

A Study on Youth Unemployment and Labour Force Participation in Odisha

Dissertation submitted to the Central University of Punjab

For the award of

Master of Philosophy

in

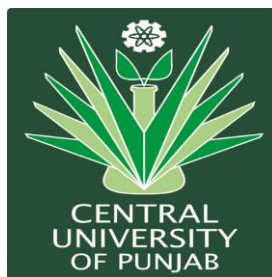
Economics

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August, 2017

DECLARATION

I do hereby declare that the dissertation entitled “**A Study on Youth Unemployment and Labour Force Participation in Odisha**” is a result of my research work carried out at the Central University of Punjab (CUPB), Bathinda, under the guidance of Dr. Jajati Keshari Parida, Assistant Professor; Centre for Economic Studies, School of Social Sciences, Central University of Punjab.

I further declare that it has not been previously submitted, in part or whole, to this or any other university for any degree. Due acknowledgements have been made whenever anything has been borrowed or cited from other sources.

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CERTIFICATE

I do hereby certify that the present dissertation titled “**A Study on Youth Unemployment and Labour Force Participation in Odisha**” incorporates the result of the independent research of Shiba Shankar Pattayat, for the award of M.Phil., that he has carried out this work at the Centre for Economic Studies, School of Social Sciences, and Central University of Punjab., conceived, designed and carried out under my guidance and supervision.

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Shiba Shankar Pattayat

DEDICATION

This Dissertation is dedicated to my beloved Parents

Shiba Shankar Pattayat

ABSTRACT

A Study on Youth Unemployment and Labour Force Participation in Odisha

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Key words	:	Unemployment, labour force participation, Vocational education, Skill development, Youths and Odisha.

This study attempts to explore the recent trends and patterns of youth unemployment, sectoral employment patterns and the factors influencing youth labour force participation in Odisha. This study also attempts to project the size and composition of labour force and sectoral employments by 2019-2020 to know the size of demand-supply gap and hence to suggest appropriate policy measures. This study is based on both secondary and primary data. The major sources of secondary data are NSS (various rounds) and Census of India. NSS data is used to calculate various development statistics, whereas census population data is used to adjust the NSS estimates and obtain absolute figures. Moreover, a primary survey is conducted in *Balasore* district of Odisha to explore the employability pattern of ITI pass-outs. The major findings of the study suggest that youth unemployment is increasing over the last three decades in Odisha. It is high among the students who passed the secondary and above level of education. The unemployment rate among ITI pass-outs is also quite high. The unemployment rate among ITI pass-outs is higher than that of general education pass outs. The falling trend of agriculture employment due to mechanisation on one hand and non-availability of jobs in industry and service sectors on the other hand are responsible for high unemployment in Odisha. Within non-farm sector, the sub sectors like construction, labour intensive manufacturing (basic and fabricated metal, plastic products food and beverages, wood and paper products, and textile and apparel) and within service sector, subsectors like arts and entertainment, retail trade, transportation and storage, and education are deriving employment growth in recent years.

Furthermore, this study finds that poverty and household income distress are playing an important role in the process of youth labour force participation in Odisha. From the demand and supply projection of labour force, it can be concluded that the demand for labour would increase by (at most in the best possible scenario) by 4.5 lakhs per annum, whereas the supply of labour would likely to increase by 6.5 lakhs per annum. Hence, a gap of 2 lakhs per annum would be generated within labour market in Odisha. Therefore, in this context, it is suggested that the policy measure that focuses on growth of manufacturing sector along with development of social sector including education and health sectors would have greater potential for generating employment opportunities. And thereby it would help sustain the growth of jobs and the structural transformation process which started during 2004-05 in Odisha.

Shiba Shankar Pattayat

Dr. Jajati Keshari Parida

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LIST OF ABBREVIATION

Serial No.	Description of Abbreviations	Abbreviation
1	United State of America	USA
2	Current Daily Status	CDS
3	Current Weekly Status	CWS
4	Domestic District Product	GSDP
5	Not in Education Employment or Training	NEET
6	Secondary-Postsecondary Learning Option	SPLO
7	Gross Domestic Product	GDP
8	International Labour Organization	ILO
9	Labour Force Participation Rate	LFPR
10	Foreign Direct Investment	FDI
11	Maximum Likelihood Estimation	MLE
12	Ministry of Statistics and Programme Implementation	MOSPI
13	Monthly Per Capita Consumption Expenditure	MPCE
14	Information Communication and Technology	ICT
15	European Union Labour Force Survey	EULFS
16	Labour Force Survey	LFS
17	Worker Population Ratio	WPR
18	National Sample Survey	NSS
19	National Sample Survey Organisation	NSSO
20	Other Backward Castes	OBC
21	Unemployment Rate	UR
22	Scheduled Caste	SC
23	Government of India	GOI
24	Scheduled Tribe	ST
25	Principal Status	UPS
26	Usual Principal and Subsidiary Status	UPSS
27	Usual Subsidiary Status	USS
28	Workforce Participation Rate	WFPR
29	National Skill Development Coordination Board	NSDCB
30	National Skill Development Cooperation	NSDC
31	Union Territories	UTs
32	Industrial Training Institution	ITI
33	Self-Employment	SE
34	Regular Employment	RE
35	Casual Labour	CL
36	Central Statistical Organisation	CSO
37	The Associated Chambers Of Commerce And Industry Of India	ASSOCHAM
38	Capital Output Ratio	COR
39	Higher Secondary Education	HSE
40	Below Graduate level	BG
41	Graduate and Above level	GA
42	Gross Fixed Capital Formation	GFCF
43	Directorate of Economics and Statistics	DES

Chapter I

Introduction

1.1. Motivation:

Generating enough employment opportunities for the growing youth population is one of the major challenges that many developing countries of the world including India is facing. Since, India is currently passing through a phase of demographic dividend¹ which otherwise is expected to abate away by 2040; it is important to use this dividend in an optimal manner. This can be done by using the youth labour force productively and efficiently. However, the recent increase in youth unemployment, particularly, among educated youths creates a serious cause of concern among academicians, policy makers and government. At the all India level, through youth unemployment rate (based on CDS²) declined from 13 percent to 11.4 percent during 1983 and 2011-12, still it is very high. Since Indian economy is currently in a transition phase, which is transforming with falling share of agriculture (in both output and employment) and corresponding rising share of industry and services (see Mehrotra et al., 2014; and Parida, 2015); It is important to know that the sectors that could generate employment opportunities for young job aspirants in the coming years. Hence, youth unemployment would decline further to a very low level.

The economy of Odisha is also undergoing a similar transition phase, though it is one of the most backward agrarian states of India. In terms of poverty, it ranked 6th after the states like Chhattisgarh, Jharkhand, Manipur, Arunachal Pradesh and Bihar (Planning Commission, 2012). During 2004-05 and 2011-12, about 10 lakh people in Odisha had left agriculture for either construction or service sector jobs. It can be noted that, during this period, employment in the construction and service sectors are increased by 9 lakh and 7 lakh respectively. However, employment in manufacturing sector along with agriculture sector has continued to decline and hence restricts the new entrants (youth) to enter into these sectors.

¹ With large proportion of young working age population, compared to old and children.

² Current daily status (CDS)

Furthermore, it is important to note that enrollment³ in secondary and higher level of education has increased in Odisha. As a result mean years of schooling is increased. With increased mean years of schooling, the labour force participation rate of young educated individuals would likely to increase. Furthermore, those who were participating in the secondary and above level of education, would definitely search regular jobs in either manufacturing or service sectors in Odisha. And those who would fail to get such employment, would likely to migrate to other states in search of such employment opportunities. Since increasing mechanization in agriculture sector restricts the growth of low-skilled (mostly illiterate and with below primary level of education) jobs in this sector. Those who used to work in agriculture sector would likely to be engaged in the construction sector, given the fact that investment in this sectors would continue⁴ to increase over long-run. However, generation of manufacturing jobs and high-quality service sector jobs is one of the major challenges that the state government of Odisha has been facing since last few decades. Unless serious measures are taken, rising youth unemployment would likely to create socio-economic problem. This would not only restrict the growth of output but also would likely to affect overall economic development in the long-run in Odisha.

In this context, it is, therefore, important to conduct a study on youth unemployment in Odisha. This study would not only likely to explore the trends and patterns of youth unemployment but also tries to identify the sectors that could generate youth employment. And this study would like to suggest appropriate policy measures to reduce the volume of open⁵ unemployment problem in Odisha.

1.2. Review of Literature:

This review of Literature notify to understand the major issues, current debates, findings, and limitations of existing studies, but it helps us to identify research gaps, formulate research hypothesis and questions for new research work. This review of literature includes the studies conducted into three categories: at international,

³ Could be due to the impact of Sharva Shikshya Abhiyan at primary and Rastriya madhyamika Shikshya Abhiyan at secondary)

⁴ Due to various government and private construction projects. Construction buildings, fly overs, roads, etc. would drive employment in this sector

⁵ Open unemployment based on Usual Principal and Subsidiary (UPSS) status.

national (all India) and state (or province) levels. We begin with the review of international literature in first, then all India level studies at the end.

1.2.1. Review of international studies:

A review of International studies enables us to understand the nature of the problem. And this also helps to explore, how this problem has changed over the years and across the space. For example, the youth unemployment problem of the developed countries is different from that of underdeveloped countries or developing countries. Below, we have given the detailed review of a few studies conducted at international level.

Das (1981), used International Institute for Educational Planning (IIEP) data to explain the issues of unemployment in three Asian countries as India, Bangladesh and Philippines. This study includes socio-economic characteristics and educational characteristics and finds that high expenditure on education is responsible for higher unemployment in these countries. Philippines spends more on secondary education, than India and Bangladesh. This paper suggested that training for skill development and institutionalize mechanisms would help generating employment opportunities.

Levin (1983), has carried out a comparative study in Australia and United States. This study explores the relationship between education and youth unemployment. The findings of the study show that United States has higher unemployment rate than Australia. This study concluded that job creation in manufacturing and service sector are the necessary condition for reducing youth unemployment. Education and skill plays an important role to reduce the unemployment in these two countries.

Peterson and Vroman (1992), finds that skill demand and supply mismatches is the major reason for unemployment in America. According to this study, the demand side of the labour market always advanced than the supply side. In demand side normally employers demand more skill labour force, while the supply side often fails to full-fill that demand. Hence, a large number of job seeker are not preferred by the employer. Due to lack of appropriate skill on the one hand, and technological improvements in demand side, on the other are responsible for the rising unemployment problem arises.

O'Higgins (1997), finds that low-wage rate is of the major cause of youth unemployment in European countries. He also points out that youth and adults are close substitutes for low wage rate. And hence in a dual labour market like this workers are preferred to that youths at lower wage rate.

Korenman & Neumark (1997), explains the effects of exogenous changes in potential youth labour supply on youth employment and unemployment rates by using the panel data set for 15 OECD countries over more than 20 years. This study finds that in the youth cohort, unemployment rate is high. This study projected that in next 16 years the size of youth cohort would decline in several countries (Ireland, Italy, Portugal and Spain) due to decline in fertility rate. The rate of youth labour force will decline.

Bhorat & Leibbrandt (1999), in South Africa, conducted a comparative study of black and white youth unemployment. This study reveals that labour force participation of black youths is comparatively low than that of white youth. This is mainly because of their low level of education and skill. Hence, skill plays an important role in South Africa.

Filmer and Pritchett, (1999) using Demographic and Health Survey (DHS) data in 35 developing countries from Asia, Africa, Caribbean regions finds that households' standard of living influences school enrollments and hence the skill level of youths. Due to the low level of skill unemployment is very high in these regions. Hence suggested for skill development measures along with employment generation in non-farm sectors.

Macunovich (1999), explains the determinants of youth unemployment in United States by using the population survey data for the year 1964 to 1996. This paper find that employment and earnings are positively related to education and job market experience. And unemployment rate is high among low-skilled individual. Job market experience has a negative impact on youth unemployment.

Korenman and Neumark (2000), explores the determinants of youth unemployment by using panel data for 20 years in 15 OECD countries. According to this study demand side and supply sides factors are responsible for the youth unemployment in these countries. This study finds that out of 15 countries 11

European countries faced youth unemployment crisis due to mismatch between skill supply side and demand.

Gunderson et al. (2000), examines youth unemployment in Canada using labour force survey data and finds that the rate of youth unemployment is high as compare to adults. The rate of youth unemployment is 21.5 percent and while adult's unemployment is 7 percent. This also finds that unemployment rate followed a U-shape pattern due to recession during 1970 to 1980.

Blanchflower and Freeman (2000), finds that the problems of youth unemployment in developed countries like Canada, Germany, France, Sweden and the United Kingdom is due to the social conflicts. High unemployment problem has implication on growth of crime and criminal activities in these countries, particularly in Greece and France. The rate of youth unemployment was very high (24.5 percent and 18.7 percent) in Greece and France during 2007-08. This study suggested that the reduction of social conflict is possible only by reducing the youth unemployment in these countries.

Shimer (2001), using the Current Population Survey (CPS) data in the United States of America finds that unemployment rate has increased in the USA due to increasing the share of the youth population. Wage discrimination (racial and gender) also plays an important role in this process.

O'Higgins (2001), explains the determinants of the unemployment in both developed and developing countries. This paper is basically a policy brief. It suggests that, Out of the total labour force, youth labour force has a dominant share. Hence, youth unemployment influences the overall unemployment rate significantly in developing countries. Hence, employment generation for youths is very crucial to sustain growth and development in developing countries.

Jimeno & Rodriguez-Palenzuela (2002), using panel data from OECD countries explains the relevance of youth population in the labour market. This study finds that the size of youth population fluctuated by the baby boom of the 1950s and 1960s. And also finds that youth unemployment rates are positively associated with a decline in fertility rate in European countries.

