SECTOR-WISE CHANGES IN THE INDIAN LABOUR MARKET: DURING PRE AND POST WTO REGIME

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ABSTRACT

The objective of this paper is to analyze the changes in the Indian labour market across the different economic sectors during the pre and post WTO periods. The study uses the Markov Chain Analysis to find the changes in the structure of the workforce across the economic sectors during the two periods. The results of Markov Chain Analysis showed that there was a larger shift in the workers from the agricultural and allied sectors with 90 percent of the workers shifting to the community, social and personal service sector during the pre WTO period. During the post WTO period it was estimated that the finance, insurance and real estate sector experienced a shift of 52 percent of workers from the agriculture sector. The study also showed that though there was an increase in the composition of the Indian labour force there was also a decline in the participation of workers in the labour market during the post WTO period compared to the pre WTO period.

Keywords: Workforce, Labour market, economic sectors

Introduction

The discussions concerning the performance of India's economy has for the large part often been focused on its achievement and prospects of a high rate of economic growth. Labour is one of the important factors of production because it supplies the capability, manpower, and service needed to turn raw materials into finished products and services. The quality and effectiveness of the labour in production depends on the workforce's skills, education, and motivation. The higher the quality of labour, the more productive is the workforce.

Globally over 43 percent of the workforce is employed in vulnerable jobs and these jobs include jobs such as farmers, contract labourers, those working or running small household owned enterprises. Of the workforce that participated in the vulnerable jobs, majority (80%) of them are available in middle income economies with China and India contributing a combined 46 percent of the vulnerable workforce. India and China are also responsible for the highest contribution of labour to the global workforce with a contribution of 38 percent of the global workforce.

According to Mironov and Konovalova (2019), one of the most important trends in structural changes in the global economy are, the change in the direction of productivity growth across the economy, which may be primarily caused either by the reallocation of labor from low-productivity sectors to high productivity ones, or by higher labor productivity within sectors.

Fajgelbaum and Redding (2018) studied the structural transformation in Argentina's economic development from 1869 to 1914 and showed that the major economic developments in the late 19[th]century was due to Argentina's rapid export led development across all economic sector and regions.

Ghose (2014) assessed the impact globalization had on the growth acceleration and specialization in unskilled labour intensive sectors and how the economic reforms affected employment conditions in the Indian economy, and the study revealed that while India was considered an emerging economic giant since the 1980s its employment conditions were still poor with most workers participating in casual wages and being self-employed.

According to Thakur (2017) the demonetization initiative has affected both organized and unorganized sectors as well as the overall economic fabric of the Indian nation. Demonetization has had a negative impact on the unorganized sector employment wise, with sectors such as automobile and real estate being badly affected by negative job growth.

It was also noted that structural transformation from agriculture to non-agriculture was central to its economic development. According to McMillian *et.al* (2017), structural change made a positive contribution to growth in India, especially during the first decade after the 1991 reforms with the biggest part of that coming from the expansion of sectors such as finance, insurance, and other business services. This paper tries to show the changes in the employment composition across the different sectors of the Indian economy during the pre and post WTO regime.

Methodology

This study is based on secondary nature of data which was obtained from different published sources. The decadal and country wise data on worker population was collected for the census years within the study period that is beginning with 1981 to the latest population census 2011

obtained from the various volumes of Census of India published by Registrar General and Census Commissioner, India. The data pertaining to state literacy rates as well as workforce participation rates for the study period were also collected from the various census reports.

The Markov Chain Analysis was used to find out the changes in the structure of the workforce in the labour market during pre and post WTO periods. The basic ideas of Markov Chain simulation was it allows us to model and simulate the movement of worker from one sector to another through a period of time.

Markov analysis is an application of dynamic programming to the solution of the stochastic decision process that can be described by a finite number of states. Any sequence of experiments that can be subjected to probabilistic analysis is called as the stochastic process. For a stochastic process, it was assumed that the movements or transitions of objects from one possible outcome to another were directed by a probabilistic system.

Markov chain analysis was the estimation of the transitional probability matrix P. The element 'Pij' of this matrix indicates the probability that population will switch from category 'i' to category 'j' with the passage of time. The diagonal element 'Pii' measures the probability that the population share of ith category of workforce was retained. In the context of the current study, there were three sectors under consideration viz., Agriculture & allied, Industry and Service and these sectors were grouped accordingly with the industry sector including the mining and quarrying, manufacturing, electricity, gas, water, and construction sectors; while the service sector includes the wholesale and retail trade, transport, storage and communications, finance, insurance, real estate and community, social and personal services sector.

