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Analysis of Growth and Trends of Periodic and Regulated Markets in Hardoi District, Uttar Pradesh

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Abstract
The agriculture market places are most important that is remarkable for pace of economic development, rural empowerment and stimulating production and consumption. It is important for economic link among the producers, market and consumers and also created equilibrium between demand and supply in rural and urban sector. This paper has examined the growth and accessibility of markets toward the number of villages (in km) in block wise of periodic and regulated agriculture market for the period 1995-2013 in Hardoi district, Uttar Pradesh India. The study has shown that the growths of periodic markets are not uniform and not always positive, during the 1995 to 2013; the number of periodic markets in Hardoi has increased by 1.19% annually. The result has shown that the average number of villages has increased across the distance of periodic market except periodic market, which are more than five kilometer from the village. On the other hand in regulated market which are established and regulated under the state Agricultural Produce Marketing Committee Acts and sub regulated market has increased since independence in all blocks of Hardoi district.
Keywords Periodic market. Regulated market, Marketing, Villages, Rural

1.1 Introduction

Agriculture market system is most efficient where farmers can dispose their surplus produce but lack of proper marketing function and facility like lack of proper efficient marketing channel, lack of storage facility, grading facility, transport facility, lack of institutional finance and so on, farmer cannot get remunerative price of their produce. Agricultural marketing plays an important role not only in stimulating production but also in accelerating the pace of economic development in rural areas. It acts not only as an economic link between the producer and consumer; but also maintains equilibrium between demand and supply. Both types of market like periodic as well as regulated market are most efficient marketing centre in rural and urban areas. Periodic market centers are mostly situated in rural areas. These markets are organized periodically after a certain interval of time and best option for marginal (having 1 hectare or less than 2.5 acres land holding) and small farmers (having 2 hectares or less than 5 acres land holding). These markets give them opportunity to earn from their surplus perishable commodities, even though the volume of the product is less. Periodic market is the entry point of local produced goods like that perishable goods, food grain, pulses, and oilseeds etc. It has become large marketing networks which are estimated to more than 21,000 to a maximum of 47000 in India. Periodic markets are mostly unregulated, but in some in some instances it administered by some individual or community. It is a fact that most of population of developing nations like India lives in villages with agriculture as their chief economic activity (***xii five year plan of Planning commission, 2011)***.

Regulated markets are regulated by government and market committees, and the major participants in these markets are medium and large farmers because they have large landholding in terms of marginal and small farmer. Periodic markets are mainly unorganized as they are not regulated by any statute of government and main a time these markets are held following a decision of an individual or the community. On the other hand, regulated markets are governed by an act of government. Both types of market systems are important in a developing country like India. It is a known fact that the marketing channels in regulated markets are very complicated and also dominated by the traders, these traders' tries to fetch high margins than producer-sellers or farmers. In India some most important commodities are regulated by the government like in the Maharashtra, cotton, onion, potatoes are some commodities, that are regulated whereas other commodities are not regulated by the govt. through regulated market like vegetables, food grain, pulses, and oilseed. Today about 7320 regulated market ***(Economic survey 2014-15)*** are there in India, which function under the ambit of model APMC act 2003. The advent of regulated markets has helped in mitigating the factors limiting of producers-seller interaction at wholesale assembling level.

About 83.3 crores people live in rural areas (census 2011). Agriculture is the dominant occupation of population in rural areas. Agriculture contributes 13.9 % of GDP while providing employment to about 54.6 % of workforce. Productivity of agriculture is still very low as compared to developed countries like USA and Japan. One reason behind low productivity is incentives coming out of low returns that farmers get. Low return does not give farmers the incentive to invest in agriculture. One of the major reasons behind farmers getting low returns is absence of market, where farmers can directly negotiate with the buyers and fetch reasonable and appropriate profits.

