Enhancing Competitiveness of Unregistered Manufacturing Units

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Abstract

A firm's competitiveness is now a compulsion, not an option, in the present competitive world. Firms' competitiveness is desirable, not only for optimal utilisation of resources, but also to maintain the livelihood of millions in a sustainable way. The present study is based on the primary firm level survey in different clusters. The objective is to analyse the determinants of competitiveness of India's unregistered small units. This study offers recommendations and suggestions to enhance and strengthen the national and global level competitiveness of unregistered small manufacturing units. It identifies the constraints and pressures in the business environment within which these units operate.

Keywords: *Competitiveness, Unregistered Unit, Factor Analysis*

Introduction

India's achievements on the growth front during the economic reform period have been well documented. The recent years have seen the country grow at more than 6 per cent per annum and the real national income growing by 125 per cent during the period 1992-93 to 2017-18 compared to 93 per cent during the previous period of the same duration. These achievements are no doubt remarkable from a macroeconomic perspective. However, India has also seen a tremendous growth of the informal economy.

To begin with, it must be pointed out that the terms 'unorganised sector' and 'informal sector' are used interchangeably. In India, the term 'informal sector' has not been used in the official statistics or in the National Accounts Statistics (NAS). The terms used in the Indian NAS are 'organised' and 'unorganised' sectors. The organised sector comprises enterprises for which statistics are available from the budget documents or reports, etc. On the other hand, the unorganised sector refers to those enterprises whose activities are not regulated under any legal provision, for which data is not available and which do not maintain any regular accounts.

In this sense, 'unorganised' or 'informal' are very broad terms. A large variety of industries, be it manufacturing or service providers, fall in the category of the informal sector. The present study focuses on the manufacturing sector only. The manufacturing sector plays a vital role in the Indian economy. As per the latest available National Accounts Statistics, during 2017-18, the manufacturing sector had a share of about 16% in the GDP at factor cost.

The manufacturing sector is categorised into two parts – organised sector and unorganised sector based on their legal status. Organised sector means units registered under Section 2m of the Factories Act, 1948; unorganised sector means the rest. The unorganised sector includes enterprises not covered in the Annual Survey of Industries (ASI) (that is, those not registered under Sections 2m(i) and 2m(ii) of the Factories Act, 1948), and manufacturing enterprises registered under Section 85 of the Factories Act.

The unorganised sector in India continues to remain bigger than the organised sector in many key respects in spite of the larger control over resources and socio-economic power enjoyed by the latter. It is nearly a century and a half ago that modern industry and the corporate form of organisation began in India. The organised sector is significantly smaller than the unorganised sector in terms of their share in the GDP and the occupational structure. But despite its large, substantial place in the economy, the unorganised sector is a relatively neglected sector in the arena of public policy support and academic discourse.

The unorganised manufacturing sector in India has recorded steady growth over the last two decades. However, its composition and growth pattern have shown tremendous heterogeneity both within the same region and across regions. On one hand, there are segments of the unorganised manufacturing sector having linkages with the organised sector, especially the factory sector, living and dying with it. On the other hand, there are segments that grow when the organised sector is slackening as people without alternative employment opportunities shift to the unorganised sector. While certain segments of the informal manufacturing sector cater to the industrial demand for intermediaries, some others fulfil the demand of the final consumers. This heterogeneity is not only across size and class of the units, but across product groups also. As a result, their growth is influenced by diverse economic processes and interactions that are again highly region-specific.

A closer analysis of the growth pattern, performance, problems, and prospects of the unorganised or informal manufacturing sector is necessary if one has to evolve policy regime for their optimal development. In this context, the objective of this study is to analyse the determinants of competitiveness of India's unregistered small units. This study offers recommendations and suggestions to enhance and strengthen the national and global level competitiveness of unregistered small manufacturing units. It identifies the constraints and pressures in the business environment within which these units operate.

Although our study concentrates on two specific sectors of two specific regions of India, the results are applicable to any emerging and developed economy. The environment under which unorganised units operate are mostly the same in emerging economies since they suffer from the same kind of operational issues. They are mainly related to constraints of working capital and lack of required technical and marketing knowledge. In developed economies, working capital remains a major challenge for the informal sector. So, the recommendations in this study are applicable to developing as well as developed economies.

