



**RESEARCH NOTE**

**EMPIRICAL VERIFICATION OF TRANSACTION COST THEORY IN AGRO  
– INDUSTRIAL ECONOMY: A CASE STUDY OF SAGO AND STARCH  
MANUFACTURING INDUSTRIES IN SALEM DISTRICT.**

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**ABSTRACT**

*Small scale industries play a vital role in the socio economic development of the developing countries like India. The economic problems like unemployment, low production, lower incentives and raising prices are overcome by the establishment of small scale units. Sago and Starch industries play an important role in the agro-industrial economy of the southern region of the country. Individual sago units are facing the problems as evidenced by their closing down of the factories from year to year. The reduction of sago units will also give spill over effects to the entrepreneurial strength of the sago factories and also the tapioca economy which simultaneously reflects the income-employment generation in their respective field. The sago industries face the problems like raw materials, shortage of labour, technology, finance, electricity, taxation, water and machineries. It theoretically and empirically proves that transaction cost is necessary for easy production and absence of cost not necessarily decrease the production cost.*

**Introduction**

Small scale industries play a vital role in the socio economic development of the developing countries like India. It gives a scope for semi skilled and skilled labourers, women labours with less capital. These industries are suited for better utilization of local resources and for the achievement of local self sufficiency in respect of certain type of essential consumer goods like food, cloth and agricultural implements and becomes an extremely potent and effective instrument for bringing about rapid development. The economic problems like unemployment, low production, lower incentives and raising prices are overcome by the establishment of small scale units. Sago and Starch industries play an important role in the agro-industrial economy of the southern region of the country. It is widely used in the industries like textile, paper, adhesive, dextrin, soap and detergent industry, laundry starch, cosmetic uses, pharmaceutical uses, horticultural uses, fire proofing preparation, explosives, drilling mud's, optical whiteners, leather treatment and food and sweetener industries. With this underpinnings, this study has been divided into six sections in which the present section gives outline about small scale industries with special reference to sago and starch, the next section gives review of literature, the third section sets the problem, the fourth section describes methodology including theoretical part, the fifth section analysis data and the final section gives conclusion of the study.

**Review of literature**

A resolution of the Asian Regional Conference of the International Labour Organization (1956) stated that small industries have a very important role in the national economy

for individual, village or co-operative enterprise and means for the rehabilitation of displaced persons. Banerjee (1961) and Baradwaj (1987) wrote that the primary object of developing small industries in rural areas is to extend employment opportunities, rise income and standard of living and to bring about a more balanced and integrated rural economy. Rao (1981) and Desai (1983) pointed out faulty planning, technology, recovery problems, financial problems, modernisation are the problems of small scale units. These problems require special attention in order to accelerate the future growth of the industry. They can be made to play better role than what they if the problems overcome. Veeramani (1995) had made a detailed analysis on agro based industries with special reference to sago industries in Salem district and revealed that sago and starch industries provide employment opportunities to the rural people.

Alagh (1996) and Kamala and Raj (2005) Kamalakannan (2006), Pardeep and Shehrawat (2006), and Selvaraju (2007) and Iqbal (2007) analysed the growth of output of agro-based small scale industries. Sudhandhiran (2001) made a diagnostic study for the sago and starch industry and identified that the major problem faced by the owners of sago units is the highly fluctuating prices of sago and starch. Meena (2005), Srinivas and Anantharaman (2005), Edison, Anantharaman and Srinivas (2006) in their research study pointed out that middleman usually exploit the traders and processors and hence dominate the trade. Sago Serve is a cooperative entity which helped in partially eliminating the domination of middleman in sago and starch in the country. It is the only organised setup to help and protect the sago processors especially in Tamil Nadu. Maximum quantity of sago and starch produced in Tamil Nadu is routed through Sago Serve. According to Thanuskodi and Kalyani (2010), the information is an indispensable source for decision making at every level and more than half of the sago and starch owners receive information via Sago Serve. Studies by Rajendran and Gandhimathy (2010 a& b), Gandhimathy and Rajendran (2011a & b), shows the economic dimension of Sago Serve among various segments of the people. The sago and starch member producers, merchants, general public, farmers and government are the beneficiaries of sago serve.

