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THE GROWTH POLE SYNTAX: THE CASE OF BENGAL GEMS AND JEWELLERY AND ZARI AND EMBROIDERY INDUSTRY

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Abstract

The present study attempts to focus on: why several informal localized industries are concentrated in specific geographical clusters and why not in others. In this sense, the study objects to detect the factors that determine location of informal industries in specific spaces, influences of these determinants to localized industry formation, and cost-effectiveness of setting up of production in such spatial clusters. To reveal these, the study is confined to two specific sites of West Bengal: namely Domjur Gems and Jewellery industry and Panchla Zari and Embroidery industry. Further, the specificity of the two spaces lies in the fact that they are the sole Growth Pole(s) in West Bengal among the selected six Growth Poles in India. The sites have been selected on the basis of their importance to the map of Bengal informal industries. The logical argumentation of the study is based on literature support specifically of the classical and new economic geography school, case studies conducted, and the primary survey results. The micro-level field surveys, sampling design and data analysis of the study conducted is based on the standard model approach.

Keywords: Informal Sector, Cluster Economy, Economies of Scale, Location, Mobility. JEL Classification: E26, F02, J61, R10, R12.

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INTRODUCTION

This paper attempts to focus on: why several informal localized industries are agglomerated[1] in specific spatial clusters[2] in particular geographical domains. It is common to observe that production units in several informal industries are concentrated[3] in specific geographical spaces. The consideration of the present study, therefore, concentrates on: what are the factors that determine location of informal industries in particular spaces and how they influence localized industry formation. To reveal these, the study is confined to two specific sites of West Bengal: namely Domjur Gems and Jewellery industry and PanchlaZari and Embroidery industry. Further, the specificity of the two spaces lies in the fact that they are the sole Growth Pole(s) in West Bengal among the selected sixGrowth Poles in India. The sites have been selected on the basis of their importance to the map of Bengal informal industries. The reference of Domjur and Panchla is attributed to the 'Growth Pole[4]' programme of the Central Government and in the ArjunSengupta Report (2006).

The consideration is strongly based upon the support of literature derived from classical and new economic geography school, verified on the basis of field surveys.