The population of a particular sector was considered to be a random variable which depends only on its previous population and this dependence was the same among all periods. A process satisfying this condition was called a first order stationary Markov Chain. With these assumptions, the unknown transitional probabilities were computed using the following matrix notation:

$$Y_j = X_j P_j U_j \text{ -------------------- (1)}$$

Where,

Y_j = (T*1) is a vector of observation reflecting the proportion of population of jth economic sector in time t.

X_j = (T ×r) matrix of proportion of population of ith sector in time t-1.

P_j = (r ×1) is a vector of unknown transition parameters to be estimated

U_j = a vector of random disturbances

The transitional probabilities P_{ij} have the following properties.

$$O < P_{ij} < 1 \text{ --------------------- (2)}$$

$$\sum_{j=1}^{n} Pij = 1 \text{ ------------------------- (3)}$$

Results and Discussions

Proportion of main and marginal workers to the total workers

Period wise analysis for main workers to total workers in Fig. 1 and Fig. 2 for pre and post WTO period respectively, showed that the rural main workers to total workers in India indicated a decreasing trend from 1981 to 2011. Interestingly, urban main workers experienced the reverse trend as they have actually witnessed a sharp rise for the same period. It is also observed that while male main workers occupy a large portion of the total workers compared to female main workers, their participation has been declining, with the pre WTO period showing a total of 71.45 percent male participation compared to only 58.06 percent in post WTO period. Female main worker participation exhibited an increase in all categories in the pre WTO period increasing from 18.39 percent in 1981 to 20.46 percent in 1991. In the post WTO period, female main workers showed a decline in the rural participation from 14.94 percent in 2001 to 14.07 percent in 2011, while in urban areas there was an increase in participation from 3.18 to 4.48 percent for the same period (Table 1).

