**International Journal of Humanities and Social Science Research**
**ISSN: 2455-2070; Impact Factor: RJIF 5.22**
**Received: 01-09-2020; Accepted: 15-09-2020; Published: 02-10-2020**
**www.socialsciencejournal.in**
**Volume 6; Issue 5; 2020; Page No. 62-68**

# A region-wise sectoral analysis of employment and household consumption in India: A dependency approach

**Dhananjay Kumar[1*], Subhash Chandra[2]**
[1, 2] Research Scholar, School of Economics, University of Hyderabad, Gachibowli, Hyderabad, Telangana, India

**Abstract**
The demographic structure of the population has an important role in determining the labour force participation in economic activity and hence the consumption behaviour of a household. Demographic dependency ratio is widely used in literatures to understand the demographic structure. However, this measure has a certain limitation as it does not measure the impact for those who fall under working age but actually are out of labour force. Therefore, in this paper, the prime objective is to calculate the employment-based economic dependency ratios along with region-wise sectoral analysis of the employment structure of India. Further, decomposition of the dependency ratio has been done to measures the contribution of various factors on the dependency ratios. This paper has proposed sectoral dependency ratio based on the employed workforce among the sectors and its trends among the state regions. An empirical estimates has been performed to test the impact of these dependency ratios on household consumption and expenditure behaviour. Periodic Labour force survey data and National Industrial classification-2008 for sectoral classification have been used for the overall analysis. The analysis reveals that most of the female workforce is out of labour force due to engagement into education or domestic duties in the household. The unemployment rate among young labour force is highest, particularly among southern states. There is a positive correlation between employment and age-based dependency ratio meaning that there is a need for such public policy towards some balancing mechanisms. There is a significant variation among the state groups for all dependency measures.

**Keywords:** household consumption, dependency ratios, employment status, Indian states, sectoral-analysis

## 1. Introduction
The demographic dividend is one of the most challenging issues among the developing countries than the developed ones' as a result of an increasing working-age population. Such transition creates a 'window of opportunity' where an economy has potential to grow with proper utilization of one of the most productive workforce through proper education and training (Navaneetham, & Dharmalingam, 2009) [14]. India's demographic structure is rapidly changing towards the working age population and simultaneously have a large section of the young labour force. Several studies confirm the positive relationship between working-age population and economic growth. (Bloom, 2011, 2003; James, 2008) [2, 9]. This raises concerns for policymakers to create new employment opportunities for the working-age population as well as an increase in economic growth. As per the UN World Population Prospects (2019) [18], low rate of fertility is the major determinant of the declining population for some countries. Where onlynine countries of the world, will have more than half of the population concentration near 2050. Indian is expected to be the most populous country in the world after China in an around 2027. Simultaneously, the increasing old age population is evident in all countries, and supposed to surmount both youth and child dependency ratios in around 2050 (United Nations, 2019). There are several implications of higher old-age dependency for both developed and underdeveloped countries. The major impact is on the government fiscal policies, in the form of social security as health care services and old-age pensions (Kehoe & Conesa, 2018) [10]. Particularly China is facing lower young age dependency, whereas India has a significant potential to optimal utilization of much younger labour force and hence an increase in per capita output growth. The higher working-age dependency ratio is particularly due to higher initial fertility rate (Golley & Tyers, 2013, 2012) [7]. Age-based dependency ratios of the population are widely acknowledged to understand the demographic structure and its relation to economic growth for an economy (Choudhry & Elhorst, 2010; Liao, 2011; Cruz & Ahmed, 2018) [5, 12, 6]. But, it is evident that all individual who belongs to the working-age group are not necessarily employed or be the part of the labour force. Even sometimes, the elderly population has to be part of the labour force to fulfil their day to day needs. A study found that more than 40 percent of aged over 60 are in the workforce (Bhagat & Unisa, 2006) [1]. Mostly underdeveloped economies are poor in terms of their human capital. They need for proper education, and skill-based training for the population falls under the working-age bracket so as they will be the part of the labour market and be productive enough to contribute in economic growth. Therefore, there is a need to look beyond the dependency based on the demographic structure in the form of dependency based on the non-working to actually working population. Those who are the part of the working- age group but still not employed are not directly contributing to economic growth rather than being a burden on the employed. An increase in the population who are not part of the workforce or declining labour force has several implications of the underdeveloped economies. In this context, this paper, have analysed the employment-based economic dependency ratios and sectoral dependency ratios along with age-based dependency ratios for the better

understanding of the demographic as well as employment structure of the rural Indian economy. The analysis of these structure is also important to counterbalance as the earliest which is due to changes in economic behavior. The factors affecting the employment based dependency will be analysed upon decomposition of the dependency ratios.

