

# Enhancing Competitiveness of Unregistered Manufacturing Units<sup>1</sup>

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## **Abstract**

Firm's competitiveness is now a compulsion not an option in the present competitive world. Their competitiveness is desirable not only for optimal utilization of resources but also maintain the livelihood of millions in a sustainable way. The present study is based on the primary firm level survey at different clusters. The objective is to analyse the determinants of competitiveness of India's unregistered small units. The analysis in this study are intended to derive

recommendation and suggestions for enhancing and strengthening of national and global level competitiveness of unregistered small manufacturing units by way of improving business environment through identifying prime factors of constraints and pressures under which small units are operating.

**Keywords:** *Competitiveness, Unregistered Unit, Factor Analysis*

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## Introduction

India's achievements on the growth front in the economic reform period have been documented extensively, with recent years having seen the country grow at more than 6 per cent per annum and real national income growing by 125 per cent during the period of 1992-93 to 2017-18 compared to 93 per cent during the previous period of the same duration. While these achievements are no doubt remarkable from a macroeconomic perspective, but another aspect of the development pattern seen in India that is the overwhelming preponderance as well as perpetuation of the informal economy.

To begin with, it must be pointed out that it has almost become the universally accepted practice to treat the words “unorganised sector” and 'informal sector' as denoting the same area. 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 the statistics are available from the budget documents or reports etc. On the other hand the unorganised sector refers to those enterprises whose activities or collection of data is not regulated under any legal provision or do not maintain any regular accounts.

In this sense, unorganised or informal is very broad area. A large variety of industries be it manufacturing or service providers comes under the arena of informal sector. For our present study we will concentrate upon the Manufacturing sectors only. Manufacturing sector plays a vital role in 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.

Manufacturing sector is categorized into two parts – organised sector and unorganised sector based on their legal status. Organised sector means the units registered under Section 2m of Factories Act, 1948 and unorganised sector means the rest. The unregistered

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), 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 organization began in India. The main components of the organised sector, in terms of their share in the GDP and the occupational structure, remain far from occupying a substantial part compare to the unorganised counterpart. 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.

Unorganised Manufacturing Sector in India has recorded steady growth over the last two decades. However, its composition and growth pattern has shown tremendous heterogeneity both within the same region and across regions. On one hand, there are segments of Unorganised Manufacturing Sector having linkage 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 get deposited therein. While certain segments of the Informal Manufacturing Sector cater to the industrial demand for intermediaries, some others fulfill the demand of the final consumers. This heterogeneity is not only across size 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 analyze the determinants of competitiveness of India's unregistered small units. Also the analysis intended to derive policy implications for enhancing and strengthening of national and global competitiveness of unregistered small manufacturing units by way of improving business environment through identifying prime factors of constraints and pressures under which small units are operating.

Although our study concentrates on two specific sectors of two specific regions of India, the results are applicable to any emerging and developed economies. The environments under which the unorganised units operate are mostly same in the emerging economies since they suffer from same kind of operational issues. They are mainly related to constraints of working capital, lack of required technical and marketing knowledge. In developed economies working capital remains major challenge for informal sectors. So, the recommendations chalked out in the paper are very much applicable to the other 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 conceptualized economic development as the emergence and growth of manufacturing sector (the “modern” sector) through the absorption of labor being freed from agriculture (the “traditional” sector), due to the more efficient means of production in the former. Whereas the dual economy (the “modern-traditional” dichotomy) literature mainly addressed the sectoral differences in terms of the *technology*

applied, a somewhat later related literature focused more on the *organization* of the sectors (Sethuraman 1976). An example of the latter literature is 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 and sector-specific studies to explore different qualitative and quantitative aspects of 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. Under non-wage employment, it is found the self employed (both micro-enterprises and own account) and work in family businesses while under wage-employment, regular and casual workers which include sub-contract workers and home-based workers are generally associated.

While the informal sector has generally been considered a residual sector, the “formalization” 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) pointed out how trade liberalization has aggravated wage and asset inequality between countries since 1980s. Efficient informal sector in developing world may lead to a solution to this problem of inequality as they may capture world market through the cost difference. So,

the wage inequality may become a blessing in the disguise for the developing country, in the context of trade liberalization.