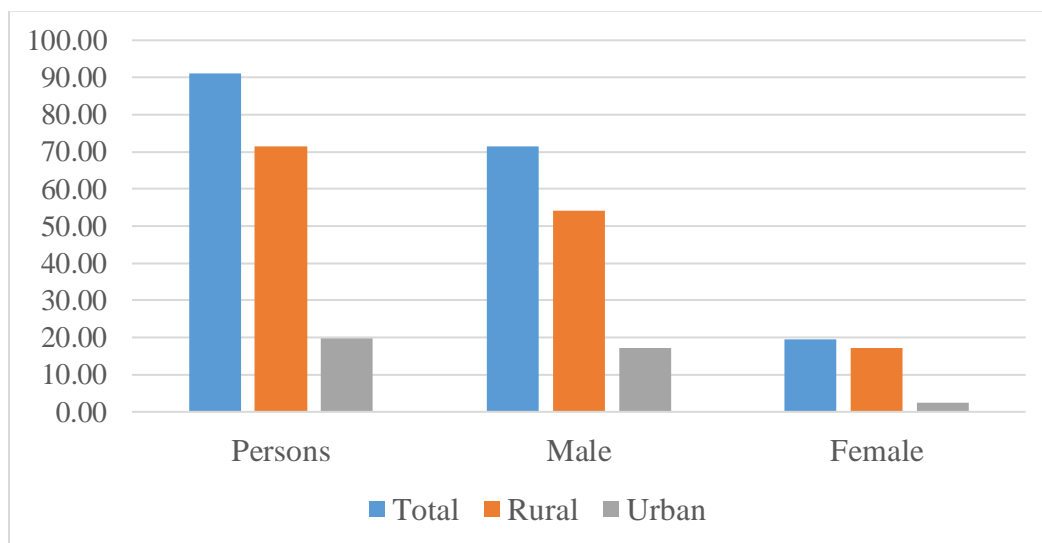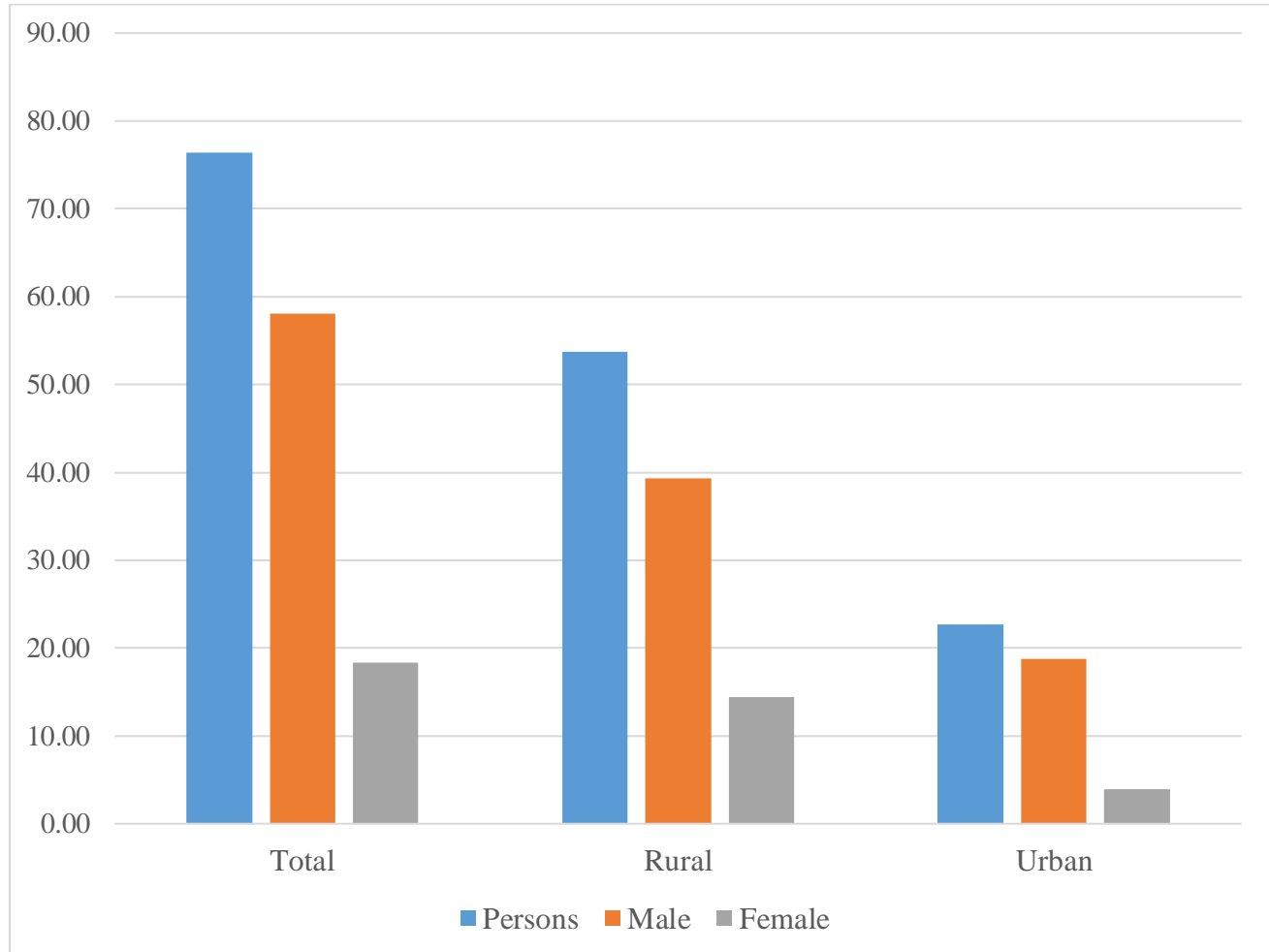**Fig. 1 Proportion of main workers to total workers-pre WTO regime**

Fig. 2 Proportion of main workers to total workers-post WTO regime

The rise in urban main workers can be attributed to urbanization in India and according to the 2011 Census there were 53 cities with a population of a million or more. Urbanization is defined as the shift from rural to an urban society, which is caused by social, economic, and political developments. Pawan (2016) stated that urbanization is a phenomenon that has been occurring since independence and primarily caused by India's mixed economy which has led to development of the private sector and created employment opportunities in urban areas. Pawan (2016) also mentions that majority of people migrate to urban areas in search of well-paying jobs, but the downside of urbanization is that it leads to unemployment especially in urban areas as is evident in Table 7 of this study which shows that more people are unemployed in urban areas.
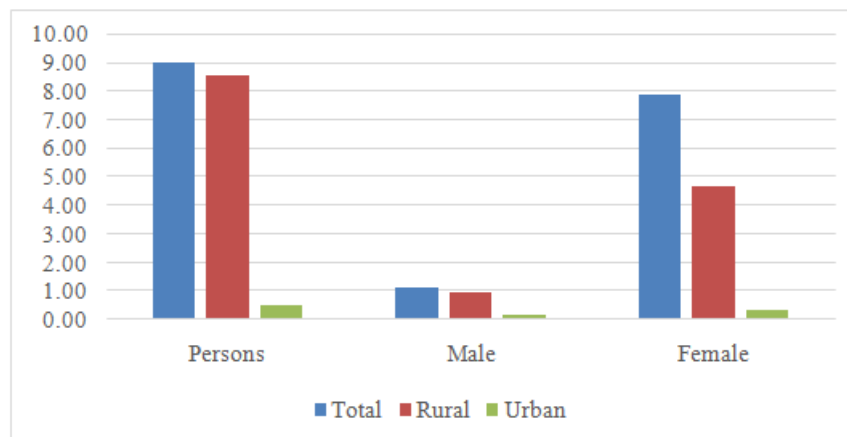
Table 1 Proportion of main and marginal workers to total workers (%) in India