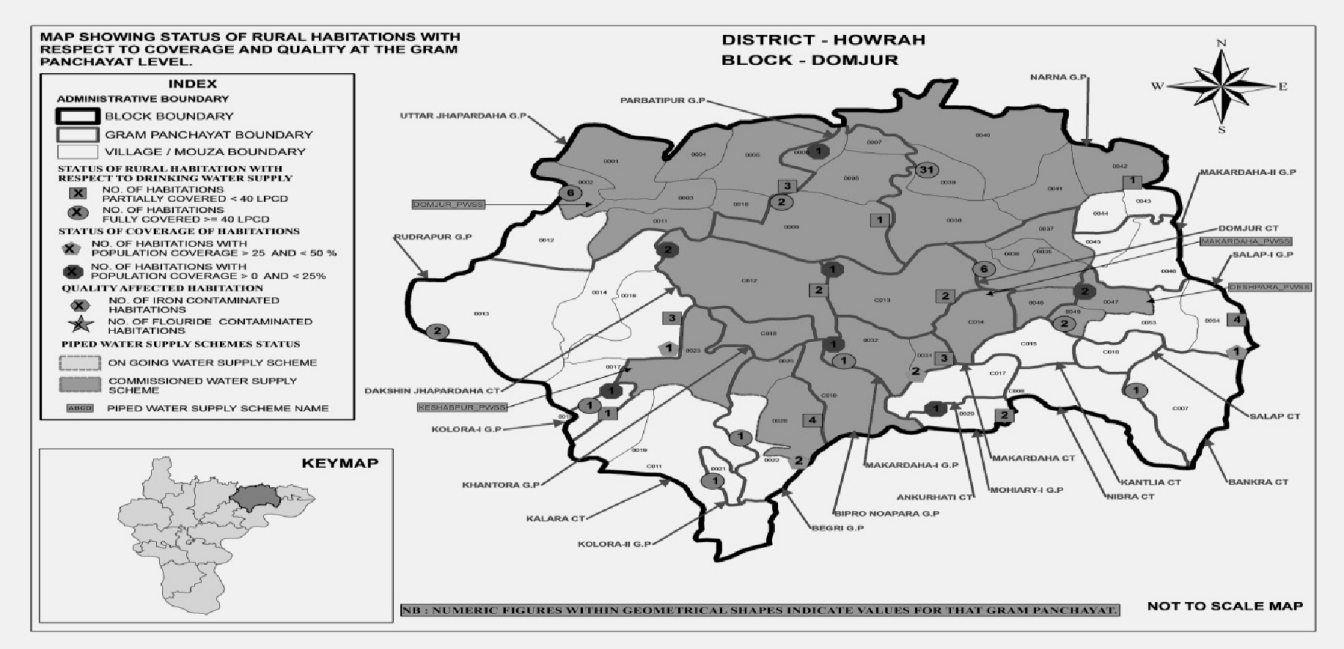
MATERIALS AND METHODS

The logical argumentation of the study is based on 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 any sampling region does not depend on data availability (or non-availability) and avoids spatial homogeneity. The study also assumes that the producing firms within a cluster of the industry are non-homogeneous by nature. However, the 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 data non-responses in the sample survey area under the purview of the study.

The Industry Profile

Domjur in Howrah has appeared as a separate location for long years back with its high product and labour market linkage with Bowbazar 100 years back. The market is well-known for producing gold jewelleries with diamond setting and brass metal jewelleries. The production orders come from the contractors of Bowbazar or from the local customers which get a finishing touch by skilled workers of Bowbazar and are ready for sale. The diamonds required for production are being imported, the raw gold is supplied by the contractor and other raw materials are purchased by the producer mainly from the local market. In the labour market, majority of the labourers in Domjur come from the districts of Howrah, Hooghly and West Midnapore. The labourers get training in Howrah and acquire skills and experiences necessary to enter in Kolkata skilled labour market to earn higher wages. They also move to other cities of the country and even to middle-east Asian countries for higher income earnings.

Zardoziembroidery with gold zari, seed pearls, sequins and beads is produced by Muslim craftsmen of Panchlaregion of the Howrah district. Zardozi(Persian) or Zar-douzi(Urdu) work is a type of embroidery in Iran, India, Pakistan and Bangladesh. Zardoziembroidery is beautiful metal embroidery (which once was used to embellish the attire of the Kings and the royals in India and to adorn walls of the royal tents, scabbards, wall hangings and the paraphernalia of regal elephants and horses). The original Zardozi embroidery work involved making elaborate designs using gold and silver threads. Further adding to the magnificence of the work are the studded pearls and precious stones. Initially, the embroidery was done with pure silver wires and real gold leaves. However, today, craftsmen make use of a combination of copper wire with a golden or silver polish and a silk thread. The production is carried out with six basic designs – leaf, flower, bird, animal, geometric and filler. This ornamental and dramatic embellishment is being used to create exclusive garments and accessories by leading fashion houses worldwide.



The Support from Classical Literature

The theories on location economics refers that industries do not develop arbitrarily. There are significant economic factors that influence formation of a cluster of industries and businesses in particular spaces. In other sense, the theories explore the logic and science behind: why certain industries emerge and grow in specific geographical locations and why not in others.

It may be referred that the enterprises in one location within a cluster with repeated transactions among themselves promote better coordination, trust, informal organizational linkage between enterprises, efficiency, effectiveness, flexibility, formal management linkages in partnerships and alliances, and many others. All these promote sustained spatial bonding among the production units and businesses within a specific geographical location.

