

## Informal localization in recycling businesses: Reconciliation Hotelling Rule and Reilly's law

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### Abstract

The theories on location economics refers that informal localization does not develop arbitrarily. There are significant economic factors that influence formation of a cluster of industry or group of industries and businesses in particular spaces. The same holds true for the two informal localized businesses in our discussion. It is worth to mention that the business in one location within a cluster with repeated transactions among themselves promote better coordination, trust, and informal linkages between businesses, efficiency, effectiveness, flexibility, management linkages in partnerships and alliances, and many others. The present paper is an effort to detect the contributory economic factors that explain the formation of informal business clusters in the developing nations. The study considers two important clusters of recycling businesses over used commodities, namely street trading activity in second-hand garments near Girish Park and second hand furniture in Bowbazar in Kolkata, West Bengal. The paper is a mere effort to investigate whether the Harold Hotelling's "Principle of Minimum Differentiation" and William J. Reilly's "Law of Retail Gravitation" are able to explain the spatial clustering of the informal sales outlets of these particular two street-trading activities in Kolkata. The micro-level field surveys, sampling design and data analysis of the study conducted is based upon the standard model approach to avoid spatial homogeneity.

**Keywords:** informal sector, cluster, location, mobility jel classification: E26, F02, R10, R12

### 1. Introduction

The theories on location economics refers that informal localization does not develop arbitrarily. There are significant economic factors that influence formation of a cluster of industry or group of industries and businesses in particular spaces. The same holds true for the two informal localized businesses in our discussion. It is worth to mention that the business in one location within a cluster with repeated transactions among themselves promote better coordination, trust, and informal linkages between businesses, efficiency, effectiveness, flexibility, management linkages in partnerships and alliances, and many others. The present paper is an effort to detect the contributory economic factors explaining the formation of informal business clusters in the developing nations. The study considers two important clusters of recycling businesses over used commodities, namely street trading activity in second-hand garments near Girish Park and second hand furniture in Bowbazar in Kolkata, West Bengal.

### 2. Methodology of Analysis

The logical argumentation of the study is based upon literature support, case studies conducted 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 procedure are based upon the standard model approach. The implication is that the selection of any sampling window does not depend on data availability (or non-availability), hence avoids spatial homogeneity. However, the spatial distribution of sample units 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.

### 3. The Informal Localization in Recycling Businesses

**Second-hand Furniture:** Bowbazar, only 10 minutes distant from Girish Park, is commonly said to be Bahu Bazar (or Bride's Bazar). One source refers that a Bazar was said to have been a part of the share of daughter-in-law of famous Biswanath Matilal. The other (and acceptable) incorporation is that several ("Bahu" in Bengali) markets (Bazar) were situated there selling several ("Bahu" in Bengali) items – hence the name is Bowbazar (Bahu Bazar). Gems and jewellery, wooden furniture, musical instruments, shoes, seasonal fruits, fresh vegetables and meat, and others are the items which were sold there from long years back.

The second-hand furniture market in Bowbazar is as renowned as Bowbazar gems and jewellery market. It is Kolkata's jewellery "district", with a wide range of collection of gold and silver ornaments, with beautifully designed and crafted stone settings. For most Bengalee families, a visit to Bowbazar is a must whenever there is a wedding in the family. There are different shops – however, Bowbazar has become renowned for its jewellery hub ["Bowbazar Market", Kolkata information Retrieved, 16 August, 2007] <sup>[1]</sup>.

Along with wooden furniture, second-hand furniture is sold in the Bowbazar market. In this way, the market has emerged as a 'center' or "hub" of second-hand furniture market in South Bengal. The petty businessmen of different parts of Bengal visit the Bowbazar market to purchase usable second-hand wooden furniture, doors, windows etc. from the market. The purchased wooden furniture, doors and windows are recycled to make almost a new look.



Source: Map Data @ 2015 Google

Fig 1: Bowbazar cluster

The recycled items have a strong demand to low and middle class income group in rural and urban informal sector consumers since they can afford these items at a low price in a fresh look. The strong demand for construction work in different parts in West Bengal including Kolkata, North and South 24 Paraganas, Nadia, Howrah and Hooghly has made increasing demand for recycled furniture, wooden doors and windows at a cheaper rate. The recycled products often are utilized as building parts in the newly constructed houses of the low and middle income milieu of rural and urban Bengal. In this way, the construction boom has caused growth of the second-hand furniture market in the past few years.