Market centers as an authorized public gathering of buyers and sellers for purchasing and selling

commodities and meeting at desired places at regular intervals (Hodder, 1965). Marketing is also a geographical phenomenon of exchanging goods and services. Moreover market centres performs function of exchange of goods and services and ideas and information. These centres are also places of social intermixing (Dixit, 1984)

In India most of agriculture produce are collected, distributed, and Regulated market mainly deals with the wholesale trading of commodities including perishable commodities and the commodities from these markets sometimes find their ways to periodic markets. But commodities in regulated markets are traded in bulk and thus small and marginal famers, due to marketable surpluses, are often unable to participate in this market. Under such circumstances, the local markets become the most reasonable option for marginal and small farmers to sell their perishable agricultural products in order to get quick return (khan and khan,2012).

1.2 Data and Methodology

The data on number of periodic and regulated markets, numbers of village according to the distance of periodic market and some socio economic indicators data have collected from the Sankhyikiya Patrica of Economics and Statistics Division, Planning Department Uttar Pradesh and state agricultural produce marketing board, Uttar Pradesh. The data has calculated with the help of different quantitative techniques, tools and method.

Compound Annual Growth Rate

The compound annual growth rate is a useful measure of growth over multiple time periods or it used to show the smoothed annual growth rate over a given time period. CAGR has used for compare the annual growth of periodic market in the Hardoi district.

$$\text{CAGR} = \left(\left(\frac{V_n}{V_0}\right)^{\left(\frac{1}{n}\right)} - 1\right) * 100$$

Where

V_n Is the value of the current node?

V_0 Is the value of node to compare it with (e.g. one year back?)

n Is the number of steps (year) between the values to compare

Principal Component Analysis

Principal component analysis is the backbone of data analysis tool and called on of the most valuable result from applied linear algebra. It's used extremely in the all form of analysis because it is a simple, non-parametric method of extracting relevant information from the confusing data sets. It is hard to find the variables that are really important for research when there are so many variables to consider. This is where principal component analysis can help.

PCA is a way of identifying patterns in data, and expressing the data in such a way as to highlight their similarities and differences. Since patterns in data can be hard to find in data o high dimension, where the luxury of graphical representation is not available, PCA is a powerful tool for multi- variant analysis of data (Smith 2002).

The Principal component analysis is a special case of more general method of factor analysis. PCA is one such method, which help in deciding the weights objective and also suggest way combing various indicators. In the method of PCA, the weight are supposed to reflect the degree of importance that each indicator is considered to have in the measurement of the whole. The composition of indicators can be done in two stages:

- **Elimination of the bias of scale**

  Each indicator has been made scale free by using standardization method. The standardization method is generally used to make indicators scale free; in the process of construction composite index various indicators are made scale free because they are measured in different units.

$$X_{i,\,1\sigma} = \frac{X_i - \bar{X}_S}{\sigma_{X,\,S}}$$

- **Determination of weightings.**

  The first component of the Principle component Analysis has been used to assign weight to the each indicator because it explains the maximum variations in the data matrix

2.1 Numbers and Growth of Markets centers in the Hardoi District

The study of growth of the market and it's the block-wise distribution shows a considerable diversity. I have calculated the growth of periodic markets in some of the blocks where the data for this analysis has been taken for four years i.e. for1995, 2001, 2007 and 2013. Analysis is done based on the secondary data from the ***Sankhyikiya Patrika,*** which is an important annual publication of ***Economics and Statistics Division of Planning Department of Uttar Pradesh***. The study hereby demonstrates the growth over a period of 6 years as well as a composite annual growth rate (CAGR, 1995 and 2013).