Literature Review

The informal sector as a concept was first introduced by Hart (1971). However, some claim (for example, Kabra 1995) that the concept really builds upon the earlier concept of the 'unorganised sector', which encompasses production units of small size, including handicrafts, which have a 'domestic or unorganised character' and may also be part of the 'non-monetary' sector of the economy. As claimed by Bromley (1978), it may equally well be seen as a spin-off of the dual economy literature, originating with Lewis (1954) and Hirschmann (1958), which conceptualised economic development as the emergence and growth of the manufacturing sector (the 'modern' sector) through the absorption of labour being freed from agriculture (the 'traditional' sector), due to the more efficient means of production in the agriculture sector. The dual economy (the 'modern-traditional' dichotomy) literature mainly addressed the sectoral differences in terms of the *technology* applied. More recent literature focuses more on the *organisation* of the sectors (Sethuraman 1976), for example, Geertz (1963) who examined the informal sector in Indonesia.

Apart from macro level studies on informal manufacturing sector in India [Kundu (1993), Mitra (1997), Kundu&Lalitha (1997), Shah (1997), Urmi (1997)] there have also been various area-specific and sector-specific studies to explore different qualitative and quantitative aspects of the informal manufacturing sector at the micro level [Banerjee (1983)].

The 'traditional' sector, the 'survival' sector, the 'unregulated' sector are all terms that are used to describe it. While the informal sector is highly heterogeneous, to provide some semblance of order, the sector can be classified into two broad groups: non-wage employment and wage employment. Then on-wage employment category includes the self-employed (both micro-enterprises and own account) and work in family businesses; the wage-employment category includes regular and casual workers, which, in turn, include sub-contract workers and home-based workers.

While the informal sector has generally been considered a residual sector, the 'formalisation' of which would come in due time, this prediction has, thus far, proved not to hold. Indeed, on the contrary, the informal sector of most developing countries has grown considerably over the past two decades and contributes significantly to output and employment.

As explained by Appiah et. al. (2019), economic growth crucially depends on the development of human capital, and the informal sector plays a pivotal role in nurturing the human capital in different economic spheres. Sethi (2018) observed how trade liberalisation has aggravated wage and asset inequality between countries since 1980s. An efficient informal sector in the developing world may lead to a solution to this problem of inequality as this sector could capture market share across the globe through cost difference. As a result, wage inequality may become an advantage for developing countries, in the context of trade liberalisation.

The informal manufacturing sector in India has gained significant importance in economic literature not only because of its contribution to the national economy, but also because, contrary to the conventional belief that it is a transitional phase and will fade away with time, it has proven to be a permanent phenomenon. India has traditionally always had a very vibrant and competitive Small Scale Industry (SSI). Even after the dawn of industrialisation, British producers of textiles found handmade Indian textiles such a threat that they lobbied hard to have its import banned, succeeding in the late eighteenth century.

During the pre-economic liberalisation period, a wide variety of incentives, concessions and institutional facilities were extended for the development of SSIs. But these socialistic promotional policy measures, in many cases, resulted in protection of weak units rather than the independent growth of units in a competitive business environment. This situation continued up to mid-1991. Under the regime of economic liberalisation, the focus was shifted from 'protection' to 'competitive promotion'.

However, there is no study that deals with the competitiveness of unregistered small units. There are some studies on the competitiveness of medium and large units. There are several definitions of competitiveness. According to Ambastha and Momaya (2003), a firm's competitiveness is dependent on its ability to provide goods and services more efficiently than others involved in the market place.

D'Cruz and Rugman (1992) define firm level competitiveness as the ability to design, produce and market products or services superior to those offered by competitors. Competitiveness of an organisation can be influenced by external as well as internal factors. Internal factors are material and energy prices, quality of manpower, R&D and technical capabilities, logistics management and other processes, whereas external factors are potential new entrants, substitute products, bargaining power of the buyers and bargaining power of suppliers.

In most studies, competitiveness of an organisation is analysed in terms of certain financial parameters, but according to Man et al. (2002), competitiveness of small and medium enterprises (SMEs) should comprise the four major constructs relating to the firm's internal factors, external environment, influences of the entrepreneur and the firm's long-term performance.

Firm-level competitiveness is of great interest among practitioners. Porter says, "It is the firms, not nations, which compete in international markets" (Porter, 1998). The environmental factors are more or less uniform for all competing firms. Research shows that 36 per cent of the variance in profitability could be attributed to the firm's characteristics and actions (McGahan, 1999). Other pro-firm views (Bartlett and Ghoshal, 1989; Prahalad and Hamel, 1990) focus on individual firms and their strategies for global operations, and resource positions to identify the real sources of their competitiveness.