The proposed sectoral dependency ratio has been calculated, and analysed to understand the nature and structure of employment along with the allocation patterns of the labour forces among the different sectors of an economy. The methods of calculation have presented in the next section. Looking on the sectoral dependency is needed because decreasing dependence of population upon the agriculture sector and simultaneously an increase on the industrial and services sector are a prime concern and long-debated for the economic growth and development (Lewis, 1954; Ranis & Fei, 1961) [11, 17]. Also, the increase in the non-farm activities in the rural sector is commendable and contributing to the growth of the rural economy. The above discussed three types of dependency ratios will be analysed and compared in the context of the six groups of the rural Indian states. Amid declining labour force participation among Indian states, this is imperative to known the distribution of the population and determinants of such declining labour forces. Mostly young workforce engages in service sector among the developed economies. In the last, the impact of the measured dependency would be analysed on the consumption expenditure behaviour of the household.

## 2. Dependency Measures: Data and Methodology

Demographic dependency is usually used in several kinds of literature to analyze the dependence of the unproductive population upon the productive population. In India, demographic structure is categorized into two-part, one is the productive population, and another is unproductive population. The productive population is also called working-age, and unproductive is non-working age group. In terms of age demarcation, individuals have age between
14 years and 60 years are called productive population, whereas those individuals have age above 60 years and below 14 years are terms as unproductive population. However, in some of the developed countries, the upper limit for the productive population has been extended up to 65 years. The population below age 14 years is termed as a child, and the population above age 60 is old. The ratio of unproductive to productive population is called demographic dependency ratio. The demographic dependency has been further classified as child dependency and old dependency ratios. Child dependency ratio is the ratio of the child to the working-age population, whereas, the old-age dependency is termed as the ratio of old age to the working-age population.

$$DR_D = \frac{\sum_{p=0}^{p=14} C_p + \sum_{p=60}^{p=60+} O_p}{\sum_{p=15}^{p=59} W_p} \quad (1)$$

Here, $DR_D$ is the demographic dependency ratios based on the age structure of the population. Theoretically, this measure assumes the age between 14 and 60 years as working age and economically active, but this measure has certain drawbacks. Every person those who are considered as the working-age group do not actually work or be the part of the labour force. Similarly, all old age population are not necessarily unproductive. Age-based analysis shows that individuals above age 60 years are remain employed mostly in the unorganized informal sector to serve their basic needs. Therefore, Second criteria for Dependency measures are based on the employed labour force, and non-employed population in an economy called as employment-based dependency ratios. The specification for the dependency measurer is shown below:

$$DR_{Eb} = \frac{\sum_{a=0}^{a=0+} (NE_a)}{\sum_{a=0}^{a=0+} E_a} \quad (2)$$

Here $DR_{EB}$ is the dependency ratios based on the Employment status of the population, 'a' is age, 'NE' is Non-Employed and 'E' is employed. In an economy, people are engaged either in economic or non-economic activity. Those who are engaged in a non-economic activity are called out of the labour force. Therefore, further, employment-based dependency ratios have been decomposed into six sub-ratios based on types of non- employment criteria, as shown below. Thus such sub-ratios of dependency measures are:

Unemployed Dependency ratio ($DR_u$) – This is the ratio of unemployed population to the employed population. Students dependency atio ($DR_E$) – This ratio is measured as the ratio of the population, which are termed as a student and engaged in the education process to the employed population. Domestic dependency ratio ($DR_{DW}$) – This is the ratio of the population engaged in the domestic duties or household activity to the employed population. Pensioner dependency ratio ($DR_R$) – This ratio is defined as the ratio of the population who enjoy benefits of pensions, rent or remittances to the employed population. Child dependency ratio ($DR_C$) – This is the ratio of the children of the age groups 0-04 to the employed population. Other dependency ratios: Lastly, this is the ratio of the population who does not fall into all the above categories to the employed population.