O'Higgins (2003), examines the trends in labour market in developing countries and transition countries by using OECD data. This study finds that youth population is growing in absolute terms, whereas the share of youth population is declining. This study reveals that demographic factors and aggregate labour market conditions are the main reasons for declining youth employment in developing countries. And, this study suggests that youth employment policy needs to focus and give more attention to disadvantaged groups in the labour market.

Moleke (2003), explains labour market situation in South Africa. The result of this study emphasize on education and unemployment among black and white people. It finds that white people have a dominant share in labour market due to their high level of education. Large share of youth unemployed belongs to the black categories in South Africa. Low level of education and skill are the major reasons for rising youth unemployment among black youths in South Africa.

Williams (2004), using current population survey (CPS) data and National Longitudinal Survey of Youth (NLSY) at a micro level data in USA finds that, due to rising skill level youth unemployment is rising. With increased years of schooling unemployment is rising and no of self-employed worker is declining. This study also finds that the high share of self -employed are found in agriculture and construction industries, whereas young adults are involved in management, professional and sales occupation due to their low level of education.

Chuang, Y. (2006), examines the effect of minimum wage on employment and unemployment in Taiwan using Cross -Industry Quarterly data from 1973 to 2004. This paper finds the effect of minimum wage on the employment rate and labour force participation. Minimum wage has a positive and significant effect on employment. This paper also finds that with the increase in minimum wage, youth employment and labour force participation rate increases.

Moleke (2006), analyzed the employment and unemployment situation in South Africa by using secondary data for the period 2002 and 2004. The result of this study suggests that, high unemployment among educated youths in South African labour market. The share of unemployment is higher among black people in SA as compared to white people. This study concluded that high share of workers

belongs to low-skilled and semi-skilled occupations. This study suggests to give importance to human resource development which will improve the skill.

Mroz and Savage (2006), using 1979 National Longitudinal Survey of Youth (NLSY79) data finds that youth unemployment is negatively associated with the market wage rate. This study suggests that wage subsidy programs or subminimum wages might provide new and better employment opportunities for the youths.

Genda (2007), explores the determinants of the joblessness of youths in Japan by using micro-level employment status survey data of 1992, 1997 and 2002. The results of this study reveal that unemployment is high among low skilled youths. Gender inequality is also found in Japan. Job opportunities for highly educated and relatively better skilled youths is high in Japan.

Schomberg and Teichler (2007), explains the employment and unemployment situation among the graduate students in Europe. This study covers 12 countries including Austria, the Czech Republic, Finland, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, the United Kingdom and Japan. Based on a primary survey which covered 40,000 graduate students in Europe, the major findings of the study suggest that, the youth unemployment rate is high among graduates. Female graduate unemployment rate is more than that of male graduates. This study suggests that to reduce the unemployment problem, these countries need to focus on career counselling for job search.

ILO (2008), highlights that youth unemployment is growing faster than that of adults during 2008. Statistically, worldwide rate of youth unemployment increased 10.9% to 11.9% while the rate of adult unemployment is constant at 4.2% during 1997 to 2007. Which is three times' more than adult unemployment. Enrollment is the reason for rising youth unemployment in developed countries as well as in developing countries. This study suggests that skill gap need to be reduced in developing countries.

Qayyum and Siddiqui (2008), explains the causes of youth unemployment in Pakistan by using the Pakistan Labour Force Survey (2003-04, 2005-06) data. This study finds an inverse relationship between youth unemployment and economic growth. It also finds that rate of unemployment in urban area is high as compared to rural area. Similarly, high unemployment rate is among educated youth

due to the skill gap between demand and supply of labour. This study for focusing on the quality education, urbanization, growth of small scale industries. This will help generating employment opportunities for youths.

Hou (2010), analyses the patterns of youth unemployment in Pakistan by using Labour Force Survey (LFS) data for 2005-06. The objective of this study was to find out the determinants and rate of return on education. This paper finds that, higher youth unemployment in Pakistan is due to low wages. To address this problems this study proposed to increase skill of labour force, wage subsidy to educated youths which will reduce unemployment in Pakistan.

Ahmad and Azim (2010), analyses the youth labour force participation in Pakistan labour market by using micro data of LFS (2006-07). Findings of study show that a significant number of youth starts their career at early ages. It also finds that the rate of youth unemployment among female is much higher than male due to productivity differentiation among male and female. This study suggested that education and skill development can fill the gap in labour market and can help generating employment opportunities for youths in Pakistan.

Kinsella and Kinsella (2011), using Quarterly National Household Survey (QNHS) data explains the consequences of the economic crisis on overall unemployment rate in Ireland. This study finds that economic crisis is responsible for higher unemployment rate and declining labour force in Ireland. This is a major constraints of economic growth in Ireland.

Falk et.al. (2011), argues that unemployment plays a crucial role in the process of growth of right-wing extremist crimes (RECs) in Germany. The result of the study revealed that the positive relationship between state-level unemployment and incidence of right-wing extremist criminal activities. So, high unemployment leads to higher criminal activities. This study suggests to increases the employment in Germany for reducing the volume of criminal activities.

Dietrich (2012), explained the youth unemployment in 27 European countries⁶ using European Union Labour Force Survey (EULFS) data from 1998 to

⁶ Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Hungary, Malta, the Netherlands, Poland, Portugal, Romania, Slovenia, Slovakia, Spain, Sweden and the United Kingdom, as well as Iceland, Norway, Switzerland, Croatia, the Republic of Macedonia and Turkey

2005. The results show that the youth unemployment increased in EC27 as compared to adults due to economic crisis and level of education. It also finds that the share of youth labour force participation declined during 2000 due to higher level of education. This paper concluded that youth unemployment is not only affected by household level factors (education, standard of living) but also affected by national level factors (structural change and demographic change).

Anyanwu (2013), used macroeconomic variables (investment rate, consumption expenditure, inflation, real GDP per capita, GDP growth, FDI & trade openness, ICT infrastructure, education and demographic factor) to find out the characteristics and macroeconomic determinants of youth unemployment in Africa. Using data for the period 1991-2009, this study finds the rate of domestic investment is positively and significantly associated with youth unemployment in sub-Saharan Africa and in North Africa. This study suggests that youth unemployment would reduce through the increased productive investment, encouragement to entrepreneur, better training and education for low-skilled workforce.

Yu (2013), explained the trends of unemployment in South Africa by comparing October Household Survey (OHS) and Labour Force Survey (LFS). By using the methodology of Quarterly Labour Force Survey (QLFS) 2008, this study finds that the share of educated youth unemployment is much more in black South African than white African. This is due to skill gap in job market. Finally, this paper concluded that employment opportunities could be created in South Africa only through increasing expenditure on quality of education and training to the labour force.

Baldry (2015), examines the influence of demographic and educational characteristics of South African graduates on employment and unemployment status. This study used primary data with 1175 samples for 2006 to 2012 which is collected through online survey. This study finds that social factors (socioeconomic status) are the major determinants of graduate unemployment. It suggests to improve the educational skill to reduce the graduate unemployment in South Africa.

Ismail & Kollamparambil (2015), examines the determinants of unemployment among young black youths in South Africa by using Labour Market Entry Survey (LMES) for 2009 and 2010. It used the cox proportion hazards model

and finds a very different impacts on the state specific rate of unemployment for both young men and women. Higher incident of unemployment is observed among black in South Africa.

1.2.2. Review of all India level studies:

In this section we reviewed the studies conducted in India. It explains the trends, patterns and determinants of employment and unemployment in Indian labour market.

Planning Commission (1955, 1968), highlights the problems of unemployment among educated people in India. The objective of the study was to eradicate the problem of unemployment among educated labour force. For example small scale industries, service industries, road transport, and co-operatives for managerial and administrative functioning with regard to purchase, production and marketing of goods and services. The planning commission of India has made measurement tools of unemployment which is known as Dantawala Committee to reduce the unemployment. Manufacturing and service sectors are employment generating sector in India and hence employment generation in these sector should be given priority.

Krishna, (1984), explains the unemployment status in India by using weekly status of the labour force for the period of 1959 to 1978. Unemployment was rising 1.7% percent per year during 1959 and 1978. This study also finds that growth rate of population is the reason for rising unemployment in supply side while the growth rate of capital stock is responsible in demand side of the labour market. It suggested to reduce unemployment through the direct employment generation programs.

Visaria (1998), explained the youth unemployment problems in India by using planning commission data. The findings of this study revealed that unemployment problem is increasing in India due to lack of training, high growth of population and decline in mortality rate, spreading the education system and slow growth rate of the economy. To eradicating these problems, this paper suggested to improve youth welfare activities including the promotion of sports, wage subsidy and skill development programme etc.

GOI (2005b), finds employment growth is a function of the growth of GDP and employment elasticity. Indian economy has sustained a relatively high growth of over 6 percent for about two decades and is expected to grow in coming years. This study suggests to improve employment elasticity in manufacturing sector. This will help increasing employment opportunities.

Dev and Venkatanarayana (2011), analyses the trends in labour force and workforce participation rates, unemployment, joblessness, working poor, growth and employment elasticities etc. by using National Sample Survey Organisation (NSSO) data for 1972-73 to 2004-05. The results of this study highlights that, youth unemployment and youth populations are positively correlated. And it also finds that rate of unemployment among youth is three times to that of the adults in India. Finally, this study recommended to improve the skill of labour force by providing skill oriented education.

Himanshu (2011), examines the trends in employment and unemployment in India by using National Sample Survey Office (NSSO) data from 1973 to 2009-10. This study finds that, labour force participation is positively associated with demographic change and negatively associated with education. And it also shows a changing pattern of employment in India. The share of agriculture employment declined with corresponding rise in manufacturing and service sector employment in India. Due to lack of skill in-formalization increases.

Shaw (2013), examined employment trends in India by using 68th round data which is released by National Sample Survey Office (NSSO). The findings of this paper reveal that nine million additional persons are found employed during 2009-10 and 2011-12. This study explores a growing proportion of the workforce is moving towards non-farm activities.

Abraham (2013), explains the missing labour force in India by using the various round reports of NSSO. The results of this paper show that female labour force participation in India is declining due to socioeconomic issues (social status, social mobility, rising incomes). This study suggests that to increase the female labour force participation in the labour market, the govt. needs to implement women empowerment programme (free education for girl, Scholarship for single girl child etc.).

Mitra & Verick (2013), explains by pointing out a question of how we can create jobs for youth in India. This study used different NSSO round data to explain the trends and patterns of youth employment and unemployment. The findings of this paper reveal that the rate of unemployment is increasing in India due to less availability of jobs as compared to work force. It also finds that higher unemployment in lower caste than higher caste. Skill development is required for generating employment opportunities for youth in India.

Sinha (2013), explained youth unemployment from various angles like individual perspectives, household perspective, skill perspective, availability of jobs perspective and policy perspectives. This paper has taken 15-24 age group the youths in India according to youth policy 2013 whereas 15-35 age group was youths at 2011 census. This study explains that, about 93 percent of the workforce is engaged in informal sector. This study also finds the youth unemployment in India is due to lack of employment opportunities and absence of social security system.

Sanghi (2014), examines the youth unemployment by using the NSSO data (Employment and unemployment situation in India) from 1999 to 2012. The results of this study indicates that the working age population will increase more than 65% of Indian population by the year of 2022. This study also finds that high unemployment among youth labour force is due to skill mismatch between job expectation and availability of jobs. Urban females are more unemployed than rural female. Both size of labour force and working population declined due to enrolment in education. This study points out that, youth unemployment increases because of supply side factors.

1.2.3. Review of state specific studies including Odisha:

Nair (1968), used primary survey data to study the pattern of educated employment and unemployment in Bombay. The aim of the research was to examine unemployment problems in Bombay labour market. This study suggests that improved education and skill level. And job oriented female education syllabus which will help to increase employments.

Blaug et al. (1969), examined the problems of unemployment in India among graduates and matriculates. The main outcome of this project is to generate the employment for the graduates and matriculates by identifying the problems. The

educated unemployment is high due to low-quality of education, which creates a gap between the demand side and supply side requirement in the labour market.

Blaug et al. (1969) conducted a micro level data in Gujarat and Maharashtra to examine the trends and patterns of unemployment and job availability. The results show that unemployment rate is high among the persons with graduate and above level of education, particularly among those who belong to Humanities streams as compared to science streams.

Parvathamma (1984), used primary data to explain the unemployment problem of university graduates in Karnataka. This study argues that the problems of unemployment is due to external and internal problems. The internal problem can be eradicated by generating self-employment and manual jobs by the support of govt. or any institutions. While growing demand for Indian workers in foreign countries would solve the unemployment problems in India.

Mittal (1984), used secondary data from Regional Employment Exchange to examine the socioeconomic constraints of women employment in Lucknow. The results of this study show that unemployment is higher among female youths as compared to male youth in India. This study suggests to focus on the quality education which leads skill development among labour force and reduce unemployment.

Gupta (1990), explains the Population Growth and the problems of Unemployment in Jammu & Kashmir. He has conducted a survey of 200 samples in Jammu & Kashmir. This study finds that the growth rate of population is one of the key reasons for unemployment in this states. This study was set up a milestone features in framing welfare programs for reducing unemployed youth in Jammu & Kashmir.

Azad (1991), examines the trends and patterns of unemployment and job availability in Gujarat and Maharashtra. This paper used micro level data for these two states and find that the persons with graduate & above in humanities have higher unemployment than sciences due to skill gap.

Bajpai (1992), explores the relationship between education and unemployment in Lucknow by using secondary data. This data collected from

employment exchange office Lucknow which covered 300 unemployed youths those are registered with employment exchange, Lucknow, India. This study finds that unemployment rate is increasing due to educational and political issues.