### **Problem Setting**

During the year 1990-91, there are 683 sago units in Salem District of Tamil Nadu, peaked during 1997-98 with 820 sago units, reduced to 776 units in 2000-01 and slashed to 367 units in 2009-10 (nearly more than 50 percent of the units are closed for past 10 years). Individual sago units are facing the problems as evidenced by their closing down of the factories from year to year. In this context, it is necessary to bring out the problems associated with the sago units' to safeguard the existing units and to some extent to revitalizing the dormant units. The reduction of sago units will also give spill over effects to the entrepreneurial strength of the sago factories and also the tapioca economy which simultaneously reflects the income-employment generation in their respective field. Hence, the analysis covers to bring out the causes for closing down of the sago factories.

Against this backdrop, the present study has been undertaken with the objectives of studying the profile of the sago and starch industries, procurement and marketing channels, levels of

wages and employment and problems faced by the sago and starch units.

### **Methodology**

On the basis of field investigation the problems and prospects of sago units are analysed. To communicate the sago members, the well structured interview schedule was used. It covers the general profile of the factory owners, mode of procurement, installed capacity of the units, level of employment, channels of marketing, problems of sample units, acquisition of market intelligence and their perceptions about Sago Serve. In addition to the descriptive statistics like averages and Garrett's ranking technique are used to make this study as scientific. It is predicted about the human behaviour that the sago factory owners will procure the mode in which it lowers transaction costs. The sample units are studied individually to know the actual behaviour of the factory owners to determine if the results are goes on according to the predictions. It is hypothesised that there is no evidence that there is a significant relationship between the prompt supply made to the sago units by the farmers and brokers and criteria of supply of raw materials. Chi-square test is used to identify any significant relationship between the attributes and channels of procurement. Karl Pearson has developed a method to test the difference between the theoretical value and the observed value. Through this test the researcher can find the deviations between the observed values and expected values (Pillai and Bhagavati, 2009). The sago industries face the problems like raw materials, shortage of labour, technology, finance, electricity, taxation, water and machineries and competition. The major factors affecting the production capacity of the units are identified and it is expressed in the scientific form with the Garrett's ranking technique. The following formula is used to convert the order of preference in to ranks.

$$\text{Percent position} = 100 (R_{ij} - 0.5/N_j)$$

$R_{ij}$  – Rank given by the  $i$ th factor by the  $j$ th individual

$N_j$  – Number of factors ranked by the  $j$ th individual.

The mean score gives the rank by descending order of the magnitude.

### **Transaction cost theory**

In recent years, an exploration of transaction costs and its applicability in the social science research is quite increasing. One more attempt is made in this research work to prove theoretically and empirically that the absence of transaction cost will not necessarily reduce the production cost. According to this theory, in order to take out a market operation it is essential to discover who it is that one wished to transaction with, to carry out negotiations leading up to a bargain, to draw up the contract, to undertake the check up needed to make sure that the terms of the contract are being observed and so on (Coase, 1937). Transaction costs are appeared in the form of search and information costs, bargaining and decision costs, policing and enforcement costs. It included the cost of gathering and processing the information required to carry out a transaction, making decisions within an organization, negotiating contracts with other parties, drafting, enforcing, and monitoring costs. Each form of organisation has a unique set of contractual terms and conditions for doing its business and hence a unique set of transaction costs. The characteristics of a contract adopted by an organization affect the transaction costs and thereby the performance of the

organization and effectiveness of economic coordination. While applying this theory into the sago and starch manufacturing industries the following observation is made.

To purchase the tapioca, the costs will be not only in tapioca itself, but also the energy and effort it requires to find out which of the various qualities of tapioca products prefer, where to get them, at what price, the cost of travelling from the factory to the field and come back again to the field, the time waiting in line, the effort of the paying itself, costs above and beyond the cost of the tapioca products are the transaction costs. When rationally evaluating a probable transaction, it is important to consider transaction cost might prove significant.

### **Data Analysis**

#### **Profile of the Entrepreneurs**

The features of the entrepreneurs can be emphasised through their age, educational qualifications, social groups, annual income, year of establishments, previous experience, administration, ownership of the factory and land holdings. It is essential to know the position of entrepreneurs because it shows the manpower. The profile of them are collected and depicted in the table 1.

