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**Research Article**

# Employment, Youth and Labour Market in India: Dimensions and Challenges

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## I. INTRODUCTION

The global youth population is rising, and India is expected to contribute nearly one-fifth of the incremental youth population over the next two decades. The relative 'greening' of India's population and workforce, which began in the late 1970s, is projected to add approximately 200 million working-age adults by 2040. This shift is likely to reduce the economic dependency ratio, boost savings and investment rates, and create opportunities for accelerated macroeconomic growth. This phase, occurring in the middle stage of demographic transition when the population pyramid expands in the center, is referred to as the Demographic Dividend. However, India's ability to fully capitalize on this opportunity depends on whether this expanding youth workforce can secure remunerative and productive employment.

If the youth are not engaged in productive and meaningful work, the potential demographic dividend could turn into a demographic disaster. High youth unemployment is a direct path to frustration, social tension, and unrest, as seen during the Arab Spring. Research by the Institute of Criminology at Cambridge University indicates that young people, full of energy and vitality, often resort to crime when they lack employment. What may start as a minor offense can gradually escalate into more serious criminal activities. If left unaddressed, youth unemployment could destabilize fragile economies, serve as a breeding ground for violence, and leave a lasting impact on society that extends across generations. Given the social and regional diversity of our vast country, certain excluded groups and regions suffer from a lack of marketable skills or sluggish economic conditions, which suppress labor demand and trap these areas in a low-level equilibrium. Thus, whether our growing youth population becomes a national asset or a burden will critically depend on their employment prospects. In this paper, we analyze the employment situation of youth in India and highlight the challenges that lie ahead

## II. BACKGROUND, CURRENT LITERATURE AND OBJECTIVES:

According to the ILO, the growing and large-scale unemployment among youth is one of the most daunting challenges faced by both developed and developing countries (ILO, 2004, 2005b). Historically, young people have always struggled to secure employment after leaving education, resulting in unemployment rates among them being more than double that of older age groups, even in advanced economies (Morsy, 2012). This is because youth, as fresh graduates from the education system, lack experience and do not possess skills acquired through 'learning-by-doing.' They also lack social capital in the form of professional networks, which are crucial for securing jobs in the private sector. In many cases, they wait for their desired type of employment, contributing to what is known as wait unemployment. Thus, the labor market presents an entry barrier for youth, making it difficult for them to find and sustain decent jobs (Dev & Venkatanarayana, 2011). However, as they mature, they either acquire the necessary skills and social capital to secure appropriate jobs or, due to financial constraints, take up whatever work is available. This leads to a decline in post-youth unemployment rates in most economies. However, the period of unemployment faced by youth immediately after leaving education has severe long-term consequences. It is argued that prolonged joblessness results in deskilling, obsolescence, and demotivation, often trapping individuals in low-productivity, low-paying jobs for a lifetime (von Wachter et al., 2009; Kahn, 2010). This carries significant social and macroeconomic costs, with estimates suggesting that the economic loss from youth unemployment in Europe is approximately 1.2% of GDP (Tse et al., 2013). Additionally, youth contribute fresh ideas and creativity to the workplace, and their exclusion from the labor market results in missed opportunities for innovation (Tse et al., 2013; Kahn, 2010)

Against this backdrop, several studies have attempted to analyze the youth employment and unemployment situation in India. Perhaps the earliest warning came from K.N. Raj, who remarked that 'India's future lay in the quality of jobs generated for its youth' (Raj, 1959). In recent times, the most comprehensive study has

been conducted by Sharma (2022), which examines youth employment and unemployment disaggregated by gender and states, as well as the relationship between education, skills, employment status, industry, and occupation. Other notable studies include Visaria (1998), Chandrasekhar et al. (2006), Dev & Venkatanarayana (2011), Mitra & Verick (2013), Sasikumar (2019), and ILO (2021). Most of these studies, with a few exceptions, have focused on Open Unemployment among the youth population at the Usual Principal Activity status level and have not extensively addressed other forms of unemployment, including temporary unemployment.

This paper contributes to the existing literature by examining the labor market situation of youth in India across various types of unemployment. Secondly, it provides a long-term perspective on the challenges to youth employment in India, tracing developments from the mid-1980s, which marked the beginning of the country's structural transformation. A cohort study is used to analyze the movement of youth across labor-skill categories over time. Thirdly, we explore the link between the youth labor market situation and demographic processes at the regional level, as the issue of youth employment is closely tied to the concept of demographic dividend, as discussed in the previous section. Fourthly, we assess whether overall economic growth and, in particular, the growth of the organized sector, have had any impact on youth employment in different states of India. Lastly, recognizing that the labor market characteristics of women in India are shaped by complex social and institutional factors (as highlighted in several studies), we analyze the employment situation of young males separately to better understand the economic forces at play.

## III. DATA SOURCES & METHODOLOGY:

We have utilized data from the annual Periodic Labour Force Survey (PLFS) of 2018-19 conducted by the National Sample Survey Organisation (NSSO) to analyze the current situation. This was the latest survey round before the pandemic struck, providing insights into the usual labor market conditions before the economy experienced an extreme shock. For historical trends, we have referred to the Employment and Unemployment Surveys of NSSO for the 38th round (1983-84), 51st round (1999-2000), and 68th round (2011-12). Additionally, reports from international and national organizations such as the World Bank, ILO, CSO, and the Ministry of Finance, Government of India, have also been used.

In our study, we define the youth population as those in the 20-29 age group. This ensures that our sample includes individuals who have generally completed 12 years of formal schooling in the Indian education system and are at the critical juncture of choosing between entering the labor market and pursuing higher education. It is well-documented that a structural break occurs at this stage, with a significant difference between enrolment rates at the school level and those in higher education. Unlike most previous studies, this paper examines the labor market characteristics of youth based on both Usual Principal Activity (UPS) status and Current Weekly Activity (CWS) status, thereby capturing both permanent and temporary employment conditions. Additionally, we have analyzed young males separately, as the labor market participation of young females in India is shaped by various institutional, structural, and social constraints.

