Socio-Agricultural Correlation and Regionalization: A Case of the Districts of Pakistan

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Abstract: The main economic activity of a large segment of population in Pakistan is agriculture. The contrasting pattern of topography and uneven distribution of resources create a wide difference in socio-agricultural relationship among the different administrative districts of the country. The study aims to investigate the correlation based on a number of variables extracted from different sectors of Pakistan's agriculture and social infrastructure. In order to study the regionalization multivariate analysis has been done for hundred districts of Pakistan. The results produced, show sharp variation of regional disparity among the different districts of Pakistan. A clear cut longitudinal east-west divide is visible from the outcome of the study. The provinces of Punjab and Sindh, consisting of fertile plains of river Indus and its tributaries stand out with better socio-agricultural correlation. The western provinces of Khyber Pakhtoonkhwa and Balochistan, surrounded by mountains and plateau depict a deprived scene in terms of socio-agricultural well-being. In Pakistan districts are very vital for resource planning and development. These administrative units have a mix of both rural and urban activities that is why this study becomes more significant for future district planning decisions.

Keywords: Multivariate analysis, planning and development, regionalization, socio-agriculture relationship, uneven distribution.

INTRODUCTION

Agriculture is the economic base of Pakistan supporting a large segment of the country's population residing in one hundred districts [1]. Pakistan possesses a wide topographical diversity. The two eastern provinces Punjab and Sindh consist of fertile plains formed by the river Indus and its tributaries. The eastern margins of Punjab and Sindh districts are fringed by sand dunes and desert landforms. Khyber Pakhtoonkwa, the northwestern province is a land of high lofty mountains, valleys and hills. Balochistan, the western province is a large plateau surrounded by mountains. The interior of Balochistan is well-marked by parallel hills, mountains and valleys. This diversity is also evident in the climate of Pakistan. Rainfall varies from humid (rainfall above 750 mm) in Northern and Central Punjab (north of Sargodha district) to arid and semi-arid (below 125mm) with winter rain in Balochistan and summer monsoon in Sindh.

Such differentiation in physical conditions gives rise to regional disparity. Availability of water is either through means of irrigation or rainfall which is in irregular supply. Agricultural development is also uneven in various districts of Pakistan. Jhelum, Gujrat, Sialkot and Gujranwala are some of the districts of Pakistan located in the northern Punjab. Most of these districts have vast share of cultivated areas with improved and modern agricultural technology. The districts located in southern Khyber Pukhtoonkhwa or southern Punjab are those with relatively backward agricultural practices.

Uneven distribution of resources gives rise to inequality in the socio-economic well-being of people in various districts of Pakistan, which play an important role in enhancing rural poverty. The result is that a majority of population is deprived of social needs of life. Agriculture absorbs 45 per cent of the country's total labour force. Nearly 62 per cent of the country's population residing in rural areas is directly or indirectly linked with agriculture for their livelihood [2]. It accounts for over 21 per cent of GDP as a primary supplier of raw materials to downstream industry, which contributes greatly substantially to Pakistan's exports. Despite its critical importance to growth, exports, incomes, and food security, the agriculture sector has been suffering from decline due to the emerging challenges like declining water availability and low investments in seeds, hi-tech approaches and social infrastructure (like literacy, communication network, farmers training centers etc.).

Pakistan's total land area is about 803,940 square kilometers. About 48 million hectares or 60 per cent is often classified as unusable for forestry or agriculture which consists mostly of deserts, mountain slopes, and

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urban settlements (Figure **1**). However, some part of this area may classify as agricultural land, as it supports some livestock activity, although it is a poor rangeland. Thus, estimates of grazing land vary widely between 10 per cent and 70 per cent of the total area [3]. A broad interpretation, for example, categorizes almost all of arid Balochistan as rangeland for foraging livestock.

Pakistan's agricultural performance is closely linked with the supply of irrigation water due to large variation in seasonal and annual rainfall. An efficient irrigation system is a pre-requisite for higher agricultural production since it helps increase the crop intensity. Despite the existence of a good irrigation canal network in the Pakistan, it still suffers from wastage of a large amount of water in the irrigation process. The irrigation system represents a significant engineering achievement and provides water to the fields that account for 90 per cent of agricultural production [3]. Nonetheless, serious problems in the design of the irrigation system prevent achieving the highest potential agricultural output. Water management is based largely on objectives and operational procedures dating back many decades and is often inflexible and unresponsive to current needs for greater water use efficiency and high crop yields.

From the social point of view spatial variation is found all over Pakistan. By social variables here basic infrastructure is referred. These include piped drinking water, other utilities like gas and electricity supply to houses etc. Other basic facilities include health services like number of doctors and primary and secondary health care for people. Educational sector includes literacy ratio, primary enrolment and female to male literacy ratio. Basic social infrastructure also includes the living conditions of people indicated by room occupancy by number of persons in each house. The indicator of metalled roads shows the accessibility and spatial interaction in different regions in the country and farm to market roads. Unemployment indicates the sources of livelihood and economic condition of different areas. The socio-economic disparity among the districts of Pakistan is depicted by Figure **2**.