With regard to age, 50 per cent of the sample units have below 45 years, 30 percent of the sample units have an age group of 45 to 60 years. Remaining goes to the group of above 60 years. With regard to education, secondary level and graduates shared 40 percent equally. 15 per cent of the sample units are having technical education including MBA and BE. Only five percent are up to primary level. Among various social groups only two groups viz., Back ward communities (85 per cent) and Most Backward Communities (15 Per cent) are distributed in the sample. As stated in the table, 30 per cent of the respondents earning annual income of below two and above five lakhs and remaining 40 per cent of the units earn between two to five lakhs. More than half of the units (55 percent) have life span of more than 30 years. Twenty to thirty years are 35 percent and 10 per cent of the units having below ten years. 70 per cent of the units have more than 15 years of experience in the business followed by 5 to 15 years and below five years are 25 percent and five percent respectively. Regarding the administration of the factory, sole proprietors are 65 percent of the units and remaining are partnerships.

Regarding the ownership of the factory, eliminating newly started and purchased from others in the choice category of the schedule, inherited obtains 80 per cent of the sample and remaining are leased owners. Among the samples, 15 percent of the units are landless, both below two acres and two to five acres are 20 percent and 45 percent of the sample have above five acres. It is observed that the owners have agricultural land but none of them cultivate tapioca which is the raw material for sago and starch units. In their land, they cultivate paddy, sugarcane and turmeric which are having high commercial value.

According to the study of 'Market Structure and Performance of Agro-based industrial Cooperative society in Salem region' (Rajendran and Gandimathy, 2010), the brokers

usually buy the tapioca from the farmers and carried into the factory.

**Table – 1: General Profile of the Sample Units**

| Attributes                   | Classification        | Frequency | Percentage |
|------------------------------|-----------------------|-----------|------------|
| 1. Age                       | 25 to 45 years        | 10        | 50         |
|                              | 45 to 60              | 6         | 30         |
|                              | Above 60              | 4         | 20         |
|                              | Total                 | 20        | 100        |
| 2. Educational Qualification | Up to primary         | 1         | 5          |
|                              | Above primary to 12th | 8         | 40         |
|                              | Graduates             | 8         | 40         |
|                              | Technical             | 3         | 15         |
|                              | Total                 | 20        | 100        |
| 3. Social groups             | BC                    | 17        | 85         |
|                              | MBC                   | 3         | 15         |
|                              | Total                 | 20        | 100        |
| 4. Annual Income             | Below 2 lakhs         | 6         | 30         |
|                              | 2 to 5 lakhs          | 8         | 40         |
|                              | Above 5 lakhs         | 6         | 30         |
|                              | Total                 | 20        | 100        |
| 5. Year of Establishment     | Before 1980           | 11        | 55         |
|                              | 1980-2000             | 7         | 35         |
|                              | After 2000            | 2         | 10         |
|                              | Total                 | 20        | 100        |
| 6. Previous experience       | Below 5               | 1         | 5          |
|                              | 5 to 15 years         | 5         | 25         |
|                              | Above 15 years        | 14        | 70         |
|                              | Total                 | 20        | 100        |
| 7. Administration            | Sole proprietorship   | 13        | 65         |
|                              | Partnership           | 7         | 35         |
|                              | Total                 | 20        | 100        |
| 8. Ownership                 | Inherited             | 16        | 80         |
|                              | Leased                | 4         | 20         |
|                              | Total                 | 20        | 100        |
| 9. Land holdings             | Land less             | 3         | 15         |
|                              | Below 2 acres         | 4         | 20         |
|                              | 2 to 5 acres          | 5         | 25         |
|                              | Above 5 acres         | 8         | 40         |
|                              | Total                 | 20        | 100        |

**Mode of Procurements**

As tapioca is cultivated in large scale, large labour supply is needed. The farmers' inability to arrange the labour supply and lack of knowledge about the sago factory which needs the raw material are the major factor behind the farmers' to have a choice of brokers. These brokers have in contact with many sago factories.