There is need for harmonising competitiveness and related terms, so that confusion can be minimised. While the Five Forces and Diamond Model by Porter and their variants provide useful insights, their limited use in competitiveness evaluations hints at the need for better frameworks. Use of the competitiveness process as a key coordinating process among key management processes such as strategic management, human resources management, technology management, and operations management may provide a powerful tool.

It is necessary for a firm to define competitiveness as part of its strategy. Competitiveness is a multi-dimensional concept with dynamic weight of different factors. A systematic evaluation of competitiveness will be of great help to firms. There are many frameworks and models with their own strengths and weaknesses. While there are some very rich frameworks, their utility is limited due to their rigidity.

However, for our present study, we have taken the definition of competitiveness of an organisation as its ability to sustain its long-term performance better than its competitors in the market. It cannot be judged only by certain financial performance measures. The concept of competitiveness that we have used in this study has been narrated elaborately in the methodology section.

Methodology

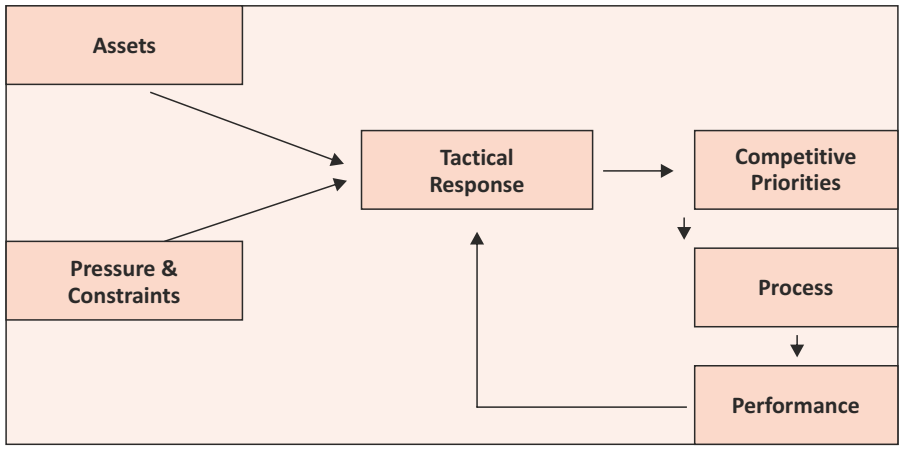
The study is primarily based on the field survey in two different sectors in different geographical locations. Those two specific sectors are food processing and surgical instruments. The survey was conducted in January 2019 using snowball technique in some specific clusters where units of such industries were located. The interviews were conducted with micro and small manufacturing units from clusters located in Muzaffarpur, Bihar for food processing and Baruipur, West Bengal for surgical instruments.

The sample was chosen following the random stratified sampling approach. The sample was stratified by sector and location. 34 units in food processing at Muzaffarpur and 32 units in surgical instruments at Baruipur were surveyed. Within a location/ city, clusters of target manufacturers were identified. Within these, the sample was drawn on the basis of screening of all the manufacturers in the area through snowball technique.

Only micro and small enterprises that are unregistered have been covered. Enterprises in business for at least 3 years were selected. Enterprises interviewed were selected by visiting the clusters and using a right-hand rule for building randomisation in the selection process. In view of the objectives of the study and the types of information required, owners of the manufacturing units were primarily interviewed. Almost all the firms interviewed were proprietorship firms, thereby requiring not more than one/ two respondents.

The framework developed by Singh *et. al.* (2007) comes closest to the competitiveness measurement of the kind of firms we are concerned with in this study. So, we have extended the framework developed by Singh *et. al.* (2007) for our purpose. The following framework would elaborate our extension. In case of un-registered small firms, there is most likely a lack of business strategy since most of the times, they are reacting to external factors. Hence, 'tactical response' along with 'assets' and 'pressures & constraints' constitute competitive priority in our model.

Chart 1: Competitiveness Measurement Framework



The following parameters mention the key components of the Assets, Pressures and Constraints that have been considered in our study.

