to be simplified and made more customer-friendly.
- **Tie-ups with exporting consulting firms:** The possibilities of tie-ups of exporters with reputed export consulting firms or consultants, logistics companies, transport operators along with industry associations like ACMA, EEPC, Chemexcil, Rubber Industries Association, etc, for better marketing of exports need to be explored. Once

such tie-ups materialize, ECGC can consider introducing special credit insurance schemes for members of such reputed industry associations. This would eventually expand business for both exporters and the ECGC.

- **Extension of services to the exporters:** As also revealed through our primary survey analysis, concrete steps need to be taken by ECGC to increase its spread of services to our exporters for exporting to all possible destination countries. This will not only boost the export performance of MSMEs but also help in raising the value of business covered for ECGC.
- **Coverage of Foreign exchange fluctuation risks:** ECGC, like the ECAs in the rest of the world, is a state-owned entity but, unlike the latter, does not protect its customers from the potential risk of foreign exchange fluctuations. Many of the leading Export Credit Agencies of the world, whether they belong to developed countries or developing countries, cover their exporters (especially SMEs) from risk of foreign exchange rate fluctuations in addition to commercial and political risks. KSURE of Korea, for example, provides foreign exchange rate insurance to SMEs and mid-size companies. ECGC and SERV do not protect their customers from the potential risk from fluctuations in foreign exchange rate. ECGC should consider taking steps in future to cover risk arising from foreign exchange rate fluctuations in addition to various commercial and political risks covered by them.
- **Raising awareness of ECGC Policies:** Creating an awareness of various ECGC policies through social media, appointing agents for recommending ECGC policies to exporters and clearing any queries companies might have regarding specific requirements of policies.
- **Provision of a Digitalised Framework**: The increase in digital presence of ECGC can be complemented by issuing online policies and providing a selection opportunity to the customer as per his specific exporting risks cover needs and capabilities to pay insurance premiums.

Export credit insurance can not only help exporters boost their international sales, but also empower them to better manage their business and easily bear the burden of credit management. The revival of export factoring business for MSMEs, without which leading exporting countries would not have been able to make a mark in global trade, is critical.

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Questionnaire

Date of Interview: _____ Time of Interview: _____ Name of Investigator: _____

ECGC QUESTIONNAIRE

SECTION A: GENERAL INFORMATION ABOUT THE ORGANISATION

A1. Identification particulars of the firm

S.N.	Particulars	
1	**COMPANY DETAILS**	
1.1	Name of the Company	
1.2	Corporate/ Head office address	
1.3	City/ Town	
1.4	State	
1.5	Pin code	
1.6	Type of organization *(Please Tick)*	(1) Private Limited (2) Public Limited/ PSU (3) Proprietorship (4) Partnership (5) Any others;
1.7	Nature of organization *(Please Tick)*	(1) Foreign firm (2) Multinational Company (3) Public Sector Manufacturing unit (4) affiliated/associated to govt. department
1.8	Year of establishment	
2	**IDENTIFICATION PARTICULARS OF THE ORGANISATION**	
2.1	Activity involved	(1) Manufacturing (2) Trading
2.2	Sector Code as per *(2-digit level of NIC 2008)*	
2.3	Educational level of Top Manager	
2.4	Number of years of work experience of Top Manager	
2.5	International work experience of the Top Manager if any, in years	Yes / No. If yes, No. of years ____
2.6	Gender of Top Manager	Male/Female
2.7	How many functional units are there in your enterprise	
2.8	Highest educational qualification of managers in each functional unit	
2.9	Currently what is the share of your establishment's online sales out of total sales?	% Share_____
2.10	Exporting since (year)	
2.11	Sector(s) of export	Textile / Auto / Food / etc.
2.12	Top 5 products *(based on realization of export proceeds with HS Codes)*	
2.13	Describe exports according to stages of processing *(Please Tick)*	(1) Raw Materials (2) Intermediate Goods (3) Final Goods
2.14	Is the organization an MSME? *(Please mention if it is Micro, Small or Medium enterprise)*	
2.15	Riskier transportation mode considered by your firm	

2.16	What major activities are outsourced by your firm			
2.17	How does your firm source raw materials	(1) Locally	(2)Imports	(3) Mix of both
2.18	Total sales (Domestic + exports) Rs. In lakhs	**FY 2016-17**	**FY 2017-18**	**FY 2018-19**
2.19	Total export sales Rs. In lakhs			
2.20	Total Manpower (Nos.)			
2.21	Proportion of female to male workers %			
2.22	Five Major export destinations / countries			

3	**Please indicate the importance level of factors which drive your requirement for EXPORT CREDIT INSURANCE (ECI) POLICIES and EXPORT PERFORMANCE the most.** *[Rate on scale of 1 – 5 based on their level of importance where "1" is least important and "5" is extremely important].*		
S.N.	**Factors**	**ECI Policies**	**Export Performance**
1	Pressure from domestic competition		
2	Pressure from international competitors		
3	Being part of international value chain		
4	Requirement of user industry		
5	Regulatory requirement in foreign market		
6	Overcome tariff barriers		
7	Free Trade Agreement		
8	Geographical differences while exporting		
9	Characteristics of the products		
10	Country of Export		
11	Other regulatory requirements (please specify)		