Table 2.1 Numbers and growth of Periodic Market of blocks wise 1995-13

	Number of Markets				Growth in Markets			CAGR	
	1995	2001	2007	2013	1995-2001	2001-2007	2007-2013	1995-2013	Composite Index
Bharkhani	9	14	11	11	55.56	-21.43	0.00	1.12	0.394
Shahabad	10	18	18	18	80.00	0.00	0.00	3.31	0.616
Tondarpur	19	22	22	21	15.79	0.00	-4.55	0.55	0.437
Pihani	14	28	28	22	100.00	0.00	-21.43	2.54	0.158
Bawan	15	21	17	17	40.00	-19.05	0.00	0.69	0.579
Hariyawan	14	23	23	23	64.29	0.00	0.00	2.79	0.282
Tadiyawan	16	21	33	32	31.25	57.14	-3.03	3.92	0.533
Sursa	20	23	10	8	15.00	-56.52	-20.00	-4.96	0.162
Ahrori	23	20	11	10	-13.04	-45.00	-9.09	-4.52	0.460
Harpalpur	8	11	9	9	37.50	-18.18	0.00	0.65	0.228
Sandi	6	9	6	8	50.00	-33.33	33.33	1.61	0.228
Bilgram	7	28	24	22	300.00	-14.29	-8.33	6.56	0.050
Madhoganj	7	15	14	14	114.29	-6.67	0.00	3.92	0.311
Mallawan	5	10	10	10	100.00	0.00	0.00	3.92	0.311
Kothwan	10	16	16	16	60.00	0.00	0.00	2.64	0.343
Kachhauna	8	9	9	9	12.50	0.00	0.00	0.65	0.204
Behandar	24	23	23	22	-4.17	0.00	-4.35	-0.48	0.290
Sandila	16	10	10	10	-37.50	0.00	0.00	-2.57	0.406
Bharawan	13	20	20	20	53.85	0.00	0.00	2.42	0.343
Total	**244**	**341**	314	**302**	39.75	-7.92	-3.82	1.19	

Source: Sankhyikiya Patrika of Economics and Statistics Division Planning Department, Uttar Prade

The table 2.1 shows that in 2013, there are 19 blocks and 302 periodic markets in Hardoi districts of Uttar Pradesh. This table clearly demonstrates that the trend of market growth of periodic markets in Hardoi district is not uniform and not always positive. During 1995 and 2013, the number of periodic markets in Hardoi has increased by 1.19% annually. During the same period, the number of periodic markets has increased almost across all the blocks except in Suras, Ahrori, Behandar and Sandila. The increment in number of market was ranging from a maximum in Bilgram (increased by 6.57% annually) to a minimum in Sursa (in which it decreased by 4.96% annually) The ***composite index***, which has been constructed by using percentage of literacy, number of post office, bank, and senior basic school for girl's indicators, reveals a mixed picture of the growth in number of periodic markets. Examples can be taken from the Bilgram block, which has the lowest composite index (0.050) but has experienced the highest increment (increased by 6.57% annually) in the number of periodic markets. The change in the number of periodic markets and existing value of composite index across blocks can be seen easily from table no 2.1.

Among the three highly developed blocks in terms of the composite index (more than 0.500 values), the annual growth in the number of periodic markets was highest (3.32% annually) in Shahabad. There was eight blocks in the developed category (composite index value more than 0.400 and less than 0.300) in which only one (Ahrori) block has experienced a negative growth (-4.52% annually) in terms of the number of periodic market. In the moderately developed category, (composite index value more than 0.200 and less than 0.300) highest increment has been registered in Mallawan and Madhoganj blocks, where in Behadar block, there has been a negative growth in the number of periodic markets. As far as the less developed blocks are concerned, there were only three blocks in this category and the highest increment (6.57% annual) in periodic markets has been observed in Bilgram block.