Assets

- Availability of capital, land and other resources
- Relationship with suppliers and customers
- Awareness and commitment for competitiveness
- Level of IT involvement

Pressures

- To reduce costs
- To reduce delivery time
- To improve quality
- To adapt to frequent changes in supply schedule
- To increase the range of products
- To deliver in convenient lots

Constraints

- Shortage of skills
- Lack of working capital
- Utilisation of obsolete technology
- Poor location
- Limited access to financial services
- Limited market
- Complex and burdensome government regulations
- Governance structures
- Weak associations

The questionnaire generated data in both Likert and nominal scale. The former was related to the perception of the firms and the latter is related to actual performance as may be obtained from their balance sheets (if it is available). This is necessary to cross-check the perception of the firms with their actual performance since the former is subjective. A firm may think that its performance is good whereas the data on other firms and industry standards may reveal a different story. We have used the data generated from the Likert scale to calculate an index of competitiveness following Cleveland *et. al.* (1989).

In quantitative terms, competitiveness can be represented by a competitiveness index. For computing competitiveness index, different issues of framework such as assets, pressures, constraints, strategy development, competitive priorities, processes and performance are considered. The framework of Cleveland *et. al.* (1989) for production competence is extended to compute competitiveness index.

On the basis of Cleveland *et. al.*(1989) model, competitiveness index is given as

$$C_j = \sum_i W_i LogK_i \quad \ldots\ldots\ldots (1)$$

Where C_j = Competitiveness index for firm j

i = Competitiveness issue

R = Rank of competitiveness issue

K_i = Inverse Rank (If R=1, K= 7, when i =7, if R=2, K= 6)

W_i = Weight assigned to particular competitiveness issue.

For assigning weight to different issues of competitiveness, the highest and lowest values of five-point Likert scale i.e. 5 and 1 are mapped 100% and 0% respectively. For each of the six issues of competitiveness, a weight is assigned. The criteria for weight (Wi) is as under:

Wi = +1 (Strength), when percentage score > 60% (Mean value>3). = 0 (Neutral),

when percentage score is between 40-60% (Mean value between 2 and 3). =-1 (Weakness),

when percentage score< 40% (Mean value <2).

For illustration, an example of computation of weight is provided. Say, the mean score for processes = 4.2 on a scale of 1 to 5. Using two-point equation, percentage may be calculated. It comes out to be 4.2/5=0.84; therefore, it is assigned weight of +1.

After computation of the index for all the firms in each of the sectors chosen in our study, we tried to find out the factors that enhanced competitiveness of the firms. We categorised the firms in each of the sectors in three groups depending on their scores. The three groups were created by taking a standard deviation of 0.50 around the mean score. The firms figuring in the group having the top scores were considered for discerning of the factors which helped them maintain a higher level of competitiveness than other firms in each of the sectors. Factor analysis (a multi-variate technique) was used to find out the relevant factors.

The main application of this technique is to reduce the number of variables needed for analysis and to detect the structure in the relationships between variables. In performing the latter function, it also calculates the optimum weights to the original variables which are combined to form the factors. The variance of the retained data is maximised so that it is the optimum representation of the original data set. The weighting scheme is based on this statistical property. To put it simply, one can summarize the correlation between two variables in a scatter diagram. A regression line can then be fitted that represents the 'best' summary of the linear relationship between the variables. Now if a variable can be defined that would approximate the regression line in such a plot, then the variable would capture most of the 'essence' of the two items.

Principal Components Analysis (PCA) is a powerful factor analytic tool that can help us identify patterns in data with dimensionality more than three where graphs cannot be used. The main advantage of this technique is that it compresses the data without much loss of information. At this stage, we must relate the technique to the exercise we want to perform. We first use PCA to compress the static variables to one static indicator, which will give us the optimum linear combination of the variables. The same will be done for the dynamic parameters. The model will then give us the composite index in the form of reduced single variables (Static and dynamic). The model works as follows:

First, the data is standardized (deducting the mean of the variable from observations on each variable and dividing the expression by standard deviation). This is performed because the results in PCA are very sensitive to the units in which the variables are measured.

The covariance matrix, which reflects the structure of relationship among the variables, is computed. The eigen vectors and eigen values of the covariance matrix are then computed as follows:

In this model, we attempt to explain the total variability of p correlated variables through the use of p orthogonal principal components. The components themselves are merely weighted linear combinations of the original variables.

The first principal component can be expressed as follows:

$$Y_1 = a_{11}X_{11} + a_{21}X_2 + ... + a_{p1}X_p \quad \text{... ... ... (2)}$$

or in matrix form

$$Y_1 = a'x$$

The a_{j1} are scaled such that $a_1' a_1 = 1$

Y_1 accounts for the maximum variability of the p variables of any linear combination. The variance of Y_1 is λ_1. Next, principal component Y_2 is formed such that its variance, λ_2 is the maximum amount of the remaining variance and that it is orthogonal to the first principal component. That is, $a_2' a_2 = 0$

One continues to extract components until some stopping criterion is encountered or until p components are formed. It is possible to compute principal components from either the covariance matrix or correlation matrix of the p variables. If the variables are scaled in a similar manner, then many researchers prefer to use the covariance matrix. When the variables are scaled very different from one another, then using the correlation matrix is preferred. A common stopping criterion when using the correlation matrix is to stop when the variance of a component is less than one.