## LABOUR MARKET SITUATION OF YOUTH IN INDIA: OVERVIEW

### a. Labour Market Participation and Employment Status

Key indicators of the labor market situation include labor force participation rates (LFPR) and employment/unemployment rates. Over the nearly four-decade period from 1983 to 2018, both LFPR and workforce participation rates (WPR) among youth have shown a declining trend (Fig. 1). This pattern consists of a marginal increase during the first two decades (1983-99), followed by a sharp decline in the current century. The drop in WPR has been steeper than that in LFPR, leading to an almost threefold increase in the (Open) Unemployment rate among youth over this period, with a more pronounced rise after 2011 (Fig. 2). This overall trend holds for both males and females and across rural and urban areas, though the declines in LFPR and WPR are sharper for females compared to males and in rural areas compared to urban areas. Consequently, unemployment rates have surged nearly fivefold for rural youth and fourfold for young females between 1999 and 2018.

Regarding employment composition, the predominant form of employment among youth workers is self-employment in rural areas, while regular wage work dominates in urban areas (Fig. 3). However, the share of self-employment has been declining for males throughout the period, whereas for females, it has shown alternating phases of increase and decline. The proportion of regular employment declined during the first two decades but increased over the next two, for both males and females. Conversely, casual employment followed the opposite trend—rising in the first two decades and declining in the subsequent two. This pattern suggests increasing labor market polarization, where the overall workforce size is shrinking, with casual workers bearing the brunt of job losses. Researchers also caution that much of the recent rise in regular employment may be attributed to job outsourcing, meaning that such employment often lacks social security benefits

### b. Dissecting Unemployment Trends: A Four Quadrant Study

While open unemployment based on Usual Principal Status (UPS) has been extensively analyzed, very few studies have attempted to examine the detailed structure of youth unemployment. We have undertaken this analysis using a four-quadrant approach, categorizing youth in the labor force into four groups based on their usual (UPSS) and current (CWS) activities. In order of improving status and preference, these categories are—Chronic Unemployment, Intermittent Employment, Irregular Employment, and Stable Employment.

The chronic unemployment rate among youth (those classified as unemployed under both UPSS and CWS) has surged from approximately 4.3 percent of the labor force to over 16 percent during this period, with nearly all of this increase occurring between 2011 and 2018 (Table 1). This trend is also evident at the other end of the employment spectrum, where the share of stable employment, which had shown a slight increase over the first three decades (up to 2011), witnessed a sharp decline post-2011. The proportion of irregular employment (youth who are usually employed but not currently) has steadily decreased, while the share of intermittent employment (those who are currently employed but usually unemployed) has risen. This highlights a worsening labor market scenario for youth, as regular job opportunities are shrinking, leaving an increasing number of young job-seekers either unemployed throughout the year or engaged only sporadically.

## IV. NEET: AN EXPANDED VIEW OF NON-WORK

It is sometimes argued that the Open Unemployment Rate does not accurately capture the true labor market situation in a developing country. Job seekers, when faced with unemployment or realizing that their skill set is insufficient to secure a job, often withdraw from the labor force. Consequently, the Unemployment Rate may appear to decline. However, for young individuals in the age group of 20-29, it is generally expected that they would either be engaged in education/training, working, or actively seeking employment. Yet, in developing countries, we often find young individuals who are neither employed, nor in education/training, nor looking for work. These individuals are referred to in the literature as withdrawn workers. To analyze this phenomenon, it has become customary to examine the proportion of the population classified as Neither in Education, Employment, or Training (NEET). Ideally, for young individuals, NEET and Unemployment rates should be closely aligned. Any significant gap between NEET and Unemployment suggests the presence of Withdrawn Workers, signaling deep-rooted labor market issues.

Evidence of such withdrawn workers is visible in India, as the proportion of youth classified as NEET has consistently been nearly 30 percentage points higher than the open unemployment rate. While the NEET proportion declined in the first two decades, from approximately 37 percent in 1983 to 32 percent in 1999, it increased over the next two decades, reaching 44 percent in 2018. This implies that nearly half of the youth population is neither working nor engaged in any productive activity, leading to what can be termed a wastage of human resources. Instead of contributing to the economy as part of a demographic dividend, this unutilized human capital is creating a demographic drag. As expected, the incidence of NEET is significantly higher among females, ranging from 66 percent in 1983 to 74 percent in 2018. However, a spatial shift has occurred, with NEET incidence, which was lower in rural areas in the first two decades, now being higher in rural areas compared to urban areas.

A deeper examination of NEET types reveals that the share of chronic NEET (those not in education, employment, or training according to both UPSS and CWS) saw a slight decline during the 1993-99 period but has consistently increased since then (Fig. 4). Simultaneously, the proportion of youth in stable education/training has risen significantly, increasing more than fourfold from around 3 percent in 1983 to over 13 percent in 2018. While this is a positive trend, some argue that youth in India continue their education primarily because they have no alternative, and the opportunity cost of staying in education is very low or even non-existent when the alternative is unemployment [Jeffrey (2010) refers to this as 'Timepass']. Additionally, a section of youth engages in education/training or employment intermittently, though the prevalence of such irregular EET has been declining over time

## V. DYNAMICS OF YOUTH LABOUR MARKET STATUS: COHORT STUDY

So far, we have examined snapshots of the youth labor market situation in India at four points in time. To understand the dynamics of this situation, we have conducted a cohort study, tracking individuals in the 20-29 age group across all four NSS-Employment Survey/PLFS rounds. While we originally had four cohorts for the 1983 sample, three for the 1999 sample, and two for the 2011 sample, we present only the 1983 cohort (Table 2).