However, it is not a very good explanation for successful localized industry formation, as is the case of Domjur and Panchla. To examine the issue on the basis of literature support, we may start with Alfred Marshall (1890, 1892), one of the early contributors in the literature of location economics – though the analysis of location started much before than Marshall with 'monocentric city model' of Von Thunen (1826) [Von Thunen's "Der IsolierteStaat in Beziehung aufLandschaft und Nationalokonomie"]. Later, in his 'Principles of Economics', Alfred Marshall (1891) has referred the idea of "industrial district" to describe location of industries – which may appear as a good explanation for localized industry formation in Domjur and Panchla.

To Marshall, an "industrial district" means an area (a district) where concentration of firms has settled down in a particular industry or in a group of industries (the 'growth pole' of Domjur Gems and Jewellery industry and PanchlaZari and Embroidery industry in Howrah). However, the idea of "industrial district" does not simply refer to a "localized industry" but the idea refers more than it. Usuallya "localized industry" is an industry concentrated in certain geographical spaces. But an "industrial district" refers concentration of firms in an industry (or a group of industries) has settled down.

To refer Marshallian explanation, one of the chief causes behind formation of this localized industry in Domjurand Panchlais rather the "patronage of a court" factor. The richer people of Howrah assembled there to make a demand for ornaments of especially high quality, which attracted skilled workers from distance areas (East and West Midnapore, Hooghly, and the hinterland of Howrah district) to this cluster industry. In such localized industries, workers seek employment where they expect to find a good market for their skill – which happened in Panchla and Domjur. For these, firms attempted to settle down there.

Once the localized industries are developed due to functioning of these factors, trading functions of the city are developed. Then it becomes stochastic that rent becomes higher in the central sites of a large town or city. This makes the factories 'congregate' in the outskirts of large towns and in their neighbourhood rather than in the towns themselves with physical availability of raw materials.

For instance, the industry of Domjur has expanded in the peripheral areas of Baruipara, Rudrapur, Kolra, Makardaha, and many others. Similar holds true for PanchlaZari and Embroidery industry. To Marshall, this 'primitive localization' is transformed into an 'industrial district' in the long run – hence horizontal expansion and growth of the localized industry appears by finding new physical locations even.

In an 'industrial district', "the mysteries of the trade become no mysteries"; and "children learn many of them unconsciously", as Marshall points out. The factor is strong in case of Domjur (and Ghatal in West Midnapore) Gems and Jewellery industry than any other spatial cluster of the industry in West Bengal and for PanchlaZari and Embroidery industry as many other clusters of the industry in West Bengal. This is why specialized abilities has been transmitted from one generation to another form their teen age and has become an important characteristic of that area. In this way, skills are embodied within one from his/her childhood or teen-age in Domjurand Panchla- he/she may become unconscious regarding incorporation of this skill within him/her from the childhood, however, may possess some specialized skill after a particular age (usually teen age). Since it appears for majority of the people of the two areas, the areas have become renowned for specialized skill and knowledge in jewelleryand embroidery production and have acted upon as an important determinant for concentration of firms requiring this hereditary skill in production of the two industries.

With specialized skills, high division of labour appears within the firms due to differentiated skill possession by individuals with differentiated abilities. This has led to product specialization (particularly of diamond setting in Domjur and Zardozi production in Panchla) and innovation with labour-intensive techniques of production - the '*karigars*' of Domjur (and Ghatal) and Panchlaare much renowned throughout the country for their innovativeness. The reason may be found on the Marshallianfact: in an "industrial district", good ideas are promptly adopted into the production process because good ideas are in the "air" of the district, which works well into the well-established social networks with well-developed bonding and tie-ups at the local level which is strong in Domjur (and Ghatal) and in Panchla. In this way, thesetwo localized industries have offered "a constant market for skill", particularly when the production of the "industrial district" is skill-based. The employers of the industry at the local level are assured with supply of skilled workers since there is always a supply of skill in the local market of the two sites.

When a number of firms are concentrated in a particular area within a localized industry, it is likely that several other subsidiary firms are built in the neighbourhood areas who supply necessary inputs and services. An industrial atmosphere is built in. This has happened in Domjurand Panchla. The producing firms have accepted this business stimulus and made faster expansion and growth of the localized industry. The industrial leadership has been captured by those firms who are able to initiate or follow these changes appearing in the market.

