Exploring the Role of Locational Factors in the Growth of Textile Industry in Tehsil Jaranwala, District Faisalabad

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Abstract: Industrialization is a procedure which contributes to the economy of a country and plays a pivotal role in the expansion of wealth and economic growth of a community. Textile industry has acted as the backbone of the industrial sector of Pakistan and has contributed a lot in the regional growth especially in Punjab. The present study is aimed to assess the role of locational factors that have proven favorable in the growth and successful development of textile industry in Jaranwala tehsil, Faisalabad district. An empirical research design was selected and Jaranwala tehsil was chosen as the study area. Both primary and secondary data sources were used, and primary data were collected through a fully-structured questionnaire. Five sample sites were selected, and 75 textile industries were visited, and data were obtained by interviewing the administrative staff of the respective textile units. The collected data were further arranged and tabulated by using Microsoft Excel 2010, SPSS 20; Paired sample T test was performed to check the significance between types of industries and factors affecting the location of surveyed textile industries. Distributional and thematic maps were prepared with the help of Arc GIS 10.1. The result of the study showed that availability of raw material, cheap labor and better climatic conditions were the most favorable factors for the location of industries in the study area. The study recommends the further work on other types of industries following same pattern in order to understand their economic progress in regional growth and development of the study area.

Keywords: Locational factors, textile industry, SPSS 20, paired sample test.

Introduction

Industrialization is a process, which contributes to the economy of a country. It is a process of producing, manufacturing and supplying of goods to all of their consumers. It contributes the addition of wealth and jobs of a community (MacCarthy and Atthirawong, 2013). This is the capacity that manufacturing performs, manufacturing is a wide term and incorporates from basic cooking to the manufacturing of complex apparatus, producing is, thus, a crucial action of man (Trofimenko, 2010). The textile industry involves the sections like research, design, development, manufacturing and distribution of textiles, fabrics and clothing. It is concerned with the production of yarn, cloths and manufacturing of clothing. In order to set up any industrial unit, it is necessary to acquire a specific location or a favorable site (Esteban, 2009). Every unit possesses a piece of land and stands in many spatial relationships with other industries which are commonly situated in those areas where they are near to their market region or to the raw materials (Canfei and Wang, 2010; Schiele, 2018). Industrial location permits to attain business at climax and keep its transport expenses low to achieve low input cost. It is essential that an industry should be situated in the most practical areas, where it can save its cost and can impose least harmful effects upon the environment (Smith, 1981; Peng et al., 2015).

For developing countries like Pakistan, an industry possesses a key position in the economic advancement

and regional growth of the country (Hay, 1979). Pakistan has witnessed great economic upliftment in the past few decades due to growth of industrial activity (Philip and Stephen, 2003). Pakistan's textile industry ranks amongst the top in the world and cotton-based textiles contribute over 60% to the total exports, account 46 % of the total manufacturing and provide employment to 38% of the total labor force (GOP, 2014-15). Faisalabad being "the Manchester of Pakistan" having enormous textile unit development is highly important region which has also played an important role in the industrial growth of its surrounding as well. Textile industry that initially grew and flourished in Faisalabad city in the early decades started diffusing to the other parts of the Faisalabad. A small city like Jaranwala has witnessed a rapid growth of textile industry, which was in its infancy few decades back.

Previously, many researchers have studied the role of locational factors in the site selection of industries. Nasir (2017) examined the agglomeration effect of industries on the firm turnover and further expansion of industries in Punjab. Chen (2014) discussed the influencing factors on industrial location and the role of stakeholders and local government policies in Chinese cities. Paulrajan (2013) studied the factors contributing to the location selection decision by information technology firms in India. Bearing in mind, the above-mentioned facts, no such empirical research on the assessment of locational factors of textile industry was conducted in Jaranwala tehsil. The

purpose of the present study was to analyze the role of various locational factors, responsible for the development of textile industry in Jaranwala tehsil and to find out which of the factors remained most powerful in the whole scenario.

Materials and Methods

Tehsil Jaranwala was selected as a study area (Fig. 1). Jaranwala is a tehsil of the Faisalabad district in Punjab province of Pakistan. It is located at 31°20' North latitude and 73°26' East longitude. Jaranwala is situated between two canals i.e. Gogira Branch (GB) and Rakh Branch (RB). It is at a distance of 35 km from Faisalabad towards south-east, on Lahore-Faisalabad road and Jaranwala-Khurrianwala road. It covers an area of 437,386 acres of land (1,770.04 km^2). The Population of Jaranwala is consisted of approximately 1.6 lac individuals (GOP, 2014-15). The climate of area is semi-arid in nature with very hot and humid summers and dry cool winters. In the summer season, the temperature gets high at 45° Celsius while in the winter season the temperature gets down to - 2° Celsius. The normal yearly precipitation lies just at around 375 millimeters (14.8 in). The process of industrialization started in 1965 with the establishment of jute industry and with the passage of time, textile, soap, chemical and many other units were established. At present, manufacturing has become the second largest occupation after business within the study area.