1.3. Research gaps:

The above review of studies enables us to understand the trends and patterns of employment in India. It also helps to identify the broad sectoral employment trends and determinants of labour force participation decision of individuals. From this review, it is found that the youth unemployment is relatively higher than that of overall unemployment in India. In this context, it is therefore important to know why youth unemployment is high in India. Furthermore, though most of the existing literature explain that youths are mostly found in Agriculture sector in India. They tend to fail in explaining the future trends of youth employment. As mechanization in agriculture sector is growing at a rapid rate, it is going to create the job opportunities for many low-skilled youths. Similarly the growing capital intensity in manufacturing sector will have negative impact on job creation in this sector. It is therefore important to identify the sectors that could generate youth employment in the coming years. It is also important to know the factors that determine youths Labour Force Participation (LFP) decision. This study intends to cover these research gaps by doing an empirical study in Odisha State.

1.4. Research hypothesis and questions:

The study is going to test two important research hypotheses. Firstly, high unemployment among youths is due to rising capital intensity in the agriculture sector. Second, rising unemployment among educated youths is mainly due to the existing gap between the skill acquired and skill demanded. To test the above research hypothesis, following research questions are raised. What is the trend of unemployment rate among youths in Odisha? What is its composition by sex and level of education? What are the sectors that drive the trends of youth employment in Odisha? Whether vocational education helps the youths to get better jobs in industry? If not why? What would be the likely size of the labour force that would join in the labour force in Odisha by 2020? What are the sectors in Odisha that could generate employment opportunities for the young job aspirants by 2020 and by what

numbers? How could enough employment opportunities be created in Odisha and in which sectors so as to sustain the process of structural transformation?

1.5. Objectives of the study:

By following the research hypothesis, this study set the following objectives.

- 1) To study the trends and patterns of youth unemployment in Odisha.
- 2) To identify the sectors that generated youth employment over the years in Odisha.
- 3) To explore the factor determining youth labour force participation (LFP) in Odisha.
- 4) To project the size of labour force and sectoral employments by 2020 and to suggest the appropriate policy measures for creating jobs in Odisha.

1.6. Source of data:

This study is based on both primary and secondary data. The major sources of secondary data include National Sample Survey and Census of India. The unit level data collected by National Sample Survey Organization (NSSO⁷) is used for estimating employment and unemployment statistics. For this purpose various quinquennial (in every five years except the survey in 2011-12) round surveys conducted during 1983 (38th round), 1987-88 (43rd round), 1993-94 (50th round), 1990-2000 (55th round), 2004-05 (61st round), 2009-10 (66th round) and 2011-12 (68th round) are used. This data is collected from all the states and Union Territories (UTs) of India. But we have used the information collected for the state Odisha only. The Census population data for the period 1981, 1991, 2001 and 2011 are used to adjust the NSS estimates and to obtain an absolute number of workers, unemployed and the size of labour force. In addition, data on Gross Fixed Capital Formation (GFCF) is also collected from the Directorate of Economics and statistics, Govt, of Odisha. These data are used for projecting sectoral youth employment in Odisha for the periods 2009-10, 2010-11 and 2012. And data on Gross State Domestic Product (GSDP) of Odisha is collected from Reserve Bank of India (RBI).

⁷ NSS is an organizational part of the Ministry of Statistics and Programme Implementation (MOSPI), Government of India, which collect information on various socio-economic data at the national level (includes all states and Union territories (UTs)).

1.7. Methodology of the primary survey:

In addition to secondary data, a primary survey is conducted in Odisha (during 2016) to substantiate all the secondary data. This survey has two parts. First, a survey of ITI colleges and secondly, a tracer survey of ITI pass out students. This survey is conducted in *Balasore* district of Odisha for convenience.

The primary data collected through pre-tested questionnaire (see Annexure-1 & Annexure 2) during 15th August to 16th September 2016. To collect information, first, the *Balasore* district divided into three broad regions. i.e. *North Balasore*, *Central Balasore* and *South Balasore*. *North Balasore* includes four blocks *Basta*, *Baliapal*, *Bhograi* and *Jaleswar*. Similarly, *South Balasore* includes *Similia*, *Khaira*, *Oupada* and *Soro*. And *Bahanaga*, *Nilagiri*, *Remuna* and *Balasore* blocks are included in the *Central Balasore* region. From each of these region three blocks are selected, *Soro* (belong to *South Balasore*), *Balasore* (belong to *Central Balasore*) and *Baliapal* (belong to *North Balasore*). From *Soro* and *Balasore* block, data collected from three ITIs and from *Baliapal* block four it is (See annexure 6).

Table 1.1. Selected ITIs in *Balasore* district

Region	Number of Block	Selected Block	Numebr of ITIs seleceted
Northern <i>Balasore</i>	Basta, Baliapal, Bhograi and Jaleswar	Baliapal	4
Central <i>Balasore</i>	Bahanaga, Nilagiri, Remuna and Sadar <i>Balasore</i>	Sadar <i>Balasore</i>	3
Southern <i>Balasore</i>	Simulia, Khaira, Oupada and Soro	Soro	3

Source: Primary data

1.8. Concepts and definitions:

Before moving towards the empirical findings of this study, it is important to know the various definitions of Labour force, workforce, unemployment, skilled labour and unskilled labour force, etc. which is used in this study.

1.8.1. ILO definitions:

According to the 19th international conference of Labour Statistics of the International Labour Organization (**ILO, 2013**) which is organized in Geneva, Switzerland. The following definitions are used:

Youth: The age group between 15 years to 29 years is known as the Youth.

Employment: ILO defines the employed persons by their status of employment. It is categorized into two terms (i) paid employment and (ii) self-employment. Paid employment includes the person who is “at work”. The person at work includes those who belongs to working age (normally 15-29 years). That working age is getting salary or wages for the cost of their labour or service during the reference period. And another group of people those who are “with a job but not at work”. This includes that person who didn’t work temporarily during the reference period but have a formal attachment to their jobs. Similarly, **Self-employment** also includes two major components i.e. “at work” and “with an enterprise but not at work” Self-employed persons “at work” take into account those persons who during the reference period performed some work for profit or family gain, in terms of cash or in kind. While the persons “with an enterprise but not at work” includes those who own an enterprise, (may be a business enterprise, a farm or a service undertaking, etc.) but were temporarily not at work during the reference period for any specific reason.

Unemployment:

According to ILO (2013) unemployed persons are those (belong to the working age 15- to 29 years) who during the reference period were: (a) “without work”, i.e. they are not in paid employment or self-employment; (b) “currently available for work”, i.e. were available for paid employment or self-employment during the reference period; and (c) “seeking work”, i.e. had taken specific steps in a specified recent period to seek paid employment or self-employment. The unemployed persons therefore include those who: were registered at public or private employment exchange; had applied to employers; were checking at worksites, farms, factory gates, markets or other assembly places; were placing or answering newspaper advertisements; were seeking assistance from friends or relatives; were looking for land, building, machinery or equipment to establish one’s

own enterprise; were arranging for financial resources; and had applied for permits and licenses, etc.

Persons not in the labour force: Persons not in the labour force include those (irrespective of their age) who were not employed or unemployed during the reference period because of: (a) attendance at educational institutions; (b) engagement in household duties; (c) retirement or old age; or (d) other reasons such as infirmity or disablement, which may be specified. Furthermore, persons those were not classified as unemployed under the standard definition, who were available for work but did not seek work during the reference period, should be classified separately as part of the population not currently active.

1.8.2. NSSO definitions:

The National Sample Survey Organization (NSSO) of India makes use of the above definitions and collects data on employment on employment in India. At the time of collection of employment and unemployment, it focuses on the activity status of employment and unemployment during the reference period. It is following like below...

Usual principal economic activity status (UPS): According to the NSSO, usual principal activity status is determined on the basis of the major time criterion. It includes the activities that a person normally does in most of the periods during the last 365 days preceding the date of survey.

Usual subsidiary economic activity status (USS): A person whose usual principal activity status was determined on the basis of the major time criterion could have pursued some other economic activity for a shorter time throughout the reference year of 365 days preceding the date of survey or for a minor period, which is not less than 30 days, during the reference year. The status in which such economic activity was pursued is considered as the subsidiary economic activity status of that person.

Current weekly activity status (CWS): The current weekly activity status of a person is the activity status obtaining for a person during a reference period of 7 days preceding the date of survey. It is decided on the basis of a certain priority-cum-major time criterion.

Current daily activity status (CDS): The activity pattern of the population, particularly in the informal sector, is such that during a week, and sometimes, even during a day, a person could pursue more than one activity. Moreover, many people could even undertake both economic and non-economic activities on the same day of a reference week. The current daily activity status of a person was determined for each of the seven days of the reference week. The activity status of a person on a day was determined on the basis of the activities pursued by him/her using a priority-cum-major time criterion.

It is important to note that the employment figure is calculated by the combination usual principal activity status (UPS) and usual subsidiary activity status (USS). This is also denominated as Usual Principal and Subsidiary Status (UPSS). But, while estimating unemployment statistics current daily status (CDS) is often preferred to another criterion. The unemployment figures based on the UPSS is otherwise called as the open unemployment.

Labour force participation: As labour force includes the persons who were either 'working' (or employed) or 'seeking or available for work' (or unemployed) constituted the labour force, the labour force participation rate (LFPR) is defined as percentage or per 1000 persons (or person-days) in the labour force to total population.

Workforce participation: Only employed persons are included in the workforce, i.e., those who were found 'working' during the reference period constituted the workforce, the workforce participation rate (WFPR) is defined as the percentage or per 1000 persons (or person-days) in the workforce to the total population.

Unemployment rate: As unemployed includes those persons who were 'seeking or available for work' during the reference period, the unemployment rate (LFPR) is defined as the percentage or per 1000 persons (or person-days) unemployed in the total labour force.

Not in labour force: Persons who were neither 'working' nor 'seeking or available for work' for various reasons during the reference period were considered as 'not in labour force'. Persons under this category are students, those engaged in domestic duties, renters, pensioners, recipients of remittances, those living on alms, infirm or

disabled persons, too young persons, prostitutes, etc. and casual labourers not working due to sickness.

Moreover, the total worker is classified into three broad categories viz., self-employed (SE), regular employed (RE) i.e. wage/salaried employee, and casual labour (CL). Self-employed (SE) persons are those who operated their own farm or non-farm enterprises or were engaged independently in a profession or trade on own account or with one or a few partners. Additionally, self-employed workers can be classified into three categories viz., own account workers, employers, and helpers in the household enterprise. (i) **Own-account workers** include those persons who operate their enterprises on their own account or with one or a few partners and who, during the reference period, by and large, run their enterprise without hiring any labour. However, they can have unpaid helpers to assist them in the activity of the enterprise. (ii) **Employers** include the persons those who work on their own account or with one or a few partners and normally run their business by hiring labour. (iii) **Helpers** in the household enterprise are those who work full or part-time and do not receive any regular salary or wages in return for their work performed. Not only they are the owner of the household enterprise but help running the household enterprise. Regular wage or salaried employee includes those persons who work in others' farm or nonfarm enterprises (both household and on household) and, in return, received salary or wages on a regular basis (i.e. not on the basis of a daily or periodic renewal of work contract). This category includes both full-time and part-time workers. Casual labour, on the other hand, includes the persons who are casually engaged in others' farm or non-farm enterprises (both household and non-household) and, in return, received wages according to the terms of the daily or periodic work contract.

1.8.3. Census of India definitions:

According to the Census of India employment and unemployment definitions are termed as workers and non-workers. Workers are broadly categorized by (i) main worker, (ii) marginal worker (iii) non-worker. All persons engaged in 'work' as defined above are workers. These definitions are given below.

Main worker: according to Census of India “Those workers who had worked for the major part of the reference period (i.e. 6 months or more) are termed as Main Workers.”

Marginal worker: “Those workers who had not worked for the major part of the reference period (i.e. less than six months) are termed as Marginal Workers.”

Non-worker: A person who didn't look work at all during the reference period was treated as non-worker. The non-workers broadly constitute Students who did not participate in any economic activity paid or unpaid, household duties who were attending to daily household chores like cooking, cleaning utensils, looking after children, fetching water, etc. and are not even helping in the unpaid work in the family form or cultivation or mulching, dependent such as infants or very elderly people not included in the category of worker, pensioners those who are drawing pension after retirement and are not engaged in any economic activity.

Work participation rate: Work participation rate is defined as the percentage of total workers (main and marginal) to the total population.

$$\text{Work participation rate} = \frac{\text{Total workers (Main+marginal worker)}}{\text{Total Population}} \times 100$$

$$\text{Labour Force Participation rate} = \frac{\text{Worker+Unemployment}}{\text{Total population}}$$

1.9. Defining skilled and unskilled labour:

According to the definitions of NSSO, skilled labour are those who are included engaged in various works ((i) weavers, knitters, carpet makers, etc. (ii) dress makers, upholsters, etc. (iii) shoe-makers and other leather workers.(iv) Blacksmiths, goldsmiths, coppersmiths and other metal workers. (v) Carpenters, painters, etc. (vi) stone carvers, bricklayers, plasterers, glazers, cement finishers, etc. (vii) printers (paper and textile), engravers, block makers, etc. (viii) potters, glass and ceramic workers, etc. (ix) basketry and mat weavers and related workers. (x) Makers of musical instruments, toys, sports goods, etc.) And having market value.

And in another hand, those who are not included in these following categories is known as unskilled labour. No one can give the enumeration without skill labour.

1.10. Chapter scheme:

This dissertation is derived into six chapters. Chapter one is the introductory chapter which includes motivation of the study, literature review, research gaps, objective of the study, data and methodology. It also highlights a various definitions and the concepts which are used in the present study. Chapter two includes trends and patterns of overall unemployed as well as youth unemployment in Odisha. It also explains the pattern of unemployment in rural and urban Odisha. Chapter three explains the employment patterns and explores the employment generating sectors that could generate employment for youth job seekers in Odisha. Chapter four studies the factors determining youth labour force participation decision in Odisha. In chapter five, I have projected the future labour force size. Finally, chapter six concludes the dissertation and provides policy suggestions.