Local retailers also buy tapioca from the farmers who will sells to outlets for preparation of chips/snaks or door to door for home consumption. The brokers have market intelligence and in contact with many sago factories. They arrange large labour supply to plough the tapioca from the field and transported into the sago factories through lorries and trucks. The following table shows the mode of procurement of tapioca among sample units.

**Table 2 : Mode of Procurement (raw materials) in Sample Units**

| Attributes | Frequency | Percentage |
|------------|-----------|------------|
| Brokers    | 11        | 55         |
| Farmers    | 3         | 15         |
| Both       | 6         | 30         |
| Total      | 20        | 100        |

From the table 2, it is clear that more than fifty percent of the factory owners depend on brokers and thirty percent relied on both the modes. Only 15 percent of the owners have in directly purchased from the farmers. The sago factory owners felt that the brokers are relatively better than farmers in the supply of raw materials. The farmers constitute only fifteen percent. Both of them – farmers and manufacturers have not faith and mutual understanding has not been achieved in some cases. A small price hike given by the one factory to another factory makes the farmers change their moment in selling the raw materials i.e. tapioca. Reduction of transaction cost and price spread between the farmers and final consumers will gives impetus to cultivators and processors of tapioca. The farmers and sago processing units have mutual interest in bettering the production of agriculture produce for the former it means wealth and for the latter a steady supply of raw materials of requisite quantity.

The farmers sent their produce to factory either through brokers or themselves directly. In the sago factory the raw material is value added, the tapioca is processed into sago or starch. From this point, the sago is channelled into three ways – exported to inter/ intra regional level, commission agents and Sago Serve. These three are after adding some charges as commission, they sent to primary wholesaler. It further moved to secondary wholesaler, retailer and finally reach the consumer. The Sago Serve is a central place which has backward linkages from farmers, brokers and sago producers. The backward linkages are primary wholesaler, secondary wholesaler, retailer and final consumer. Here the sago producers and primary wholesalers are the members of Sago Serve.

**Prompt Supply of Materials to Sago Factory**

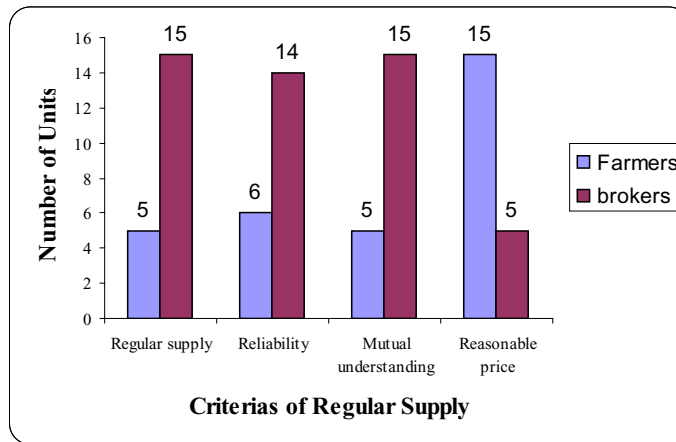
The reasons for mode of procurement channels can be identified from the criteria's like

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regular supply, reliability, mutual understanding and reasonable price. The factory owners thought that the transaction cost of procuring raw material via farmers is more than the brokers. The chart1 shows it. Except reasonable price, regular supply, reliability and mutual understandings are good in brokers compared to farmers. However, the owners believed in the case of prices, the farmers are in a better channel.

The chart 1 shows that nearly 3/4th of the sago producers have chosen the brokers because of their regular supply, reliability and mutual understanding. Five percent of the same reveals that the price is reasonable for the producers when they procure the raw materials directly from the farmers.