To Scitovsky (1954), the Marshallian "information spillover" affects firm's production function. To this, an increase in industry output increases stock of knowledge through positive

information spillovers for each firm - which leads to an increase in output at the firm level. The "pure" external economies appear due to Marshallian "local market for specialized inputs" and "labour market pooling", which is consistent with imperfect competition with some market power of influential local producers, required for internal economies.[5]This factor of "labour market pooling" has played a much crucial role in the expansion of the industry in the Panchla region.

Simultaneously, some important contributions in the literature were the "Central Place Theory" by Walter Christaller (1933) and August Losch (1944a, 1954b). The major contribution ofChristaller is to show that a hierarchical urban system may exist with a variety of different-sized spatial market areas – which is crucial in Domjur.[6] However, the Central Place Theory has been revised latter by Losch. To Losch, any spatial economy would tend to be dominated by a central primal city, the hinterland of which would be characterized by smaller settlements and alternating areas of industrial concentration and dispersion. This has acted as a strong factor to spread the localized industry of the central site of Domjurand Panchla to their hinterland areas by making the region (s) almost an "industrial district" through smaller settlements and alterations.

Much later, Becattini (1989, 1990) has raised the issue that government and/or government-sponsored institutions are not able to create an industrial organization with collective efficiency - rather a minimum concentration of privately initiated industrial activity may involve.[7] However, the argument may be true for the initial days of expansion of Domjurand Panchlabut not for the present scenario. In 2006, the Central Government in its "Growth Pole" programme has included Domjur and Panchla of Howrah among the six selected growth poles throughout the country. In 2011-12, the State Government has initiated an infrastructural development programme to promote growth of the existing clusters of Domjur and Panchla.

The New Economic Geography

The factors behind Domjurand Panchlalocalized industry formation may also be searched for to the arguments given by Krugman. Paul Krugman (1991), one important contributor among the new growth theorists, refers that the geographical structure of any (industrial) economy depends on some key parameters. These are: (1) Transportation costs, (2) Economies of scale, and (3) Factor mobility. The same may be applied for informal industrialization. To Krugman, a combination of these factors results in increasing returns at the production unit. Reduced transport costs provide incentives to locate plants close to large markets. Labour mobility becomes then easier and a regular phenomenon due to the presence of well-developed transport and communication in the large markets - labour mobility appears from the "traditional" sector considering labour-intensive traditional methods of production to the "modern" sector which employs modern and improved technologies.

A circular causation of all these appears there.[8] It provides maximum individual interaction in the informal industrial periphery from the industrial 'core' with well-established social capital network – which is the case of the two locations. The functioning of the "spread effects" accrued from the 'core' growth poles eventually impedes development of the periphery areas through multiplier effect on employment and output and a "relay" function appears through urban hierarchy at the peripheries from the 'core'. This has happened in the two sites. This has created an incentive among the producers to form localized industries which has changed the spatial production pattern dramatically in the two sites of the two industries.

In case of informal agglomerations of Domjur, the transport cost factor of Krugman does not appear crucial. However, it holds true well for Panchla due to its transportation communication with National Highway 6. Moreover, labour mobility from the "traditional" sector to the "modern" sector does not become compatible in absence of modern mechanized firms in the two areas. However, maximum individual interaction in the informal industrial periphery from the industrial 'core' at the main site of Domjurand Panchlahas attributed knowledge externality in the presence of effective social capital network. This knowledge spillover and knowledge externality has appeared due to four factors: (1) Marshallianlabour market pooling; (2) Pecuniary externalities; (3) Variety of non-traded inputs supplied at the local level; and (4) Information spillovers both in product and labour market processes.

Here, the Marshall-Arrow-Romer (MAR) externality suggests that an increased concentration of a particular industry (or service) within a specific geographical region facilitates knowledge spillovers across firms, thereby promotes incentives to innovative activity and inter-firm spillovers. However, Jacobs externality and Porter externality suggest that local competition is suitable to extract knowledge externality.