Therefore,

$$DR_{Eb} = DR_u + DR_E + DR_{DW} + DR_C + DR_R + DR_O \quad (3)$$

The third criteria for Dependency measure are based on the three broad sectors classified using National Industrial Classification-2008 (NIC-2008) is called sectoral dependency ratios. The three broad sectors are farm sector, industrial sector and services sector. Dependence of each sector to another is calculated as follow:

$$DR_F = \frac{\sum_{a=0}^{a=0+} (W_I + W_S)}{\sum_{a=0}^{a=0+} W_F} \quad (4)$$

$$DR_F = \frac{\sum_{a=0}^{a=0+} (W_I + W_S)}{\sum_{a=0}^{a=0+} W_F} \quad (5)$$

$$DR_F = \frac{\sum_{a=0}^{a=0+} (W_I + W_S)}{\sum_{a=0}^{a=0+} W_F} \quad (6)$$

Here, $DR_{F,}$ $DR_I$ and $DR_S$ are the farm dependency ratios, industrial dependency ratio and service dependency ratios respectively. These ratios have been calculated using the workforce employed in the given sectors only. Farm dependency ratios tell us that how much workforce is dependent on the farm sector. Similarly, interpretation should be made for industrial and service sector dependency ratios.

The Nation Sample Survey Organization collects data on employment and unemployment conditions using nationally represented samples. This paper, have used the employment and unemployment survey (EUS) for 2004-05 and 2011-12, and first Periodic labour force survey 2017-18 for the analysis (PLFS 2019; NSSO, 2014). Sectoral classifications have been done using National Industrial Classification (NIC) -2008 and employed and unemployed statistics have been measured based on activity status using both principal and subsidiary status. Whereas, Indian states are categorized into five parts based on geographical locations (i.e. North [1], East [2], West [3], South [4] and North-east) [5] and one as the union territories[6] for the comparison purpose.

## 3. Results and Discussions

### 3.1 Patterns of Labour Market and Employment Structure

Labour force participation are declining worldwide. Table 01 indicates the components of the Labour Market for the state categories for the period of 2004-05 to 2017-18. Indian Economy has witnessed a massive decline in labour force participation of around 6 percent during 2004-05 and 2017-18. Whereas the decrease in labour force participation is higher in the rural sector than the urban sector, as shown in table 01. A decline in LFPR varies from 1 percent to the highest 7 percent among the region-wise state categories. Where the range is highest for the rural sector than the urban. Further analysis shows that the decline in the labour force is mainly due to a decline in rural female participation in the workforce. As we can see in table 01, the rural female labour force participation has declined by 15 percentage point since 2004-05. The unemployment rate also has in its highest for India during 45 years. Which has gone up by about 4 % since 2011-12. Urban female unemployment has gone up more than the urban male unemployment rate.

Upon further decomposition of the population, who are not in the labour force to trace the withdrawing labour force. This study found that specially female labour force are withdrawing from labour force, and moving towards household duties and free collections of goods along with due to rising standard of living in the rural sector female are largely depended on remittances and rent and pensions as shown in table 02.

Periodic labour force survey 2017-18 revels that at all India level, the rural labour force participation is marginally higher than the urban sector. However, the scenarios are different in case of state categories, Northern, Eastern and Union territories have lower rural labour force participation than the urban, whereas, Western and Southern States have higher rural LFPR. Opposite is true in case of population out of labour force (see Appendix). North-East States are the only states that have equal LFPR and percent of population out of labour force in both the rural and urban sector. Overall, southern states have the highest LFPR followed by Union territories and Western states than others. Northern States have least LFPR, and the highest share of the population are out of labour force. The several components of the engagement of the population who are out of labour force are presented in Appendix.