An analysis of the periodic markets at block level reveals that number of periodic market in the district is unevenly distributed and the growth of market in all the blocks are not uniform. By studying the trend of the growth of market at block level from 1995 to 2001, it can be clearly seen that the overall growth in number of periodic markets has been positive in almost all blocks except the three blocks of Ahrori (-13.04) Behandar (-4.17) Sandila (-37.50), which have recorded a negative trend. During next year periodic market of Sandila markets have been static, but other two blocks Ahrori and Behadar blocks have experienced negative growth. Although the markets in other blocks have witnessed an increase from 1995 to 2001, the rate of growth of

markets has been above 100 percent in Bilgram, Pihani, Madhoganj, Mallawan and above 50 percent in the blocks like Bharkhani, Shahabad, Hariyawan, Sandi, Kothawan, and Bharawan .

As mentioned earlier, between 2001 and 2007, there has been a general downtrend in the number of markets except in the Tandiyawan block that has recorded a growth of 57.14 % in number of markets, and nine other blocks that have been constant with no change in number of markets. The blocks of Bharkhani (-21.43), Pihani (-19.05) Sursa (-56.52), Hrpalpur (-18.18), Sandi (-33.33), Bilgarm (-14.29), Mallawan (-6.67) have all recorded negative trend in number of periodic markets during this time.

In the next interval of 2007-13, again there have been many changes. A lot of blocks have recorded negative growth except Sandi block, which has witnessed a positive growth of 33.33 percent and eleven other markets that have recorded no change. However, many blocks have recorded decrease in number of periodic market like Tondarpur (-4.55), Pihani (-21.43), Tadiyawan (-3.03), Sursa (-20), Ahrori (-9.09), Bilgram (-8.33), Behandar (-4.35). Data clearly reveals that in many blocks number of periodic markets have decreased. The growth of periodic markets was positive from 1995-2001, but after the 2001 markets has been continuously decreasing except in large number of blocks of the district.

2.2 Growth in number of villages according to the distance of periodic market

In rural economy the periodic markets are playing a vital role in the process of economic development of the rural sector. Table 2.2 shows the increment in number of villages according to the distance of periodic markets during 1995 and 2014. From the table it is clear that the average number of villages has increased across the distance groups of periodic market except some periodic market, which is more than five KM from the village. The average numbers of zero distance villages have increased by 1.24% annually. The maximum increment has been registered in Bilgram block (in this block, it has increased by 6.21% annually) because the number of villages which are three to five km away and more than five KM from the periodic markets have decreased sharply. There are four blocks- Sursa, Ahrori, Kachuana and Behandar in which it has decreased because in Sursa, the number of villages that are less than one KM away from periodic market has increased by 5.95% annually and also remaining blocks it has increased in more than one KM away from periodic market.

Pattern of growth in the number of villages, which are one KM away from the periodic market, shows that in five blocks i.e. Bharkhani, Pihani, Hapalpur, Behandar and Bharawan It has decreased in number while in the remaining blocks an increment has been registered. The maximum increment in the number of villages, one KM away from the periodic market, has been observed in Kothawan block where it has been increased by 12.26% annually. It means many new markets surrounding the villages from Kothawan block has developed during 1995 and 2014. Hereby it is noteworthy that the number of villages that are a more than five KM away from the periodic market has decreased across the blocks except Tondarpur, Pihani, Behandar, Sandila and Bharwan of the Hardoi. In this type of periodic market, the maximum (-9.45% annually) fall in the number of villages has been seen in Kothawan block

Table 2.2 Growth in the Number of villages according to distance of periodic

Compound Annual Growth Rate (1995 and 2014)