Three key findings emerge from the results. First, LFPR and WPR see a significant rise as individuals cross the age of 30 but decline thereafter. Second, with age, the incidence of self-employment increases, casual wage labor decreases, while regular wage employment remains relatively stable. Third, and most importantly, a form of search unemployment appears to be prevalent among youth. Initially, the unemployment rate is high for the original cohort (aged 20-29), but as they grow older, it declines sharply. For instance, for the 1983 cohort, the unemployment rate dropped from 5.4 percent to 0.3 percent by the

time they reached the 36-45 age group in 1999 and remained around that level thereafter. This suggests that unemployment in India is primarily a youth unemployment issue, where young men and women struggle to secure jobs upon entering the labor market. Over time, however, they eventually find some form of employment, as remaining unemployed is not a viable option for most.

## VI. YOUTH EMPLOYMENT AND SKILL

A close examination of the employment-unemployment situation among youth reveals a precarious scenario, particularly in recent years. On one hand, there is a decline in stable employment, leading to the withdrawal of young individuals from the labor market. On the other hand, the unemployment rate has risen significantly, contributing to a sharp increase in the incidence of NEET among young people. The situation showed some improvement during the 1993-99 period before deteriorating between 1999-2011 and worsening further from 2011 to 2018. The only silver lining is the substantial increase in the proportion of the population engaged in stable education throughout the study period, regardless of gender or location.

This raises the question: if the share of youth in stable education is increasing substantially, why is the unemployment rate also rising? The answer likely lies in the inability of the general education system to equip young people with the necessary skills. We analyzed the skill pattern of youth in India using a five-tier classification—Unskilled, Low Skilled, Semi-skilled, Skilled, and High Skilled. While the proportion of unskilled youth has decreased significantly over time, this shift has largely been toward the low-skilled category, representing only a marginal improvement in skill levels (Table 3). Although the share of the two highest skill levels has increased noticeably, their combined proportion remains below 20 percent. The two lowest categories, Unskilled and Low Skilled, continue to dominate the skill profile of youth, accounting for two-thirds of the young population in India. Additionally, significant gender and locational disparities persist in skill distribution (Fig. 5). This low skill profile is often cited as a key factor contributing to the poor and worsening employment situation among youth in the country.

It is often argued that skill development is a lifelong process and that individuals in the labor force should have access to opportunities for skill enhancement even later in life. However, such opportunities are rare in India, and incentives for skill upgradation are minimal. As a result, the skill profile tends to become fixed at a young age, with little change in distribution as cohorts age (Table 4).

Another pressing concern regarding skill patterns is the high unemployment rate among Skilled and High Skilled youth. Although these two groups exhibit a higher incidence of regular employment, nearly two-fifths of youth in these categories were unemployed in 2018. This could be attributed to young people continuing their education in hopes of securing jobs, only to face narrowing job opportunities and increasing skill demands at the higher end of the labor market, effectively shutting them out. This again highlights a mismatch between the type and quality of skill formation provided by the formal education system and the skill sets required in the labor market, as emphasized by Sharma (2022) and De et al. (2022), among others].

## VII. YOUTH EMPLOYMENT AND SPATIAL PATTERN

To analyze the regional or spatial patterns of the youth labor market, we have classified the states and Union Territories into six spatial regions—Central, Eastern, Northern, North-Eastern, Southern, and Western. It is observed that the Southern and Western states are performing better compared to the Northern, Eastern, and North-Eastern states. These regions have a higher proportion of workers in regular employment and significantly lower unemployment rates than the others (Table 5). They also show better outcomes in terms of Labor Force Participation Rate (LFPR) and Worker Population Ratio (WPR).

The centrally located states of Madhya Pradesh and Chhattisgarh perform well in terms of LFPR and WPR but lag behind in terms of regular employment, with substantially higher unemployment rates compared to the Southern and Western states. In terms of skill levels as well, the Southern and Western states fare much better than the Eastern, North-Eastern, and Central regions (Table 6). The Northern region also surpasses these three regions in terms of skill patterns. A similar trend is observed when considering only young males.

## VIII. YOUTH LABOUR MARKET SITUATION AND DEMOGRAPHIC DIVIDEND

We began by highlighting the significance of the youth labor market, emphasizing its role in harnessing the demographic dividend through an expanding working-age population. However, we also noted that this dividend is not guaranteed—regions experiencing a youth bulge may struggle to productively integrate their growing workforce.

Do the spatial disparities observed across Indian states align with demographic patterns? To explore this, we have categorized 22 major states into three demographic groups based on youth population growth rates. Our findings indicate that regions with moderate youth population growth exhibit better employment indicators compared to states with either high or low youth population growth rates. The moderate-growth regions have higher LFPR, higher WPR, significantly lower unemployment rates, a greater proportion of

workers in regular employment, and a lower incidence of NEET compared to the other two demographic categories.
It is possible that the labor market outcomes in high and low youth population growth rate regions are similar due to different underlying factors. However, delving into these specific reasons is beyond the scope of this study.

## IX. EXPLORING FACTORS DETERMINING YOUTH LABOUR MARKET SITUATION IN INDIA: A REGIONAL ANALYSIS

We have already observed that skill patterns, unemployment rates, and employment types vary significantly across Indian states, both along regional and demographic lines. This regional disparity in unemployment rates, particularly among the youth, is a serious concern. When unemployed youth, frustrated by a lack of earning opportunities, are concentrated in specific regions of a vast and diverse country like India, it creates a fertile ground for lawlessness and factionalism. Recent large-scale violence in Bihar and Uttar Pradesh—India's two most populous states with high youth unemployment—over railway and army recruitment policies serves as a stark reminder of this issue.
To reduce unemployment in specific regions, it is crucial to identify the factors influencing regional unemployment rates. Literature suggests several determinants, including a region's economic base and structure (Brewer, 1985), economic growth and crises (Banerji, 2014; Eichhorst et al., 2015; O'Higgins, 2001), industrial diversity (Taylor and Bradley, 1983; Simon, 1988; Neumann and Topel, 1991; Malizia and Ke, 1993), productivity of the dominant sector (Lakdawala, 1977), and youth skill levels (Coenjaerts et al., 2009).
In this study, we hypothesize that key state-level factors influencing unemployment include aggregate economic performance (NSDP growth), the degree of industrialization (growth in factory sector employment), inflow of industrial capital (per capita new industrial investment), economic structure (sectoral composition of GSDP), public expenditure, and labor force skill levels. The assumed functional form is:

$$\mathbf{UR = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + U}$$

where:

- **UR** = Unemployment Rate
- $\mathbf{X_1}$ = Per capita NSDP growth (2011-18)
- $\mathbf{X_2}$ = Factory worker growth (2011-18)
- $\mathbf{X_3}$ = Per capita new industrial investment (2011-18)
- $\mathbf{X_4}$ = Share of agriculture in GVA
- $\mathbf{X_5}$ = Share of registered manufacturing in GVA
- $\mathbf{X_6}$ = Share of trade & hotels in GVA
- $\mathbf{X_7}$ = Share of public administration in GVA
- $\mathbf{X_8}$ = Public expenditure as % of GSDP
- $\mathbf{X_9}$ = Skill index of the labor force
- $\mathbf{X_{10}}$ = Squared skill index of the labor force

We expect economic growth, industrialization, capital inflow, and a higher share of registered manufacturing, trade, and public administration in SDP to reduce unemployment. Conversely, a high share of agriculture in SDP is likely to increase unemployment. The impact of skill levels is expected to be nonlinear—while an initial increase in skill may lower unemployment, higher skill levels could lead to increased unemployment, as observed in earlier sections. To capture this, both the skill index and its squared term are included as explanatory variables. The regression analysis was conducted separately for the total population and for males.
The results indicate that, when all variables are included, only factory worker growth, new industrial investment, the share of registered manufacturing in SDP, and public expenditure have negative coefficients, suggesting they play a key role in reducing unemployment (Table 7). In contrast, per capita NSDP growth has a positive coefficient, implying that unemployment is higher in fast-growing regions. Additionally, the share of agriculture, trade & hotels, and public administration in SDP all have positive coefficients, suggesting that economies reliant on these sectors tend to experience higher unemployment. As expected, the skill index has a negative coefficient, while its squared term has a positive coefficient, confirming that an increase in skill levels initially reduces unemployment but leads to higher unemployment at advanced skill levels. These findings hold true for both the total population and males.
Using the backward elimination method to retain only significant variables, we find that for the total population, the key determinants are **per capita NSDP growth, factory worker growth, new industrial investment, share of trade & hotels in SDP, share of public administration in SDP, and the skill index**. For males, the share of public administration does not appear as a significant factor.

These findings suggest that the most effective strategy for reducing unemployment is **expanding factory employment and attracting greater industrial investment**. In contrast, macroeconomic growth driven by tertiary sectors such as **trade & hotels and public administration appears to contribute to rising unemployment**. This could be because these sectors **do not drive labor market expansion but rather emerge as a consequence of high unemployment**, or because they **are not as labor-intensive as commonly assumed** (for related discussions, see Mukherjee & Majumder, 2008; Pattanaik & Nayak, 2011).

## X. REGIONAL CONVERGENCE/DIVERGENCE

One related issue of interest is the regional convergence or divergence in youth unemployment. In a neo-liberal economic setting characterized by a high degree of labor mobility, significant differences in regional unemployment rates are not expected to persist for long. Workers from regions with high unemployment are likely to migrate to areas with lower unemployment, leading to a convergence in unemployment rates across regions. A similar effect may arise if investment flows into high-unemployment regions, where wage rates are lower.

While this serves as a theoretical framework, empirical evidence does not always support such an 'equalization theory.' Often, regions do not exhibit signs of convergence due to factors such as 'cumulative causation' (Kaldor, 1978) and the accompanying agglomeration of economic activities, selective migration, concentration of investment in already developed regions due to better infrastructure, disparities in public expenditure, and skill mismatches between surplus workers in high-unemployment regions and the skills required in regions with high labor demand (Jackman and Roper, 1987). Additionally, migration is often skill-intensive, where relatively skilled workers leave, leaving behind a large unemployed population, which can reduce aggregate demand and lower production and employment in source regions (Taylor, 1996). In this study, we analyze India's experience over the past decade in this regard.

The literature examines convergence/divergence using three methods: sigma-convergence, unconditional beta-convergence, and conditional beta-convergence.

- **Sigma-convergence** assesses trends in the variation of unemployment rates across regions, typically using the Coefficient of Variation (CV). If the variation declines over time, convergence is occurring.
- **Unconditional beta-convergence** tests whether regions with higher initial unemployment rates have experienced slower changes in unemployment over time, while regions with lower initial rates have undergone sharper changes. This is done by regressing the change in unemployment on the initial unemployment rate. A negative beta coefficient suggests convergence, whereas a positive coefficient indicates divergence. However, unconditional beta-convergence is less common due to the influence of other economic factors.
- **Conditional beta-convergence** accounts for additional explanatory variables in the regression, such as economic and demographic characteristics. The interpretation of the beta coefficient remains the same.

In this study, we apply all three methods, using 2011-12 as the base year and 2018-19 as the terminal year.

- **Sigma-convergence** is evident, as the Coefficient of Variation (CV) in unemployment rates across 20 major states declined from **0.62 to 0.37**, and for males, from **0.48 to 0.28**.
- **Unconditional beta-convergence** is also observed, as the coefficient for initial unemployment is significantly negative (Table 8).
- **Conditional beta-convergence** was examined using instrumental variables such as LFPR, the skill index of the working-age population, base year per capita NSDP, new industrial investment (2011-18), and sectoral shares of agriculture, registered manufacturing, trade & hotels, and public administration in SDP, along with public expenditure.

