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Small Firms' Access to Innovation in the Bengal Zari & Embroidery Industry

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Abstract:
The present paper aims to focus on: how small firms of the Zari and Embroidery industry, an important informal localized industry in West Bengal, get access to new economic knowledge production, i.e. innovation. The production units of the industry are agglomerated in specific spatial clusters in particular geographical horizon throughout the state. Several factors account forspecific location of these informal industrial production units. The present study is confined to a particular factor, namely innovation. The small informal firms of the industry cannot execute theirinnovation due to lack of fund. The present study is, therefore, confined to explore: how small firms of the Zari and Embroidery industry access to new economic knowledge production thereby ensure their survival in the competitive market and contribute to industrial growth. To reveal this, the present study selects two specific sites of the industry in West Bengal, Panchla (Howrah) and Arambagh (Hooghly). The selection of the sites has been based upon existence of small informal clustered production units in specific spaces and incorporation of their high growth potential and large employment opportunities. The micro-level field studies, sampling design and data analysis procedure of the study are based upon standard model approach to accept spatial heterogeneity within the frame of the study.

Keywords: Informal sector, Cluster economy, Externality, Location, Mobility.
JEL Classification: E26, F02, J61, R10, R12.

1. Introduction

The present paper is an effort to focus on: how small firms of an informal localized industry access to innovation, i.e. new economic knowledge production. The issue becomes crucial since large industrial firms bear their own research and development units, while small firms lack their access to innovation due to their limited supply of capital. To ensure their survival in the market, the small informal firms of the industry have to become familiar with the ongoing changes in new economic knowledge production. Therefore, it becomes important to examine what strategies the small informal firms of any informal localized industry are adopting to get access in innovation. The present study is an effort to capture the issue.

It is often observed that several informal localized industries are agglomerated in specific spatial clusters in particular geographical horizon. In this, the production units are concentrated in specific geographical spaces. Several factors determine location of such informal clustered industries as confined to the theories of Classical theories of Location Economics literature and New Economic Geography School. Patronage of a court, Transport cost advantage, Supply of raw materials, Presence of a town, Economies of scale and Factor mobility are a few of them. The present study is, however, confined to a particular factor, namely innovation (i.e. new economic knowledge production) to ensure localized industries. It is observed that the large firms of the industry get easy access to this new economic knowledge production through their own R&D. However, small informal firms cannot execute this R&D due to their insufficient fund. Therefore, it becomes important to explore the issue: how small firms of any informal localized industry get access to this new economic knowledge production and promote industrial growth. The present study is an effort to execute the phenomenon.

To reveal the issue, the present study is confined to the Zari and Embroidery industry, an important employment generating occupation in West Bengal. The industry has been selected on the basis of its spatially clustered production and large employment generation. Two important locations of the industry have been selected for the study: Panchla (Howrah) and Arambagh (Hooghly). The reference of Panchla is attributed even to the Growth Pole programme of the Central Government in the Arjun Sengupta Report.

2. Methodology of Analysis

The logical argumentation of the study is based upon literature support, case studies and primary survey results. The survey process is exhaustive. The survey is based on qualitative purposive sampling with semi-structured questionnaire and indirect interview method. The micro-level field studies, sampling design and data analysis are based on the standard model approach. The implication is that the selection of the sampling region does not depend on data availability (or data non-availability) and avoids spatial homogeneity. The production units of a cluster within an industry are considered to be non-homogeneous. However, spatial distribution of production

units of a single industry is cross-sectional, given and known. Sometimes an ethnographic study has been approached due to data non-availability and non-responses in the sample survey area.

3. Skill and Socialization

In the Zari and Embroidery industry in West Bengal, skill may be expressed as learned capacity or abilities that one possesses. In case of this particular informal sector activity, domain-specific skill plays a significant role in the sphere of production.[1] In the formation of such skills, usually socio-environmental stimulus is required in order to assess and apply the skill acquired. In the absence of appropriate measures of labour productivity (which is a common phenomenon in most of the informal sector activities, as in the Zari and Embroidery industry), skill is often used as a measure of worker's expertise, specialization, capacity and wages by the entrepreneur.[2] Here workers' skill is generally positively related with training period and wage level – larger is the training period, higher is the skill acquired, hence higher is the wage earnings. Here, the idea of social skill may be approached which is the skill facilitating interaction and communication with others in the socio-economic environment. The process of learning such skills is called socialization which appears to be crucial in case of Bengal Zari and Embroidery industry. The already existing rules and relations (both verbal and non-verbal) often refer significant influences in the process of such skill formation process in this particular informal industry.