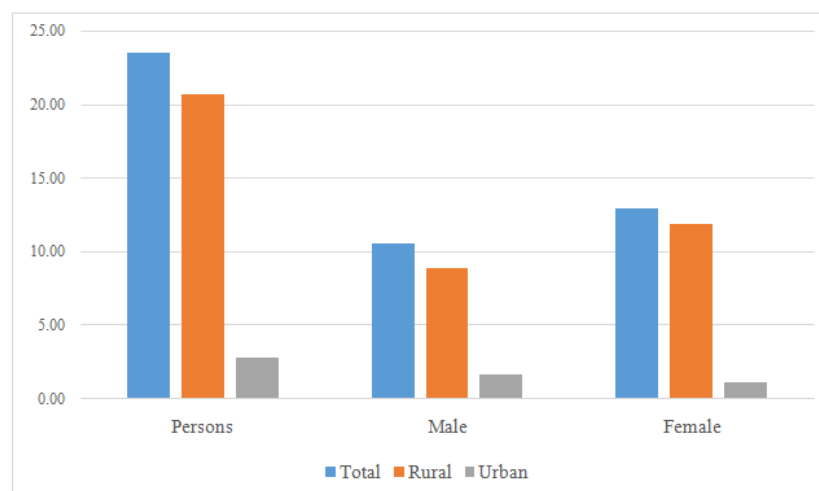|	Pre WTO Regime			Post WTO Regime			Pre WTO Regime			Post WTO Regime		
	Main Workers						Marginal Workers					
	1981			2001			1981			2001		
	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons	Male	Female
Total	90.97	72.58	18.39	77.82	59.70	18.11	9.03	1.45	7.58	22.18	8.67	13.52
Rural	72.13	55.94	16.19	56.98	42.04	14.94	8.53	1.26	0.73	20.08	7.39	12.69
Urban	18.84	16.64	2.20	20.84	17.66	3.18	0.50	0.18	0.31	2.10	1.28	0.83
	1991			2011			1991			2011		
Total	91.02	70.56	20.46	75.24	56.70	18.55	8.98	0.86	8.12	24.76	12.19	12.57
Rural	70.76	52.94	17.83	51.02	36.96	14.07	8.51	0.73	7.78	21.35	10.11	11.23
Urban	20.26	17.62	2.64	24.22	19.74	4.48	0.46	0.13	0.34	3.41	2.07	1.34
	Overall						Overall					
Total	91.00	71.45	19.55	76.41	58.06	18.35	9.00	1.12	7.88	23.59	10.59	13.00
Rural	71.36	54.25	17.11	53.73	39.27	14.46	8.52	0.97	4.69	20.77	8.88	11.89
Urban	19.64	17.20	2.44	22.68	18.79	3.89	0.48	0.15	0.33	2.82	1.71	1.11

Source: Various India Population Census Reports

The proportion of marginal workers to the total workers showed the opposite to that of main workers. It is evident from Fig.3 and Fig. 4 that during the pre WTO regime there was a decline in marginal workers across all categories except for female marginal workers which display an increase in their proportion. Marginal workers declined from 9.03 to 8.98 percent in the pre WTO period while they increased significantly during post WTO from 22.18 to 24.76 percent. In both the pre and post WTO period, female marginal workers occupied a larger percentage compared to male workers, with 7.88 percent in pre WTO period and increasing to 13 percent in the post WTO period. This was despite the significant increase in participation by male marginal workers in post WTO period from 1.12 percent in the pre WTO regime to 10.59 percent in the post WTO regime.