Since the textile units are mostly located along the major roads of the study area. Five sample sites were selected namely Lahore road, Jaranwala road, Satiana road, Faisalabad road, Sheikhupura road and Khurianwala road (Fig. 1). Altogether 75 textile units were randomly selected from the sampling sites and were visited for the purpose of primary data collection. A fully structured questionnaire was prepared that was based on 4 sections and 30 close-ended questions which were related to different aspects of industries. The questionnaires were filled by interviewing the managerial and administrative staff of the selected textile units of the study area. The questionnaire survey was conducted from March 2016 to May 2016 and the exact geographical locations of industries were also taken with the help of GPS that were further utilized in preparation of maps. The information collected through questionnaires was further organized in Microsoft Excel 2010. Arc GIS 10.1 was used to show the locations and the types of industries of study area by attaching the GPS points of industries to the shape file of the study area. Paired sample test was

performed in SPSS version 20 in order to check the significance of factors affecting the location of selected industrial units. The following formula was applied:

$$t = \frac{\bar{d}}{\sqrt{s^2 / n}}$$

Where

t = the t- statistic (t-test statistic) for a paired sample t - test

$\bar{d}$ = the sample means of differences

s^2 = differences between two paired samples

n = the sample size

Moreover, Ho was taken that locational factors have played significant role in the location of surveyed industries in the study area. The level of significance was determined, where *p value* was found less than .05

Results and Discussion

During the questionnaire survey, different types of textile industries were found within the study area fairly distributed among the selected sampling sites (Table 1).
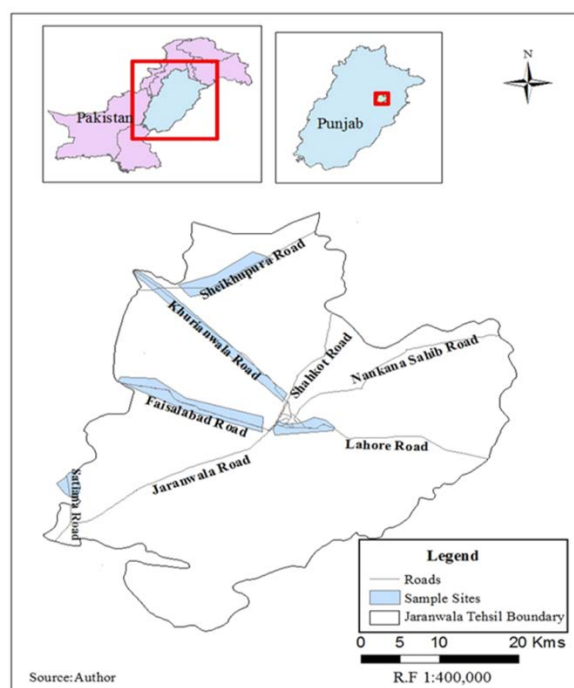

Fig. 1 The study area.

Table 1. Location and types of industries surveyed at Jaranwala tehsil.

Sample sites	Type of Textile industry						Total
	Processing	Spinning	Weaving	Dyeing & Printing	Cotton Waste	Hosiery	
Lahore Road	1	1	0	0	0	0	2
Faisalabad Road	1	1	1	0	0	0	3
Khurianwala Road	8	4	12	3	5	5	37
Sheikhupura Road	1	4	3	0	0	1	9
Satiana Road	1	1	0	1	20	1	24
Total	12	11	16	4	25	7	75