Chapter-II

Trends and Patterns of Youth Unemployment in Odisha

2.1. Introduction:

This chapter attempts to explore the trends and patterns of youth unemployment in Odisha. Before we explain that, it is important to know the overall unemployment rate trends in Odisha. Because it will not only help to compare with the youth unemployment rate trends, but also it will provide a direction for explaining the reasons and determinants of youth unemployment in Odisha.

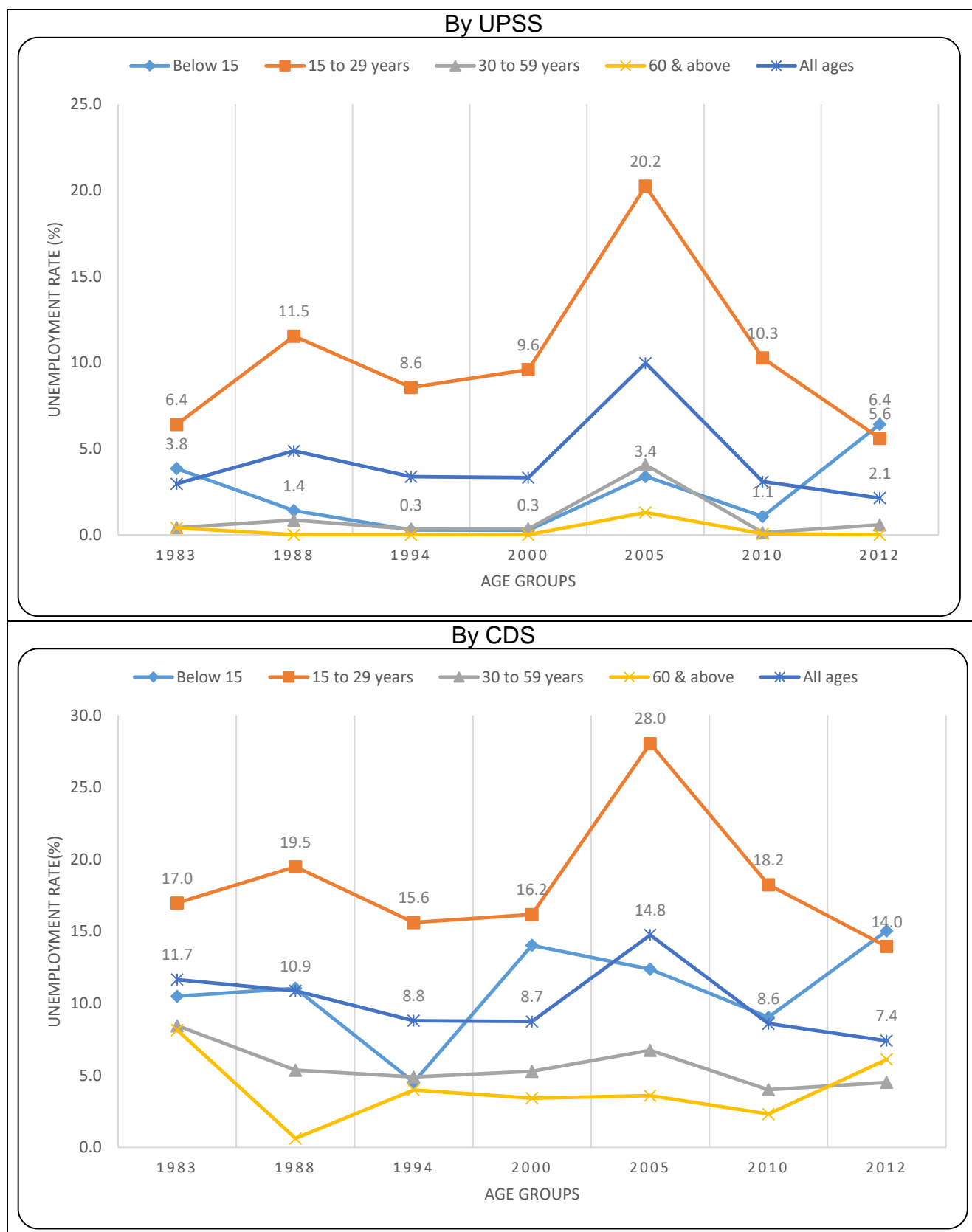
The sectoral (rural and urban) youth unemployment trends and its patterns by demographic (age and sex), and socio-economic (by caste and income groups), and by level of education is explained in this chapter.

2.2. Unemployment trends in Odisha

The overall unemployment rate in Odisha is showing a cyclical trend (See Figure 2.1 and Table 2.1). The overall unemployment rate (based on UPSS) was quite low (about 3 per cent) during 1983, which was almost constant until 1999-2000. But, during 2004-05, it increased to 10 per cent. However, it came down to about 2 per cent during 2011-12. The trends of unemployment rate based on the Current Daily Status (CDS) is also showed a similar trend, but the unemployment rate figures of CDS are higher as compared to that of the UPSS figures.

The youth (age group 15 to 29 years) unemployment rate in Odisha is showing a cyclical trend (See Figure 2.1 and Table 2.1), but it is important to note that it is quite higher than that of the overall unemployment rate in Odisha (See Figure 2.1: Panel A and B). The youth unemployment rate (based on UPSS) was about 6.4 per cent during 1983. It increased to 20 per cent during 2004-05, but came down to about 5.6 per cent during 2011-12. Similarly the youth unemployment rate (based on CDS) was about 17 per cent during 1983, which increased to 28 per cent during 2004-05, and came down to about 14 per cent during 2011-12 (see both Figure 2.1 and Table 2.1).

Figure 2.1: Unemployment Trends in Odisha (Overall)



Source: Plotted using the estimates of NSS unit level data (various round)

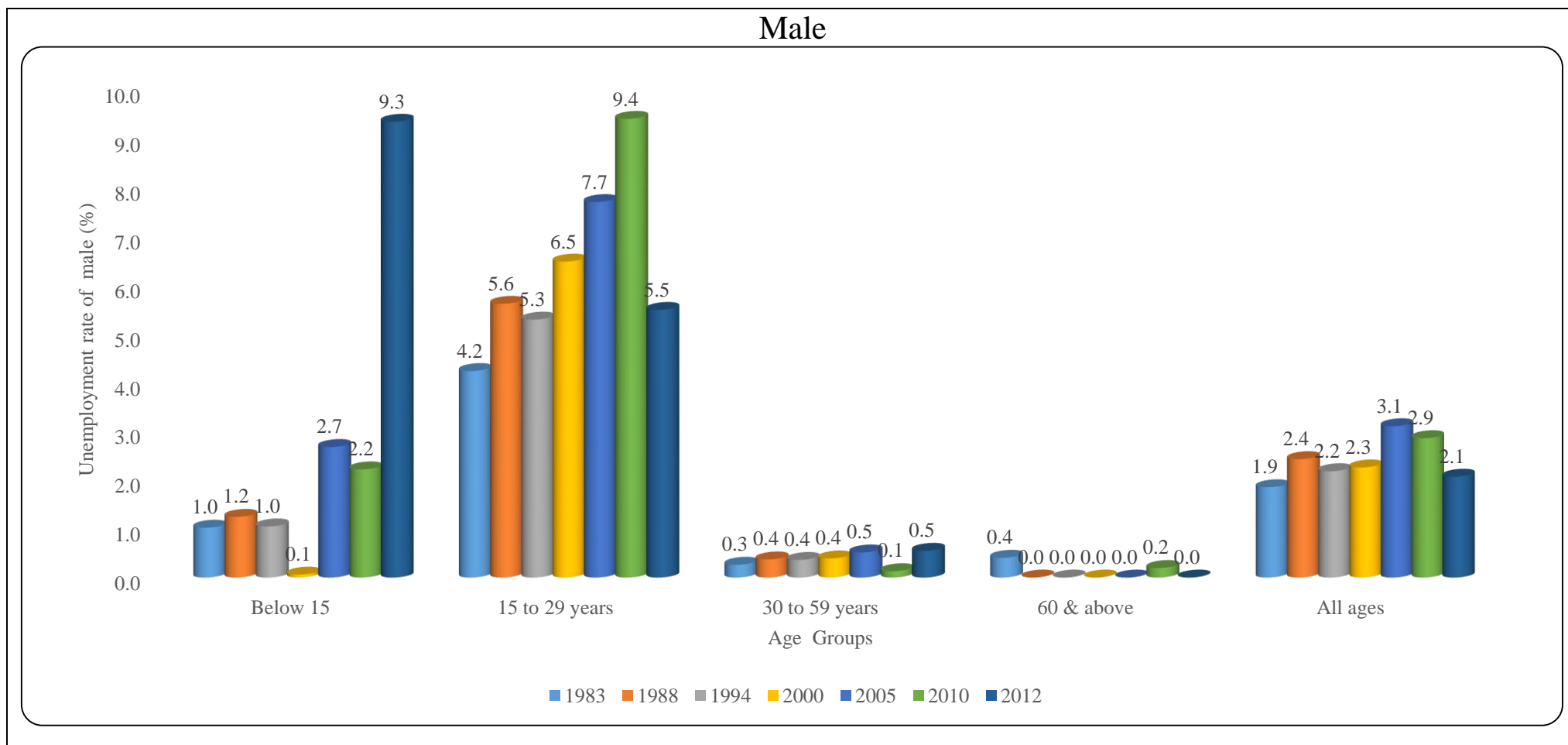
Table-2.1: Unemployment Rate in Odisha (Overall)

Age Groups		1983	1987-88	1993-94	1999-00	2004-05	2009-10	2011-12
UPSS	Below 15	3.8	1.4	0.3	0.3	3.4	1.1	6.4
	15 to 29 years	6.4	11.5	8.6	9.6	20.2	10.3	5.6
	30 to 59 years	0.4	0.8	0.3	0.3	4.1	0.1	0.6
	60 & above	0.4	0.0	0.0	0.0	1.3	0.1	0.0
	All ages	3.0	4.9	3.4	3.3	10.0	3.1	2.1
CDS	Below 15	10.5	11.0	4.5	14.0	12.4	9.0	15.0
	15 to 29 years	17.0	19.5	15.6	16.2	28.0	18.2	14.0
	30 to 59 years	8.4	5.4	4.9	5.3	6.7	4.0	4.5
	60 & above	8.1	0.6	4.0	3.4	3.6	2.3	6.1
	All ages	11.7	10.9	8.8	8.7	14.8	8.6	7.4

Source: Authors' Estimate from NSS unit level data various round

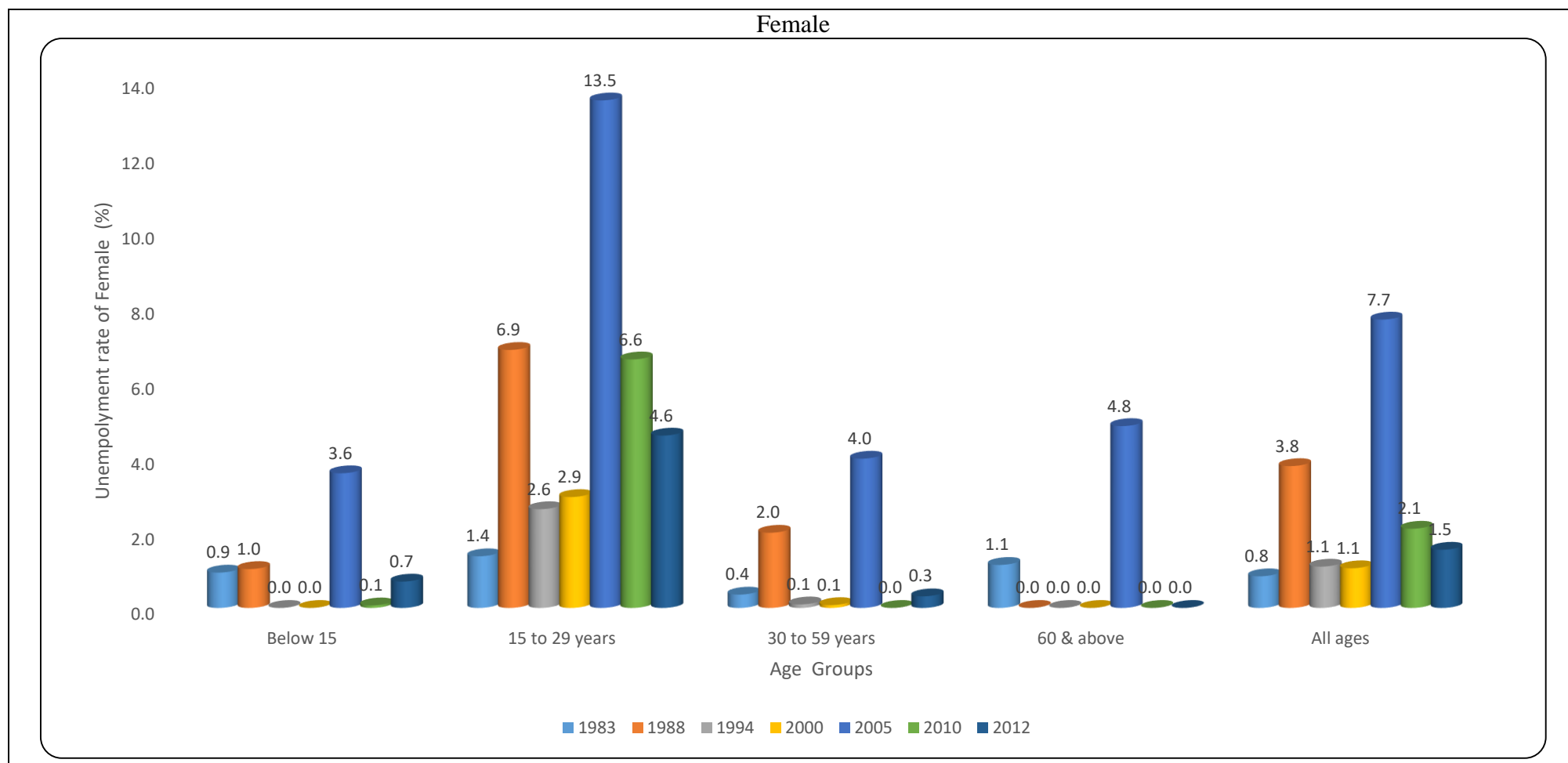
From the comparison of unemployment rate among male and female, it is revealed that overall unemployment rate of male is higher than that of females in Odisha. This is also observed in the case of youths in Odisha. Both UPSS (see Figure 2.2 and 2.3) and CDS (see Figure 2.4 and 2.5) employment status show that unemployment rate of male youths is higher than that of their female counterparts.