	Distance 0(KM)	Distance 0-1(KM)	Distance 1-3(KM)	Distance 3-5(KM)	Distance >5(KM)
Bharkhani	1.06	-0.81	3.31	6.65	-2.32
Shahabad	3.14	3.72	2.02	-4.71	-0.81
Tondarpur	0.53	3.72	-3.48	0.32	3.88
Pihani	2.41	-1.17	-1.36	-2.04	3.39
Bawan	0.66	0.81	3.39	0.00	-5.12
Hariyawan	2.65	0.42	-0.98	0.00	-2.11
Tandiyawan	3.72	5.57	-3.47	-0.88	-5.03
Sursa	-4.71	5.95	4.60	-2.24	-7.33
Ahrori	-4.29	0.50	-0.86	4.21	-1.05
Hapalpur	0.62	-0.62	1.04	-1.62	-0.32
Sandi	1.53	3.72	0.46	4.05	-0.58
Bilgram	6.21	1.89	2.27	-0.55	-5.62
Madhoganj	3.72	4.36	1.62	1.37	-5.27
Mallawan	3.72	4.94	1.65	-1.71	-2.56
Kothawan	2.50	12.26	9.16	10.78	-9.45
Kachauna	0.62	4.94	0.76	2.16	-3.89
Behandar	-0.46	-1.17	0.29	-2.52	6.54
Sandila	-2.44	4.94	-2.90	3.48	2.23
Bharawan	2.29	-2.98	-1.74	3.98	4.36
Average	1.24	2.68	0.83	1.09	-1.64

Source: Sankhyikiya Patrika of Economics and Statistics Division, Planning Department of Uttar Pradesh

Shahabad block which has the highest composite index (0.616) the number of villages away from zero, less than one and one to three km from periodic market has increased during 1995 and 2014 and in remaining two it has decreased. In all highly developed blocks (Shahabad, Bawan and Tandiyawan) many new short distance periodic markets has emerged because the number of villages away more than five km from periodic markets has decreased. It is important to note that in less developed blocks (Sursa, Pihani and Bilgram) growth pattern in villages based on nearest and long distance periodic market is not very uniform.

Table no.2.3 Percentage Growth of in the Number of Villages according to Distance in Periodic Market (1995-2000 and 2000-2005)

	Percentage Growth in Number of Villages									
	During 1995and 2000					During 2000 and 2005				
	Distance 0(KM)	Distance 0-1(KM)	Distance 1-3(KM)	Distance 3-5(KM)	Distance >5(KM)	Distance 0(KM)	Distance 0-1(KM)	Distance 1-3(KM)	Distance 3-5(KM)	Distance >5(KM)
Bharkhani	22.22	-14.29	4.76	120.00	-12.61	0.00	0.00	81.82	63.64	-26.80
Shahabad	0.00	0.00	0.00	0.00	0.00	80.00	100.00	38.46	-62.86	-8.93
Tondarpur	10.53	28.57	-17.65	-75.00	112.50	9.52	44.44	-38.10	325.00	-14.71
Pihani	57.14	40.00	22.92	-54.05	0.00	27.27	14.29	-18.64	41.18	-17.65
Bawan	13.33	33.33	19.23	-3.23	-23.68	17.65	-31.25	64.52	6.67	-55.17
Hariyawan	7.14	-25.00	2.44	-8.33	22.22	53.33	44.44	-19.05	9.09	-45.45
Tandiyawan	56.25	-100.00	-6.67	-15.38	0.00	-12.00	56.87	-33.33	27.27	-25.00
Sursa	15.00	100.00	70.00	-45.00	-58.82	0.00	-16.67	0.00	36.36	-14.29
Ahrori	-8.70	-90.00	42.42	-18.75	0.00	-4.76	58.67	-14.89	0.00	-18.18
Hapalpur	12.50	-44.44	-30.43	6.67	94.12	0.00	80.00	78.13	-31.25	-60.61
Sandi	166.67	100.00	-12.12	0.00	-21.05	-62.50	0.00	20.69	100.00	-30.00
Bilgram	171.43	-28.57	21.88	-10.00	-29.17	31.58	100.00	20.51	0.00	-50.00
Madhoganj	14.29	25.00	3.57	5.88	-9.52	75.00	80.00	31.03	16.67	-57.89
Mallawan	40.00	150.00	-4.55	-20.00	5.56	42.86	0.00	42.86	-10.00	-52.63
Kothawan	0.00	45.89	400.00	100.00	-51.52	60.00	80.00	5.71	250.00	-68.75
Kachauna	-25.00	100.00	15.38	100.00	-47.06	50.00	25.00	0.00	-25.00	-11.11
Behandar	-29.17	6.67	-5.71	-30.77	400.00	35.29	-25.00	12.12	-11.11	-26.67
Sandila	-6.25	450.00	-26.19	0.00	13.04	-33.33	-54.55	-25.81	83.33	42.31
Bharawan	15.38	25.00	-9.43	-50.00	125.00	33.33	-55.00	-20.83	320.00	0.00
Average	28.04	42.22	25.78	0.11	27.32	21.22	26.38	11.85	59.95	-28.50