The process of skill formation plays an important role in the Zari and Embroidery industry. It is not an easy task to acquire such skill for the labourers in this informal industrial activity since supply of formal training procedure is almost an insignificant component and is out of access for the informal sector workers in this industry. Such an informal form of training is a long-term phenomenon. The supply of social capital by the informal trainee worker becomes important to get an access in the network of supply of such informal training. The trainee is referred from any familiar sources of the trainer like relatives, neighbours, friends and community members. The trainee enters into the job market to get training not with any physical or financial capital but with a social capital that is nothing but a reference (even often oral) by any of his senior experienced community member(s) who is/are already established in the informal labour market. The reference from the 'referee' comes from his position in the market – the stronger is the position, the stronger is his reference.[3]

The provision of social capital in the community is crucial not only for the first introduction of the worker in this informal economic activity but also to acquire the initial training required by him/her in order to sustain in the job. The necessary guidance comes from the seniors and community members in return of the social capital they invested. The initial introduction before the recruiter and the work tricks and ethics are incorporated by a newly introduced worker from the seniors and community members who are experienced and expert enough in the sector. Such an informal training of work, knowledge and experience by a new entrant minimizes cost and reduces risk.

During the training period, both the trainee and the trainer observe each other through close observations and make a familiar bonding and belongingness. Since the job requires trustworthiness and enough patience, the trainer takes a long time to make his trainee familiar with the necessary tricks of the job and also to form a cordial relationship and emotional tie-up which is reflected in future contacts in the market. Skill is acquired by the workers through trial and error method and 24 hours' direct observation. At the beginning of his training, the trainee often cooks for his trainer (locally called 'ustad' or 'master') without any stipend. After this, the trainee is asked to do small tasks in preparation of the ornament (like hammering etc.) and earn Rs. 500-600 per week plus fooding and lodging. Often training continues for 5-6 years to 10-12 years even. The trainer checks his trainee's patience, trustworthiness, eagerness, innovativeness, knowhow, tricks required in the work, sustainability, and adaptibility with changes in the market. When the trainer thinks that his trainee is skilled enough now, he arranges some contracted work for his trainee from his familiar sources for which the trainee receives a wage. Sometimes the trainee arranges some scope for paid work in between the training period and starts earning.

In this way the trainee becomes independent worker in the labour market and starts to earn experience. Often it is observed that the larger is the training period, the larger is the skill acquired, greater is the reference by the trainer, and higher is the amount of initial income earnings of the worker. The social capital that the trainee invested at the beginning of the training process is returned back to the trainee in the form of new contacts and contracts in the market provided by the 'master'. Therefore, the functional relationship between skill and social *capital* invested incorporates a cordial positive correlation – higher is the social capital possession, higher is the extent of skill acquired.

However, acquired skill incorporates both qualitative and quantitative aspect. Moreover, such a positive relation is conditioned by some other variables, such as adaptability of the worker, innovativeness etc. The nature of the market is another important factor to influence acquirement of social capital of the labourer. Moreover, the functional relationship between skill and social capital becomes time-invariant, but specific to the competitive structure of the market – higher is the demand for skill in the labour market, higher is the incorporation of social capital by the newly entrant labourers in the market. Further, a skilled worker gets extra job security in the market since it is easier for him/her to get a new employer. The competitive structure of the labour market throws some risk and insecurity for the worker, at the same time it gives him an extra chance to leave current employer and arrange a new job if he is skilled and experienced enough. It becomes easier for the employer also to get a new worker in place of the previous worker without any formal paperwork(s) and contract(s). In this way, the competitive nature of the informal labour market makes social capital a significant component in the knowledge production function.

4. Knowledge Spillover Executing Externality

One significant feature of the informal set up of the   Zari and Embroidery industry in West Bengal is that production in this informal industry is significantly concentrated in several spatial clusters. However, the issue of production in the industry is much carried out by innovative activities in various forms. The determinants and mechanisms that affect the propensity to innovative activity are dispersed across spatial clusters. Knowledge spillover is one important aspect to explain this issue of dispersed spatial specificity between different clusters.

Therefore, the knowledge production function in this particular informal industry has a spatial dimension -it may vary across locations depending upon the pattern of production in that particular location and its labour market specificity. It is much observed in the locations in the Zari and Embroidery industry in West Bengal. If the traditional theoretical approach of innovative activity is attempted here to explain the issue then firms have to be considered as exogenous and innovative activity as endogenous(Griliches,1979; Scherer, 1984, 1991; Baldwin and Scott, 1987; Cohen and Levin, 1989; Scherer, 1991; Cohen and Klepper, 1991, 1992).Then it is to be considered that the pattern of locations in the Zari and Embroidery industry in West Bengal are pre-determined in our cross-section analysis and we have to study the on-going changes in those locations related to innovative activities. The most important input in such analysis then becomes a new economic knowledge production (i.e. research and development as popularly known) that generates innovation.