OBJECTIVES

The objectives of this study are two-fold:

- To indentify the pattern of disparity among the districts of Pakistan using statistical method "*Taxonomic Distance"* on the basis of agricultural performance and social development. Then to find out correlation between these two data sets.

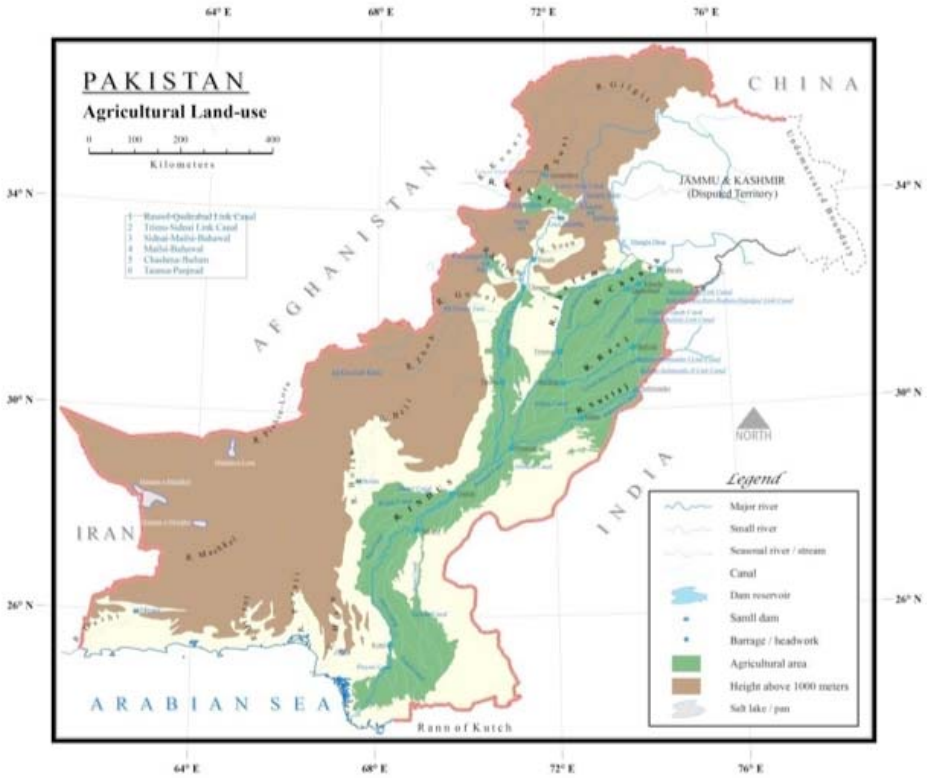

Figure 1:

Figure 2:

- Further grouping of these districts has been done using multivariate technique "*Cluster Analysis"*. The analysis will provide the regionalization of these districts using same data sets.

No such attempt has been done to investigate the socio-agricultural relationship in the district of entire Pakistan. The research will certainly contribute to the geographical studies regarding the agricultural field. The results pin point the socially depressed districts of Pakistan where development activity and planning can be directed for improving quality of life of people. The broad objective of sustainable socio-economic development is to balance the inherent land resources and optimization of resource use towards achieve-ments of sustained productivity over a long period.

METHODOLOGY

Social and Agriculture Indicators

More than twenty variables have been selected to develop the grouping and to find out the correlation between the agriculture and social conditions of the different districts of Pakistan (100 districts according to 1998 census, Figure **3**). These indicators have been extracted from different latest available primary and secondary sources such as Provincial Census Reports of 1998 (as new census has not been conducted yet), Agricultural Census of Balochistan, NWFP[1], Punjab and Sindh 2000, Socio-economic Indicators at District Level Balochistan, NWFP, Punjab and Sindh 2002, District-wise Agriculture Statistics of Pakistan 2002-2003, Agriculture Machinery Census Balochistan, NWFP, Punjab and Sindh 2004, Crop Area and Production by Districts 2007-08, Agriculture Statistics of Pakistan 2008-09, Economic Survey of Pakistan 2009-10 and Pakistan Social and Living Standards Measurement Survey 2010-11.

Taxonomic Distance

Taxonomic Distance has been used in order to rank the districts on the basis of selected indicators. After standardizing indicators, taxonomic distance is obtained by the following formula:

$$\left(TD\right)_j = \left[\sum_{i=1}^{n}\left(Z_{ij} - \tilde{Z}_i\right)^2\right]^{1/2}$$

where;

Z_{ij} = Standardized value of *i*th indicator in *j*th district; and

[1]Old name of Khyber Pakhtoonkhwa.