**Chart 1: Regular Supply Made by the Units**



### Hypothesis Testing

**Table 3: Results of Chi-square Test**

| O                           | E     | O-E   | (O-E) <sup>2</sup> | (O-E) <sup>2</sup> /E |
|-----------------------------|-------|-------|--------------------|-----------------------|
| 5                           | 7.75  | -2.75 | 7.56               | 0.976                 |
| 15                          | 12.25 | 2.75  | 7.56               | 0.617                 |
| 6                           | 7.75  | -1.75 | 3.06               | 0.395                 |
| 14                          | 12.25 | 1.75  | 3.06               | 0.250                 |
| 5                           | 7.75  | -2.75 | 7.56               | 0.976                 |
| 15                          | 12.25 | 2.75  | 7.56               | 0.617                 |
| 15                          | 7.75  | 7.25  | 52.56              | 6.782                 |
| 5                           | 12.25 | -7.25 | 52.56              | 4.291                 |
| $\Sigma (O-E)^2/E = 14.905$ |       |       |                    |                       |

The calculated value of chi-square test (14.905) is greater than the table value (11.345) at .005 percent level of significance and the null hypothesis is rejected. Hence, it is concluded that there is an evidence for a significant relationship between the prompt supply of raw materials and procurement channels viz farmers and brokers. Application



of transaction cost theory in the sago and starch industries reveals that the transaction cost is necessary for the business units. In a sago factory, the raw material (tapioca) is changed into the sago and starch. The price for tapioca is fixed on the basis of the starch content in the product. For measuring the starch content, the sago factory owners have a point scale. They put on the tapioca into the peeling machine and after several processing it is transformed into finished (starch powder and Sago) products. The residues/effluents are used for animal feed. The effluent tanks are cleared annually which is also used for animal feed. The following table shows the installed capacity of the sample units.

**Table – 4: Installed Capacity of the Sample Units**

|                      |                |    |     |
|----------------------|----------------|----|-----|
| 1.Installed Capacity | Below 200 bags | 3  | 15  |
|                      | 200-500 bags   | 12 | 60  |
|                      | Above 500      | 5  | 25  |
|                      | Total          | 20 | 100 |
| 2.Working days       | Below 180      | 3  | 15  |
|                      | 180 to 250     | 7  | 35  |
|                      | Above 250      | 10 | 50  |
|                      | Total          | 20 | 100 |

The capacity of the units is measured by crushing capacity of the units per day. 60 per cent of the samples are medium size units which crushed 200 to 500 bags per day. And 25 percent of the units are large units and remaining 15 percent are small size units. Though sago industry is a seasonal industry, the factories are working up to 300 days per year which ranges from 150 days to 300 days. Only 15 percent of the units are worked below 180 days. 35 and 50 percent of the units are worked 180 to 250 days and above 250 days respectively.

#### **Level of Employment**

The sago factory absorbs semi-skilled and skilled labourers for both male and female. This study reveals that the large size of units provides additional employment than small units. The average level of employment given by a factory is 17 labourers in which male is 9 and female is 8. The male is getting Rs. 205 where as the female is getting Rs.141/- for the work done by them at average level. The medium unit gives more wages than small and large units for males, but females are getting more wages in small units (Rs.163). The average level of working days irrespective of the units is 239 days. Expectedly the large unit works more days than small units. This part of the study clears that large units provides additional employment and run the factory for 295 days. With regard to wage level it provides lower level of wages for both male and female and hence it enjoys economics of scale in the production. The large units provides lower wages but the employment opportunities are for nearly 300 days, but small units provides higher wages but no of working days are relatively lower. A cross section of the information reveals that for recent years, most of the sago factory owners adopt mechanization and due to mechanisation, the product increases



with lesser costs and the outcome also hygienic. However, it reduces the employment level considerably and one peeling machine replaces 80 women labourers. The following table shows the particulars of employment and wage levels in the sago units.

**Table 5: Particulars of Employment**

| Size of Units | Total employment (No) | Average total empt. (No) | Total male (No) | Average male Employment (No) | Per male wages (Rupees) | Total female (No) | Average female empt. (No) | Per female wages (Rupees) | Average working days |
|---------------|-----------------------|--------------------------|-----------------|------------------------------|-------------------------|-------------------|---------------------------|---------------------------|----------------------|
| Small (3)     | 42                    | 14                       | 22              | 7                            | 213                     | 20                | 8                         | 163                       | 197                  |
| Mediums (12)  | 206                   | 17                       | 110             | 9                            | 219                     | 96                | 8                         | 136                       | 224                  |
| Large (5)     | 99                    | 20                       | 55              | 11                           | 184                     | 44                | 9                         | 124                       | 295                  |
| Total (20)    | 347                   | -                        | 187             |                              | 616                     | 160               | -                         | 423                       | 716                  |
| Average (7)   | 116                   | 17                       | 62              | 9                            | 205                     | 53                | 8                         | 141                       | 239                  |