The unemployment rate is one of the most important indicators of the labour market, which indicate the percentage of the population who are demanding employment but not able to get. At all India level, the unemployment rate is 6.07 percent, whereas, urban sector witness 7.85 percent UR, more than the all India average. Rural India has less unemployment than urban. Among the state categories in the rural sector, Union territories has the highest unemployment, followed by North-eastern States. Western states has the least unemployment rates for both the rural and urban sector. But in the case of the urban sector, North-eastern has highest unemployment rates followed by Union territories. Overall, Unemployment rates are much higher among urban sectors than the rural.

[1] In this category States are: Jammu & Kashmir, Himanchal Pradesh, Punjab, Uttrakhand, Haryana, Delhi, and Uttar Pradesh.
[2] In this Category States are: Bihar, West Bengal, Jharkhand, Odisha, and Chhattisgarh.
[3] In this Category States are: Rajasthan, Madhya Pradesh, Gujrat, Maharashtra, and Goa.
[4] In this Category States are: Andhra Pradesh, Karnataka, Kerala, Tamil Nadu, and Telangana.
[5] In this Category States are: Sikkim, Arunachal Pradesh, Nagaland, Manipur, Tripura, Meghalaya and Assam.
[6] In this Category States are: Chandigarh, Daman & Due, Lakshadweep, Puducherry and A & N Island.

**Table 1:** Components of Labour Market Indicators Region-wise, 2004-05 to 2017-18

| State Region | LFPR | | | UR | | |
|---|---|---|---|---|---|---|
| | 2004-05/2011-12 | 2011-12/2017-18 | 2004-05/2017-18 | 2004-05/2011-12 | 2011-12/2017-18 | 2004-05/2017-18 |
| | Rural+Urban | | | | | |
| Northern | -3.0 | -2.7 | -5.8 | 0.2 | 4.9 | 5.0 |
| Eastern | -2.6 | -2.9 | -5.5 | -0.2 | 2.9 | 2.7 |
| Western | -4.1 | -2.1 | -6.2 | -0.3 | 3.8 | 3.5 |
| Southern | -4.5 | -2.5 | -7.0 | -0.3 | 4.1 | 3.8 |
| North-Eastern | -2.9 | -1.6 | -4.5 | 1.7 | 2.7 | 4.4 |
| Union Territory | -3.2 | 2.1 | -1.0 | -1.8 | 4.7 | 2.9 |
| Total | -3.5 | -2.6 | -6.1 | -0.1 | 3.9 | 3.8 |
| | Rural | | | | | |
| Northern | -3.6 | -3.8 | -7.4 | 0.1 | 4.6 | 4.8 |
| Eastern | -3.1 | -3.2 | -6.3 | 0.1 | 2.9 | 3.1 |
| Western | -4.7 | -3.4 | -8.0 | -0.2 | 3.4 | 3.2 |
| Southern | -4.4 | -3.9 | -8.3 | -0.1 | 3.8 | 3.6 |
| North-Eastern | -3.1 | -1.9 | -5.0 | 1.7 | 3.1 | 4.8 |
| Union Territory | -9.1 | -1.4 | -10.5 | -3.0 | 6.8 | 3.9 |
| Total | -4.0 | -3.6 | -7.6 | 0.1 | 3.6 | 3.7 |
| | Urban | | | | | |
| Northern | -1.0 | 0.1 | -0.9 | 0.0 | 5.2 | 5.2 |
| Eastern | -0.4 | -1.3 | -1.7 | -2.2 | 2.8 | 0.5 |
| Western | -1.8 | 0.1 | -1.7 | -1.1 | 4.7 | 3.6 |
| Southern | -2.7 | 0.4 | -2.3 | -1.3 | 4.5 | 3.2 |
| North-Eastern | -0.9 | 0.1 | -0.8 | 0.4 | 0.2 | 0.5 |
| Union Territory | 0.3 | 3.6 | 3.9 | -1.3 | 3.6 | 2.3 |
| Total | -1.5 | 0.1 | -1.5 | -1.0 | 4.4 | 3.4 |
| | Rural (Female) | | | Urban (Female) | | |
| Northern | -7.1 | -8.3 | -15.4 | -0.7 | 7.3 | 6.6 |
| Eastern | -6.4 | -5.1 | -11.5 | -3.6 | 1.6 | -2.0 |
| Western | -10.2 | -7.4 | -17.5 | -0.2 | 6.2 | 6.0 |
| Southern | -8.3 | -7.1 | -15.4 | -3.0 | 5.9 | 2.9 |
| North-Eastern | -5.9 | -6.0 | -11.8 | 4.1 | -2.6 | 1.5 |
| Union Territory | -12.3 | -1.7 | -14.1 | -5.8 | 12.4 | 6.6 |
| Total | -8.0 | -7.1 | -15.1 | -1.7 | 5.5 | 3.9 |