The results indicate that, in both the full model and a parsimonious model using backward elimination, the beta coefficient of the initial unemployment rate remains negative, confirming conditional beta-convergence. Among the instrumental variables, **inflows of new industrial capital are promoting convergence, whereas an increased share of the Trade & Hotels sector is leading to divergence**.

## XI. SUMMARY

It thus becomes evident that the labour market situation for youth in India is far from promising. While there has been a historical trend of declining LFPR and WPR, primarily due to increased participation in education, this trend has accelerated in recent times, accompanied by a rising Unemployment Rate. Nearly half of the youth population is neither working nor engaged in any productive activities—essentially leading to a wastage of human resources. This underutilized human capital is acting as a demographic drag on the economy rather than contributing to a demographic dividend.

Unemployment is notably high among unskilled youth, but it is also significantly high among skilled and highly skilled youth, raising concerns about the employability of young graduates on one hand and highlighting the labour-replacing nature of the current economic growth pattern on the other. Cohort studies suggest that as individuals age, some transition into regular employment, while others take up whatever work

is available. However, skill levels rarely improve once they exit the youth bracket, underscoring the lack of lifelong skilling opportunities and incentives.
Regional analysis indicates that the labour market situation is relatively better in the Southern and Western states, as well as in states with moderate youth population growth rates. In contrast, states at the early stages of demographic transition (with high youth population growth) and those at an advanced stage of demographic transition (with low youth population growth) exhibit lower LFPR, lower WPR, and higher unemployment rates. Econometric analysis confirms that industrialisation remains the most effective strategy for addressing the unemployment challenge.

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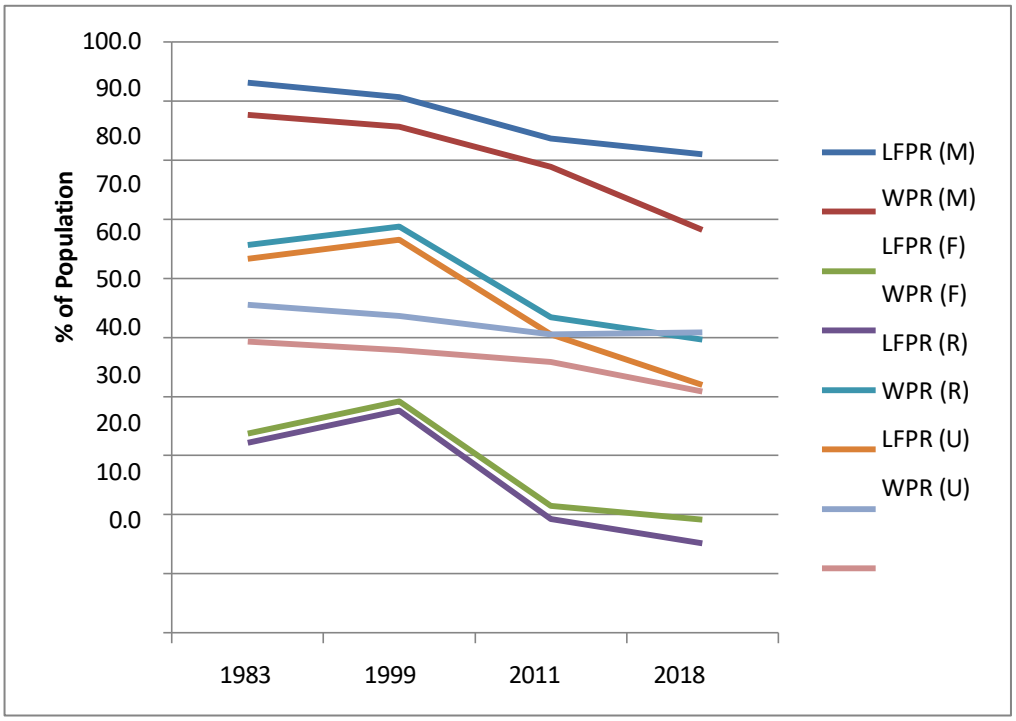


**Fig. 1: Youth LFPR and WPR in India by Gender and Location (1983-2018)**

*Source:* Authors' Calculations based on NSSO (1983, 1999, 2011, 2019)

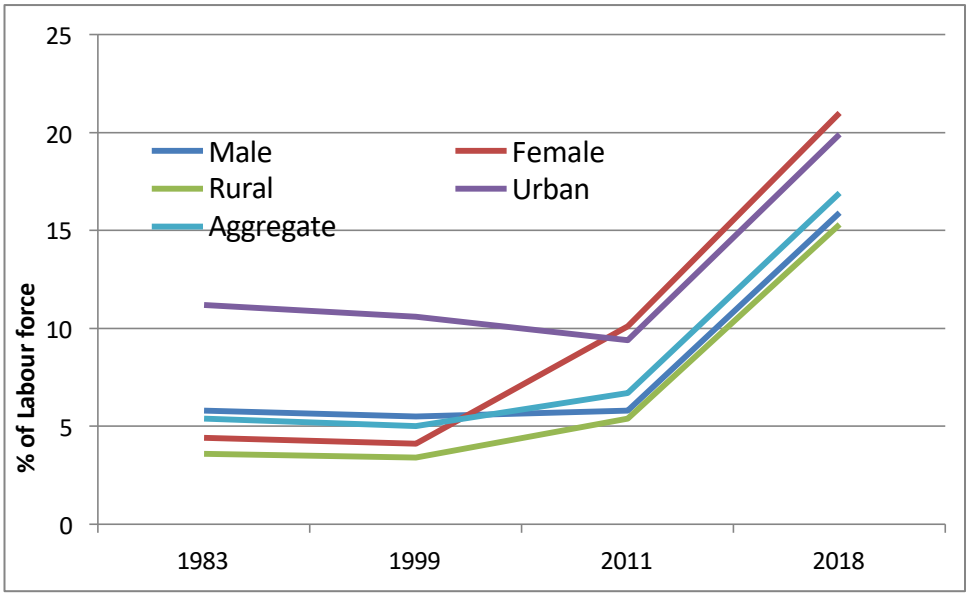


**Fig. 2: Youth Unemployment in India**

*Source:* Authors' Calculations based on NSSO (1983, 1999, 2011, 2019)