The weights used to create the principal components are the eigenvectors of the characteristic equation,

$$(S - \lambda_i I)a = 0 \quad \ldots\ldots\ldots (4)$$

Or,

$$(R - \lambda_i I)a = 0 \quad \ldots\ldots\ldots (5)$$

Where **S** is the covariance matrix and **R** is the correlation matrix. The λ_i's are the eigenvalues, the variances of the components. The eigenvalues are obtained by solving

$$\left|S - \lambda_i I\right| = 0 \quad for \quad \lambda_i \quad \ldots\ldots\ldots (6)$$

The first eigen vector summarizes the relationship between the variables considered. It shows how the data sets on the variables are related along the line it represents. The second eigen vector shows the other less important pattern in the data and so on. The eigen value is a scalar associated with the eigenvector, which when multiplied (with the eigenvector) gives the product of the original matrices. By this process of taking the eigen vectors of the covariance matrix, the lines which characterize the data have been extracted. In the rest of the stages, the data is transformed so that it is expressed in terms of the lines.

In choosing the components and forming a feature vector, the notion of compression and reduced dimensionality comes in. The eigenvector with the highest eigenvalue is the principle component of the data set. It is the most significant relationship between the data dimensions. In general, once eigenvector is found from the covariance matrix, the next step is to order them by eigenvalue, highest to lowest. This gives you the components in order of significance. Now, if you like, you can decide to ignore the components of lesser significance. You do lose some information, but if the eigenvalue is small, you don't lose much. If you leave out some components, the final data set will have less dimensions than the original. To be precise, if you originally have n dimensions in your data, and so you calculate n eigenvectors and eigenvalues, and then you chose only the first p eigenvectors, then the final data set has only p dimensions.

The feature vector, which is just a fancy name for a matrix of vectors, is to be constructed next. This is constructed by taking the eigenvectors that one wants to keep from the list of eigenvectors, and forming a matrix with these eigenvectors in the columns (ones with the highest eigen values).

The final step in PCA is also the easiest. Once we have chosen the components (eigenvectors) that we wish to keep in our data and formed a feature vector, we simply take the transpose of the vector and multiply it on the left of the original data set, transposed.

Final Data = Row Feature Vector X Row Data Adjust

where Row Feature Vector is the matrix with the eigenvectors in the columns transposed so that the eigenvectors are now in the rows, with the most significant eigenvector at the top, and Row data Adjust is the mean-adjusted data transposed, i.e. the data items are in each column, with each row holding a separate dimension. It gives the original data solely in terms of the vectors chosen. Basically, the data has been transformed so that it is expressed in terms of the patterns between the variables, where the patterns are the lines that most closely describe the relationships between the data. This is helpful because the data has now been classified in terms of combination of the contributions from each of those lines. We looked at the component loadings of each of the eigen vectors to find out the factor which each of the retained vectors represented.

Findings

The food processing units of Muzaffarpur, Bihar and surgical manufacturing units of Baruipur, West Bengal have been selected for this study. A primary survey was carried out in January 2019 in both the locations.

4.1 Food Processing

The food processing sector is critical to India's development, for it establishes a vital linkage and synergy between the two pillars of the economy— Industry and Agriculture. The liberalization of the Indian economy and world trade, and rising consumer prosperity has thrown up new opportunities for diversification in the food-processing sector, and opened new vistas for growth.

It is true that some food processing work, particularly fruit processing, is very seasonal as the agricultural produce on which it depends is seasonal. In those units, temporary workers are hired for this two/three-month period on a massive scale. However, for this study, small units processing Litchi in Muzaffarpur, Bihar were chosen in particular. The distribution of workers is presented below:

Table 1: Distribution of Samples across different Size of Firms in Food Processing

Sl. No	Number of Employees	Number of Respondent firms
1	<5	6
2	6-9	5
3	10-15	13
4	>15	10
Total		**34**

Source: Author's calculations

Competitiveness Index mapping of 34 selected food processing units have been carried out. Theoretically the value of the index lies between -2.86 to +2.86 (1.892). Here, out of 34 respondent firms, 7 firms possess the value less than 1. Again, 6 firms have the value of index greater than 2.5. So, the ranking of the units in terms of index is very different. Some firms are doing well in terms of the index while others are not performing well.