Table 1 shows that six types of textile units were found within the study area, which included processing units, spinning, weaving, dyeing and printing, cotton waste and hosiery. Majority of the textile units were found on Khurianwala road with 37 different types of textile units. On the contrary, very few industries were located along Lahore road i.e. only 2 and along Faisalabad road were only 3 textile units. Moreover, most common type of textile industry found, was cotton waste i.e. 25 that were mainly situated along Satiana road and Khurianwala road. The second most common type was weaving i.e. 16 industrial units were situated along Khurianwala road, Sheikhupura road and Faisalabad road. The least common type of textile units was of dyeing and printing which were only 4 in number and were mainly located along Khurianwala road and Satiana road (Fig. 2).
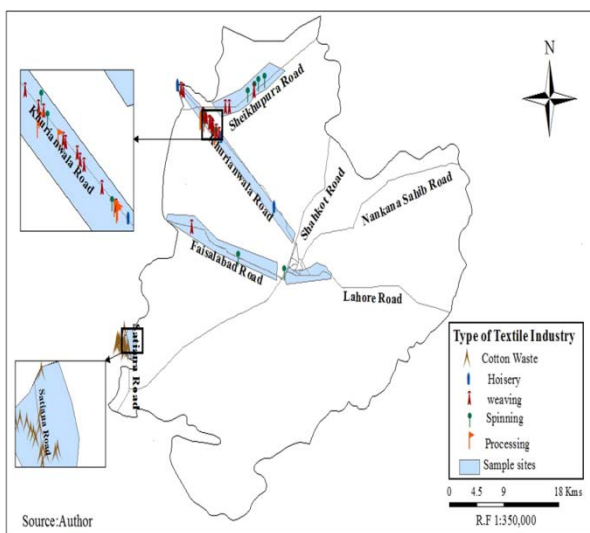

Fig. 2 Type of textile industry in Jaranwala tehsil.

It was observed that different factors remained favorable and contributed to the decision regarding the locations of the surveyed textile industries. According to the responses of the managerial staff of the industries, availability of raw material was the most important factor behind the locations of the textile units in the study area. The second most favorable factor mentioned by the respondents was availability of cheap labor and third most influential factor for setting up the industry in Jaranwala was ideal climatic conditions. Surprisingly, transportation and government policies were least affecting factors (Fig. 3).
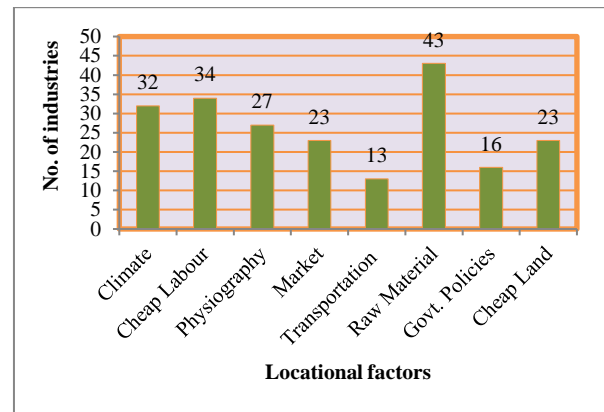

Fig. 3 Favorable locational factors of textile industry.

The paired sample t test was used to check the significant association between the types of industries and the factors affecting the location of industries. According to the results, hypothesis was significant and based on *p value.* The *p* value was less than α then *H0* would be significant. Results of most values show that *H0 i.e.* the hypothesis was accepted (Table 2). The result of the Paired sample T test mentioned in Table 2 shows that the location of industries was found highly affected and associated with several locational factors, such as availability of cheap labor, raw material, cheap land values, close proximity to market, favorable climatic conditions and better transport facilities, as the *p value* for the mentioned locational factor was found to be .000.

However, locational factors such as the nature of physiography and government policies were found insignificant and haven't played a significant role in the location of industries within the study area since their *p value* was observed to be .05

Conclusion

Textile industry has grown rapidly in Jaranwala tehsil in the past few decades. Most of the textile industries are situated along Khurianwala road, Satiana road and

Table 2 Paired sample t-test.

	Pairs of factors	Mean	Std. Deviation	t	df	*p*
Pair 1	Type of industry – Better climate	2.50877	1.40309	13.499	56	.000
Pair 2	Type of industry – Cheap labor	2.47368	1.28321	14.554	56	.000
Pair 3	Type of industry - Physiography	2.60714	1.30284	14.975	55	.05
Pair 4	Type of industry – raw material	2.32143	1.17716	14.757	55	.000
Pair 5	Type of industry – cheap land values	2.67857	1.33631	15.000	55	.000
Pair 6	Type of industry - market	2.85714	1.21249	17.634	55	.000
Pair 7	Type of industry - transportation	2.66667	1.15470	17.436	56	.000
Pair 8	Type of industry – Govt. policies	2.80357	1.48225	14.154	55	.05

Sheikhupura road. The most common textile units are cotton waste, weaving and processing units while spinning. dyeing and printing and hosiery are less commonly found within the study area. Availability of raw material, cheap labor and affordable land values, in close proximity to market region and better climatic conditions are the major factors, which are responsible for the location of textile industries in the study area. Further studies should be carried out on the expansion of other types of industries within Jaranwala tehsil focusing upon the changes that are taking place in present economic scenario.

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