### Second-hand Garments

The street-trading activity in second-hand garments <sup>[2]</sup> is actually a recycling activity initiated by the female migrants from Gujarat to West Bengal long years back. The under-privileged low-income economically and socially deprived landless Gujarati female '*Banzara*' community migrated from the interior regions adjacent to Ahmedabad, Bhavnagar, Dwarka, Dhandhuka, Junagarh, Surendranagar and others in Gujarat to Bengal long years back (roughly 50-60 years ago) along with their families, being unable to arrange a mere sustenance of their life in their State of origin. At that time, Gujarat was not much developed and Bengal was an advanced and industrially developed state. By promotion of the buying spree of middle-class housewives, the Gujarati women have made successful exploration of their business skills by providing the middle-class housewives to get rid of rejected items in everyday life and to obtain domestic utensils without much effort and monetary trading.

After a time, this unique street-trading activity became popularized in the city. With successful exploration of the businesses, the male *Madhukars* <sup>[3]</sup> left their risky occupation and started to assist their female family members in their businesses. With a success, the community started to initiate a regular and steady flow of "system" migration appearing from Gujarat to West Bengal by following a successful "migration network" by the Gujarati folk who were ready to leave their low income generating stone cutting occupation due to hardship of toil at work at Gujarat.

In the business, the crux of the recycling of used clothes appears from the one who has no further need of it to the other who cannot afford to buy high-priced new clothes. The collection of second-hand garments, of the type of almost new, usable but not in a good condition, and somewhat worn-out but regularly usable, is usually carried out by small groups of Gujarati women, usually of 3-4 members in each group, in different parts of the State. The female traders collect garments in a barter exchange of steel, plastic and metallic utensils without any fixed site <sup>[4]</sup> during the day time, usually between 11 am to 4 pm, mostly in the afternoon, when women of middle-class households of the city and adjacent towns take their rest, hence may be approached to make conversations and bargaining by the traders.

The collected old clothes get an apparently new-look after processing through the treatment of washing-cleaning-ironing. They bring the processed new-look clothes, mostly the cotton garments which are not torn and can be retrieved for re-use, to the second-hand garments market for selling purposes to the low-income individual consumers and petty traders of different parts of the State <sup>[5]</sup>. The '*center*', the Girish Park <sup>[6]</sup> second-hand garments market in Kolkata, has gained much in volume, recognition and connectivity in the past 3-4 decades. The market has led to the emergence of the smaller satellite '*periphery*' markets of similar nature developed in small towns of Siliguri (North Bengal), Asansol (Bardhaman), Titagarh-Barackpore (North 24 Paraganas), Berhampore (Murshidabad) and many other places in West Bengal. Due to the growth of the business, migrants from Rajasthan, Bihar, U.P. and Bangladesh and also the slum-dwellers of Kolkata, Howrah, Hooghly, Nadia, North and South 24 Paraganas and Murshidabad are joining the occupation with a mere Rs. 500-1,000 and a social capital network. The high growth is making it a lucrative self-employment generating occupation to the younger age-group of the city slum-dwellers.

**4. Economic Explanation: Hotelling Rule and Reilly's Law**  
Harold Hotelling's seminal paper "Stability in Competition", published in The Economic Journal in 1929 was a rock to address the locational problem that contrives to cluster together in a spatial center. Hotelling approached the case of

ice-cream vendors in the center of a beach. The Central Place Theory, the bid rent theory<sup>[7]</sup>, and the law of retail gravitation<sup>[8]</sup> are perhaps the most familiar theoretical contributions to the field of retail location - however, Harold Hotelling's "Principle of Minimum Differentiation" is a simple and easily remembered illustration of the agglomerative bent of similar retailing outlets in any case. The department stores of Boulevard Haussmann in Paris, the outfitters of London's Oxford Street, the electrical retailers of Akihabara in Tokyo, and the theaters and cinemas of Broadway are some of the known examples of the phenomenon. The clustering of similar outlets, however, is a truly universal trait, ranging from the hamburger alleys and automobile rows of American cities to the clusters of goldsmiths or banana sellers or embroidery workers or food stalls in the periodic markets of the developing nations.