Figure 2.2: Male Unemployment rate (UPSS) in Odisha, 1983-2012



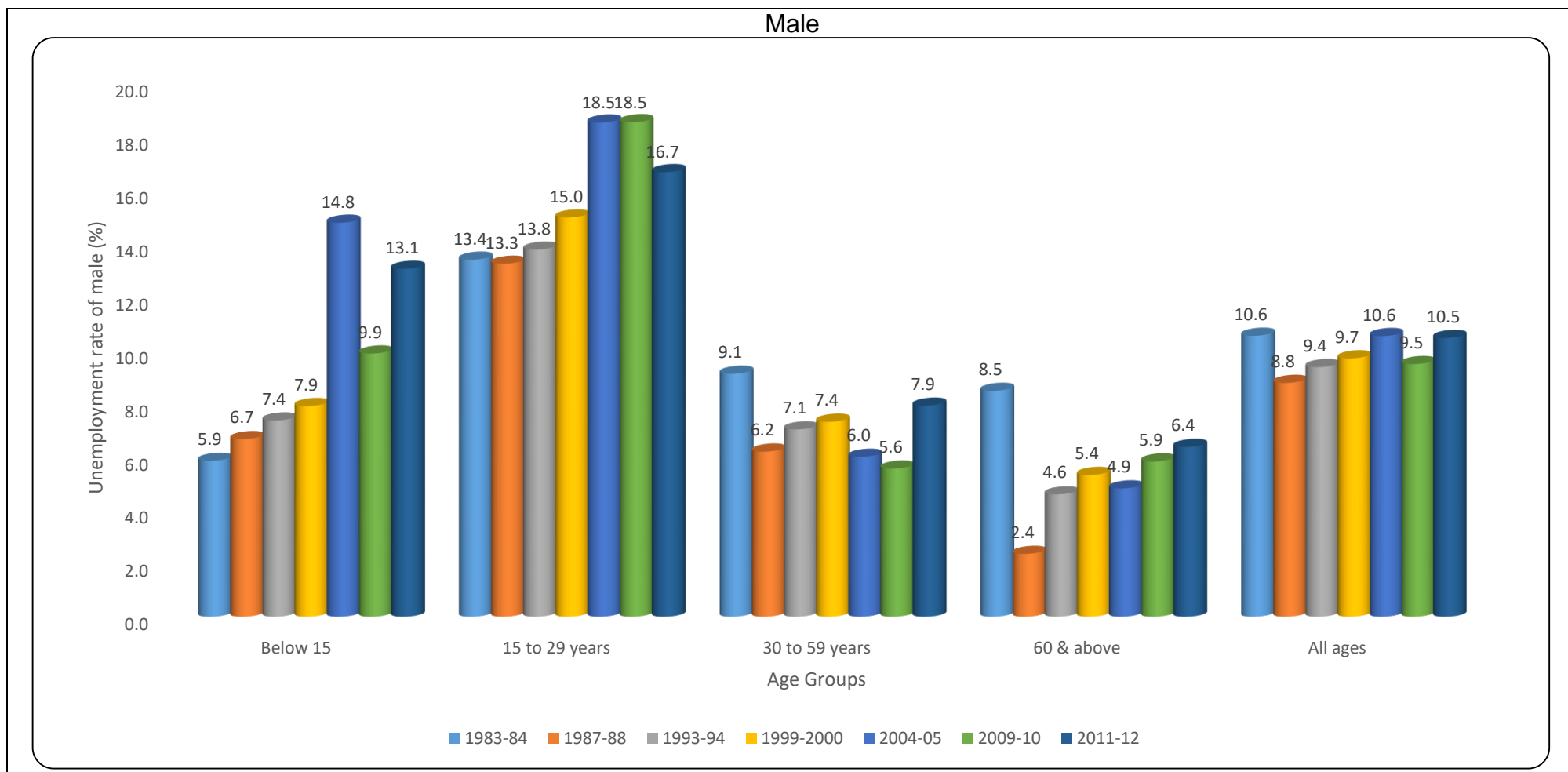
Source: Plotted using the estimates of NSS unit level data various round

Figure 2.3: Female Unemployment rate (UPSS) in Odisha, 1983-2012



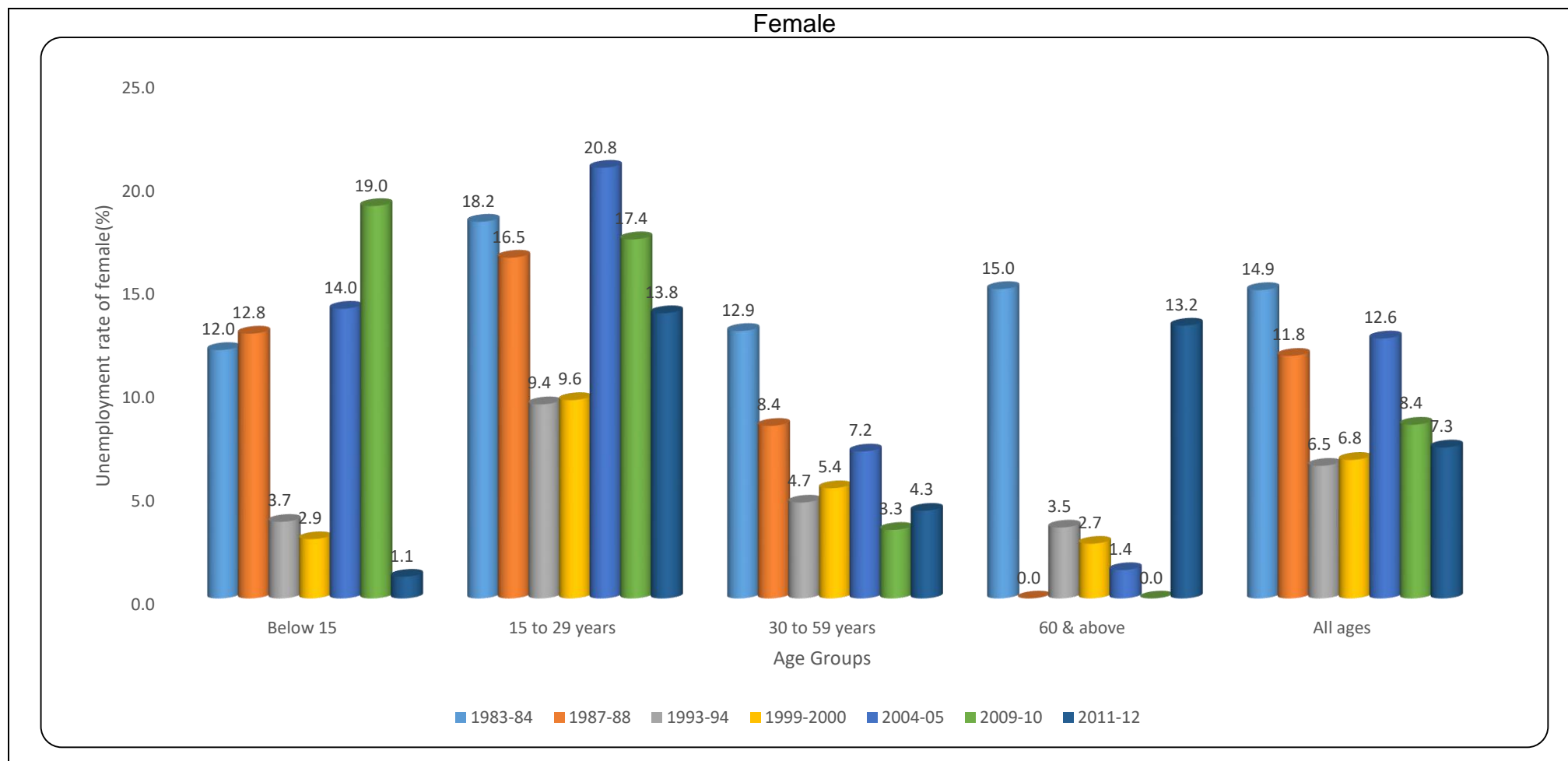
Source: Plotted using the estimates of NSS unit level data various round

Figure 2.4: Male Unemployment rate (CDS) in Odisha, 1983-2012



Source: Plotted using the estimates of NSS unit level data various round

Figure 2.5: Female Unemployment rate (CDS) in Odisha, 1983-2012



Source: Plotted using the estimates of NSS unit level data various round

2.3. Unemployment trends in rural Odisha

In rural Odisha, unemployment rate has increased during 1983 and 2011-12 (See Table 2.2). The rate of CDS unemployment is about ten times than UPSS unemployment in rural Odisha. The rate of unemployment among youths is higher than other age groups in rural Odisha. The rate of unemployment among youths was 14.3 per cent during 1983, which increased to 16.1 per cent during 2011-12. According to the studies like Ellowood, 1982; Arulampalam, Gegg & Gregory 2001; O' Higgins, 2001); ILO, 2006; and Hou, 2010, this is due to low level of rural wages. Whereas, the studies like Korenman & Neumark, 1997 & 2000; Krishna, 1984; and Gupta, 1990 argues that this high unemployment in rural areas is due to rapid growth of rural population. Furthermore, the studies like Mehrotra et.al. (2014) and Parida (2015) claim that rural unemployment is high due to lack of employment opportunities in rural areas. This is mainly due to the growth of mechanization in agriculture sector that limits the employment opportunities and lack of job opportunities in non-manufacturing sectors in rural Odisha.

Table 2.2: Unemployment rate in rural Odisha, 1983 to 2011-12.

Rural Odisha		1983	1987-88	1993-94	1999-00	2004-05	2009-10	2011-12
UPSS	Below 15	0.7	1.1	0.6	0.0	3.1	1.5	6.1
	15 to 29 years	2.5	5.0	3.2	3.8	8.0	8.0	4.8
	30 to 59 years	0.3	0.9	0.2	0.3	1.6	0.1	0.4
	60 & above	0.6	0.0	0.0	0.0	1.3	0.2	0.0
	All ages	1.2	2.5	1.4	1.4	4.0	2.5	1.7
CDS	Below 15	8.2	8.8	6.2	4.4	14.7	13.9	10.0
	15 to 29 years	14.3	13.3	11.5	12.1	17.4	18.4	16.1
	30 to 59 years	10.8	7.2	6.8	7.2	6.6	5.5	7.9
	60 & above	9.5	2.2	4.2	4.9	4.0	5.4	7.7
	All ages	11.9	9.5	8.4	8.7	10.6	9.6	10.3

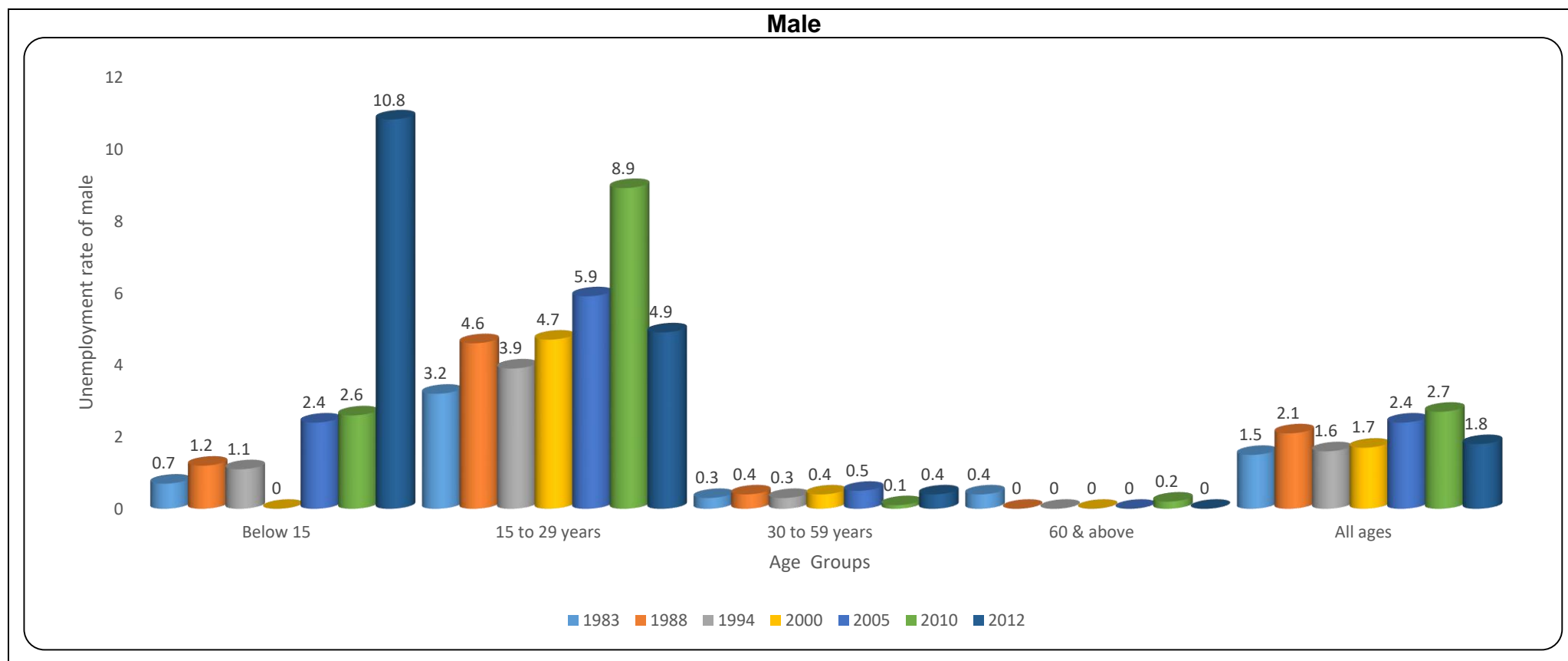
Source: Authors' Estimate from NSS unit level data various round

Trends of Unemployment in rural Odisha by Sex, 1983 to 2011-12:

In rural Odisha, the overall female unemployment is higher as compared to their male counterparts. It also reveals that, the rate of female youth unemployment is higher than that of males. The rate of overall unemployment among male raised to 1.5 per cent whereas youth male unemployment rate increased to 4.9 percent during 1983 and 2011-12 (See Figure 2.6). In case of female, overall unemployment rate increased to 1.5 from 0.5 per cent during 1983 and 2011-12 while female youth unemployment increased to 4.6 per cent (See Figure 2.7).