4	**CREDIT RISK INSURANCE MANAGEMENT PRACTICE**		
4.1	Is risk management practiced by the firm? *(Please tick)*	(1) Yes	(2) No (Go to Question 5)
4.2	If yes, which mechanism is chosen by your firm? *(Multiple options possible)*	(1) Self	(2)ECGC (3) Banks (4) Other agencies
4.3	Before ECGC, what was the risk mechanism chosen?		
4.4	Please mention the year of undertaking ECGC Policy		
5	**Indicate the importance level of reasons for not obtaining Export Credit insurance policies (Fully or partially) by your firm.**		

	(Rate on 5 points scale for importance level where; Not important=1; Slightly important=2; Moderately important=3; Very important=4; Extremely important=5)	
S.N.	**List of reasons**	**Importance Rating**
1	Lack of funds	
2	Procedural (obstacles)	
3	Delays in claims settlement	
4	Issues with risks covered	
5	Issues with premium charged	
6	Issues with Credit Limits	
7	Alternative sources to obtain credit insurance	
8	Sound commercial relation with the customer / buyer	
9	Less credit risk perceived	
10	Any other mentionable reason _____	
6	**CONTACT PERSON DETAILS**	
6.1	Contact Person Name	
6.2	Designation	
6.3	Mobile number	
6.4	Email id	

SECTION B: SPECIFIC INFORMATION ABOUT ECGC POLICIES

B1. Please indicate <u>your agreement</u> on use of ECGC policies applicable for your business and activities being undertaken by your enterprise (number of times) along with outcomes level of significance to your organization.

S.N.	**Use of ECGC Policies**	**Applicable to your business** [Yes=2/ No=1]	**If yes, mention number of times ECGC policies were undertaken**	**Significance level** *(Rate on 5 points scale for importance level where; Not important=1; Slightly important=2; Moderately important=3; Very important=4; Extremely important=5)*
1	Minimization of cost			
2	Minimization of risks			
3	Maintaining relationships with existing buyers			
	Exploring new markets			

4	*(List five markets)*			
5	Developing existing markets *(List five markets)*			
6	Increasing exports			
7	Product Diversification			
8	Improving quality of exports			
9	Any other *(Please Specify)*			

B2. What is the level of importance accorded, to the risks identified below, while opting for ECGC policy? *[MULTIPLE OPTION POSSIBLE]*

S.N.	**List of Risks**	**Mention the type of ECGC Policy. If not availed, mention NA**	**Rate on the basis of level of importance level.** *(Rate on 5 points scale for importance level where; Not important=1; Slightly important=2; Moderately important=3; Very important=4; Extremely important=5)*
1	Protracted default of the Buyer		
2	Insolvency of Buyer		
3	Repudiation risk		
4	Inconvertibility		
5	Contract Frustration due to war civil war, etc.		
6	Import restriction		
7	Diversion of shipment		
8	Non-payment by LC opening bank		
9	Insolvency of LC Opening bank		
10	Any other *(Please Specify)*		

B3. What is the IMPORTANCE OF CREDIT POLICIES FOR INCREASING EXPORTS after participating in international trade? *[rate on scale of 1 – 5 based on their level of importance and improvement level where "1" is least important and "5" is extremely important].*

S.N.	**Factors**	**Policy Importance Rating**	**Export Improvement Rating**
1	Risk Mitigation		
2	Cost Minimization		
3	Increase in production		

S.N.	Factors	Policy Importance Rating	Export Improvement Rating
4	Increase in quantity of exports		
5	Improvement in quality of exports		
6	Increase in buyer base of the existing markets		
7	Increase of new buyers of new markets		
8	Extending the product range		
9	Hiring a greater number of workers		
10	Any other *(Please Specify)*		

SECTION C: AVAILABILITY OF INFORMATION ON ECGC

C1. Mention the importance level of SOURCES OF INFORMATION that played vital role in undertaking of ECGC policies in the last 3 years. *[Rate on scale of 1-5 based on level of importance where "1" is least important and "5" is extremely important].* ..