***Source*:** Authors calculation from NSSO and Periodic Labour Force Survey data, 2004-05, 2011-12, & 2017-18

**Table 2:** Engagement of Female Population Region-wise, 2004-05 to 2017-18

| Using Geography | Domestic Duties | | | Rent, Pensions and Remittances | | |
|---|---|---|---|---|---|---|
| | 2004-05 | 2011-12 | 2017-18 | 2004-05 | 2011-12 | 2017-18 |
| Northern | 29.55 | 36.57 | 46 | 0.54 | 0.59 | 2.37 |
| Eastern | 35.66 | 42.23 | 48.32 | 0.57 | 0.73 | 3.11 |
| Western | 19.64 | 29.83 | 39.23 | 0.46 | 0.61 | 2.31 |
| Southern | 21.15 | 28.72 | 34.72 | 0.86 | 1.81 | 6.47 |
| North-Eastern | 34.24 | 43.17 | 51.81 | 0.35 | 0.42 | 1.31 |
| Union Territory | 30.48 | 41.42 | 40.31 | 1.49 | 2.94 | 7.72 |
| Total | 27.27 | 35.27 | 43.22 | 0.59 | 0.87 | 3.28 |

Source: Author's estimation.

Household Size play an important role in deciding the per capita consumption and expenditure for a household and thus for the economy. The rural sector has larger household size than the urban sector, but the differences between them is highest among the Northern States, and so Northern States has the largest household size as well. At all India level, an average household size is 4.18, whereas, southern states has the least Household Size. But in case of MPCE and HMCE Union territories has the highest consumption expenditure for both urban and rural sector. Whereas, Eastern States has the least. Overall, Urban MPCE is almost double than the rural MPCE (see Appendix).

### 3.2 Several Measures of Dependency Ratios

Table 03 presents all the three dependency ratios measured For India and the State categories. An analysis of Age dependency at all India reveals that about 56 persons are dependent on 100 working population. In that, child dependency is much higher than the old dependency. North-east states has the least age dependency and old dependency of only 48 & 11 percent respectively, whereas northern states has the highest dependency of 61 percent, including highest child dependency. The southern States has the least child dependency and highest old dependency. Overall, for each of the state child dependency are higher than the old dependency. Old dependency ratios has increased from 10.6 in 1961 to 15.0 per cent in 2017-18 where southern states has highest of 19.0 per cent old-age dependency (Chanana & Talwar, 1987).

Employment-based dependency reflects the economic dependency in terms of how much non-working persons are dependent on working or employed population. At all India, employment dependency is 1.88, meaning that 188 people are dependent on 100 working person. Upon decomposition of employment dependency, it is clear that education dependency are highest followed by the domestic dependency in rural India. Whereas the share of unemployment dependency is the least followed by a child

of age 0-04 years among all factors. Due to least worker participation ratios among the northern states, employment dependency is highest among these states. Similarly, Southern states has the least employment dependency. Other states are in between. A common trend could be seen that education dependency are the highest for all the states categories followed by the domestic workers' dependency.