The argument of circular causation by Krugman appears to be strong for Domjur and Panchla Growth Poles. The functioning of the "spread effects" accrued from the 'core' growth poles at the main sites of the two areas has eventually impeded development of the periphery areas through multiplier effect on employment and output, thereby a "relay" function has appeared at the peripheries also.

To analyze factor mobility, it is to refer here that the informal workers of Domjurand Panchla enter into the job market not with any physical or financial capital but with a social capital[9] that is nothing but a reference (even often oral) by any of his/her senior experienced community member(s) who is/are already established in the market. Such references come from any familiar sources of the trainer like relatives, neighbours, friends and community members. This investment of social capital by a newly introduced worker of the industry gives him/her necessary knowledge endowment of work tricks and ethics that he/she receives from his/her senior community members who are experienced and expert enough in the sector. Moreover, social capital acts as an informal insurance in such an informal labour market to make him/her trustworthy to the recruiter.

However, a mere social capital coverage and informal form of bonding become insufficient to tie up (skill) labourer at a particular place since a skilled informal labourer has always a tendency to flow across spaces in absence of much paper works. The already 'settled' migrants work as the 'bridgeheads', form higher expectation about higher standard of living at destination, provide necessary information-remittance-feedback-training (even accommodation), and supply necessary social capital required to the newly migrants at their workplace. In this way, they reduce material-psychological costs and risks of spatial migration by formation of a 'migrant community'. Such migration 'networks'[10] are renowned in Domjur (and Daspur-Ghatal) and Panchla (along with some other clusters of the Zari and Embroidery industry) from where migration has become almost systematic by following a particular pattern or system (the 'system migration'[11]).

Higher is the skill and access to social capital network, higher is the probability for inter-state and international migration, thereby higher income earnings(the international migration is higher in the Domjur Gems and Jewellery industry and PanchlaZari and Embroidery industry usually exhibits national level migration). This approaches a 'stochastic' pattern of skill-deterministic labour mobility from Domjur and Panchla. Such a spatially migrant labour, particularly at the international level, earns much higher income.This higher income, saving, contacts, and long years' experience they invest and become small independent entrepreneurs when they return back to their origin at Domjur after spending 10-20 years at destination. In this way, a vertical (hierarchical) labour mobility has appeared strong in Domjur in which previously labourers work as individual entrepreneurs. The propensity works in Panchla but at a slower pace as exhibited by the national level 'return' migrants.

The entrepreneur-cum-vertically-migrant worker now attracts a pool of investments at the local level and employs skilled labourers from the peripheral areas. This has acted as an influential factor to make spread of peripheries in the hinterland particularly of Domjur in the past two and half decades. The effect is so strong that Domjur, which was working as a periphery to the 'core' of Bowbazar by formation of strong exchange linkages in product and labour market processes, is appearing almost an independent spatial cluster in the map of Bengal Gems and Jewelleryindustry – now Domjur refers weak product market linkages with Bowbazar than before. This motive is not strong in Panchla. That is why Panchla inherits a strong linkage with Barabazar (Kolkata) to get work orders through the intermediation of influential contractors.

The core-periphery model of Venables (1996) starts working herewith - which assumes that mobile workers spend their income at destination. This holds true for both of the locations. This causes a circular causation in locational decisions at destination – which has acted as a strong influential factor to form this growing localized industry at Domjur. This immobility of income at destination has executed the Home Market Effect (HME) by which the geographically concentrated industry has generated an additional demand for the products, particularly in the peripheries of large urban locations in the Howrah district. This has attracted a large number of imperfectly competitive firms towards this large market of the Domjurregion – now large firms of the industry have started to open their branches even in Howrah. However, immobility of low volumes of income at destination has executed the weak Home Market Effect (HME) in Panchlaby which the geographically concentrated industry has generated alower additional demand for the products, particularly in the peripheries of large urban locations in the Howrah district. This, along with some other factors, has caused low growth of the PanchlaZari and Embroidery industry as compared to the Domjur Gems and Jewellery industry. The significance of the PanchlaZari and Embroidery industry today lies in the fact that it acts as a large employment-generating informal occupation along with its horizontal expansion – whereas the Domjur Gems and Jewellery industry is a growing cluster with larger volume of both income and employment generation.