Figure 3:

$\tilde{Z}_i$ = Highest standardized value of *i*th indicator among all district

The minimum Taxonomic distance represents those districts which are developed and play significant role in development process, while the least developed districts show the maximum Taxonomic distance [4].

Spearman's Rank Correlation Coefficient (r_s)

To find out the relationship between agriculture and social conditions of the districts of Pakistan, correlation coefficient and coefficient of determinants have been employed. This technique is among the most reliable methods of calculating a correlation coefficient [5]. It ranges from –1 to +1. The high correlation coefficient – ve or +ve indicates that a very strong relationship exists between the two variables [6].

The coefficient of determinants gives the proportion of the variation of Y, which is associated with variation in X. Its range is from 0 to 1.

Cluster Analysis

Numbers of statistical techniques have been used to study the nature and process of uneven development. Multivariate statistics techniques such as Principal Component Analysis (PCA) and Cluster analysis (CA) were first used in a geographic research to capture the development process with the help of large number of variables. This study signifies the importance of cluster analysis for the classification of exhaustive data. CA technique is meaningful to scan a small group for common features than a large group where mathematical methods give some assurance that common features exist [7]. It is clear that in cluster analysis, observations are sorted into groups in such a way that the degree of natural association is high among groups members of the same group and low among members of different groups [8].

Brain B. J. L. Berry, 1961 was the first scholar who applied such a technique to explain the development process of the world [9]. Later several scholars applied these analyses at different scales of political or administrative units tending to stimulate socio-economic development.

THE ANALYSIS

The data set used in this study consists of two sets of variable that is agriculture and social. In order to obtain the ranks of the districts Taxonomic distance

has been applied on both data sets. These variables of 100 districts of Pakistan are listed below:

1	CASHVALCROP	Cash value of crop output per rural capita (Rs.)
2	LSTOCKRURAL	Livestock per rural capita
3	CULTIAREA	Cultivated area (%)
4	FARMOWNER	Farm ownership (%)
5	IRRIAREA	Irrigated area per 1000 acres of cropped area
6	TRACT	Tractors per 1000 acres of cropped area
7	INTENLUSE	Intensity of land-use
8	INTENCROP	Intensity of cropping
9	ORCHYIELD	Orchid yield (tones per hector)
	Social	
1	METROAD	Metalled road per 100 square kilometer
2	NODOC	Doctor per million population
3	HOSBED	Hospital beds per million population
4	LITRATE	Literacy rate (%)
5	PRIENROL	Primary enrolment rate (%)
6	FEMLIT	Female to male literacy ratio
7	UNEMPRATIO	Unemployment ratio
8	ROOMPER	Persons per room
9	HOUSELE	Household with electricity (%)
10	HOUSGAS	Household with natural gas (%)
11	HOUSPIPED	Household with piped water (%)

RANKING AND CORRELATION OF DISTRICTS

Table **1** gives the magnitude of taxonomic distance of social and agriculture variables for 100 districts of Pakistan.

It reveals from Table **1**, that districts located in southern Punjab have good scores in agricultural ranking such as Lodhran which has second position in agriculture but the social conditions of this district is the worst, secures 56th position in social ranking. The same situation is obvious in Rahim Yar Khan, Vehari, Bahawalnagar, Sahiwal, Pakpattan, Bahawalpur and Khanewal. These obtained outstanding positions 10th, 18th,18th, 5th, 8th, 6th and 12th positions respectively in agricultural ranking but in social ranking these dropped to 44th, 52nd, 47th, 27th, 55th, 23rd and 34th positions respectively. Although these districts are considered as the most productive areas in terms of cotton production that is the main export commodity and source of foreign exchange earning of the country, the social conditions of these districts are seriously depriving (Figures **4**, **5**).

The social conditions of Hafizabad, Kasur and Okara seem to be very depressive, in social ranking falling to 51st, 54th and 50th respectively while these have very good scores in agriculture that are 4th, 7th and 10th. Most striking finding from this study is that, the two districts of Balochistan that are Qilla Saifullah and Jafarabad, have significant position in agriculture ranking (8th and 16th) whereas in social ranking these districts are placed at 70th and 67th position, depicting that these areas are highly neglected in social development policies and are deficient in basic infrastructure. Some areas of Balochistan have good potential of agriculture like Kohlu showing great potential of animal rising, highest number of livestock per rural capita shows that is the chief economic activity of Kohlu. No district of Khyber Pakhtoonkwa was able to get good scores in agriculture ranking (Figure **4**, **5**).

Lahore and Hyderabad stand at 17th and 20th positions in agricultural ranking and 1st and 7th in social ranking. These positions indicate good social conditions and urban based infrastructure.