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 proved to be a permanent phenomenon. India has traditionally always had a very vibrant and competitive SSI. Even after the dawn of industrialization, 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 pre-economic liberalization 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 under competitive business environment. Such situation was continued up to the mid of 1991. Under the regime of economic liberalization, the focus was shifted from “protection” to “competitive promotion”.

However there is no such study which deals with the competitiveness of the unregistered small units. There are some studies on the competitiveness of the medium and large size units. There are several definitions of competitiveness. According to Ambastha and Momaya (2003), 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) defines firm level competitiveness as ability to design, produce and market products or services superior to those offered by competitors. Competitiveness of an organization 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, logistic management and other processes whereas external factors are potential new entrants, substitute product, bargaining power of the buyers and bargaining power of suppliers.

In most of the studies, competitiveness of an organization 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 firms' characteristics and actions (McGahan, 1999). Other pro-firm views (Bartlett and Ghoshal, 1989; Prahalad and Hamel, 1990) focus on individual firm and their strategies for global operations, and resource positions to identify the real sources of their competitiveness.

There is need for harmonizing competitiveness and related terms, so that confusion can be minimized. 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 strength 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 organization 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 primarily based on the field survey in two different sectors in different geographical locations. Those two specific sectors are food processing and surgical instrument. The survey was conducted using snowball technique in some specific clusters where units of such industries were located in January 2019. The interviews were conducted with micro and small manufacturing units from the clusters located in Muzaffarpur, Bihar for food processing and Baruipur, West Bengal for surgical instrument.

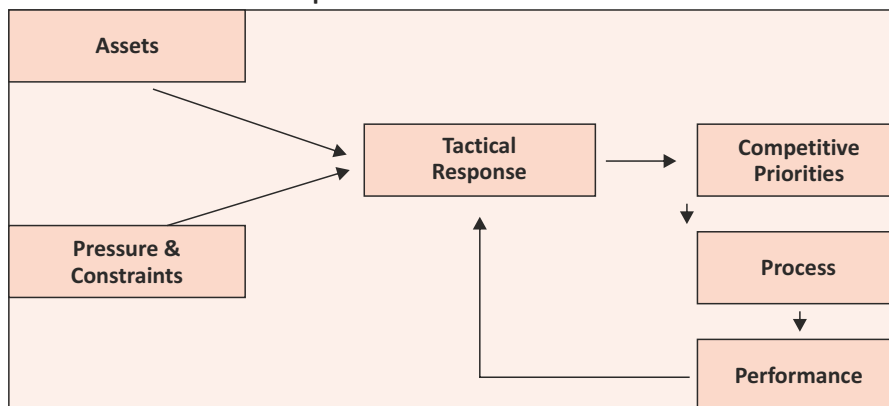
The sample was chosen following the random stratified sampling approach. The sample was stratified by sector and location. 34 units in food processing at Muzaffarpur and 32 units in surgical

instrument 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 has 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 randomization 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 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 cost
- To reduce delivery time
- To improve quality
- To cater frequent changes in supply schedule
- To increase range of products.
- To deliver in convenient lots

### Constraints

- Shortage of skills
- Lack of working capital
- Utilization 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 were 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

$$C_j = \sum_i W_i \text{Log} K_i \quad \dots \dots \dots (1)$$

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 ( $W_i$ ) is as under:

$W_i = +1$  (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 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 categorized 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 maximized 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 of all 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,

$$Y_1 = a_{11}X_{11} + a_{21}X_{21} + \dots + a_{p1}X_{p1} \quad \dots \dots \dots (2)$$

or in matrix form

$$Y_1 = a'x$$

The  $a_{11}$  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  $\lambda_1$ . Next, principal component  $Y_2$  is formed such that its variance,  $\lambda_2$  is the maximum amount of the remaining variance and that it is orthogonal to the first principal component. That is,  $a_2' a_1 = 0$ .

One continues to extract components until some stopping criteria 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,

$$\boxed{(S - \lambda_i I)a = 0} \quad \dots \dots \dots (4)$$

Or,

$$\boxed{(R - \lambda_i I)a = 0} \quad \dots \dots \dots (5)$$

Where **S** is the covariance matrix and **R** is the correlation matrix. The  $\lambda_i$ 's are the eigenvalues, the variances of the components.