**Table 3:** Dependency Ratios Measured, 2017-18

| State Region | Northern | Eastern | Western | Southern | North-Eastern | Union- Territory | Total |
|---|---|---|---|---|---|---|---|
| Age Dependency | | | | | | | |
| $DR_C$ | 0.47 | 0.44 | 0.39 | 0.33 | 0.37 | 0.34 | 0.41 |
| $DR_O$ | 0.14 | 0.14 | 0.15 | 0.19 | 0.11 | 0.13 | 0.15 |
| $DR_A$ | 0.61 | 0.58 | 0.54 | 0.52 | 0.48 | 0.47 | 0.56 |
| Employment-based Dependency | | | | | | | |
| Unemployed | 0.07 | 0.06 | 0.05 | 0.07 | 0.09 | 0.09 | 0.06 |
| Education | 0.96 | 0.88 | 0.69 | 0.58 | 0.83 | 0.67 | 0.77 |
| Domestic | 0.76 | 0.76 | 0.55 | 0.49 | 0.75 | 0.56 | 0.64 |
| Rentier | 0.09 | 0.10 | 0.08 | 0.15 | 0.07 | 0.17 | 0.10 |
| Others | 0.12 | 0.08 | 0.08 | 0.07 | 0.06 | 0.05 | 0.09 |
| Child | 0.29 | 0.26 | 0.21 | 0.17 | 0.19 | 0.20 | 0.23 |
| $DR_E$ | 2.28 | 2.14 | 1.66 | 1.52 | 1.99 | 1.74 | 1.88 |
| Sectoral Dependency | | | | | | | |
| $DR_F$ | 0.72 | 0.87 | 1.05 | 0.66 | 0.81 | 0.10 | 0.82 |
| $DR_I$ | 0.37 | 0.35 | 0.27 | 0.36 | 0.19 | 0.62 | 0.33 |
| $DR_S$ | 0.45 | 0.38 | 0.38 | 0.52 | 0.64 | 1.11 | 0.44 |

Source: Author's estimation.

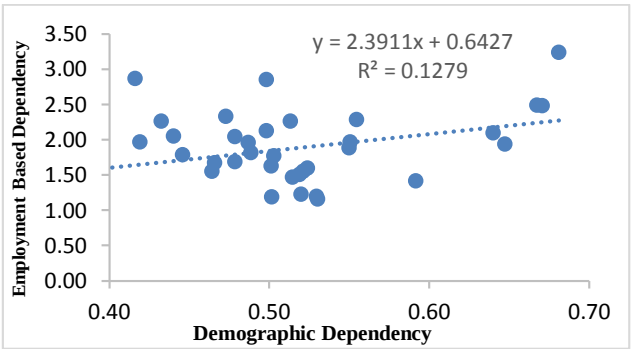


**Fig 1:** Employment and Demographic-based Dependency Ratios for all States.

Source: Author's estimation.

The higher domestic dependency is mainly due to the lower worker participation rate among female. More than 50 percent of the young female are engaged in domestic works as in the form of housewives or free household services (see Appendix). And more than 60 percent are age for more than 30 years. Figure 01 indicates the relationship between the a Age-based dependency and employment-based dependency, which is positively correlated. However in case of European countries this relationship has found to be negative, it is because the balancing mechanism for the old and working age groups has been adopted by the countries (Loichinger, Hammer, Prskawetz, Freiberger, & Sambt, 2017). The time has come that India should also focus on such mechanisms. The third and the last dependency measure based on sectors revel that 82 person employed in the non-farm sector are dependent on the 100 person working in the farm sector. Western states are the most dependent on the person employed in the non-farm sector, meaning that still about

two and half times more population are employed in the farm sector than the non-farm sector. Whereas, Union territories has the least dependence on the non-farm sector and most on the service sector, followed by the industrial sector. Western and Southern States has an equal dependency ratio for both the industrial and services sectors. Northern and Eastern states have higher dependency ratios for the industrial sector than the service sectors.

### 3.3 Empirical Results

The simple regression model has been conducted to understand the relationship between the different types of dependency ratios and the household consumption. The same regression specification has been conducted for the several state categories to understand the nature and relationship of between the household consumption and the dependency ratios. The regression specification has been presented below:

$$\ln hmce = \beta_0 + \beta_1 HHS + \beta_2 DR_A + \beta_3 DR_E + \beta_4 DR_F + \beta_5 DR_I + \beta_6 DR_S + \beta_7 D_1 + \beta_8 D_2 + u_i \quad (7)$$

Here, the symbols has their usual meaning for dependency ratios. Two dummy variable has been introduced for rural and urban sector along with sex categories. The empirical results state that there is a negative relationship between household consumption and the dependency ratios of any types at all India level except service sector dependency. Several studies also found the