Table no.2.3 Percentage Growth of in the Number of village according to the Distance of Periodic Market (1995-2005 and 2000-2005) Table no.2.4 Percentage Growth of in the Number of Villages according to Distance in Periodic Market (2005-2010 and 2010-2014)

	Percentage Growth in Number of villages									
	During 2005 and 2010					During 2010 and 2014				
	Distance 0(KM)	Distance 0-1(KM)	Distance 1-3(KM)	Distance 3-5(KM)	Distance >5(KM)	Distance 0(KM)	Distance 0-1(KM)	Distance 1-3(KM)	Distance 3-5(KM)	Distance >5(KM)
Bharkhani	0.00	-16.67	-2.50	2.78	-1.41	0.00	20.00	0.00	-8.11	1.43
Shahabad	0.00	0.00	5.56	7.69	-5.88	0.00	0.00	0.00	0.00	0.00
Tondarpur	-4.35	7.69	3.85	0.00	3.45	-4.55	0.00	-3.70	0.00	10.00
Pihani	-21.43	-50.00	-20.83	8.33	128.57	0.00	0.00	-2.63	-3.85	0.00
Bawan	-15.00	27.27	-1.96	0.00	0.00	0.00	0.00	-2.00	-3.13	7.69
Hariyawan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tandiyawan	50.00	-11.76	-14.29	-21.43	-33.33	-3.03	-6.67	-4.17	0.00	-25.00
Sursa	-65.22	80.00	38.24	-13.33	-33.33	0.00	0.00	0.00	0.00	0.00
Ahrori	-50.00	0.00	-30.00	176.92	-11.11	0.00	0.00	0.00	-2.78	12.50
Hapalpur	0.00	0.00	-1.75	0.00	0.00	0.00	-11.11	0.00	0.00	23.08
Sandi	33.33	0.00	8.57	0.00	14.29	0.00	0.00	-5.26	6.25	41.67
Bilgram	-12.00	0.00	4.26	0.00	-5.88	0.00	0.00	0.00	0.00	0.00
Madhoganj	0.00	0.00	2.63	0.00	0.00	0.00	0.00	-2.56	4.76	-6.25
Mallawan	0.00	0.00	0.00	0.00	11.11	0.00	0.00	0.00	0.00	10.00
Kothawan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Kachauna	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Behandar	0.00	0.00	0.00	0.00	-9.09	-4.35	0.00	0.00	0.00	0.00
Sandila	0.00	0.00	0.00	4.55	-10.81	0.00	0.00	4.35	0.00	6.06
Bharawan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average	-4.46	1.92	-0.43	8.71	2.45	-0.03	0.00	-0.05	-0.02	0.18

Source: Sankhyikiya Patrika of Economics and Statistics Division, Planning Department of Uttar Pradesh

Table no. 2.3 shows percentage growth in number of villages according to the distance of periodic market during 1995 to 2000 and 2000 to 2005. During 1995 and 2000, the number of villages which are very close (zero km) to periodic markets has increased in fifteen blocks with maximum increment in Bilgram (171.73%) block while the number has decreased only in four blocks. In Shahabad block (which is mostly developed), no growth has taken place in number of villages which are zero km away to more than five km from the periodic market. The villages in which the periodic market is less than one km away have increased in all the block twelve blocks while in six blocks it has decreased and in Shahabad block zero percentage growth has been registered. In this category of periodic market, the increment in the number of village was ranging from maximum 100 percent (in three blocks Kachauna, Sandi and Sursa) to zero percent in Shahabad while the fall was ranging from a maximum of 100% (in Tandiyawan) to 14.29 (in Bharkhani). The average percentage growth in the number of villages has been higher in those category of periodic markets which are less than one km away while in long distance (three to five km) periodic market groups**,** the growth in the number of villages during 1995 and 2000 was lower (0.11%).