The eigenvalues are obtained by solving

$$\boxed{|S - \lambda_i I| = 0 \text{ for } \lambda_i} \quad \dots \dots \dots (6)$$

The first eigen vector summarize 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 are 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 are 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.

$$Final\ Data = Row\ Feature\ Vector\ Row\ Data\ Adjust$$

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, ie. 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 have 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 Baruiapur, West Bengal has been selected for this study. A primary survey was carried out in January 2019 in both the location.

### 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 very 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 or three month period in 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
<b>Total</b>		<b>34</b>

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 are 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 predictor of the competitiveness for this cluster in particular. In our model it is assumed that competitiveness (as dependent variable) is influenced by components such as assets, pressures, constraints

and so forth (as independent variables). A regression analysis has been carried out with competitiveness as dependent variable and other independent variables. It shows that Assets, Pressures and Process are significant predictors of competitiveness.

In 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 the strategy in enhancing firm level competitiveness of the unregistered small firms of Food Processing Sectors. This analysis helps us to identify the factors lying behind the 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 this globally competitive environment. Now the factors identified from survey data for the units of fruit processing have been analyzed in the SWOT framework, which can be seen below:

**Strength**

- Substantial area under litchi production
- Suitable climate
- Bihar specially Muzaffarpur is widely known for Litchi
- Better return per unit area

**Weakness**

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

**Opportunity**

- 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

**Threat**

- Climate-specific crop
- Short storage life
- Susceptible to pest and diseases

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

**1. Ensuring quality standard:**

Quality is the prime concern of the food product. So the effort to be put on the quality up-gradation and maintaining the quality of the product. Awareness about the quality is also important. Many of the small units do not put any effort to improve the quality. The study reveals that many of them do not even possess the quality certification like FPO. So special drive for such certification is required which in turn raise 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 the small manufacturing units. The infrastructure needs to be improved as the most of the products are seasonal. Storage facility for raw material as well as semi finished good needs to be improved.

## 3. Improving credit linkage facility:

The study has found that there exists also a poor linkage of formal credit delivery mechanism across the actors 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 to the unregistered units. Easy finance with simplified procedure needs to be arranged for the development of the units. Some times working capital shortage hampers the production. As a result special care can be taken of not only to support the working capital but also to support the capital investment in order to infuse modern technology in the firms. But at the same time it has been found that the linkage with bank is often found difficult as the firms are not registered. So introduction of a system which facilitates easy credit delivery from the formal system is the need of the hour. So 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 has found that some firms through intermediaries export their products to country like Nepal and Bhutan. But the firms are far behind to export their product to EU and US market. Ensuring the quality aspect, knowledge can be imparted for packaging, documentation etc. Awareness camps in vernacular on non-tariff measures in processed food exports also need to be organised.

### 4.2 Surgical Instrument

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 basis. Only 5% units are run on partnership basis. The majority number of firms serves the domestic markets. Around 15-16% units export their product internationally. Among them 50% are exporting through intermediaries. About 18-20% units resort upon export agency for exporting their produce. Only two comparative large units were found who directly deal with the international players to export their produce. The table below shows our sample distribution across size of firms.

**Table 3: Distribution of Samples across different Size 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
<b>Total</b>		<b>32</b>

Source: Author's research

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

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

Only two units are having very high value of the index (i.e. 1.47). Similarly in our sample only two firms lies 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. So 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. A multiple regression has been carried out with “competitiveness index” as dependent variable and other independent variables like assets, pressures etc. It has been observed that components like Assets, Pressures and Process 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 the unregistered small firms. This analysis helps us to identify the factors lying behind the 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	Finance
Availability of working capital	
Short term interest rate	
Access to finance	Quality
Quality of input materials	
Improvement in product quality	Labour
Semi/Unskilled labour availability	
Skill enhancement	
Labour productivity	
Retention of employees	Cost and Pricing
Pressure of increasing cost	
Reduction in production cost	Relationship with Customers
Frequency of interactions with customers	
Customer satisfaction	Marketing Endeavour
Increasing market share	

Source: Author's analysis

Among the above mentioned factors 'technology' factor is viewed the most important one as it is also a foundation of productivity, on time delivery etc. Secondly, for a business to be successful, to be able to invest in competitive factors strong and secure finance has to be in place. As per the sample response the other priorities are quality, labor, cost and pricing, relationship with customer and marketing endeavor. Though the vital prerequisites are technology and finance but the other factors are also important. Again the quality of raw material instead of final product is also a concern for the firms to remain competitive.