S.N.	SOURCES OF INFORMATION	Rating
1	**Marketing efforts by ECGC**	
1.1	Visits by ECGC officials	
1.2	Conferences and Seminars organized by ECGC	
1.3	Conferences and Seminars organized by other agencies in association with ECGC	
1.4	ECGC Stalls in Fairs and Exhibitions	
1.5	Advertisements in Newspapers and Magazines	
2	**Internal sources within the firm or Business Group**	
2.1	Procurement staff	
2.2	Marketing staff	
2.3	Production staff	
2.4	Management staff	
3	**External Sources**	
3.1	Banks	
3.2	Competitors	
3.3	Suppliers of equipment, materials, and components	
3.4	Clients or customers	
3.5	Consultancy firms	
3.6	Higher education institutions/ Research institutions	
4	**Generally available information**	
4.1	Professional conferences, meetings, and publications	

4.2	Fairs and exhibitions	
4.3	Internet or computer-based information networks	
5	**Other sources *(Please specify)***	

SECTION D: IMPORTANT FACTORS & CHALLENGES IN OBTAINING POLICIES FROM ECGC

D1. Please indicate the importance attached to various factors by your enterprise in general and in obtaining policies from ECGC. *(Rate on 5 points scale for importance level where; Not important=1; slightly important=2; moderately important=3; Very important=4; extremely important=5*)

S.N.	Factors	Importance in General	Importance for obtaining ECGC Policies
1	**Cost factors**		
1.1	Availability of finance within your enterprise		
1.2	Availability of finance from outside sources		
1.3	Innovation cost		
1.4	Premium charged		
1.5	Blocked funds other than ECGC policies (LCs, Loans etc)		
2	**Time related issues**		
2.1	Time taken to obtain claims		
2.2	Time taken to obtain ECGC policy / Credit Limit		
2.3	Time for ascertainment of loss		
2.4	Issues with Time for filing claim		
2.5	Issues with Closure of policy		
3	**Market factors**		
3.1	Market dominated by established players		
3.2	To overcome problems entering new market		
3.3	Government policy constraints		
3.4	Currency risk		
3.5	Transportation time and cost		
4	**Any other (please specify)_____**		

D2. Please indicate the importance of types of threats/challenges that your firm faces even after obtaining ECGC policy. *(Rate on 5 points scale for importance level where; Not important=1; Slightly important=2; Moderately important=3; Very important=4; Extremely important=5)***.**

S.N.	Indicators	Importance level
1	Risky destination market (Restricted Cover countries)	
2	Coverage of risks	
3	Size of the firm	

4	Blocked funds other than ECGC policies (LCs, Loans etc)	
5	Premium charged	
6	Issues with Letter of Credits given by importer	
7	Commercial disputes including quality disputes raised by the buyer	
8	Causes inherent in the nature of goods	
9	Exchange rate fluctuations	
10	Credit limit issues	
11	Any other (please specify_____)	

D3. Please indicate the importance of the factors to improve ECGC policies. *(Rate on 5 points scale for importance level where; Not important=1; Slightly important=2; Moderately important=3; Very important=4; Extremely important=5)***.**

S.N.	Indicators	Importance level
1	Timely availability of insurance covers	
2	Cost differences in terms of premiums charged (Please mention Export Credit Agency's name_____)	
3	Ease in obtaining claims	
4	Availability of timely information about import entities / export destinations	
5	The extent of risks covered	
6	Coverage of risk according to nature of goods exported	
7	Any other (Specify_____)	

SECTION E: POLICIES, CLAIMS AND EXPORT PERFORMANCE

E1. Has ECGC increased your production efficiency in terms of quality/quantity of output? Indicate the improvement level. [*Rate on 5 points scale for improvement level where; No improvement=1; Slight improvement=2; Moderate improvement=3; High improvement=4; Extreme improvement=5]***.**

S.N.	Factors	Improvement Without/Before ECGC Policies	Improvement After ECGC Policies
1	Value of exports going to existing markets		
2	Value of exports going to new markets		
3	Value of integration in the production chain		
4	Improvement in rate of acceptance based on quality		

E2. Have availed claim in the last five years from ECGC? Yes / No. If yes, then continue, else go to next question.

Please provide the use to which the claims obtained have been put to and mention the frequency

of doing that activity?

S.N.	Performance activities after using the claims	Frequency of occurrence *[Continuously (all five years) =3, Occasionally (two years) =2, Rarely (one year) =1]*
1	Investing in further production of goods	
2	Increasing the exports of existing products	
3	Exporting new products	
4	Starting to export to riskier markets	
5	Setting another firm	
6	Any other (Specify_____)	

E3. Please indicate improvement in firm's performance before and after availing ECGC policies. [*Rate on 5 points scale for improvement level where; No improvement=1; Slight improvement=2; Moderate improvement=3; High improvement=4; Extreme improvement=5]***.**

S.N.	Indicators	Improvement Without/Before ECGC Policies	Improvement After ECGC Policies
1	Improvement in product exposure in export market (Market Access)		
2	Improvement in volume of export		
3	Improvement in Global market share		
4	Improvement in business turnover		
5	Improvement in Product diversification		
6	Improvement in the profitability		
7	Expansion of customer base		
8	Improvement in output per labor (Productivity level)		
9	Increase in labor requirements (skilled/unskilled)		
10	Any other (Please specify_____)		

E4. Please give the answer of the following question

(1) Suggest measures to ECGC to improve the reach and use of its policies to further increase exports and benefits of your firm?

_____

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_____