**Table 5:** Regression Results for Each State Groups and at All India.

| State Region. | India | Northern | Eastern | Western | Southern | North-East | Uts |
|---|---|---|---|---|---|---|---|
| | lnhmce | lnhmce | lnhmce | lnhmce | lnhmce | lnhmce | lnhmce |
| HHS | 0.0909*** | 0.0797*** | 0.0974*** | 0.0972*** | 0.0963*** | 0.109*** | 0.107*** |
| | -0.00301 | -0.00539 | -0.00717 | -0.00582 | -0.00703 | -0.0101 | -0.0234 |
| Eco_dep | -0.0269*** | -0.0316* | -0.00578 | -0.0147 | -0.0149 | -0.0049 | -0.0954 |
| | -0.00814 | -0.0144 | -0.0196 | -0.0166 | -0.0186 | -0.0248 | -0.061 |
| Age_dep | -0.0418*** | -0.0520*** | -0.0804*** | -0.0764*** | -0.0193 | -0.0486* | -0.0776 |
| | -0.00767 | -0.0145 | -0.0193 | -0.0163 | -0.0149 | -0.0221 | -0.0687 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Farm_dep | -0.0185 | 0.0163 | -0.0181 | -0.0265 | -0.0448* | 0.0113 | -0.158 |
| | -0.0105 | -0.0186 | -0.0257 | -0.021 | -0.0227 | -0.0345 | -0.11 |
| Ind_dep | 0.0184 | -0.0125 | 0.0295 | 0.0307 | 0.0182 | 0.105** | -0.0758 |
| | -0.0119 | -0.0215 | -0.0284 | -0.0254 | -0.0241 | -0.0394 | -0.106 |
| Serv_dep | 0.109*** | 0.103*** | 0.133*** | 0.0980*** | 0.0839*** | 0.144*** | 0.0767 |
| | -0.0118 | -0.0216 | -0.0287 | -0.025 | -0.0246 | -0.0361 | -0.0922 |
| Sector | | | | | | | |
| Urban | 0.271*** | 0.280*** | 0.341*** | 0.271*** | 0.206*** | 0.243*** | 0.156* |
| | -0.00942 | -0.0198 | -0.0228 | -0.0214 | -0.017 | -0.0255 | -0.0646 |
| Sex | | | | | | | |
| Female | -0.0599*** | -0.0593* | -0.133*** | -0.0577 | -0.122*** | -0.0424 | -0.0195 |
| | -0.0129 | -0.0268 | -0.0346 | -0.0315 | -0.0221 | -0.0311 | -0.0788 |
| _cons | 8.434*** | 8.564*** | 8.106*** | 8.391*** | 8.531*** | 8.295*** | 8.979*** |
| | -0.022 | -0.0406 | -0.0531 | -0.0476 | -0.044 | -0.0697 | -0.196 |
| N | 15351 | 3681 | 2569 | 3339 | 3674 | 1835 | 253 |
| R-sq | 0.22 | 0.212 | 0.299 | 0.247 | 0.219 | 0.228 | 0.225 |
| Adj. R-sq | 0.22 | 0.211 | 0.297 | 0.245 | 0.217 | 0.225 | 0.199 |
| rmse | 0.482 | 0.47 | 0.467 | 0.492 | 0.443 | 0.452 | 0.43 |
| Note: Robust Standard errors in parentheses. * p<0.05, ** p<0.01, *** p<0.001 | | | | | | | |

***Source*:** Periodic labour force data has been used to derive the results. lnmpce is log of Monthly Per capita consumption Expenditure. hh_dep indicates employment-based dependency at the household level.

Negative effect of increasing old and child dependency is on GDP per capita of an economy (Choudhry & Elhorst, 2010) [5]. A large household size has a positive effect on the household consumptions among all state categories. Moreover, only northern states has a significant relation with economic dependency and household consumption. Southern and union-territories states has no significant impact on household consumption expenditure for age- dependency. Whereas, only among southern states has shown a significant relationship for the farm dependency. And North-eastern states for industrial dependency. Only Union-territories states group has no significant relationship in case of service sector dependency.