Now we will try to estimate which are the significant predictors of competitiveness for this cluster in particular. In our model, it is assumed that competitiveness (as a dependent variable) is influenced by components such as assets, pressures, constraints and so forth (as independent variables). Regression analysis has been carried out with competitiveness as a dependent variable and other independent variables. It shows that Assets, Pressures and Processes are significant predictors of competitiveness.

In the Cleveland model, each of the components contains many independent factors. Factor analysis of the 'Likert' data obtained from the survey can throw more light to draw a strategy to enhance firm level competitiveness of unregistered small firms in the Food Processing Sector. This analysis helps to identify the factors driving competitiveness. Now the independent factors have been clubbed under the following broad heads:

Table 2: Factors affecting Competitiveness in Food Processing

Variables with high factor loadings	Component Renamed
Quality of input materials	Quality
Improvement in product quality	
Importance of modern technology	Technology
Machinery and equipment	
Level of automation	
Frequency of interaction with customer	Relationship with Customer
Customer satisfaction	
Increasing market share	Marketing Endeavour
Availability of working capital	Finance
Access to finance	

Source: Author's analysis

The factor analysis has generated five factors, namely, Quality, Technology, Customer Relationship, Marketing and Finance as the prime factors responsible for competitiveness. The sub-factors obtained from the survey data have been clustered under each factor based on their closeness or association. This exercise has resulted in identification of sub-factors responsible for competitiveness standing of the enterprise in the globally competitive environment. Now the factors identified from survey data for the units of fruit processing have been analysed in the SWOT framework, which can be seen below:

Strengths
- Substantial area under Litchi production
- Suitable climate
- Bihar, specially Muzaffarpur, is widely known for Litchi
- Better returns per unit area

Weaknesses
- Lack of appropriate packaging
- Lack of quality planting material
- Very short shelf life
- High post-harvest losses

Opportunities
- Climate specific crop
- Possibility of area expansion
- Possibilities of increasing yield by better management practices
- Scope for value addition by increasing shelf life and processing
- High export potential

Threats
- Climate-specific crop
- Short storage life
- Susceptible to pests and diseases

With this SWOT analysis and the factors identified with the factor analysis, we have chalked out the following recommendations, which would lead to enhance competitiveness of the food processing sector:

1. Ensuring quality standard:

Quality is the prime concern of food products, which implies making efforts towards quality up-gradation and maintaining the quality of the product. Awareness about the quality is also important. Many small units do not put any effort to improve the quality. The study reveals that many of them do not even possess quality certifications like Food Process Order (FPO). So, a special drive for such certification is required which, in turn, raises their competitiveness in the processed food industry.

2. Improving storage facility:

The study reveals that the storage facility is very poor in this cluster and hence, a very big hindrance for small manufacturing units. The infrastructure needs to be improved as most of the products are seasonal. Storage facilities for raw materials as well as semi-finished goods need to be improved.

3. Improving credit linkage facility:

The study has found that there exists poor linkage of formal credit delivery mechanisms across the players in the cluster. This has aggravated further due to lack of trust in the formal credit delivery mechanism. However, the study revealed that inability to access finance has created major problems for unregistered units. Easy finance with simplified procedures needs to be arranged for the development of units. Sometimes, working capital shortage hampers production. As a result, special care should be taken to not only support working capital needs, but also capital investment needs in order to infuse modern technology in the firms. But at the same time, it has been found that the linkage with the bank is often found difficult as the firms are not registered. Introduction of a system which facilitates easy credit delivery from the formal system is the need of the hour. A credit facilitating system in the line of "kishan credit card" may be introduced.

4. Improving marketing drive:

Exploring the international market is a dream for such small firms. The study found that some firms, through intermediaries, export their products to countries like Nepal and Bhutan. But these firms are far behind in exports to the EU and US markets. Ensuring the quality aspect, knowledge can be imparted for packaging, documentation, etc. Awareness camps in vernacular language on non-tariff measures in processed food exports must be organised.