To capture the applicability of Harold Hotelling's Rule and William J. Reilly's Law in case of a less explored area of informal business cluster in the developing nations, crucially for the market of recycling of second-hand commodities, it is to be considered that what is applicable to the formal sector businesses of the developing nations may not be truly applied for the informal businesses of the developing nations. The focus here is to be stressed upon the particular business specificity of the cluster - as is the case of recycling of second-hand garments and second-hand furniture in our study, particularly the 'centers' of Girish Park market of second-hand garments and the Bowbazar market of furniture .

In his classic paper, Hotelling was not directly concerned with any retail location. Indeed, he was trying to show how price stability is possible in case of two-firm competition with opposite reaction from its rival firms, and the Stackelbergian, where a dominant competitor acts as a price-leader and the others follow suits<sup>[9, 10]</sup>. In case of this informal street-trading garments and furniture businesses in the above-mentioned locations, the Stackelbergian two-firm competition does not appear - rather several retail outlets operate in a single location. The chance of any dominant competitor to appear as a price-leader does not appear. What happens here is that if an informal businessman in the competitive informal market makes any price-cut - others immediately follow suit since they do not want to lose their customers, hence the chance of no price leadership appears there in the long-run. Moreover, the specificity of the exchanges makes the traders to purchase the items at a price much lower than the market price for a fresh item - hence they mostly become ready to accept the price-cut since there is little chance to make a loss from the price-cut.

Some related contributions appeared with Mills (1969, 1970), Muth (1969), and Evans (1973) who have attempted to cast the von Thunen framework (1826) to a broader aspect in which land and non-land production factor relationships are fixed. The "law of retail gravitation" opines that consumers may be willing to travel long distances to reach large retail centers as long as they are large enough to enjoy the advantage of large purchasing site - which is true for the second-hand garments and furniture consumers of the Girish Park and Bowbazar market. What is important here are that the informal sector consumers in the market wish to enjoy the same benefits over variety of same commodity as the formal sector consumers extract in large shopping malls over a varied items of different commodities.

The law also assumes that consumers are indifferent between the actual cities which are also true in our case since the consumers behave the same. In analogy with Newton's law of gravitation, the point of indifference in the William J. Reilly's (1931) "law of retail gravitation" is the point at which the attractiveness of the two retail centers, postulated to be proportional to their size and inversely proportional to the square of the distance between the two, becomes equal (Gaitan, Tol, Yetkiner; 2006). This particular postulation does not match with the case of informal street trading activity of Girish Park in and Bowbazar. If we consider the 'center' and any one of the 'periphery' market as the two retail centers, the large size of the retail market proposition with several retail outlets holds true, however, the proposition of distance between the two outlets does not hold true since the petty traders are ready to travel a long distance even to extract the advantage of price conjecture by making bulk consumption at a much cheaper price in a competitive market environment.

The recent researches and debates surround the short-term and long-term ramifications of these price conjectures or a combination of them. Then the intractable question appear: whether spatial pricing in competitive structure gives rise to higher or lower prices than under monopoly circumstances<sup>[11]</sup>. In case of informal street trading activity of second-hand garments or trading of second-hand furniture, spatial pricing in competitive structure actually is actually lowering prices than under monopoly circumstances.

The third and perhaps the most significant development of the principle in this regard involve the location of (economic) business activities in spaces. Chamberlin (1933) challenged Hotelling's suggestion that a third seller would locate next to the first two in the center of the market. Chamberlin's version works well for second-hand garments and furniture businesses in which the third seller attempts to locate next to the first two. The same provides the explanation: why the market structure appears to be competitive in place of a monopoly or oligopolistic one if we postulate an inclusion of a fourth seller who attempts to locate next to the first three, a fifth seller who attempts to locate next to the first four, and so on.

The competitive environment of the market may attempt the business leaders to locate in the center of the market and thrive others to the interiors. To do so, however, it actually deprives the centrally located supplier of its hinterland in the Chamberlin's sense by extracting the central location of the market from it and therefore initiates an unstable leap-frogging process in which each competitor would attempt to capture the prime exterior sites. The hinterland traders attempt to locate in the center of the market in the Chamberlin's sense by thriving out the others to the hinterland, and the reverse continues in a competitive environment that ultimately leads to an unstable leap-frogging<sup>[12]</sup>. The phenomenon is common in the second-hand garments market at Girish Park due to absence of fixed site of trading - however, the influence of the event appears to be less significant with fixed site of trading in the second-hand furniture market at Bowbazar.