In case of males, both overall and youth unemployment rate are increasing consistently. Female unemployment rate trends are also showing increasing trend but with an exceptional high unemployment rate during 2004-05. In 2004-05, it increased to a very high level. According to studies like Himanshu (2011) and Mehrotra et.al. (2014) suggests that, it is mainly distress driven.

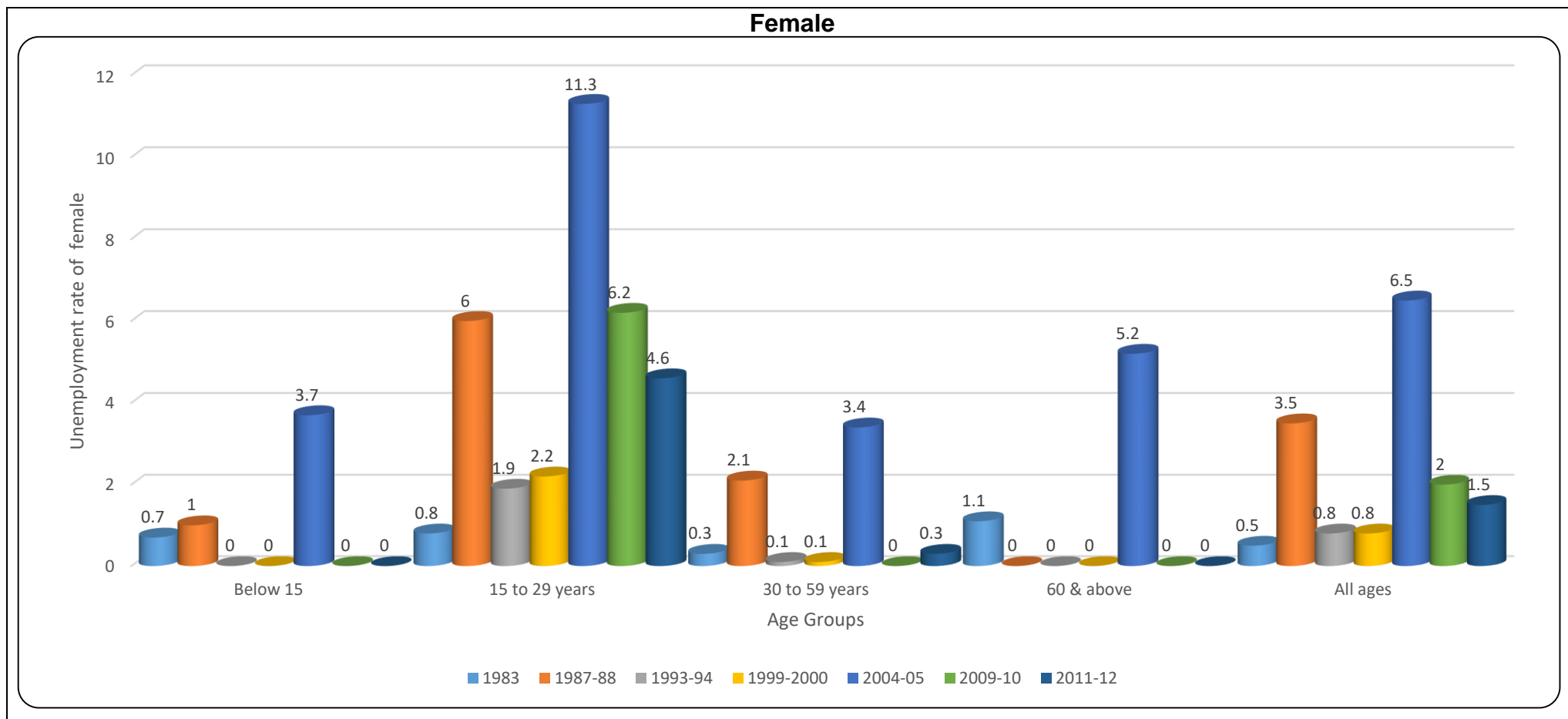
Figure 2.6: Male Unemployment rate (UPSS¹) in rural Odisha



Source: Plotted using the estimates of NSS unit level data various round

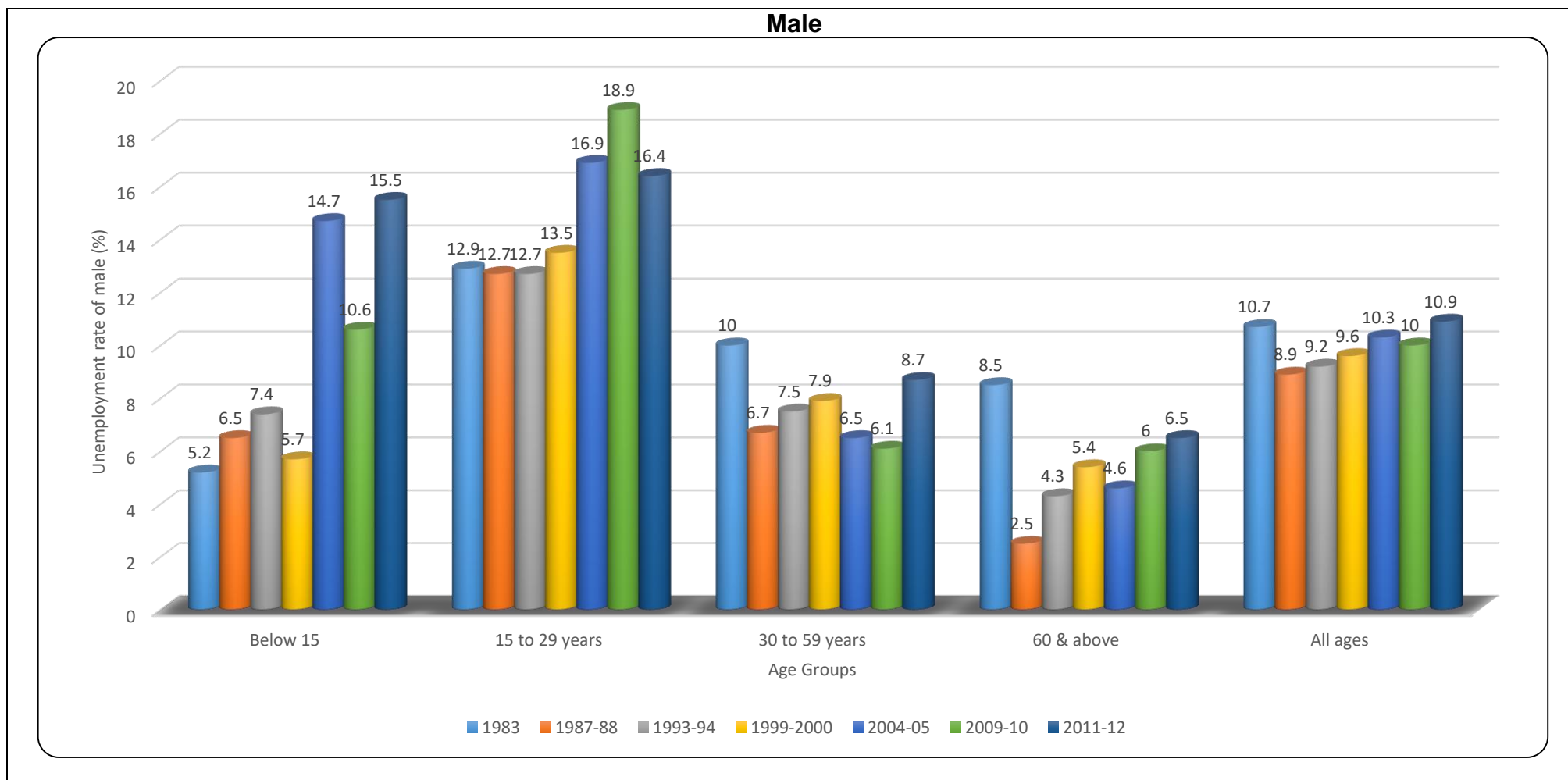
¹ UPSS: This gives us a different measure of Usual Status called the Usual Status (PS+SS) i.e. usual status of an individual determined on the basis of his usual principal status and usual subsidiary status taken together.

Figure 2.7: Female Unemployment rate (UPSS) in rural Odisha



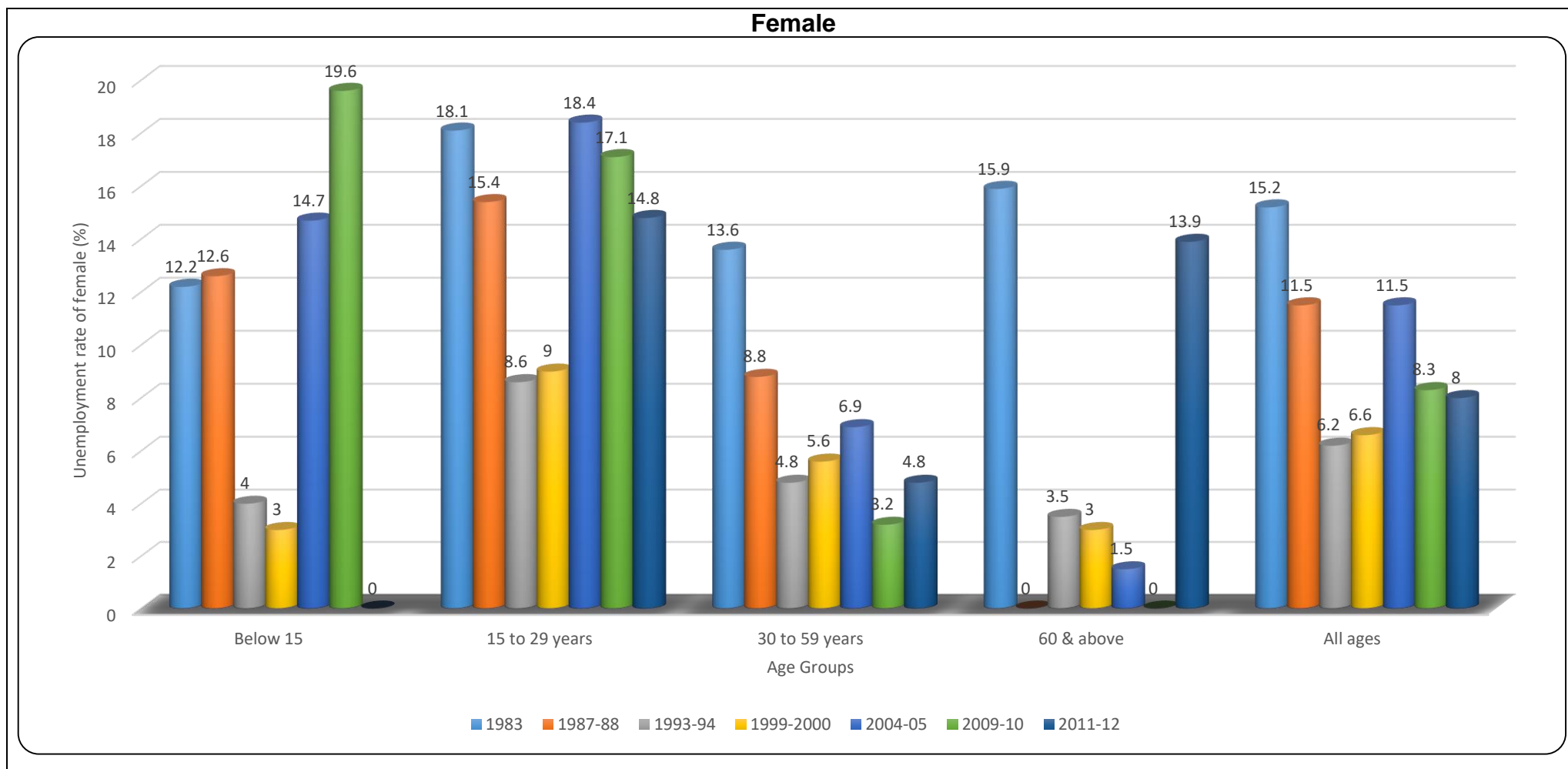
Source: Plotted using the estimates of NSS unit level data various round

Figure 2.8: Male unemployment rate (CDS) in rural Odisha



Source: Plotted using the estimates of NSS unit level data various round

Figure 2.9: Female unemployment rate (CDS) in rural Odisha



Source: Plotted using the estimates of NSS unit level data various round

Figure 2.8 & 2.9 shows the rate of both male and female unemployment by their Current Daily Status (CDS) in rural Odisha. Male unemployment rate is higher than the female unemployment in rural Odisha. The rate of male unemployment is increasing over the period from 1983 to 2012. However, the female unemployment rate is decreasing over the period (See Figure 2.8 & 2.9). Similarly, youth unemployment rate is higher among male as compared to female in rural Odisha. The male unemployment rate was 10.7 during 1983 which has increased to 10.9 per cent during 2011-12. And female unemployment (CDS) rate was 15.2 per cent during 1983 which is declined to 3.8 per cent during 2011-12 (See Figure 2.8 & 2.9). Age group of 60 & above years shows the declining unemployment trends in case of females. This could be an implication of the negative income effect (See Mehrotra and Parida 2017).