Potwar region of Punjab province shows good social conditions, Rawalpindi secures 4th position in social ranking while Abbottabad ranked as 5th and Attock at 20th. It indicates that Potwar region has significant development in basic infrastructure. Since the land is intensely eroded, this confines agriculture activities in this region. Agriculture is carried out on a limited scale which could not contribute well in the country's economy hence having poor scores in agriculture ranking (Table **1**).

Ziarat stands out at 1st position in agriculture as it has highest cash value of crop output per rural capita and per cent of farm ownership, and second highest in number of tractors per 1000 acres of cropped area. Quetta stands at 2nd position in social sector due to good number of hospital beds per million population, per cent of houses with natural gas and number of houses with piped water. It is the only developed pocket in Balochistan [10].

Multan, Faisalabad, Gujranwala, Narowal, Khushab of Punjab and Sanghar, Nawabshah of Sindh province, show almost same scores in both ranking. Same way Jacobabad, Bolan and Sibi of Balochistan and Laki Marwat and Swabi of Khyber Pakhtoonkhwa also have same ranks in both sets of the analysis but at the tail end showing their poor conditions both in agriculture and social setup (Table **1**).

Table 1: Magnitude of Taxonomic Distance

	Agriculture		Social	
	Taxonomic Distance	**Rank**	**Taxonomic Distance**	**Rank**
Abbottabad	15.41	71	9.96	5
Attock	15.04	60	11.99	20
Awaran	16.37	78	15.68	87
Badin	14.49	44	13.99	65
Bahawalnagar	13.55	18	13.36	47
Bahawalpur	13.17	6	12.57	30
Bannu	14.46	42	11.81	17
Barkhan	13.91	27	14.47	76
Battagram	15.22	64	14.19	71
Bhakkar	13.72	24	13.90	63
Bolan	15.33	69	14.24	74
Buner	14.39	40	13.81	62
Chagai	14.95	58	13.92	64
Chakwal	15.04	60	12.26	23
Charsadda	14.15	34	12.59	31
Chitral	14.21	37	12.46	27
Dadu	15.04	60	12.72	33
Dera Bugti	13.93	28	14.99	80
Dera Gazi Khan	14.28	39	13.44	51
Dera Ismail Khan	14.46	42	12.89	36
Faisalabad	13.55	18	11.67	16
Ghotki	14.40	41	14.15	69
Gujranwala	12.97	3	11.55	13
Gujrat	14.56	47	11.92	18
Gwadar	15.93	75	13.38	48
Hafizabad	12.99	4	13.44	51
Hangu	15.81	74	13.29	45
Haripur	14.93	57	11.12	11
Hyderabad	13.60	20	10.25	7
Jacobabad	14.83	54	13.71	59
Jafarabad	13.50	16	14.10	67
Jhal Magsi	15.28	65	14.87	79
Jhang	13.43	14	13.79	61
Jhelum	15.06	62	11.10	10
Kalat	14.50	45	14.49	77
Karachi	13.32	11	10.24	6
Karak	16.06	76	12.51	29
Kasur	13.19	7	13.55	54
Kech	14.95	58	14.17	70
Khairpur	13.60	20	13.35	46

(Table 1). Continued.

	Agriculture		Social	
	Taxonomic Distance	**Rank**	**Taxonomic Distance**	**Rank**
Khanewal	13.34	12	12.75	34
Kharan	14.22	38	15.31	84
Khushab	14.20	36	12.90	38
Khuzdar	12.97	3	15.04	81
Kohat	14.68	51	10.57	8
Kohistan	15.44	72	15.68	87
Kohlu	13.68	21	15.09	82
Lahore	13.53	17	6.62	1
Lakki Marwat	15.03	59	13.63	58
Larkana	14.58	48	12.41	26
Lasbela	15.31	67	14.73	78
Leiah	14.17	35	13.73	60
Lodhran	12.77	2	13.60	56
Loralai	13.73	25	13.61	57
Lower Dir	14.56	47	12.65	32
Malakand	14.75	53	10.82	9
Mandi Bahauddin	13.58	19	13.08	39
Mansehra	15.06	62	12.20	21
Mardan	14.52	46	12.24	22
Mastung	15.04	60	13.21	43
Mianwali	13.87	26	12.76	35
Mirpur Khas	14.07	32	13.44	51
Multan	13.40	13	11.66	15
Musa Khail	14.00	30	15.57	86
Muzaffargarh	13.70	22	14.22	72
Narowal	14.06	31	12.90	37
Nasirabad	14.00	30	15.23	83
Naushero Feroze	13.71	23	13.16	40
Nawabshah	13.70	22	11.96	19
Nowshera	14.83	53	11.20	12
Okara	13.27	10	13.42	50
Pakpattan	13.22	8	13.59	55
Panjgur	15.32	68	14.47	76
Peshawar	14.68	51	8.18	3
Pishin	14.89	55	13.18	42
Qilla Abdullah	15.29	66	13.71	59
Qilla Saifullah	13.22	8	14.17	70
Quetta	15.35	70	7.47	2
Rahim Yar Khan	13.27	10	13.23	44
Rajanpur	13.93	28	14.40	75
Rawalpindi	15.05	61	9.05	4

(Table 1). Continued.