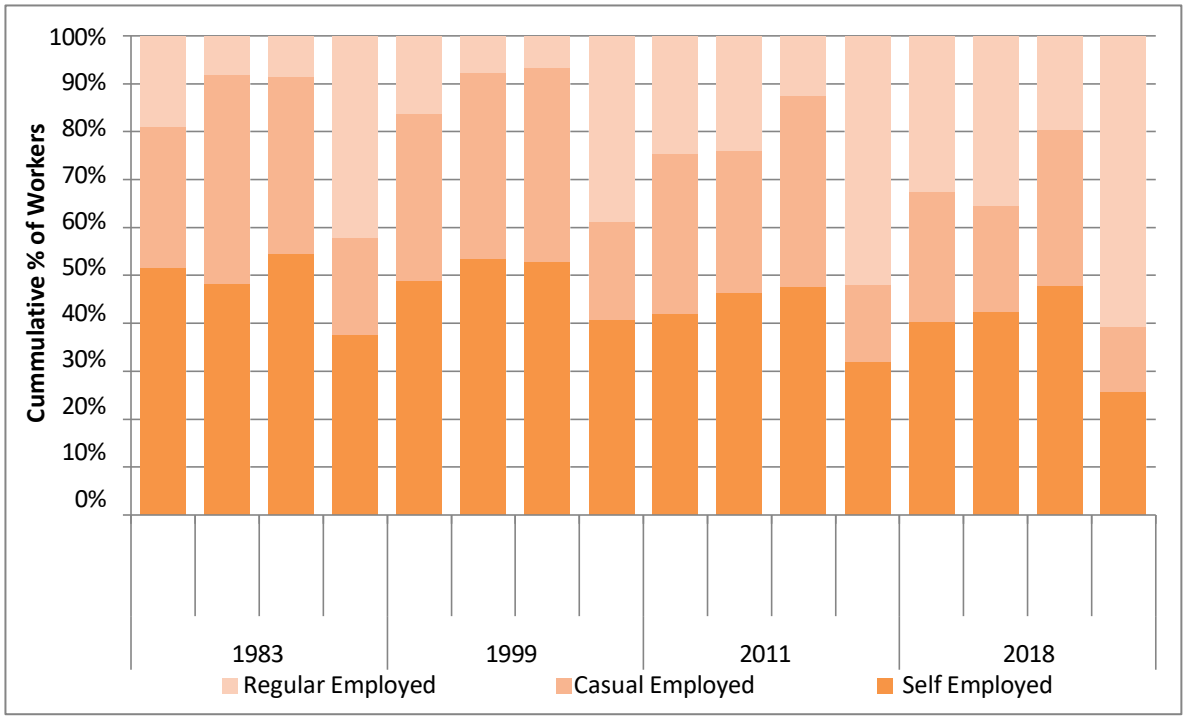


**Fig. 3: Youth Employment in India by Type**

**Table 1 Four Quadrant Activity Status of Youth Labour force in India**

| ***Status*** | ***1983*** | ***1999*** | ***2011*** | ***2018*** |
|---|---|---|---|---|
| **Chronic Unemployment** | 4.6 | 5.1 | 6.1 | 16.5 |
| **Intermittent Employment** | 0.9 | 0.1 | 0.5 | 3.1 |
| **Irregular Employment** | 2.4 | 2.7 | 1.4 | 0.4 |
| **Stable Employment** | 92.1 | 92.1 | 91.9 | 80.0 |

*Source:* Authors' Calculations based on NSSO (1983, 1999, 2011, 2019)