Conclusion

The theories on location economics refer that industries do not develop arbitrarily. The present study is an effort to explore factors influencing localized informal industry formation in the Domjur Gems and Jewellery industry and PanchlaZari and Embroidery industry in Howrah. This exploration is based upon the classical syntax and new economic geography synthesis of Location Economics literature. To analyze why and how economic organization of a particular region is formed, the study is framed within the broader context of Regional Economics to include spatial dispersion and coherence of this particular informal industrial activity in West Bengal. Further, uneven distribution of agglomerated production units across the space is also attempted in references to the evidences of several micro-level field studies conducted.

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Appendix

- The term 'agglomeration' of firms refers to decline in average costs in production as more production occurs within a specified geographic area (Anas**,** Arnott and Small 1998). In other words, it relies strongly on increasing returns to scale, considering internal and external economies of scale.
- Cluster of enterprises is a geographical concentration of micro, small, medium and large enterprises producing same or similar type of goods and services.
- As referred by Brulhart (1998), while concentration analyzes location across space of a few well-defined sectors, agglomeration analyzes location across space for a larger part of economic activity, and specialization deals with share of a particular location in specific industry in comparison to share of other locations in that industry.
- The concept of economic growth pole was introduced by French economist Francois Perroux (1949). The idea is based on external economies of scale, agglomeration of small scale industries, and linkage effect. The concept states that a combination of these three at a particular geographical space is sufficient to make an area a growth pole to the region (or district).
- The Christaller model of central place is, however, inductive rather than deductive in the sense that the model is primarily based on observations rather than exploration of any schema constructed from first principles. To Parr (2002), the Loschian approach is completely deductive and a microeconomic foundation has been approached to understand the urban system. It shows that industrial concentration and urbanization may arise independently of local peculiarity and particularity.
- In the Big Push theory (Rosenstein-Rodan, 1943), the solution to the insufficient size of the local market is referred to a co-ordinated (government-led) expansion of investment - hence big push enters into. This enables firms to reap the benefits of economies of scale, thereby promoting industrialization of a backward region. Without such a big push, the backward periphery cannot catch up with the core.
- To Scitovsky (1954), incorporation of imperfect competition initiates internal economies of scale that implies market power. Scitovsky distinguishes between "pure" (technological) and "pecuniary" external economies. The former affects firm's production function (e.g. Marshallian "information spillover").
- In 1957, Gunnar Myrdal introduced the concept of circular or cumulative causation. In this, once a region (or country) takes lead in the process of economic development, positive external economies of scale in the region (or country) appears there – which ensures that the location will become an attractive place to invest and more attractive location for the labourers to work. The existence of strong localized spillovers leads to the establishment of a core in the region with large market and a periphery (Dicken and Lloyd 1990).
- Social capital is social organizations (such as trust, norms, reciprocity, co-ordination, interactions belongingness and networks) between producers and workers that facilitate better co-ordinated actions.
- Ref: Djajic, 1986; Appleyard, 1992; Massey *et al*, 1993; Bocker, 1994; Waldorf, 1998; Levitt, 1998; Massey, 1999; Taylor, 1999; De Haas, 2003.
- Ref: Mabogunje, 1970; Arizpe, 1981; Borcocz, 1987; Portes and Borcoz, 1987; McKee andTisdell, 1988; Fawcett, 1989; Massey, 1990; Kritz *et al*, 1992; Martin, 1992; Gurak and Caces, 1992; Bohning, 1994; Martin and Taylor, 1996; Rotte *et al*, 1997; Vertovec, 1999; Olesen, 2002; van Dalen *et al*, 2005.

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