Fig. 3 Proportion of marginal workers to total workers-pre WTO regime

Fig. 4 Proportion of marginal workers to total workers-post WTO regime

Forecasting employment change between economic sectors

In this section, an analysis on the movement or change in the employment by different sectors over the study period has been done using Markov chain analysis. Table 2 presents the transitional probability matrix of workers flowing between different sectors of the economy during the pre WTO period. The analysis was done for sub sectors of the Agriculture & allied, Industry and Service sectors. These sectors were grouped accordingly with the industry sector including the mining and quarrying, manufacturing, electricity, gas, water, and construction sectors; while the service sector includes the wholesale and retail trade, transport, storage and communications, finance, insurance, real estate and community, social and personal services sector. The probabilities have been estimated based on past values on employment in the different sectors. The table reveals that the highest retention was observed by community, social & personal services (0.90) followed by finance, insurance, real estate (0.51), manufacturing (0.47), wholesale and retail trade, transport, storage & communications (0.29) and mining & quarrying, electricity, gas, water (0.03). The agriculture and construction were not able to retain their share in employment during pre WTO period.

It follows from the matrix that 10 percent of the workers in the agricultural and allied sector were expected to shift to the mining & quarrying, electricity, gas and water sector, while 90 percent of the workers shifted from the agriculture sector to the community, social and personal services sector. It was expected that 19 percent of manufacturing workers were to shift to the construction sector with 22 percent shifting to the wholesale & retail, trade, transport, storage and communication sector for the same period. It is expected that there was a 71 percent shift in workers from the wholesale & retail, trade, transport, storage and communication sector to the manufacturing sector while 24 percent of workers shifted to the agriculture sector and 39 percent to the finance, insurance, real estate sector from the mining & quarrying, electricity, gas and water sector. The agriculture and mining & quarrying, electricity, gas and water sectors were expected to have the most shift to other sectors compared to the other sectors.

Table 2 Transition probability matrix of employment between sectors for pre WTO period (1981 to 1995)

Sectors	Agriculture	Manufacturing	Construction	Mining &Quarrying, electricity, gas, water	Wholesale and retail trade, transport, storage and communications	Finance, insurance, real estate	Community, social & personal services
Agriculture	**0.00**	0.00	0.00	0.10	0.00	0.00	0.90
Manufacturing	0.13	**0.47**	0.19	0.00	0.22	0.00	0.00
Construction	0.00	0.00	**0.00**	1.00	0.00	0.00	0.00
Mining &Quarrying, electricity, gas, water	0.24	0.34	0.00	**0.03**	0.00	0.39	0.00
Wholesale and retail trade, transport, storage and communications	0.00	0.71	0.00	0.00	**0.29**	0.00	0.00
Finance, insurance, real estate	0.09	0.00	0.00	0.40	0.00	**0.51**	0.00
Community, social & personal services	0.00	0.00	0.00	0.00	0.10	0.00	**0.90**

The Table 3 reveals transitional probability matrix of employment for post-WTO period. It was clear from the table that finance, insurance, real estate (1.00) and community, social & personal services (0.30) were able to retain the largest share in providing employment. The reason was obvious that in the recent years there was rapid development in the service sector. The other sectors would not be able to retain their share in providing employment.

Table 3 Transition probability matrix of employment between sectors for post WTO period (1998 to 2012)

Sectors	Agriculture	Manufacturing	Construction	Mining &Quarrying, electricity, gas, water	Wholesale and retail trade, transport, storage and communications	Finance, insurance, real estate	Community, social & personal services
Agriculture	**0.00**	0.35	0.00	0.00	0.13	0.52	0.00
Manufacturing	0.00	**0.00**	0.00	0.00	0.49	0.00	0.51
Construction	0.00	0.00	**0.00**	0.00	0.00	0.00	1.00
Mining &Quarrying, electricity, gas, water	0.00	1.00	0.00	**0.00**	0.00	0.00	0.00
Wholesale and retail trade, transport, storage and communications	0.00	0.00	0.00	0.00	**0.00**	0.00	1.00
Finance, insurance, real estate	0.00	0.00	0.00	0.00	0.00	**1.00**	0.00
Community, social & personal services	0.12	0.31	0.08	0.18	0.01	0.00	**0.30**

Further, it was expected that the agricultural sector would experience a shift of 35 percent to the manufacturing sector, the finance, insurance and real estate sector is estimated to experience a shift of 52 percent of workers from the agriculture sector as can be seen in Table 3. From the

table it is expected that all workers in the mining & quarrying, electricity, gas and water sector are to shift to the manufacturing sector while those in the wholesale & retail, trade, transport, storage and communication sector were expected to shift to the community, social & personal services sector during the post WTO period. The finance, insurance, real estate sector was expected to retain all its workers in the same period.