### Marketing of Sago

The sago factory owners sell their finished goods either by Sago Serve or by private practitioners (who also do the same job of Sago Serve). Both the Sago Serve and the private practitioners was the intermediary between the merchants and the sago factory owners and acted as a marketing agency. The members of the Sago Serve can send their finished goods through the society for sales. Only the members of Sago Serve can sell the products through Sago Serve and kept it into the godowns located inside the Sago Serve if the price is not favourable. The members can get fifty percent of the value of the goods in advance. Daily tender is one of the unique features of the society. Through the secret tender system, the price of sago and starch is fixed. If the price quoted by the officials is not favourable, then the members can stock it in the godowns till the expected price is realised. However, for the usage of godowns they paid the rent and service charges which make them to incur cost. The following table 6 shows the channels of marketing the sago product.

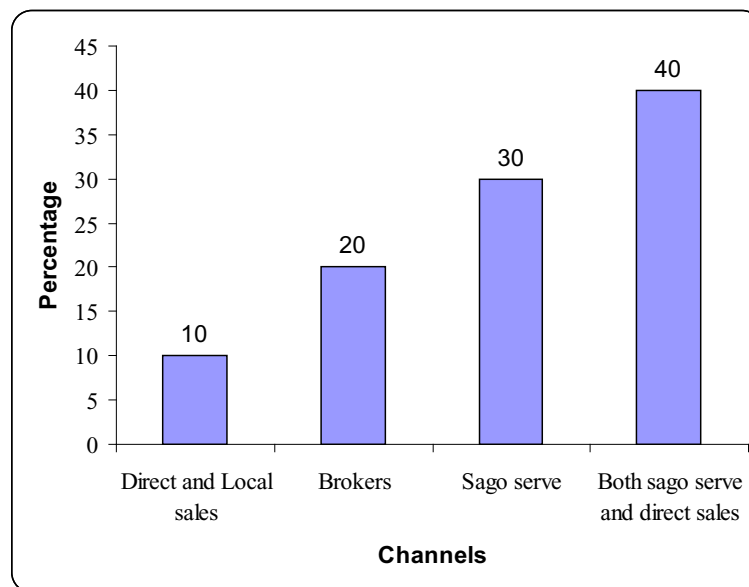
**Table – 6: Marketing Channels for Final Product**

| Channels                         | Frequency | Percentage |
|----------------------------------|-----------|------------|
| Direct and Local sales           | 2         | 10         |
| Brokers                          | 4         | 20         |
| Sago Serve                       | 6         | 30         |
| Both Sago Serve and direct sales | 8         | 40         |
| Total                            | 20        | 100        |

In the above table, it is clear that only 30 percent of the sample units contribute fully to the sago products. 40 percent of the people depend upon both sago and direct. Nearly 20 percent of the sample units sold to brokers and sometimes they send North Indian States directly. Ten percent of the respondents market their product to local and direct sales. As delivered by Kaushal (2011), the sago consumers prefer white colour and hence the sago producers use colouring agents for showing a high quality. As it gives adverse effects to human health, it is prevented through lab test in Sago Serve, which is not done by other

marketing channels. Tests under taken under sago serve for ensuring the quality of the product. In order to avoid the lab test, the sago producers routed their products in other modes of marketing such as direct, local sales and via brokers. It reduces the quantity arrivals to Sago Serve. The pictorial form of presentation in marketing the sago and starch is given in the following chart 2. The marketing channels are shown in the horizontal axis and the percentage of their contribution is shown in the vertical axis. The various forms of marketing the sago products are directly to merchants, local sellers and sago serve, and exports.

**Chart – 2: Marketing of Sago and Starch**



A glance of the chart 2 shows that the members marketing their product in both the channels i.e. Sago Serve and merchants. Only thirty percent contributes fully to Sago Serve. This study reveals that 10 percent of the sago units are directly sold to in local merchants and retailers, 20 percent of units sent through brokers, 30 percent of the units sent to sago units. Depending upon the atmosphere in the marketing remaining forty percent is choosing both the modes.