During 2000 and 2005, the growth in the number of villages across the blocks was not very symmetric. The average percentage growth in the number of villages was higher in that periodic market which is three to five km away while in case of very long distance (more than five km) periodic market groups it was the lowest (-28.5%). The number of villages, which have a periodic market, has increased across block except Tandiyawan, Ahrori, Sandi and Sandila. In long distance periodic market category, which is more than five km away, the number of villages had decreased across the blocks except Sandila block in which it was increased by 42.31%. From table no. 2.3, it is clear that the number of villages that are close to periodic market has increased in almost all the blocks, which indicates that many new short distance periodic markets was developed during 2000 and

2005.

The table no. 2.4 shows the percentage growth in number of villages according to distance of the periodic market during 2005 to 2010 and 2010 to 2014. This table clearly shows that, in recent years the number of villages, which are close to periodic market, did not increased substantially. During 2005 and 2010, the number of villages that have a periodic market was increased in two blocks, in Tandiyawan (increased by 50%) and in Sandi (by 33.33%) where in six blocks it had decreased and in remaining blocks it was constant. The number of villages which are less than one km away from periodic market was also increased only in three blocks (in Tondapur, Sursa and Pihani) and in three blocks was not increased. In long distance periodic market category, the number of village was decreased in eight blocks and was increased in four blocks with maximum (128.57%) in Pihani and in the rest villages it remained constant during 2005 and 2010.

In table no.2.4, it can be seen that in recent past (during 2010 and 2014), the number of villages, which are very close to periodic market and less than one km away from them, has not grown in sixteen blocks and even has decreased in three blocks (in Tondarpur, Tandiyawan and Behandar) and in two blocks (Tandiyawan and Hapalpur) respectively. In long distance periodic market category, the number of villages has increased in most of blocks. The maximum increment (41.67%) in the number of villages, which are more than five km away from the periodic markets, has been registered in Sandi followed by Hapalpur, Ahrori blocks. In two blocks (Tandiyawan and Madhoganj) it has decreased while in the reaming blocks, the number of villages did not grow during 2010 and 2014. Thus, it is clear that in recent years, the villages, which are no longer having the periodic markets, are increasing and the numbers of villages which have a periodic market (or less than one km from periodic market) are decreasing in most of blocks. It indicates that short distance periodic market are decreasing or remaining constant in number and the long distance periodic markets are flourishing in the most of block of Hardoi district in recent years.1-3 Periodic market have served larger average number of villages. In the class interval of 1-3, Bawan block (49.50) have largest average of villages served, and Tondarpur block have lowest villages served by the market i.e. 13.17. Furthermore, in the other market intervals there are huge differences like, Bharkhani block have largest average no. of villages i.e. 34.50 served, and Behandar (8) block have lowest average no. of villages served by 3-5 class intervals. In class interval of greater than 5, Bharkhani block (67.50) highest average numbers of villages and Sursa block have lowest number of villages served by greater than 5 markets i.e. 4. The comparative study reveals a huge difference among the blocks in terms of the average no. of villages served by the market in all market intervals. Some blocks have positive correlation, for example, if number of markets increased then average number of village should also increase. However, in this table we have different answers, average number of villages have increased in class intervals of 0-1 to 1-3 class intervals, but in the next class intervals of market intervals i.e. 3-5 and >5, villages have decreased in almost all the blocks except Tondarpur. The graph shows the percentage of area and number of village and it is clear that class in the interval of 1-3, market serves greater number of villages.