	Agriculture		Social	
	Taxonomic Distance	**Rank**	**Taxonomic Distance**	**Rank**
Sahiwal	13.13	5	12.46	27
Sanghar	14.72	52	13.41	49
Sargodha	14.09	33	12.34	25
Shangla	15.56	73	15.32	85
Sheikhupura	13.45	15	12.76	35
Shikarpur	14.90	56	13.08	39
Sialkot	13.58	19	11.60	14
Sibi	14.47	43	13.18	42
Sukkur	13.91	27	12.20	21
Swabi	14.46	42	13.17	41
Swat	14.60	49	12.47	28
Tank	15.19	63	13.59	55
Tharparkar	16.09	77	16.11	88
Thatta	15.19	63	14.13	68
Toba Tek Singh	13.26	9	12.33	24
Upper Dir	14.66	50	14.23	73
Vehari	13.55	18	13.46	52
Zhob	13.98	29	14.09	66
Ziarat	12.62	1	13.51	53

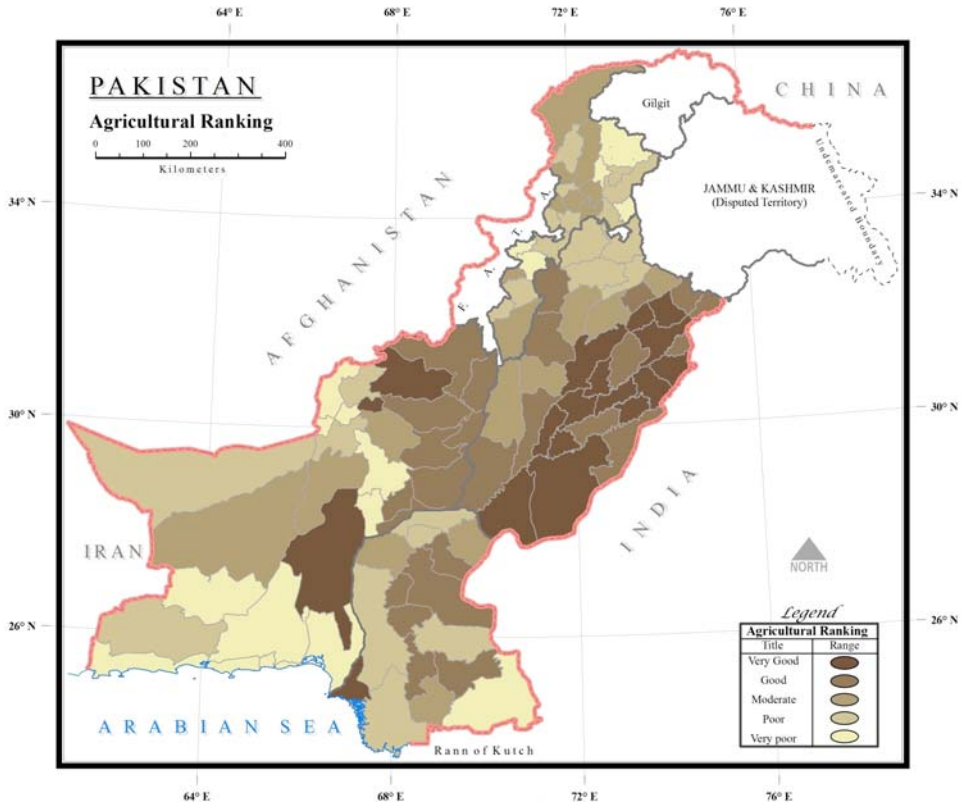

Figure 4:

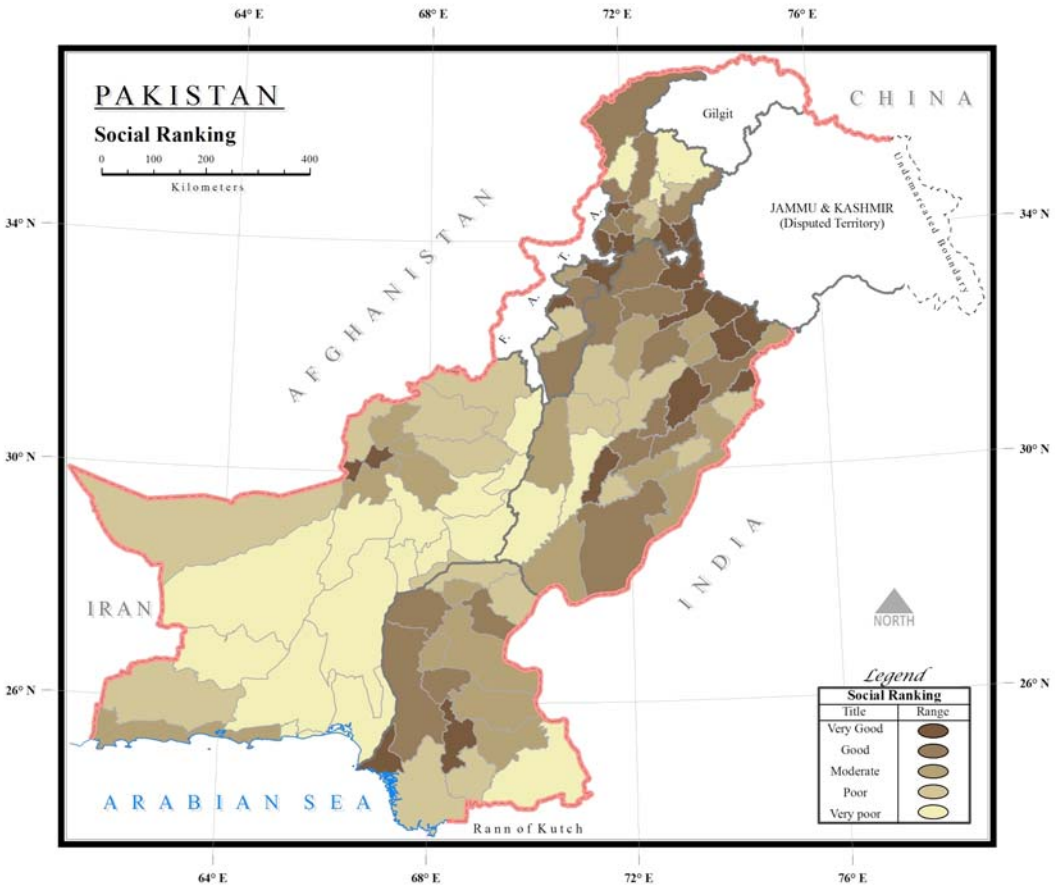

Figure 5:

The interior districts of Balochistan and north eastern districts of Khyber Pakhtoonkhwa such as Jhal Magsi, Chagai, Kech, Panjgur, Awaran, Kohistan, Shangla, Batagram, etc. represent lower scores in both the ranking order. There is a dire need to utilize the indigenous resources and bring into the main stream of development. It will improve the social conditions of the residents of these districts and will ultimately play a positive role to reduce sense of deprivation among the people [11] (Figure **4**, **5**).

The Spearman's rank correlation coefficient (r_s) between social and agricultural ranking of the districts of Pakistan is 0.3674 that shows a very weak correlation.

GROUPING OF DISTRICTS

The cluster analysis was conducted for 100 districts of the country to find out the grouping of these districts in terms of social-agricultural scenario. This technique has been widely used in the similar studies in geography and other social sciences such as Ahmad [12], Soares *et al.* [13], Campo *et al.* [14], Zeng *et al.* [15], Zhang *et al.* [16] and Ahmed [11].

In this study, different hierarchical cluster methods were first employed to establish the homogeneous clusters on standardized original variables. But final results were obtained by Ward's method, 1963 of hierarchical clustering with squared Euclidean distance as the resemblance function [17]. Seven clusters have been obtained to depict the homogeneity within the clusters and differentiation across them. Table **2** shows the grouping of districts with their cluster number, extracted from Ward's method.

The detailed description of these clusters is discussed below on the basis of the significance not according to the serial of Ward's method (Figure **6**).

Cluster 6

In cluster 6, there is only one district, Karachi which contains the largest urban, industrial, commercial, financial and trade centre of the country. It clearly shows its dominant status in the country because of its outstanding economic performance and social infrastructure. The small agricultural area located in its surrounding also benefits from Karachi's overall development. This cluster is termed here as very good.