4.2 Surgical Instruments

The manufacture of surgical instruments is one of the leading small-scale industrial sectors in West Bengal, India. In the Surgical cluster of Baruipur-Kalyanpur, 95% units are sole proprietor concerns. Only 5% units are run on partnership basis. Most firms serve the domestic markets. Around 15-16% units export their products internationally. Among them, 50% export through intermediaries. About 18-20% of units resort to an export agency for exporting their produce. Only two comparatively large units were found that directly deal with international players to export their produce. Table 3 shows our sample distribution across different sizes of firms.

Table 3: Distribution of Samples across different Sizes of Firms in Surgical Instruments

Sl. No	Number of Employees	Respondent firms
1	<2	4
2	3-5	5
3	6-8	15
4	>9	8
Total		**32**

Source: Author's research

Theoretically, competitiveness index value in our modified version may range between -2.86 and +2.86 (1.477). Competitiveness index of the firms surveyed shows that presently, the firm is a comparatively competitive unit. However, there is scope for improvement in terms of pressures, processes and constraints handling capability.

On the basis of the score, units can visualize their position in the industry/sector and identify gaps with respect to market leaders.

Only two units have very high value of the index (i.e. 1.47). Similarly, in our sample, only two firms lie below -1 in competitiveness mapping. 12 firms lie in the middle order in the index ranking. Interestingly, the distribution of firms in the competitiveness mapping is very even. It can be concluded that in the surgical cluster of Baruipur, all firms are not performing in a similar fashion; rather, some firms are doing well while some are lagging far behind.

Now, we will attempt to find out whether competitiveness factors contribute significantly towards enhancement of firm competitiveness. Multiple regression has been carried out with "competitiveness index" as the dependent variable and other independent variables like assets, pressures, etc. It has been observed that components like Assets, Pressures and Processes are significant predictors of competitiveness.

But here, each of the components contains many independent factors. Factor analysis of the 'Likert' data obtained from the survey can throw more light to draw the strategy in enhancing firm level competitiveness of unregistered small firms. This analysis helps us to identify the factors driving competitiveness. Now the independent factors have been clubbed under the following broad heads:

Table 4: Factors Affecting Competitiveness in Surgical Instruments

Variables with high factor loadings	Component Renamed
Importance of modern technology	Technology
Machinery and equipment	
Use of old technology	
Level of automation	
Age of technology	
Benefit from Common Facility Centre (CFC)	
Total productive maintenance	
Availability of working capital	Finance
Short term interest rate	
Access to finance	
Quality of input materials	Quality
Improvement in product quality	
Semi/Unskilled labour availability	Labour
Skill enhancement	
Labour productivity	
Retention of employees	
Pressure of increasing cost	Cost and Pricing
Reduction in production cost	
Frequency of interactions with customers	Relationship with Customers
Customer satisfaction	
Increasing market share	Marketing Endeavour

Source: Author's analysis

Among the above-mentioned factors, 'technology' is viewed the most important as it is also a foundation of productivity, prompt delivery, etc. Secondly, for a business to be successful, to be able to invest in competitive factors, strong and secure financing support has to be in place. As per the sample responses, the other priorities are quality, labour, cost and pricing, relationship with customers and marketing endeavour. Though the vital prerequisites are technology and finance, other factors are also important. Again, the quality of raw material instead of final product is also a concern for firms to remain competitive.

After analysing different issues for unregistered units in Surgical cluster, the framework on strengths, weaknesses, opportunities and threats has been developed based on the survey data. The factors when put in the SWOT framework, based on the opinion of the owners, provide a useful guide for the intervention strategy to enhance the competitiveness of unregistered small-scale manufacturing firms.

Strengths

- Availability of Skilled manpower
- Superior quality of finished products
- Acquired skill set through generations
- Ability to develop customized products

Weaknesses

- No foreign collaboration or technical support unlike Sialkot of Pakistan
- Common Facilitation Centre not started operating
- Lack of availability of loan funds and working capital
- Non-availability of modern technology
- No separate research cell for developing new product range
- Low retention rate of employees
- No effort towards skill enhancement of labour

Opportunities

- Huge untapped National and International market for quality products
- National level competitors only from Jalandhar, Punjab

Threats

- Rapid increase in raw material prices
- Low priced imports of final products
- Bulk production of instruments of competitors
- Reduced profit margin due to severe competition

Based on the SWOT analysis and the factors identified through factor analysis, the following suggestions have been recommended to enhance competitiveness of the firms producing surgical instruments.