Table 4 shows the actual and predicted percentage number of people employed in the various sectors of the economy during pre and post WTO period. During the pre WTO period there were 255.64 lakh persons employed across different sectors with the community, social & personal services sector employing a majority of those workers with 39.15 percent employed in that sector, followed by the manufacturing sector which employed an average percentage of 24.59 workers for the same period. The lowest employer during the pre WTO period was the construction sector with 4.75 percent employed while the agricultural sector employed 5.44 percent of the workers. During the post WTO period the total person employed increased to 275.86 lakh person with majority of those employed in the community, social & personal services sector with an increase to 40.90 percent of the workers. The lowest contributing sector to employment from table was the construction sector with 3.68 percent employed while the agricultural sector was the second lowest sector with 5.14 percent employed during the same period.

It could also be seen from Table 4 that there was a slight differences between the actual and predicted sector contributions, with the community, social & personal services sector being predicted to contribute 40.17 percent during the pre WTO period while in the post WTO period it was predicted to have a decrease in the contribution to employment with 39.92 percent predicted to be employed in the sector. The Markov chain was also used to predict the forecast of employment for the periods between 2012 and 2017 as well as for 2017 and 2022 and was presented in Table 4. It was predicted that during the period 2012-2017 the community, social & personal services would have a large share of those that are employed with 37.77 percent employed followed by the manufacturing sector with 20.70 percent. The lowest contributor to employment was predicted to be the construction sector with 3.97 percent followed by the agriculture sector with 4.60 percent. From the table it was also predicted that from 2017 to 2022 there would be a decrease in the community, social & personal services sector to its contribution to employment in the economy to 36.59 percent while the finance, insurance and real estate would increase its contribution to 17.68 percent. The construction sector was also predicted to continue to be the lowest contributor to employment with 3.02 percent which would indicate a decline in employment, the agriculture sector also is predicted to experience a decline to 4.51 percent.

Table 4 Actual and predicted employment among sectors of the economy during pre and post WTO regime (In percentage)

Year		Agriculture	Manufacturing	Construction	Mining &Quarrying, electricity, gas, water	Wholesale and retail trade, transport, storage and communications	Finance, insurance, real estate	Community, social & personal services
Pre WTO Period								
1981-85	Actual	5.52	25.92	4.97	7.42	13.72	4.50	37.94
	Predicted	5.45	24.41	4.80	7.53	13.46	5.19	39.15
1986-90	Actual	5.45	24.42	4.81	7.52	13.46	5.19	39.15
	Predicted	5.35	23.57	4.52	7.63	13.17	5.58	40.18
1991-95	Actual	5.35	23.57	4.50	7.62	13.17	5.59	40.20
	Predicted	5.31	23.00	4.36	7.47	13.00	5.82	41.03
Average	Actual	5.44	24.59	4.75	7.53	13.44	5.12	39.15
	Predicted	5.37	23.63	4.55	7.54	13.20	5.55	40.17
Post WTO Period								
1998-02	Actual	5.03	23.61	4.12	7.08	13.01	5.90	41.26
	Predicted	4.93	21.57	3.30	7.44	12.73	8.51	41.52
2003-07	Actual	5.40	21.57	3.61	7.61	12.73	7.41	41.67
	Predicted	4.98	22.35	3.33	7.51	11.79	10.23	39.81
2008-12	Actual	4.98	22.35	3.33	7.51	11.79	10.22	39.82
	Predicted	4.76	21.53	3.18	7.18	12.09	12.81	38.45
Average	Actual	5.14	22.52	3.68	7.40	12.50	7.86	40.90
	Predicted	4.89	21.81	3.27	7.37	12.21	10.53	39.92
Predicted								
2012-17		4.60	20.70	3.07	6.93	11.64	15.29	37.77
2017-22		4.51	20.18	3.02	6.81	11.21	17.68	36.59

Source: Compiled from various Economic Survey Reports

Table 5 shows the transition probability matrix of employment in the three major economic sectors during pre and post WTO periods and from the table it is clear that the service sector had the largest retention (0.89) of its share in employment followed by the agriculture and allied sector (0.85) while the industry had the lowest retention (0.79). It follows that during the pre WTO period there was a 15 percent shift in workers from the agriculture and allied sector to the service sector. It could also be seen that there was a shift of 2 percent by workers to the agriculture sector from the industry sector while 19 percent of workers shifted to the services sector during the pre WTO period. The service sector had an 11 percent shift to the industry sector among workers for the same period. During the post WTO period, it is apparent from Table 5, that the service sector had the highest retention (0.55) for its share in employment followed by the industry sector (0.17) while the agriculture and allied sector was unable to retain its share in employment. From the table it is observed that during the post WTO period there was a 100 percent shift from the agriculture and allied sector to the service sector while the industry sector was expected to have a 16 percent shift to the agriculture and allied sector. The industry sector was predicted to retain 17 percent of those employed while experiencing a 68 percent shift in employment to the services sector. It was predicted that during the post WTO period there would be a shift in employment of 45 percent from the service sector to the industry sector.