Then another question arises in mind: How small firms of the industry make access to these innovative inputs since it involves huge costs? Here the idea of knowledge production function may be incorporated. To measure the knowledge production function, which is a function of skill, in order to answer this question - the focus may be shifted to externalities. To measure knowledge spillover which is required in order to measure the knowledge production function, one has to keep in mind Krugman's famous argument that "knowledge flows are invisible, they leave no proper trail by which they may be measured and tracked".

Here a spatial structure on production externalities may be approached. It would be apparent if we study interrelations between locations in terms of production and exchange links. It is also associated with localized human capital accumulation (HCA), the degree and nature of which varies across locations (Romer,1986; Krugman, 1991; Lucas, 2001; Lucas and Rossi-Hansberg, 2002). However, HCA in the informal Zari and Embroidery industry has to be conceptualized in terms of skill embodied within a labour. External increasing returns appear from such knowledge spillovers in the production sphere. Such spillovers may be attributed out of Marshallian labour market pooling, pecuniary externalities providing low cost to the producer, variety of non-traded localized inputs, and information spillovers.

To explain such a knowledge spillover, let us introduce the aspect of tacit knowledge (Jacobs, 1969).[4]Application of such tacit knowledge can spill over easily and incorporate some economic value. In such cases, interactions between innovation and HCA often appear in informal non-market environments. In the Zari and Embroidery activity, it appears often in verbal and within spatial community members (such as within migrant labourers from Hooghly or Howrah district in West Bengal). Access to social capital plays a contributory factor in such an interaction. Moreover, the interactions between innovation and HCA in a non-market environment are often influenced by future expectations, aspirations, preferences and constraints of the labourers in the informal labour market. All these appear within a frame of socioeconomic interactions which transfer some economic value in transmitting such knowledge spillover.

Since the formation of such knowledge depends upon future expectation(s) of the labourers, it becomes uncertain in nature. Such uncertain knowledge, often referred as sticky knowledge, is best transmitted through direct and face-to-face interactions with frequent and repeated contacts (Manski,2000; Von Hipple, 1994).[5]This is best possible and suited in an informal labour market -which is observed in the informal labour market of the Zari and Embroidery industry in West Bengal.

Therefore, tacit and sticky knowledgeis best extracted and utilized in an informal market with ensured supply of and access to social capital network. Further, such a tacit knowledge spillover ensures cost effectiveness of knowledge transformation for the entrepreneur with reduced cost. This cost effectiveness is comparatively high for the small scale producer with extracting larger externality. The ability of any firm to exchange ideas and knowledge, particularly in informal sector production, becomes ensured with better coverage of social capital network. This also reduces uncertainty for adopting new ideas by a firm(Feldman, 1994). To cope up with such uncertainties, small firms get incentives to apply new ideas with an ensured social capital network in informal product and labour market processes within the industry.

Innovation usually clusters spatially where knowledge externalities reduce costs of discovery and its exchange. It appears true for small firms in this informal industrial market. Firms producing and/or promoting innovation tend to be located in the areas where resources required for easy spread of innovative activity within the industry are easily available. These resources are easily available there because they have been accumulated there due to the past success of the region with successful innovation. A strong component of this resource base obviously comes out of easy and ample supply of skill in the labour market in that particular location. One prominent example is the concentration of skill and innovation in production in Panchla in Howrah district. With such incorporation, both firms and resources may now be considered as endogenous in our analysis (Anselin, Acs and Varga, 1997; Orlando, 2000;Autant-Bernard, 2001;Agrawal,2002; Black,2003).

Inter-firm spillovers among the small scale production units are a common feature in this industry. Knowledge spillovers appear to be then heterogeneous across firms. Two set of choices appear herewith: First is the choice between degree of diversification and specialization (or concentration), and second is the choice between the degree of concentration versus local competition. Here, the Marshall-Arrow-Romer externality suggests that an increased concentration of industrial activity within a specific geographical region facilitates knowledge spillovers across firms, thereby promotes incentives to innovative activity. However, the MAR externality

prefers monopoly, while Jacobs (1969) and Porter (1990) suggest that local competition is suitable to extract knowledge externality than local monopoly –therefiore, Jacob's and Porter's externality are more suitable to understand inter-firm spillovers with local competition in the Bengal Zari and Embroidery industry.

Moreover, knowledge production function has focused on the quantity aspect of innovation in the Zari and Embroidery industry. Actually accumulation of tacit knowledge involves socio-economic institutions and conventions at the local level (Romar, 1986; Lucas, 1988; Grossman and Helpman, 1991; Lucas, 1993; Feldman et al, 2002; Agrawal, 2002).Therefore, a qualitative dimension has to be added also. Localized knowledge spillover and absorptive capacity of the labourers are closely linked here. Social capital network(s) works at multiple levels since they link individuals, groups, firms, and geographic regions in this industry.