#### **Acquisition of Market Intelligence**

Thanuskodi ( 2010) revealed that information is an indispensable source for decision-making at every level. It is a vital ingredient for the social development of a nation, especially developing countries like India. It is a well-accepted generalization that a country which is rich in information is rich in the social and economic spheres. Adedibu and Adio (1997) survey shows that 70 percent of respondents used 3-8 hours per week in the library for consulting books applicable to their areas of field. Against this backdrop the schedule tried to capture the acquisition of market intelligence of sago units. It is given in the following table.

**Table – 7: Acquisition of Market Intelligence**

| Attributes                             | Slabs                                 | Frequency | Percentage |
|--|---------------------------------------|-----------|------------|
| 1. Mode of receiving Information       | Brokers                               | 6         | 30         |
|  | News papers                           | 4         | 20         |
|  | Net work                              | 2         | 10         |
|  | Sago serve                            | 8         | 40         |
|  | Total                                 | 20        | 100        |
| 2. Preference over Agency              | Sago serve                            | 17        | 85         |
|  | Brokers                               | 3         | 15         |
|  | Total                                 | 20        | 100        |
| 3. Technical Information               | Sago serve                            | 10        | 50         |
|  | Co-mill owners                        | 2         | 10         |
|  | Technical experts                     | 3         | 15         |
|  | Both sago serve and Technical experts | 5         | 25         |
|  | Total                                 | 20        | 100        |
| 4. Price fixation in Sago Serve        | Fully satisfied                       | 2         | 10         |
|  | Satisfied                             | 7         | 35         |
|  | Neutral                               | 1         | 5          |
|  | Not satisfied                         | 5         | 25         |
|  | Some times satisfied                  | 5         | 25         |
|  | Total                                 | 20        | 100        |
| 5. Information Support from Sago Serve | Very useful                           | 4         | 20         |
|  | Useful                                | 12        | 60         |
|  | No Opinion                            | 2         | 10         |
|  | Not useful                            | 2         | 10         |
|  | Total                                 | 20        | 100        |

Since, the information about the business is important to take subsequent step in the industry, the respondents are asked about the different form of acquiring market intelligence. The owners should have market knowledge about price of sago and raw material, market demand and supply and technology. Hence the query about this was also asked from the respondents. Nearly forty percent of the units received via Sago Serve and 30 percent from brokers. Newspaper and network are the other two ways to acquire the information. Factory owners obtain technical information preferably Sago Serve. Price fixation of Sago Serve is not fully satisfied among the sago units. Only ten percent of the sago units are fully satisfied with the price fixation of Sago Serve. 35 percent are reasonably satisfied, 5 percent are neutral. 25 percent of the sago units are not satisfied and sometimes satisfied.

Information support system is useful however; they believed it is only in limited manner.

#### Problems of Sago Units

Shortage of labour, technological problem, higher price of tubers, quality of tubers, water scarcity, profit levels, repairs of machine, non-availability of technology, finance, electricity, taxation, competition and others are 13 problems identified. These problems are asked for options, in which 5 are neglected by the factory owners during the pilot study. Leaving this, 8 problems are taken for analysis.

**Table –8: Problems Faced by the Sago Units**

| Order of Preference | Total scores | Mean scores | Rank |
|---------------------|--------------|-------------|------|
| Labour              | 2375         | 118.75      | 1    |
| Raw material        | 5875         | 293.75      | 3    |
| Technology          | 4175         | 208.75      | 2    |
| Finance             | 9075         | 453.75      | 4    |
| Electricity         | 10075        | 503.75      | 5    |
| Taxation            | 15275        | 763.75      | 8    |
| Water               | 11175        | 558.75      | 6    |
| Machineries         | 12975        | 648.75      | 7    |

It is identified that labour problem is prime problem of sago and starch units, followed by this technological and raw materials are the major problems of sago units. On the basis of field investigation, each problem is discussed below.