2.3 Numbers of Regulated Markets in Hardoi district

Regulated markets are efficient system of buying and selling of agricultural produce. Regulated markets are controlled markets, regulated under the state Agricultural Produce Marketing Act. At the time, most of states markets enacted the legislation (Agricultural Produce Marketing (Regulation) Act) to provide regulation for agricultural produce markets. The sub-regulated markets are different to regulated markets because regulated market are established and regulated under the state APMC Acts. The state has divided the market area wherein the markets are managed by the market committees. Once a Particular market area falls under the jurisdictions of a market committee, the sub markets working under the regulated markets area are to be controlled by the market committee.

Table 2.5 Number of Regulated and Sub Regulated Markets in Hardoi district

Name of Markets	Year of Establishment	Nearest Railway station	Dist. (km)	Sub-Regulated	Year of Establish	Nearest Railway station	Dist. (Km)
Hardoi	1986	Hardoi	1	Baghauli	2000	Baghauli	0
Sandila	1988	Sandila	2	Kachhauna	2000	Kachhau.	0
				Beniganj	2000	Beniganj	1
Madhoganj	1990	Madhoganj	2	Bilgram	2000	Madhoganj	15
				Naupurwa	1997	Madhoganj	35
				Mallawan	2000	Mallawn.	0.5
				Kursath	2000	Madhoganj	22
Shahabad	1989	Shahabad	3	Aamtara	2000	Shahabad	15
				Pihani	1992	Hardoi	25
				Paali	1998	Shahabad	21
Sandi	1999	Hardoi	23	-	-	-	-

Source: State Agricultural Produce Marketing Board Uttar Pradesh

Regulated market distribution in India is very uneven, according to Directorate of Marketing &

Inspection (DMI), Ministry of Agriculture, Government of India, there are 7,320 regulated markets, which have increased from 286 at the time of independence. Furthermore, Uttar Pradesh has also witnessed an increase in the number of regulated markets, and by 2015 the total number of regulated markets is 250 and that of sub market is 365.

In the Hardoi district, there are 5 regulated markets and 10 sub-regulated markets. All the regulated markets of Hardoi district have been established before the 1990 except Sandi regulated market. Sub-regulated markets have been established during 1990-2000. There are a lot of differences in the nature of markets, depending upon the commodities they deal with. Some markets are established to deal with a particular commodity like grains, vegetables, fruits, and fishes, the markets of Sandila, Hardoi, Harpalpur, Bagholi, Kachhauna, Beniganj, Bilgram, Mallawan, Kursath, and Aamtara are some of such markets. These markets have been established for business in fruits and vegetables, but other markets have been established for the purpose of doing business in grains. They are also important for establishing primary link between farmers and periodic markets. These markets reduce the loss of commodities and provide better prices to producer.

There is a commonality in the trend of development of the periodic and regulated markets. Most of the new markets have come before 1991 or 2001, depending on the type of market and not in the recent times. Given that the population is increasing and so is the production, lack of expansion of markets in the times of agrarian crisis presents another element of hardship for the farmers.

3. Conclusion

Periodic and regulated markets are most important for the economic growth in the study area. The numbers of periodic markets have increased almost across all the blocks except in Suras, Ahrori, Behandar and Sandila during 1995 and 2013. Also In addition, the numbers of villages, which are more away from periodic markets, have decreased across the blocks during 1995 and 2014. Thus, it can be argued that the numbers of those kinds of villages, which have its own periodic market, have increased sharply across the blocks because of the rising population, demand for commodities and distress employment have established many new many periodic markets. There are also a lot of differences in many components. Most of periodic markets are held above 5 hour in the study area and most of them are regulated by the private authority. Periodic markets are served above 4 km/q average area. Therefore, different results have been found in the study area.

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