## 4. Conclusion

This paper, primarily measured three types of dependency ratios based on several criteria - Age, Employment and Sector. Later, a comparative analysis has been done among various states categories of Indian states to understand the trend and pattern of dependency ratios and the nature of employment and unemployment. The study finds that India has a huge potential to employ the younger working-age population. Some states have done productivity employed the workforce, but some are lagging behind. However, a significant question are about the workforce who are out of labour force despite comes under the working-age group. This study found significant variation among states groups. Female workforce are found to be in the most vulnerable situation. Most of the female labour force are out of the labour force and hence leads to falling worker population ratio, furthermore than 50 % female are found to be engaged into the household duties which prevent them to be part of the employed workforce.

Unemployment dependency is the least, and there is a positive relationship between age-based dependency and employment-based dependency which asserts that there is an urgent need to address the issues through some balancing mechanism among the states. Upon analysis of the sectoral dependency ratios, we found that even after the independence of more than 73 years, most of the working- age population are still dependent on the agriculture or farm sector for their survival. Low industrial dependency is a matter of concern. However, upon the state-wise analysis of the sectoral dependency, only union territories state have higher service sector dependency and less farm sector dependency. Western states have the highest agricultural dependency and least for both industrial and services sector dependency. At the same time, empirical results reveal that there is a significant positive impact on household consumption and expenditure for larger household size and negative relation for all types of dependency ratios except service sector dependency.

In a nutshell, the study found that southern states are significantly performing better than all other states whereas, northern and western states are the in most vulnerable condition at all parameter. Engagement in building human capital is the most prominent determinant of declining labour force among the working-age groups along with engagement of females in domestic workers. Therefore, there is a need for adequate policy that would absorb the demand for employment from the rising human capital and to increasing female labour participation.

## 5. References


1. Bhagat RB, Unisa S. Ageing and dependency in India: A new measurement. Asian Population Studies. 2006; 2(2):201-214.
2. Bloom D, Canning D, Sevilla J. The demographic dividend: A new perspective on the economic consequences of population change. Rand Corporation, 2003.
3. Bloom DE. Population dynamics in India and implications for economic growth. St. Gallen, Switzerland: WDA-Forum, University of St. Gallen, 2011.
4. Chanana HB, Talwar PP. Aging in India: its socio-economic and health implications. Asia-Pacific Population Journal. 1987; 2(3):23-38.
5. Choudhry MT, Elhorst JP. Demographic transition and economic growth in China, India and Pakistan. Economic Systems. 2010; 34(3):218-236.
6. Cruz M, Ahmed SA. On the impact of demographic change on economic growth and poverty. World Development, 2018; 105:95-106.

7. Golley J, Tyers R. Demographic dividends, dependencies, and economic growth in China and India. Asian Economic Papers. 2012; 11(3):1-26.
8. Golley J, Tyers R. Contrasting giants: demographic change and economic performance in China and India. Procedia-Social and Behavioral Sciences, 2013; 77:353-383.
9. James KS. Glorifying Malthus: Current debate on 'demographic dividend' in India. Economic and Political Weekly, 2008, 63-69.
10. Conesa JC, Kehoe TJ. An introduction to the macroeconomics of aging. The Journal of the Economics of Ageing, 2018; 11:1-5.
11. Lewis WA. Economic development with unlimited supplies of labor. The Manchester school. 1954; 22(2):139-191.
12. Liao PJ. Does demographic change matter for growth ?. European Economic Review. 2011; 55(5):659-677.
13. Loichinger E, Hammer B, Prskawetz A, Freiberger M, Sambt J. Quantifying economic dependency. European Journal of Population. 2017; 33(3):351-380.
14. Navaneetham K, Dharmalingam A. Age Structural Transitions, Demographic Dividend and Millennium Development Goals in South Asia: Opportunities and Challenges. In International Population Conference, Marrakech, Morocco, 2009.
15. NSSO. Employment and Unemployment Situation in India, (July 2011- June 2012). New Delhi: Ministry of Statistics and Programme Implementation, Government of India, 2014.
16. PLFS. Annual Report: Periodic labour force Survey (PLFS), (July 2017- June 2018). New Delhi: Ministry of Statistics and Programme Implementation, Government of India, 2019.
17. Ranis, Gustav, John CH Fei. A theory of economic development. The American economic review, 1961, 533-565.
18. United Nations. World population prospects 2019. United Nations. Department of Economic and Social Affairs. World Population Prospects, 2019.