Table 5 Transition probability matrix of employment between three sectors during pre and post WTO period

Sectors	Agriculture & Allied	Industry	Services
Pre WTO period			
Agriculture & Allied	**0.85**	0.00	0.15
Industry	0.02	**0.79**	0.19
Services	0.00	0.11	**0.89**
Post WTO period			
Agriculture & Allied	**0.00**	0.00	1.00
Industry	0.16	**0.17**	0.68
Services	0.00	0.45	**0.55**

Table 6Actual and predicated employment among sectors of the economy during pre and post WTO regime (In percentage)

Year		Agriculture & Allied	Industry	Services
Pre WTO Period				
1981-85	Actual	5.52	38.32	56.16
	Predicted	5.44	36.75	57.80
1986-90	Actual	5.45	36.75	57.80
	Predicted	5.35	35.70	58.95
1991-95	Actual	5.35	35.70	58.95
	Predicted	5.24	35.00	59.76
Average	Actual	5.44	36.89	57.73
	Predicted	5.34	35.78	58.88
Post WTO				
1998-02	Actual	5.03	34.81	60.16
	Predicted	5.40	32.79	61.81
2003-07	Actual	5.40	32.79	61.81
	Predicted	5.08	33.19	61.73
2008-12	Actual	4.98	33.19	61.83
	Predicted	5.15	33.27	61.59
Average	Actual	5.14	33.60	61.26
	Predicted	5.21	33.08	61.71
Forecast				
2012-17		5.16	33.17	61.67
2017-22		5.15	33.19	61.66

Source: Compiled and calculated from various Economic Survey Reports

Table 6 shows the actual and predicted employment among sectors during the pre and post WTO periods. From the table it was predicted that during the pre WTO period there were 58.88 percent of workers employed in the services sector, which was a slight difference to the actual number of those that were employed during that period as 57.73 percent of workers were in the service sector. The table also shows that there were 36.89 percent of workers in the industry sector industry and the agriculture and allied sector employed the lowest with 5.44 percent of workers employed in that sector. In the post WTO period, it was estimated that 61.71 percent of workers were employed in the service sector with the industry sector predicted to decline and employ an estimated 33.08 percent with the agriculture and allied sector was predicted to employ 5.21 percent of the working population. Table 6 also shows a prediction of those employed from the year 2012 to 2017 and it is predicted that the agriculture and allied sector will employ the lowest percentage with 5.16 percent expected to be employed in that sector. The service sector was predicted to employ 61.67 percent with the industry sector predicted to employ 33.17 percent. For the period from 2017 to 2022 it was predicted that the service and agriculture & allied sector would experience a slight decrease in those employed with 61.66 and 5.15 percent predicted to be employed while the industry sector is predicted to employ 33.19 percent.