Table 2: Grouping of Districts

District	Cluster	District	Cluster
Abbottabad	1	Bahawalnagar	4
Attock	1	Bhakkar	4
Chakwal	1	Charsadda	4
Chitral	1	Faisalabad	4
Haripur	1	Gujranwala	4
Jhelum	1	Gujrat	4
Karak	1	Hafizabad	4
Kohat	1	Jhang	4
Mansehra	1	Kasur	4
Nowshera	1	Khanewal	4
Swat	1	Khushab	4
Ziarat	1	Leiah	4
Awaran	2	Lodhran	4
Barkhan	2	Malakand	4
Chagai	2	Mandi Bahauddin	4
Dera Bugti	2	Mardan	4
Gwadar	2	Mianwali	4
Kalat	2	Multan	4
Kech	2	Narowal	4
Kharan	2	Okara	4
Kohistan	2	Pakpattan	4
Kohlu	2	Sahiwal	4
Lasbela	2	Sargodha	4
Loralai	2	Sheikhupura	4
Mastung	2	Sialkot	4
Musa Khail	2	Swabi	4
Nasirabad	2	Toba Tek Singh	4
Panjgur	2	Vehari	4
Pishin	2	Bahawalpur	5
Qilla Abdullah	2	Bannu	5
Qilla Saifullah	2	Battagram	5
Sibi	2	Bolan	5
Tharparkar	2	Buner	5
Zhob	2	Dera Gazi Khan	5
Badin	3	Dera Ismail Khan	5
Dadu	3	Hangu	5
Ghotki	3	Khuzdar	5
Hyderabad	3	Lakki Marwat	5
Jacobabad	3	Lower Dir	5
Jafarabad	3	Muzaffargarh	5
Jhal Magsi	3	Rahim Yar Khan	5
Khairpur	3	Rajanpur	5
Larkana	3	Shangla	5
Mirpur Khas	3	Tank	5
Naushero Feroze	3	Upper Dir	5
Nawabshah	3	Karachi	6
Sanghar	3	Lahore	7
Shikarpur	3	Peshawar	7
Sukkur	3	Quetta	7
Thatta	3	Rawalpindi	7

Cluster 7

This cluster included four districts Lahore, Peshawar, Quetta all provincial administrative headquarters and Rawalpindi the twin city of federal capital Islamabad (Figure **6**). It is described as good. All districts included in this cluster are economically very developed and having good social infrastructure. These districts have special administrative functions and that is why more developed. Rawalpindi being the military general headquarters (GHQ) has specified functions. All districts have tremendous urban and industrial infrastructure that is only these fall in this cluster.

Cluster 4

This is the largest cluster covering 28 districts of Punjab and Khyber Pakhtoonkwa (Figure **6**). It is identified as average cluster. Most of the districts belong to this cluster represent irrigated areas of central and eastern Punjab (Table **2**). These are very fertile lands of upper Indus Basin with ideal alluvium and flat surfaces that is why they contribute to the high densities of rural population. The well developed canal colonies are part of this cluster. Social and economic infrastructure is average and having very significant industrial estates of Pakistan. This cluster needs special attention of planners and policy makers.

Cluster 3

Cluster 3 combines 16 districts, of which 14 district from Sindh and only 2 from Balochistan that are Jafarabad and Jhal Magsi (Figure **6** and Table **2**). Most of the population is comparatively deprived of basic social infrastructure like access to doctors, hospital services etc. other economic infrastructure is also in

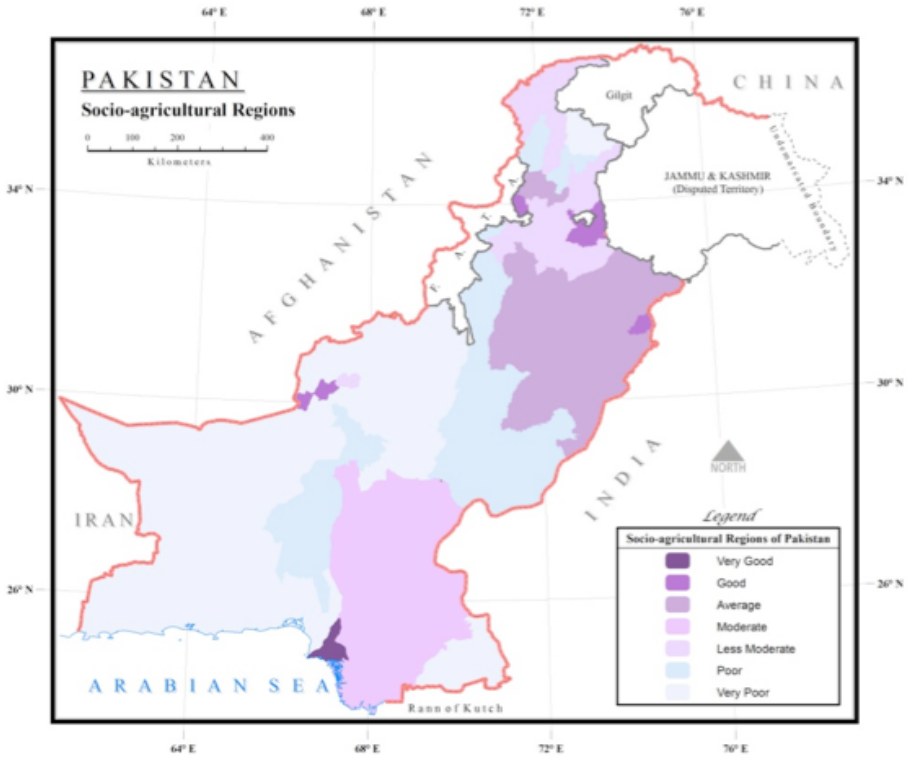

Figure 6:

poor shape and insufficient except in some districts Hyderabad, Sukkur and Nawabshah. There is a dire need to improve such basic services to the population residing in these districts. This cluster is defined as moderate.