2.4. Trends of Unemployment in urban Odisha:

The rate of unemployment in urban areas is lower than that of rural areas. As per UPSS the rate of unemployment is higher in urban areas than rural areas in Odisha. But opposite results is obtained by CDS calculations (See Table 2.3). It indicates that, in rural areas, people remained unemployed for a larger period of time. So that unemployment in rural areas is relatively more than urban area.

The rate of urban unemployment (UPSS and CDS) is showing a declining trend over the period from 1983 to 2011-12 (See Table 2.3). It is important to know that both UPSS and CDS unemployment rates are increased during 1983 and 2004-05, but then declined during 2011-12. The rate of urban unemployment (UPSS) was 4.4 per cent during 1983 and it is increased to 11.8 per cent in 2004-05 and declined to 3.1 per cent during 2011-12. The same trend is observed in CDS unemployment rate in urban Odisha. It increased from 9.7 per cent to 15.2 per cent during 1983 and 2004-05. However, it declined to 7.1 per cent during 2011-12. Similarly, the rate of youth unemployment (UPSS) declined from 11 per cent to 7.8 per cent during 1983 and 2011-12. However, CDS youth unemployment rate remained stagnant over these periods (See Table 2.3).

Table 2.3: Unemployment rate in urban Odisha, 1983 to 2011-12.

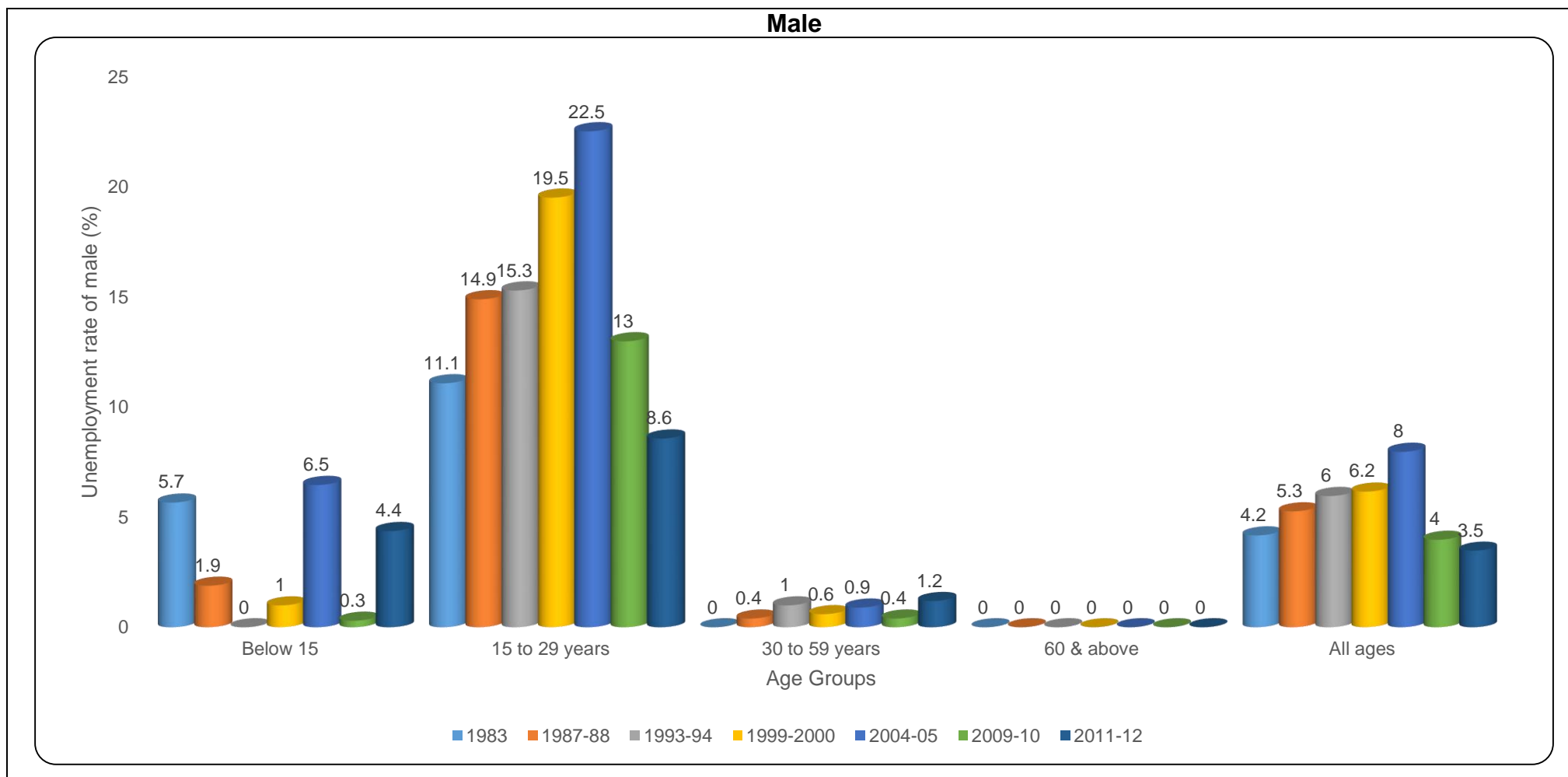
Urban Odisha		1983	1987-88	1993-94	1999-00	2004-05	2009-10	2011-12
UPSS	Below 15	6.6	1.7	0.0	0.7	4.2	0.5	5.4
	15 to 29 years	11.0	16.0	14.8	17.6	28.0	13.0	7.8
	30 to 59 years	0.1	0.4	0.8	0.6	3.4	0.3	1.0
	60 & above	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	All ages	4.4	5.8	5.8	5.8	11.8	3.9	3.1
CDS	Below 15	13.5	12.3	3.5	33.4	10.6	5.3	6.0
	15 to 29 years	17.1	20.5	21.3	23.5	35.2	16.9	16.4
	30 to 59 years	4.8	3.3	4.0	4.1	4.6	2.5	3.0
	60 & above	7.4	0.0	8.0	3.2	6.4	3.0	3.4
	All ages	9.7	9.2	10.2	10.2	15.2	6.8	7.1

Source: Authors' Estimate from NSS unit level data various round

Trends of Unemployment in urban Odisha by Sex, 1983 to 2011-12:

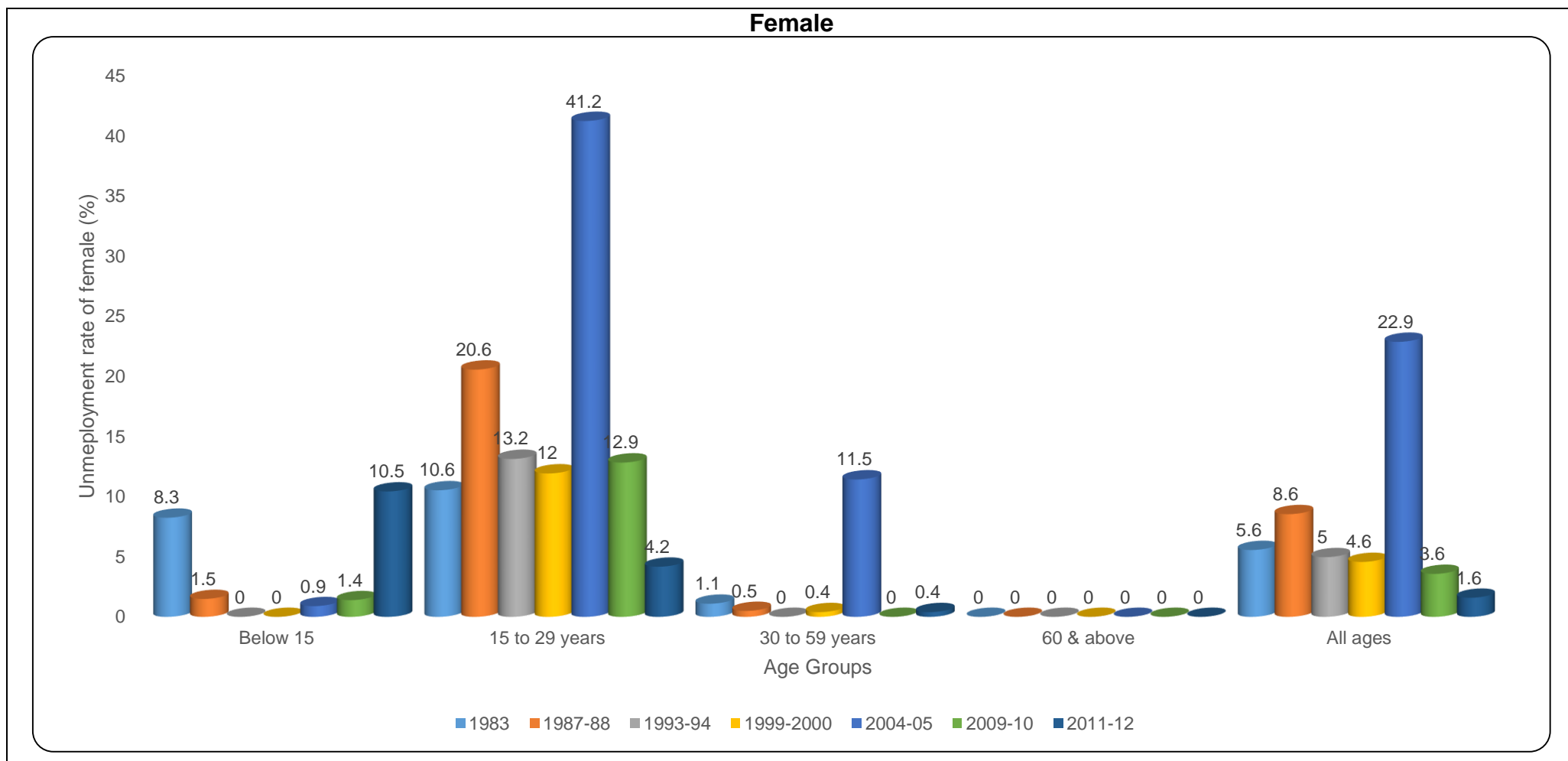
In urban Odisha, the unemployment rate among female is higher as compared to their male counterparts. Female youths are more unemployed as compared to males. However, male youth unemployment rate has been continuously increasing from 1983 to 2004-05. But after, 2004-05, both male youth unemployment has declined in urban areas. In 2004-05 the male and female unemployment rates are high in urban areas. Figure 2.10 & 2.12 shows the male unemployment trends in urban Odisha whereas, female unemployment trend is given in Figure 2.11 & 2.13.