5. Spatial Labour Mobility and Localization

Therefore, (expected) wage earning for the skilled labourer may be treated as a positive function of knowledge production function. The (expected) wage earning appears to be sensitive with the changes in knowledge spillover. The skilled workers of the industry attempt to move for other destinations to find out market for their skill. In this way, the skilled artisans make their skill marketable by finding out new physical location even. The physical mobility of labour provides them the scope for selling their skill at higher (expected) prices. They usually accept costs and risks of physical out-migration if their probable(expected) income at destination becomes higher than their actual earnings at the local market. This cost-benefit calculation of the skilled workers at the micro level makes horizontal mobility a reality.

Sometimes workers of Howrah and Hooghly directly move to the formal market of other cities in India like Mumbai, Delhi, and others from the local market. The labourers are much popular in these markets of other states in India due to their skill and innovativeness. The already migrants work as the 'bridgeheads' in such physical mobility and supply necessary social capital required. The higher is the skill acquired, higher is the probability of mobility in this sector. Higher skill means higher probability for inter-state, thereby enhancing higher income earnings. The already migrants form higher expectation at their origin through provision of information, remittance, feedback and higher standard of living for their family members. This simply increases the incentives to further migration among the community members at origin in the form of 'chain' or 'network' migration(Appleyard,1992;Bocker, 1994; Massey, 1999;Appleyard, 1992; Waldorf,1998).This provides some explanation why some specific clusters have become popular migration-sending and migration-receiving locations.

The knowledge and information sharing becomes vital to make migration successful. In the location industry, labourers share information about the market and the community among themselves.[6] This knowledge spillover among the migrating community form specific migration locations and reduces costs of sharing information among the community members within the cluster industry. Migration then becomes almost systematic out of these specific locations, following a particular pattern,called 'system migration' (Mabogunje, 1970;Borocz, 1987; Fawcett, 1989; Massey, 1990;Kritz et al, 1992;Gurak and Caces, 1992; Levitt, 1998; van Dalen et al, 2005).Such information sharing also improves skill and innovativeness among the non-migrant workers at the origin due to the existing incentive for international migration that results in increasing returns in production and productivity gain and also increased incentives to enter into the industry. This simply increases the incentives to spread the existing location industry. In this way, growth of the location industry is associated with the network of successful physical migration in a positive way.[7]

6. Conclusion

In case of agglomeration of informal production units within a specific geographic area, a decreasing cost industry may appear due to the competitive forces in the market contributing to industrial growth since small firms of the industry strongly rely upon extraction of positive knowledge externality. Positive knowledge spillovers between small informal firms appearwithin and between location(s) through which a small informal firm of the localized industry gets incentive to locateits production plant at a place where other firms of the same industry are located. This may be due to information sharing, labourmarket pooling, and existence of specialized suppliers – the other reason may be extraction of positive knowledge externality. It is a common practice in the Bengal Zari and Embroidery industry. The present study is an effort to execute the practice that leads to inter-cluster trade and exchanges among informal producers of the industry thereby promoting its growth through linkages.

7. Acknowledgement

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APPENDIX

1Skills can often be divided into domain-general and domain-specific skills. For example, in the domain of work, some general skills would include time management, teamwork and leadership, self-motivation and others, whereas domain-specific skills would be useful only for a certain job.

2 Ref: Saha, Sukanta (2015), Informality, Localization & Socialization: The On-Job Training Model Accomplishing Positive Knowledge Spillover (Forthcoming), Journal DeshVikas: Special Issue on Education, Vol. 2 Issue 2(1), July-September 2015.

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5. Ref: Saha, Sukanta (2015), Sticky Knowledge Externality: An Instrument to Access Innovation, International Journal of Innovative Research and Development, Vol. 4, Issue 5, May 2015.

6. The influence of the distinction between information and tacit knowledge lies in the fact that the marginal cost of transmitting knowledge, especially that of tacit knowledge, is the least with frequent social interactions, communications and observations, despite the fact that the marginal cost of transmitting information across space has declined much over time (particularly with the spread of telecommunications).Glaeser et al (1992) correctly points out "intellectual breakthroughs must cross hallways and streets more easily than oceans and continents".

7. Zhang (2002) has portrayed through *simulation* technique how a small number of successful entrepreneurs may form a cluster. Reynolds, Storey and Westhead (1994) have shown that mean establishment size bears a negative impact on start-up rates. Higher start-up rate of a location reflects higher growth rate of that location.