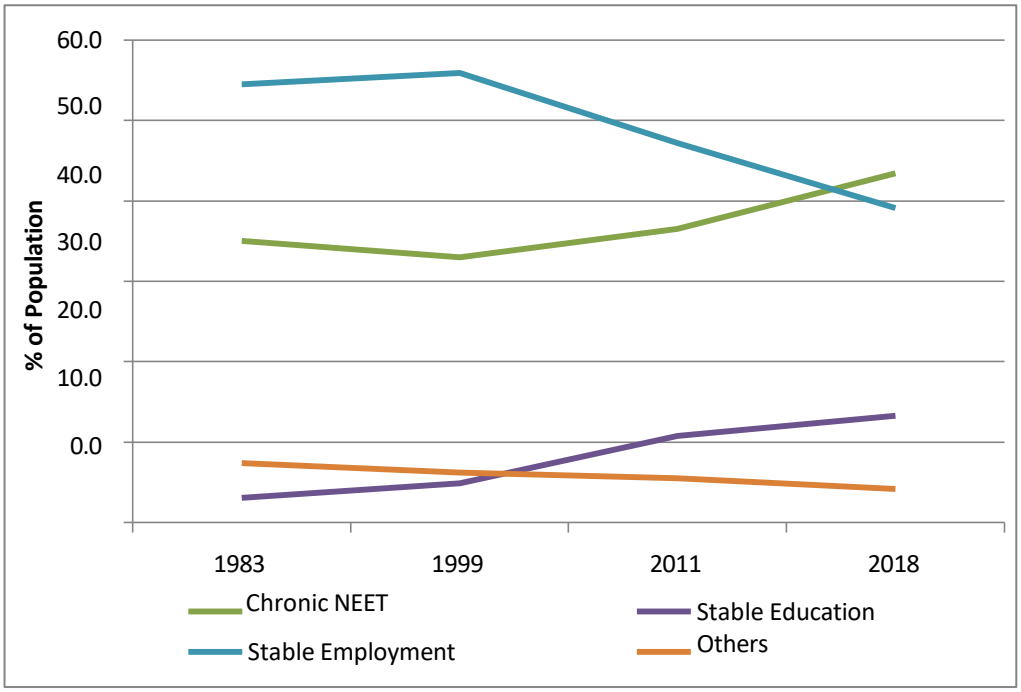


**Fig. 4: Dissection of Youth NEET in India**

*Source:* Same as Table 1

**Table 2 Progression of Youth Cohorts in India (UPSS)**

| | ***1983 Youth Cohort in the year*** | | | |
|---|---|---|---|---|
| ***Indicators*** | ***1983*** | ***1999*** | ***2011*** | ***2018*** |
| ***LFPR*** | 62.9 | 75.0 | 62.7 | 48.8 |
| ***WPR*** | 59.3 | 74.8 | 62.5 | 48.5 |
| ***Unemployment Rate*** | 5.4 | 0.3 | 0.4 | 0.6 |
| ***NEET*** | 36.7 | 25.2 | 37.5 | 51.5 |
| ***Self Employment*** | 50.5 | 51.1 | 53.8 | 63.0 |
| ***Casual Employment*** | 33.4 | 31.7 | 27.4 | 21.0 |
| ***Regular Employment*** | 16.1 | 17.2 | 18.8 | 16.0 |

*Source:* Same as Table 1
*Note:* LFPR, WPR and NEET are as proportion of Population; Unemployment Rate as proportion of Labour force; Others as proportion of Workers

**Table 3 Skill Pattern of Youth in India**

| ***Skill categories*** | ***1983*** | ***1999*** | ***2011*** | ***2018*** |
|---|---|---|---|---|
| ***Unskilled*** | 57.6 | 43.3 | 41.2 | 12.9 |
| ***Low Skilled*** | 26.7 | 28.3 | 30.6 | 53.0 |
| ***Semi-skilled*** | 10.4 | 19.3 | 15.0 | 14.5 |
| ***Skilled*** | 4.5 | 7.4 | 9.2 | 15.6 |
| ***High Skilled*** | 0.8 | 1.7 | 4.0 | 4.0 |

*Source:* Same as Table 1
*Note:* Categories as proportion of Population

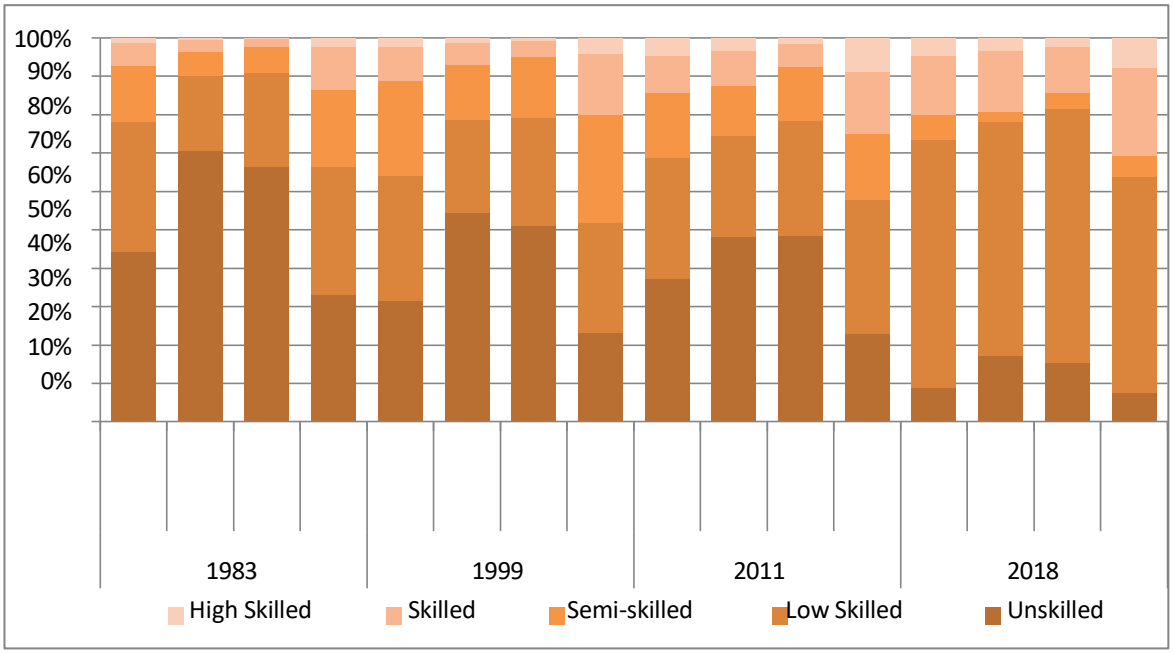


**Fig. 4: Skill Pattern of Youth in India**

*Source:* Same as Table 1

**Table 4 Skill Progression of Youth Cohorts in India**

| ***Skill Category*** | ***1983 Youth Cohort in the year*** | | | |
|---|---|---|---|---|
| | ***1983*** | ***1999*** | ***2011*** | ***2018*** |
| ***Unskilled*** | 57.6 | 59.3 | 55.0 | 53.9 |
| ***Low Skilled*** | 26.7 | 22.3 | 26.0 | 37.5 |
| ***Semi-skilled*** | 10.4 | 11.2 | 11.9 | 1.8 |
| ***Skilled*** | 4.5 | 6.0 | 5.4 | 5.3 |
| ***High Skilled*** | 0.8 | 1.3 | 1.6 | 1.5 |

*Source & Note:* Same as Table 3

**Table 5 Labour Market Indicators of Youth in India by Spatial Regions**

| ***Indicators*** | ***Central*** | ***East*** | ***North*** | ***N-East*** | ***South*** | ***West*** | ***Aggregate*** |
|---|---|---|---|---|---|---|---|
| ***LFPR*** | 55.1 | 45.6 | 44.9 | 46.8 | 56.8 | 52.7 | 50.0 |
| ***WPR*** | 49.8 | 37.6 | 37.0 | 36.5 | 44.7 | 45.8 | 41.6 |
| ***Unemployment Rate*** | 9.8 | 17.6 | 17.6 | 22.0 | 21.3 | 13.2 | 16.9 |
| ***Self Employment*** | 51.9 | 43.0 | 44.8 | 46.8 | 27.3 | 41.1 | 40.6 |
| ***Casual Employment*** | 31.1 | 36.1 | 22.6 | 21.0 | 27.4 | 20.0 | 26.4 |
| ***Regular Employment*** | 17.0 | 20.9 | 32.6 | 32.2 | 45.3 | 38.9 | 33.0 |