## 5. The Concluding Remarks

It is striking to refer that the exchanges of clothes against utensils is a barter activity while their re-selling is purely a monetary transaction. In other cases of re-selling or recycling activities such as old r furniture buying and selling involve two dispersed sets of individuals. However, the second-hand

garments market dominated by the Gujarati migrants in West Bengal inherits barter and monetary transactions in the two sides. The success of the female dominated trading activity has explored their inherent business idea and skill successfully. The present paper is an attempt to make an exploration of the second-hand garments and furniture market in Kolkata in the light two classical principles of the Location Economics literature, that of Harold Hotelling's "Principle of Minimum Differentiation" (1929) and William J. Reilly's (1931) "law of retail gravitation", to explain these two particular informal recycling activities. The paper finds its own manifestation regarding the two in case of Gujarati migrants dominated informal street trading activity in used garments and the traditional Bowbazar old furniture market in Kolkata within a frame of center-periphery approach along with centripetal and centrifugal forces in the Krugmanian sense. The "centripetal" force of collection (purchase) of rejected items by the businessmen in the two sites (the "core") is transformed into the "centrifugal" force of purchase of the recycled items by the petty businessmen to sell in the satellite markets (the "peripheries") situated in different parts of West Bengal.

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## 7. References

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  - b. William J. Reilly's (1931) "law of retail gravitation" presumes that the geography of the area is flat without any rivers or mountains to alter a consumer's decision of where to travel to buy goods.
2. The male members of these families, called 'Madhukars' (the honey collectors), started to collect honey from the Sundarban area of South 24 Paraganas in Bengal. The task was risky enough which often caused even death of the collectors.
3. Their employment opportunities are non-covered with any form of formal social security arrangements.
4. The obsolete rotten clothes, which are not in a condition to sale, are supplied to industries of different locations, even to the industries of metropolitan cities of other States like Ghaziabad and Delhi, for the purpose of cleaning machines. The expensive zari (mostly from saris) is collected by the Muslim zari workers of Chata, Nungi, Chetla and others in South 24 Paraganas to use them as raw materials in Zari and Embroidery industry.
5. The informal trading market of second-hand garments is scattered in different spaces throughout West Bengal. A significant market operates near the Girish Park metro railway station before Liberty cinema hall. This particular market operates at the off-hours, between 2 am at the midnight to 7-9 am in the morning after which the road is to be cleared out for vehicles. About 1,800-2,000 sellers squat every day in this particular market at the open road of Central Avenue and the adjacent Adwaiyta Mallick Lane and display their products of processed second-hand garments for selling. The market also includes a few number of formal sector plastic and metallic utensils shops, mostly owned by big businessmen from the Marwari community, who sell the utensils to the second-hand garments traders of the market.
6. Reference of the study: Nair, P. Thankappan in *The Growth and Development of Old Calcutta, in Calcutta, the Living City*, Vol. 1, edited by Sukanta Chaudhuri, p. 17, Oxford University Press, ISBN 978-0-19-563696-3.
7. The Bid-Rent Model is associated primarily with Alonso (1964). In the Bid-Rent Model, however, land and non-land production factors are assumed to be mutually substitutable inputs.
8. References to the study of law of retail gravitation: Von Stackelberg, 1952; Losch, 1954; Greenhut & Ohta, 1975.
9. The concept of leap-frogging was originally used in the context of economic growth theories and industrial organization innovation studies with specific focus on competition among firms. It is based on Joseph Schumpeter's notion of "gales of creative destruction". The hypothesis proposes that companies holding monopolies based on incumbent technologies have less incentive to innovate than potential rivals, and therefore they eventually lose their technological leadership role when new radical technological innovations are adopted by new firms which are ready to take the risks. When the radical innovations eventually become the new technological paradigm, the newcomer companies start to leap-frog ahead of the former leading firms. The leap-frogging phenomenon in location economics literature conveys four stages. First, there is an initial phase in which all regions are roughly equal in size. Second, the process of agglomeration starts. Third, the further reduction in the transportation costs causes a long gradual decline. Fourth, when transport costs are virtually absent, manufacturing activity in all the regions becomes approximately of the same size.
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