Cluster 1

This cluster is identified as less moderate due to the non availability of very basic socio economic infrastructure and services which hamper the development process. The districts falling in this cluster are either semi-hilly topography (surrounding the federal capital Islamabad and Rawalpindi) like Attock, Abbottabad, Chakwal and Haripur or mountainous such Citral, Ziarat etc (Figure **6**).

Most of the slopes do not have wide cultivated lands that is why a variety of livelihood is sought by its residents. Although these districts having great potential for development such as ecotourism development, development of handicrafts center, small scale and cottage industries etc, they need the indeed attention of government policy makers and planners.

Cluster 5

It is identified as poor cluster comprises a large number of districts (17), represents southern Punjab (Bahawalpur, Rajanpur and Rahim Yar Khan) which are water deficient and located at the fringe of Cholistan (Figure **6**). The districts belong to Khyber Pakhtoonkhwa and Balochistan such as Shangla, Upper and Lower Dir, Tank, Lakki Marwat, Khuzdar etc having rough terrain which is deprive from very basic infrastructure and agricultural activity.

Cluster 2

It is designated as very poor cluster mainly formed by very under developed districts of the most backward province of Balochistan (Figure **6**). Most of the areas are water deficient and inaccessible covered by very rough and rugged topography. These districts have no access to even very basic social and economic infrastructure of the country. The districts included in this cluster are Awaran, Barkhan, Barkhan, Dera Bughti, Loralai, Mustung, Pishin, Kohlu, Kharan etc. while Tharparkar and Kohistan belongs to Sindh and Khyber Pakhtoonkhwa respectively (Table **2**).

CONCLUSION

This study focuses on social and agricultural setup of Pakistan. The main purpose of this study is to analyze the gap between development process and economic activities among the different districts. This socio-economic inequality becomes more significant

when spatial and regional divisions align with political and ethnic tensions to destabilize social and political stability. Where economic development occurs unequally across a country, regional differences in levels of living become an important political issue.

The results of our comparative analysis yield several important conclusions.

First of all is that socio-economic disparity in Pakistan is associated with differences between eastern and western provinces.

Secondly, a district may be well-developed in terms of agriculture but at mean time it is seriously deficient in social sector such as Lodhran, Hafizabad, Kasur, Pak Pattan, Okara, Jafarabad even Qilla Saifullah, Ziarat and Khuzdar.

The third conclusion of this study reinforces a well-known fact in Pakistan that the eastern area is more developed than the interiror and western of the country.

The fourth conclusion is that some districts of Balochistan have great potential of agriculture like Ziarat and Khuzdar but there is a dire need to realize this fact and take necessary steps to develop this potential. It will impact very positively for the future of Balochistan.

The second analysis of this study is Cluster Analysis (CA). A cluster analysis was run on 20 cases, each responding to items on 9 agricultural and 11 social variables. A hierarchical cluster analysis using Ward's method produced seven clusters, between which the variables were significantly different in various groups. The sixth and seventh clusters were predominant and characterized by urbanization and industrialization. The fourth and third clusters were essentially high in agriculture and named as average and moderate respectively. The first, fifth and second cluster were those having poor agricultural and social development and plays very minimum role in economic progress.

This study is very significant from the viewpoint of social and agricultural infrastructure of Pakistan. The results obtained from this research can be successfully used for studies related to other Afro-Asian countries having under developed and poor rural background. The analysis shows that there is dire need to invest heavily on developing and planning strategies specially the poor and underdeveloped economic as well as social infrastructure of rural Pakistan. The results indicate that the worst areas are those where no significant development work has taken place even to provide the basic human needs for example Kohlu, Kharan, Chagai, Panjgur, Awaran, Musa Khel, Thatta and Tharparker etc.

In the light of the past experiences it is necessary that agriculture development should be encouraged on traditional approaches and methods based on scientific strategies. Majority of the employed population belongs to the agricultural economic sector. As far as urban areas are concerned the development has to be in the local and traditional perspective.

It is believed that drastic changes are needed in government policies and the legal and institutional framework of water management if water use is to improve and that effective changes can result in very large gains in agricultural output.

Any regional development planning has to deal with this reality in order to stop the interprovincial migration and anti-state movements and reduce feelings of deprivation by promoting the creation of new industrial sites, improve agricultural, irrigational and marketing facilities; and develop more public sector facilities namely educational institutions and health conveniences, especially in the less developed areas like Balochistan, interior Khyber Pakhtoonkwa and Lower Sindh.

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