*Source & Note:* Same as Table 1

**Table 6 Skill Pattern of Youth in India by Spatial Regions**

| | ***Central*** | ***East*** | ***North*** | ***N-East*** | ***South*** | ***West*** | ***Aggregate*** |
|---|---|---|---|---|---|---|---|
| ***Unskilled*** | 14.0 | 19.6 | 13.4 | 10.8 | 7.0 | 10.9 | 12.9 |
| ***Low Skilled*** | 68.3 | 65.6 | 59.8 | 74.9 | 59.7 | 63.4 | 63.0 |
| ***Semi-skilled*** | 5.3 | 3.4 | 3.9 | 2.0 | 5.5 | 5.3 | 4.5 |
| ***Skilled*** | 10.0 | 9.7 | 19.9 | 11.7 | 19.3 | 16.1 | 15.6 |
| ***High Skilled*** | 2.4 | 1.8 | 3.0 | 0.6 | 8.6 | 4.3 | 4.0 |

*Source & Note:* Same as Table 3

**Table 7 Determinants of Youth Unemployment Rate in India – 2018**

| | ***Full Model*** | | ***Backward Elimination Best Fit Model@*** | |
|---|---|---|---|---|
| ***Indicators*** | ***All*** | ***Male*** | ***All*** | ***Male*** |
| ***PCNSDP Growth 2011-18*** | 1.099 (0.14) | 0.951 (0.17) | 1.138 (0.08) | 0.612 (0.14) |
| ***Factory Worker Growth 2011-18*** | -0.828 (0.10) | -0.314 (0.47) | -0.736** (0.01) | |
| ***Amount of New Investment 2011-18 (per capita)*** | -0.007* (0.04) | -0.007* (0.03) | -0.006** (0.01) | -0.006** (0.01) |
| ***Share of Agriculture in State's*** | 0.123 | 0.046 | 0.072 | |

| | | | | |
|---|---|---|---|---|
| ***GVA*** | (0.43) | (0.75) | (0.10) | |
| ***Share of Registered Manufacturing in State's GVA*** | 0.177 (0.54) | 0.231 (0.40) | | |
| ***Share of Trade & Hotels in State's GVA*** | 0.590* (0.02) | 0.516* (0.02) | 0.622** (0.01) | 0.446** (0.01) |
| ***Share of Public Administration in State's GVA*** | 0.464 (0.22) | 0.193 (0.58) | 0.486* (0.04) | |
| ***Public Expenditure as % of GSDP*** | -0.024 (0.88) | -0.020 (0.90) | | |
| ***Skill Index of Labour force*** | -3.684 (0.66) | 0.644 (0.94) | -0.001 (0.10) | |
| ***(Squared) Skill Index*** | 0.050 (0.62) | -0.009 (0.92) | 0.007** (0.01) | |
| ***Adjusted R squared*** | 0.729 | 0.480 | 0.778 | 0.653 |
| ***F-stat*** | 6.102** (0.01) | 2.751* (0.07) | 10.486** (0.01) | 12.894** 0.01) |

*Source:* Authors' calculation based on datasources mentioned in text.
*Note:* Figures in parenthesis are p-values. ** and * denote significant at 1% and 5% levels respectively; @ - Model with maximum Adjusted R square.

**Table 8 Regional Convergence in Youth Unemployment Rate in India – 2011-18**

| | ***Unconditional Beta Convergence*** | | ***Conditional Beta Convergence*** | | ***Conditional Beta Convergence (Backward Elimination)@*** | |
|---|---|---|---|---|---|---|
| ***Indicators*** | ***All*** | ***Male*** | ***All*** | ***Male*** | ***All*** | ***Male*** |
| ***Initial Unemployment Rate 2011*** | -0.256 | -0.634 | -0.657* (0.05) | -0.876** (0.01) | -0.630** (0.01) | -0.881** (0.01) |
| ***LFPR*** | | | 0.204 (0.49) | 0.201 (0.38) | | 0.108 (0.34) |
| ***Skill Index of Working Age population*** | | | 65.650 (0.41) | 16.744 (0.76) | 47.442* (0.05) | |
| ***PCNSDP 2011*** | | | -2.104 (0.78) | -2.594 (0.65) | | |
| ***Amount of New Investment 2011-18 (per capita)*** | | | -0.004 (0.17) | -0.005* (0.03) | -0.004** (0.01) | -0.005** (0.01) |
| ***Share of Agriculture in State's GVA*** | | | 0.028 (0.88) | 0.019 (0.90) | | |
| ***Share of Registered Manufacturing in State's GVA*** | | | -0.062 (0.84) | 0.119 (0.62) | | |
| ***Share of Trade & Hotels in State's GVA*** | | | 0.652* (0.05) | 0.586* (0.03) | 0.497** (0.01) | 0.527** (0.01) |
| ***Share of Public Administration in State's GVA*** | | | 0.204 (0.70) | 0.157 (0.68) | | |
| ***Public Expenditure as % of GSDP*** | | | 0.022 (0.95) | -0.032 (0.89) | | |
| ***Adjusted R squared*** | 0.116 | 0.249 | 0.255 | 0.495 | 0.503 | 0.670 |
| ***F-stat*** | 2.749 (0.11) | 8.306** (0.01) | 1.649 (0.23) | 2.862* (0.05) | 5.812* (0.05) | 10.638** (0.01) |

*Source & Note:* Same as Table 7.