1. Strengthening Industry Association:

It has been observed that units are micro enterprises only and hence, lack bargaining power. Accordingly, these units are unable to respond in a timely manner to market forces acting on them. For example, Baruipur cluster depends heavily on steel as their primary input material, but in the face of rising prices of steel, there was hardly any tactical response from the units, which resulted in making their products highly priced. It has been seen that successful clusters have vibrant associations that work for common good and allow the cluster members to tide over adverse market situations. This is necessary for individual units that are incapable of handling adverse situations on their own. However, the association working in Baruipur was found to be lacking in capability of supporting the cluster units.

The office bearers of the association should have a clear mandate and their performance should be evaluated at regular intervals, which would be the criteria for their continuance in the office. This needs to be done with the help of the concerned department like DIC, MSME institute, etc.

2. Infusing appropriate technology

As the study has observed, improvement in technology is the need of the hour to make the cluster more competitive given the nature of the product the cluster is producing. The entire process of production of instruments can be divided broadly into two parts: forging and finishing. For the latter, i.e., finishing, human skill is required, and skilled labour is not scarce in this age old cluster, but hand forging requires a lot of time and is costlier than mechanized forging process. Though a Common Facility Centre (CFC) has been set up to support the technology need of the cluster units, the CFC has been barely operative till date. This is because either they are not aware about the utility of the available technology or the process of availability and usage is not user-friendly. Therefore, the limited production is not enough to cater even to a part of the national market.

The usage data of the CFC must be monitored periodically to assess the effectiveness of the CFC. This can be done through the concerned departments like MSME institute or DIC of the state government. For continuous upgradation of technology, this cluster must be linked with some R&D organisation like university / technological institute.

3. Focus on Manpower Development

Manpower development process is found to be very traditional. A worker can acquire skills only by spending a sufficient number of years 'on-the-job training'. Also, there is no process set up for skill upgradation and training of the manpower. To upskill a worker requires lots of time. Training workshops in vernacular language must be organised to train young employees for developing customized products; this is the prime need for sustenance of the industry.

4. Developing raw materials bank

The producers of this cluster heavily depend on quality and ready availability of raw material (steel). Since the price of steel fluctuates, and a particular quality of steel is required for preparation of the instruments, a raw material bank will be useful for this purpose. This can be done by setting up a Special Purpose Vehicle (SPV). Initial financial support may be sought from the government. Such banks are already in operation in jute and handicraft segments.

5. Conclusion

The unorganised sector is the backbone of the Indian economy in terms of employment it generates through its forward and backward linkages. In our study, we analysed two particular sectors at two different geographical locations. We have enumerated their competitive index and through factor analysis (applied with the help of PCM), we have identified the core hindrances they face to become competitive. Human resources, finance, technology and marketing have been identified as the major areas of challenge. The recommendations we have made are based on analysis of both secondary and primary data obtained during the survey.

The core problems faced by this sector are not recognised by its stakeholders and hence, it's important for the government to step in to promote these sectors towards growth. Special drive for awareness generation should be initiated. If the primary stakeholders are enlightened, they can make meaningful demands to the government on their own needs to become globally competitive.

6. Applicability and Generalizability

The situation of any developing economy can be gauged very well from this study. Although we have concentrated on two specific sectors of India, the environment under which unorganised units operate is very similar in emerging economies. They face the same kind of operational challenges such as lack of working capital, poor technical and marketing knowledge, etc. Players in the unorganised sector in developing nations have very low levels of awareness about their own needs.

In case of developed economies, informal sectors are mainly associated with the formal sector in terms of backward linkages. In those countries, the informal sector mainly depends on skilled workers. These sectors are the source of cheap and quality raw materials or unfinished products. Although many developed countries try to exploit the cost difference of the developing economies for supply of unfinished products, for skill-based products, they still take their own country's supply as the primary source, which solves the marketing issues of the informal sector of those countries. As technical knowledge and marketing channels are not big challenges for the informal sectors of developed countries, lack of working capital remains their primary problem. In this sense, some of the insights drawn in this study on the problem of working capital remain relevant for developed countries as well.

The data collected for this study is entirely from primary survey. The primary source of data enables chalking of realistic and applicable recommendations. As the primary stakeholders mentioned many of the execution failures of government schemes, it has become very easy to pinpoint the loopholes in the planning. The use of snowball techniques of sampling helps to reach out to actual stakeholders as it uses only the primary stakeholder's contacts. It may be noticed that the different groups of units were stratified with respect to the level of manpower they use, which actually means the level of their operations. The study is based on a well-represented sample, which enables it to chalk out recommendations relevant for every kind of stakeholder.

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