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

#### **Strength**

- Availability of Skilled manpower
- Superior quality finishing
- Acquired skill set through generation
- Ability to develop customized product

#### **Weakness**

- No Foreign collaboration or technical support unlike Sialkot of Pakistan.
- Common Facilitation Center not started operating.
- Lack of availability of loan fund and working capital
- Non availability of modern technology
- No separate research cell for developing new product range
- Low retention rate of employee
- No effort to Skill enhancement labor

#### **Opportunity**

- Huge untapped National and International market for quality product.
- National Level competitor only from Jalandhar, Punjab

#### **Threat**

- Rapid increase of raw material price
- Low price import of final products
- Bulk production of instruments of competitor
- Reduced profit margin due to severe competition

Based on the SWOT analysis and the factors identified through factor analysis, the policy has been recommended which would enhance the 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 have timely response to the various market forces acting on them. E.g. Barui pur 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 unit which make their product highly priced. It has been seen that successful clusters have vibrant associations who work for common good and allow the cluster members to tide over adverse market situations. This is necessary for individual units who are incapable of handling adverse situations individually. However the association working in Barui pur found to be lacking capacity in terms of supporting the cluster units.

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

#### **2. Infusing appropriate technology:**

As the study has observed improvement of 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 the production of instrument can be divided broadly two parts: forging and finishing. For the later part that is finishing human skill is required and skilled labor is not scarce in this age

old cluster but hand forging requires lot of time and much costlier than mechanized forging process. Though a Common Facility Center (CFC) has been set up to support the technology need of the cluster units but the CFC has become hardly 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 a part of the national market.

The usage data of the CFC is required monitoring time to time so that effectiveness of the CFC can be ascertained. This can be done through the concerned departments like MSME institute or DIC of the state government. For continuous up gradation of technology it is desired that this cluster is linked with some R&D organization like university / technological institute.

### **3. Focus on Manpower Development:**

Manpower development process found to be very traditional and a worker can acquire the skill only by spending sufficient number of years on 'on the job training' only. Also there is no set up process for skill up gradation and training of the manpower. So to make a skilled worker huge time is required. So, training workshops in vernacular language need to be organised to train the young employee for developing customized products which is the prime need for the sustenance of the industry.

### **4. Developing raw material bank:**

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

## **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 tried to analyse 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 tried to identify the core hindrance in their way to become competitive. Human resources, finance, technology and marketing have been noted as the major areas of challenge. The recommendation we chalked out is based on the analysis of both secondary and primary data that have been obtained during survey.

As core of the problems in this sector is related to unawareness of its stakeholders in different spheres mentioned above, concerned department of the government must make a serious attempt to overcome this. Special drive for awareness generation should be taken up. If the primary stakeholders are enlightened properly, they can make meaningful demand to the government on their own needs to become globally competitive.

## **Applicability and Generalizability**

The situation of any developing economies can be gauged very well from this study. Although we concentrated on two specific sectors of India, the environments under which the unorganised units operate are very similar in emerging economies. They face same kind of operational challenges like lack of working capital, poor technical and marketing knowledge. The level of awareness on their own needs is also very grim in the developing nations among the unorganised sectors.

In case of developed economies informal sectors are mainly associated with the formal sector in terms of backward linkages. In those countries, informal sector mainly depends on the skilled workers. These sectors are the source of cheap and quality raw materials or the unfinished products. Although many developed

countries try to exploit the cost difference of the developing economies for supply of unfinished products, for skillful 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 the developed countries as well.

The data collected for this study is entirely from primary survey. The primary source of the data enables chalking of realistic and applicable recommendations. As the primary stakeholders mentioned many of the execution failure 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 the actual stake holders 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. So, the study is based on a well representative sample, which enables it to chalk out recommendations relevant for every kind of stakeholders.

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