Table 7 Age-wise unemployment rates (%) over various NSS rounds all-India

Residence/ Gender/ Age/	Rural								Urban							
	Male				Female				Male				Female			
	15-29	30-44	45-59	Total	15-29	30-44	45-59	Total	15-29	30-44	45-59	Total	15-29	30-44	45-59	Total
Pre WTO																
1983	4.70	0.50	0.20	2.10	2.80	0.50	0.40	1.40	12.20	1.40	0.70	5.90	15.50	2.10	0.70	6.90
1987-88	6.20	0.90	0.50	2.80	5.40	2.40	1.90	3.50	13.60	1.20	0.70	6.10	18.80	3.50	1.10	8.50
1989-90	3.60	0.50	0.00	1.60	1.50	0.40	0.60	0.80	9.70	0.90	0.90	4.40	7.90	1.10	0.50	3.90
1990-91	3.20	0.30	0.30	1.30	1.00	0.30	0.00	0.40	11.30	0.80	0.30	4.50	13.20	1.40	0.40	5.40
1991	4.30	0.40	0.20	1.80	2.00	0.60	0.50	1.20	9.60	1.00	0.60	4.50	11.20	2.50	-	5.50
1992	3.80	0.30	0.20	1.60	2.10	0.30	0.30	1.20	10.20	1.30	0.40	4.60	13.80	1.80	0.30	6.70
1993	3.70	0.20	0.20	1.60	2.00	0.30	0.20	1.00	9.20	0.80	0.40	3.80	8.60	2.60	0.50	4.30
1993-94	4.90	0.40	0.10	2.00	3.20	0.40	0.20	1.40	10.80	1.10	0.40	4.50	19.60	2.80	0.40	8.20
1994-95	3.20	0.30	0.10	1.20	1.50	0.00	0.10	0.50	8.90	1.10	0.20	3.70	10.40	0.30	0.00	4.10
Average	**4.18**	**0.42**	**0.20**	**1.78**	**2.39**	**0.58**	**0.47**	**1.27**	**10.61**	**1.07**	**0.51**	**4.67**	**13.22**	**2.01**	**0.49**	**5.94**
Post WTO																
1995-96	3.60	0.60	0.20	1.50	1.60	0.30	0.10	0.80	9.90	1.00	0.30	4.00	0.80	0.30	0.40	3.60
1997	3.80	0.30	0.00	1.60	2.10	0.30	0.00	1.00	10.00	0.90	0.30	3.70	13.20	1.70	0.00	5.10
1998	5.00	0.10	0.80	2.40	4.10	1.00	0.70	2.00	11.50	1.90	1.20	5.30	16.60	2.40	1.90	8.10
1999-2000	5.10	0.60	0.10	2.10	3.70	0.40	0.20	1.50	11.50	1.40	0.40	4.80	16.60	2.90	0.50	7.10
2000-2001	4.20	0.10	0.00	1.60	1.50	0.10	0.20	0.60	9.80	1.30	0.40	4.20	11.10	0.60	0.00	3.80
2001-2002	3.40	0.40	0.10	1.40	5.20	0.30	0.00	2.00	9.60	0.90	0.60	4.10	13.40	1.20	0.00	4.90
2002	4.50	0.50	0.10	1.80	2.60	0.30	0.20	0.90	10.60	1.30	0.50	4.70	15.00	1.40	0.60	6.30
2003	4.60	0.40	0.20	1.80	2.60	0.40	0.00	0.80	10.00	1.30	0.50	4.30	12.70	0.60	0.00	4.00
2004	5.70	0.60	0.30	2.40	5.30	1.00	0.20	2.10	10.00	1.70	0.90	4.50	21.50	3.70	0.20	9.00
2004-05	5.20	0.60	0.30	2.10	7.00	1.80	0.50	3.10	10.00	1.20	1.00	4.40	19.90	5.10	0.80	9.10
2009-10	5.50	0.20	0.20	2.00	6.60	1.00	0.20	2.40	7.90	0.80	0.40	3.10	17.50	2.50	0.60	7.00
2011-12	6.10	0.40	0.10	2.20	7.70	1.20	0.70	2.80	8.90	0.80	0.40	3.20	15.80	2.70	0.40	6.70
Average	**4.73**	**0.40**	**0.20**	**1.91**	**4.17**	**0.68**	**0.25**	**1.67**	**9.98**	**1.21**	**0.58**	**4.19**	**14.51**	**2.09**	**0.45**	**6.23**
Change %	13.16	-4.76	0.00	7.30	74.48	17.24	-46.81	31.50	-5.94	13.08	13.73	-10.28	9.76	3.98	-8.16	4.88

Source: Various NSSO reports

Conclusion

India has witnessed changes in the labour market and the impact was particularly seen on labour transition the rural economy. Still, in India, the labour force movement has been at slow pace where labourers mostly move to marginal jobs in rural areas during the post WTO period. The present study tried to indicate the direction of change and traces the progression of structural change and the study has revealed that there has been a significant shift in the labour market in sector wise employment.

The Markov Chain analysis used in the study revealed that during the pre WTO period the community, social & personal services (0.90) and the wholesale and retail trade, transport, storage and communications had retained (0.71) the largest labour retention while the agriculture, construction and mining & quarrying, electricity, gas and water had the least retention. In the post WTO period, the finance, insurance, real estate had the highest retention with the wholesale and retail trade, transport, storage and communications, mining & quarrying, electricity, gas and water and construction all being unable to retain the workforce.

The share of workers in non-agricultural sector has increased during the post WTO period. This shows a sectoral transformation of the workforce towards non-agricultural sectors such as the service sector. The study reveals that there was characteristic change in the composition of the labour market during the post WTO period with a growth in marginal workers especially among females with an annual growth rate of 9.39 percent in the post WTO period. This increased growth in marginal female workers was related to the increase in female participation in the primary sectors of the economy.

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