#### Shortage of Labourers

The prime factor affecting the sago industries are shortage of labourers. Sago units endowed the labourers either contract basis or non-contract basis and they are both skilled and semi-skilled. The processing of sago and starch involves different activities like washing, peeling and crushing, screening, drying, sizing, roasting and polishing. It is basically labour absorbing industry and provides seasonal employment for both male and female. Timely and adequate numbers of labourers are essential for ensuring the production. Most of the sago units face the problem of both skilled and semi-skilled labourers. In spite of usage of capital intensive technology for replacing the large amount of labourers, minimum labourers are required which could not be done by machines alone. It is essential to search for labourers because most of the sago factories suffered by this problem.

#### Technology

For ensuring the hygienic and high rate of productivity, the adoption of the latest technology is essential. Another task of the sago industries are how to run the latest technology if at all they are aware of the technology. The Sago Serve offered fifty percent of the amount as subsidy or up to four lakhs as subsidy amount. But these facilities are on the basis of their product contributions made to Sago Serve. Hence, the beneficial effects are only to the large scale units. The small scale units are lacking in technological adoption.

### **Raw Material**

Availability and accessibility of raw materials is one of the Herculean tasks for sago units. The fuller utilization of the units depends upon the availability of sufficient quantity and quality of raw materials i.e tapioca. As tapioca is seasonal crop, it cannot be assured to supply for the whole year. While procuring the raw materials they face the difficulties in the matter of shortage of roots, price volatility and perishable nature of the raw materials which hinders the production process.

### **Finance**

Finance is one of the life bloods of any business and the sago is not an exception to this. The sago units need finance for working capital. The small scale units have only a small means to meet their transaction purposes, the delay in get back of money after selling. Unexpected expenses are also one of the factors which affect the sago manufacturing.

### **Electricity**

Power shortage is one of the problems of sago units. If the power cuts are notified earlier, then the sago units manage themselves to some extent. But the unnotified power cuts could affect the production leading to wastage of raw materials. The small scale units are facing not only shortage of power but also of heavy electricity charges. The installation of the gas plant will reduce the problem but it needs a huge amount in establishments which could not be bared by the small scale units.

### **Water**

Some the factories face the problem of water shortage. Plenty of water is used during the course of processing. On the one side they face the problem of fresh water and another side they face the problem of how to dispose the waste water. The recovery of effluent water is another complementary problem of sago units.

### **Machineries**

Every year the sago factories have to renew the machineries which involve huge cost. As it is seasonal, it could not be run throughout the year. Hence, they are shutting the factories for two to six months depending upon their size. Before starting the business they have to repair the machineries which involve huge costs.

### **Taxation**

Payment of taxation such as sales tax and pollution tax is not a major problem for all the units. The large scale units can cope up a problem of taxation through the sales maximization or profit maximisation, but the small scale units feel it as a burden because they dump their units up to six months.

In addition to the above factors, competition among the firms, transport problems, price volatility of sago price and insufficient factory accommodation hinder the process of production.

The exogenous factors like new generation, changing taste and preference, escalation of land price new lifestyle also lead to shifting of the sago manufacturers from sago business

to alternative business. If these problems are rectified, the small scale industries have a raised their production capacity.

### **Conclusion**

The primary object of developing small industries in rural areas is to extend employment opportunities, rise income and standard of living and to bring about a more balanced and integrated rural economy. This study clears that after the year 2000; only ten percent of the sago factories are started. During the field work it is observed that the factory owners felt that the real cost of doing business is high. Land price escalation and new generation tends the people to shift over new business. Some of the factory owners are having professional carriers like MBA and Engineering and they look after the inherited sago business happily. The brokers have market intelligence and in contact with many sago factories. The factory owners thought that the transaction cost of procuring raw material via farmers is more than the brokers. It theoretically and empirically proves that transaction cost is necessary for easy production and absence of cost not necessarily decrease the production cost. The sago factory absorbs semi-skilled and skilled labourers for both male and female. This study reveals that the large size of units provides additional employment than small units. The sago industries face the problems like raw materials, shortage of labour, technology, finance, electricity, taxation, water and machineries and competition. The factors affecting the production capacity of the units are identified and it is expressed in the scientific form with the Garrett's ranking technique. Labour shortage is the prime problem of the sago units. As sago and starch business is seasonal, the labourers are not getting employment throughout the business. The wages given to the labourers is not as enough. Hence, it should be revised according to the cost-push inflation.

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