Figure 2.10: Male unemployment rate (UPSS) in urban Odisha



Source: Plotted using the estimates of NSS unit level data various round

Figure 2.11: Female unemployment rate (UPSS) in urban Odisha

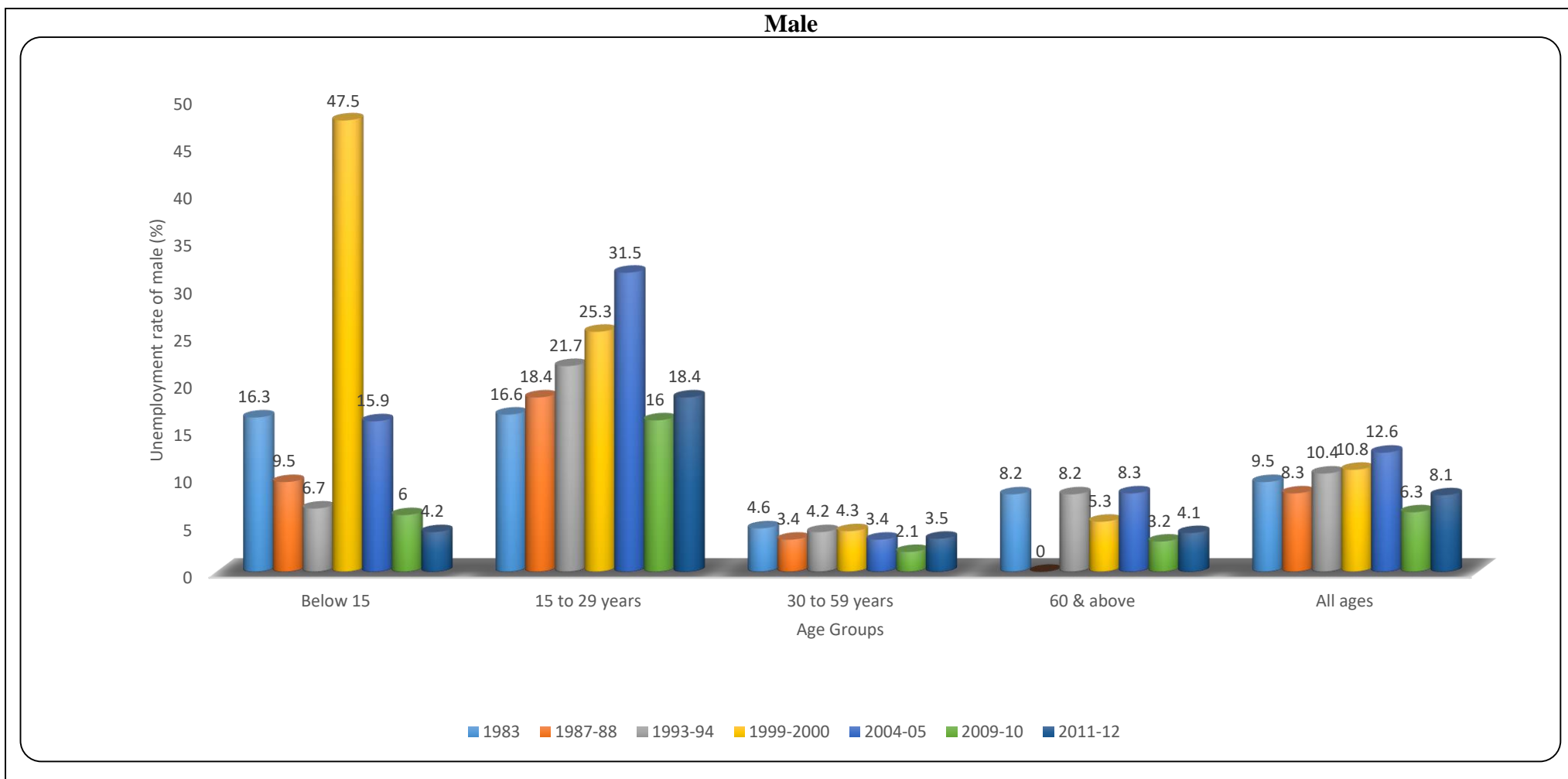


Source: Plotted using the estimates of NSS unit level data various round

The unemployment (UPSS) trends in urban area is showing the cyclical trends for both male and female categories. Male unemployment rate increased by 3.8 per cent during 1983 and 2004-05. And then it declined to 3.5 per cent during 2011-12 (See Figure 2.10). Furthermore, the female unemployment rate (UPSS) increased from 5.6 per cent to 22.9 per cent during 1983 and 2004-05 (See Figure 2.11). The rate of female unemployment (UPSS) is higher than the rate of male unemployment in urban Odisha. It also explains that, youth unemployment rate among male is increasing at a higher rate than the female youth unemployment rate in urban Odisha. Both male and female unemployment is very negligible among old age population. The rate of male unemployment has been increasing by 11 per cent during 1983 and 40.6 per cent during 2004-05(See Figure 2.10 & 2.11).

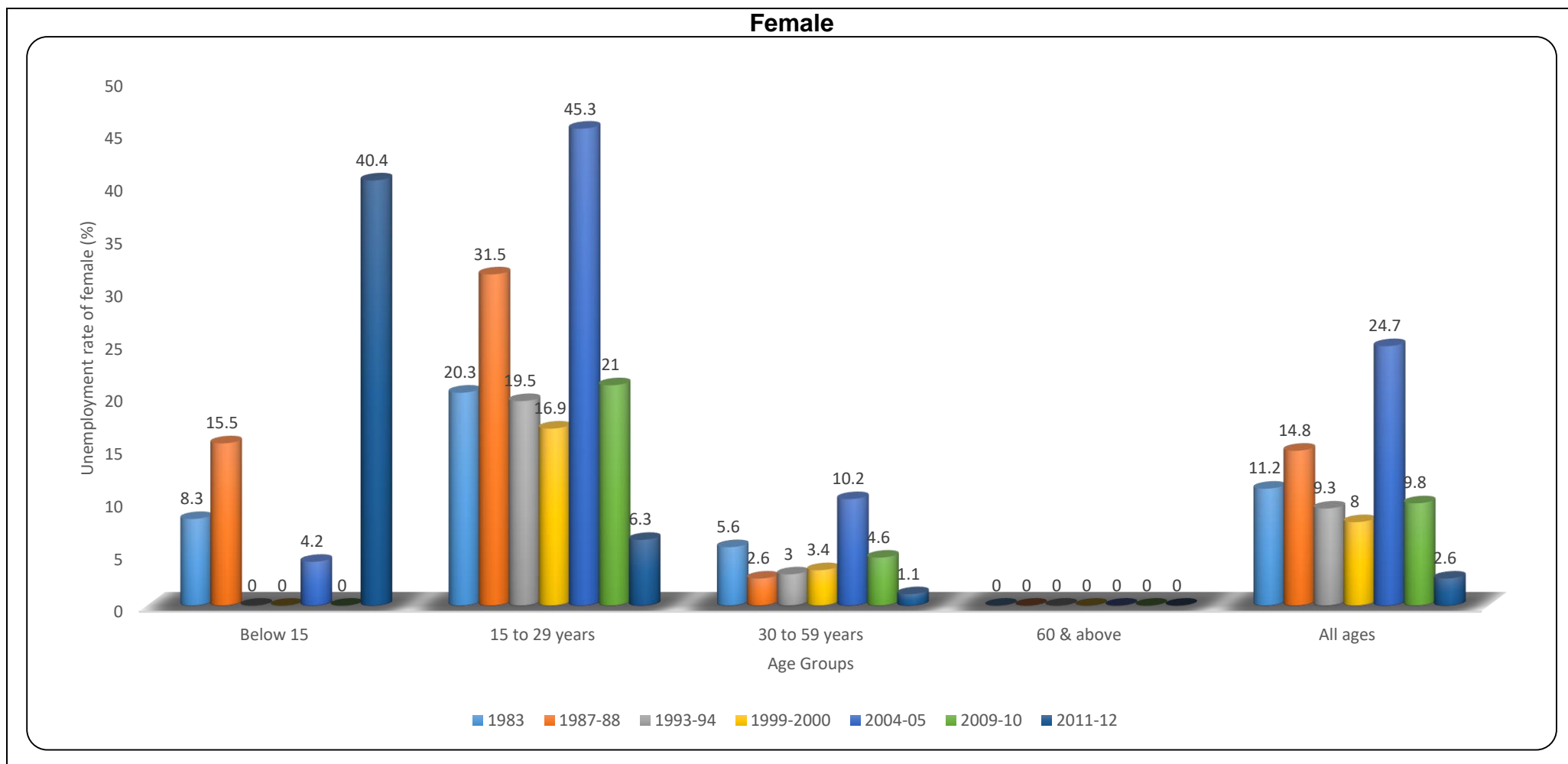
The rate of unemployment (CDS) is also high among male than the female categories in urban Odisha. In 2004-05, the female unemployment was 24.7 per cent which is doubled to male unemployment rate in the same year. It is clearly reveals that, the rate of male unemployment is more than female (See Figure 2.12. & 2.13). The rate of male youth unemployment is showing the increasing trends during 1983 and 2004-04. The youth male unemployment (CDS) was 16.6 per cent during 1983 and it is raised to 31.5 per cent during 31.5 per cent. But after 2004-05 the youth male unemployment decline to 18.4 per cent during 2011-12 (See Figure 2.12). However, female youth unemployment raised to 45.3 per cent during 2004-05 and then fall to 6.3 per cent during 2011-12 (See Figure 2.13).

Figure 2.12: Male unemployment rate (CDS) in urban Odisha



Source: Plotted using the estimates of NSS unit level data various round

Figure 2.13: Female unemployment rate (CDS) in urban Odisha



Source: Plotted using the estimates of NSS unit level data various round

2.5. Patterns of youth unemployment in Odisha:

This section explains the patterns of youth unemployment in Odisha by social groups, economic groups and by level of education.

2.5.1. Youth unemployment by social groups in Odisha:

Social group wise comparison implies that the youth unemployment rate among OBC and General (others) are higher as compared to SC and ST. The youth unemployment rate among ST increased from 0.7 per cent to 2 per cent during 1983 to 2011-12 by UPSS. The youth unemployment rate among SC increased from 2.4 per cent to 4.9 per cent during the same period whereas the the rate of youth unemployment increased among OBC (OBC categories available after 1993-94) from 5.6 per cent to 6.6 percent during 1999 to 2011-12 (See Table 2.4). By CDS, the youth unemployment rate among ST increased from 14.9 per cent to 15.2 per cent during 1983 to 2011-12. But the rate of youth unemployment among SC declined from 14.4 per cent to 15.6 per cent during 1983 to 2011-12. The rate of youth unemployment among OBC increased to 18.6 per cent during 2011-12. In general category youth unemployment increased to 15.1 per cent during 2011-12.

Table 2.4: Youth unemployment trends by social groups in Odisha, 1983 to 2011-12.

Social Groups		1983	1987-88	1993-94	1999-00	2004-05	2009-10	2011-12
UPSS	ST	0.7	1.0	1.2	1.7	1.7	3.2	2.0
	SC	2.4	6.0	3.8	4.1	11.7	6.0	4.9
	OBC				5.6	11.8	8.4	6.6
	Others	5.4	8.7	6.8	11.7	19.0	20.7	9.2
	Total	3.4	5.9	4.4	5.2	9.9	8.5	5.2
CDS	ST	14.9	11.6	10.1	10.4	9.5	11.1	15.2
	SC	15.6	15.6	14.3	10.5	21.8	13.7	14.4
	OBC				15.0	20.1	21.4	18.6
	Others	14.0	14.7	13.5	18.9	29.9	28.6	15.1
	Total	14.6	14.0	12.6	13.3	19.2	18.2	16.1

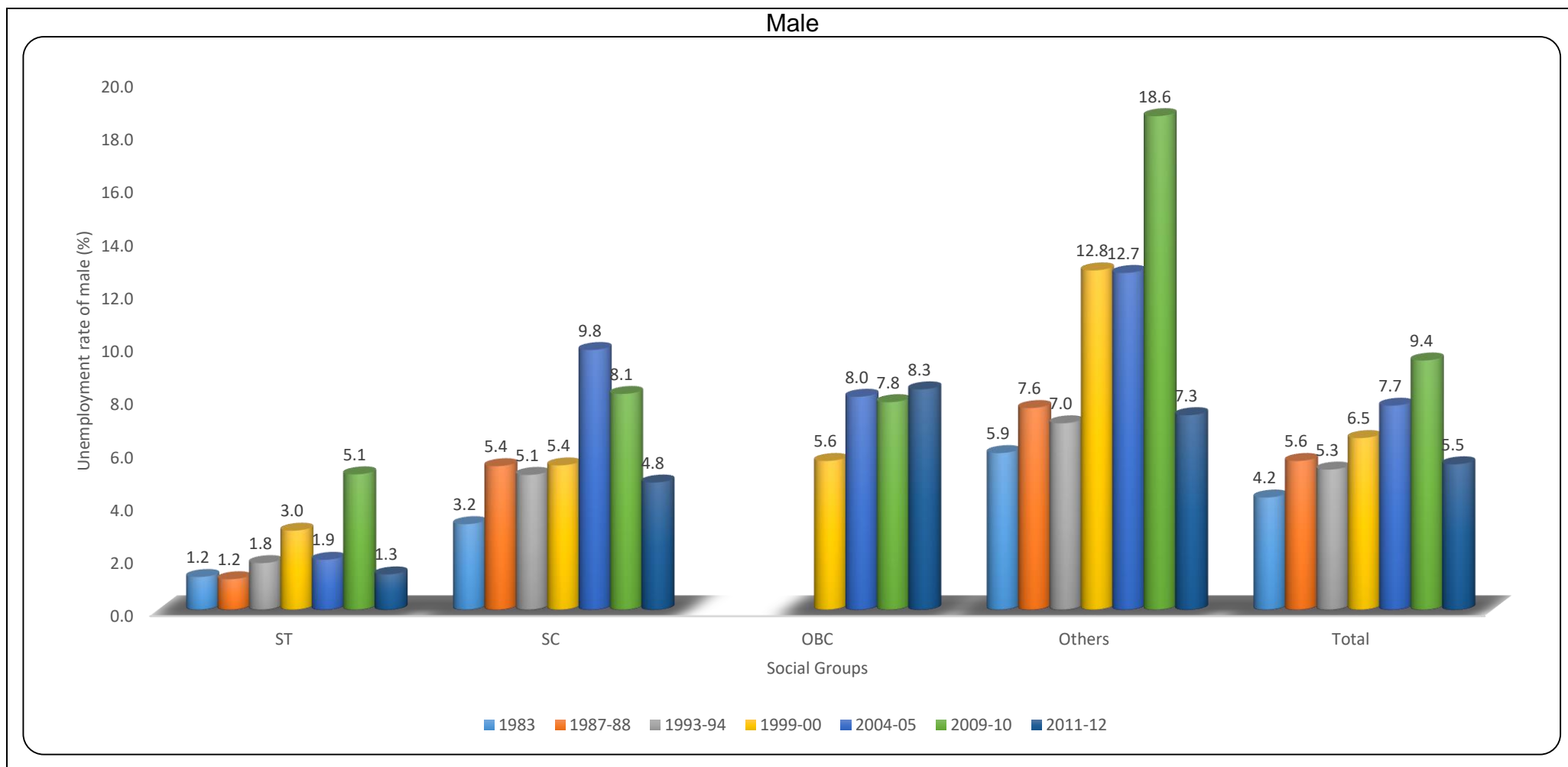
Source: Authors' estimate from NSS unit level data various round

Youth unemployment by social group and by sex

This section explains the comparison among male and female youth unemployment by social groups in Odisha. The UPSS calculation shows that, the rate of ST youth unemployment among male increased from 1.2 per cent to 1.3 per cent during 1983 to 2011-12 whereas female unemployment increased to 3 per cent during same period. Among SC, the rate of youth unemployment among male increased from 3.2 per cent to 4.8 per cent and female youth unemployment increased to 5.1 per cent during 2011-12. Similarly, in OBC categories, the male youth unemployment rate increased to 8.3 per cent from 5.6 per cent during 1999 to 2011-12 whereas about 1.8 per cent increased among female. The rate of youth male unemployment raised to 7.3 per cent during 2011-12 and female youth unemployment rate increased to 9.7 per cent during same period (See Figure 2.14 & 2.15).

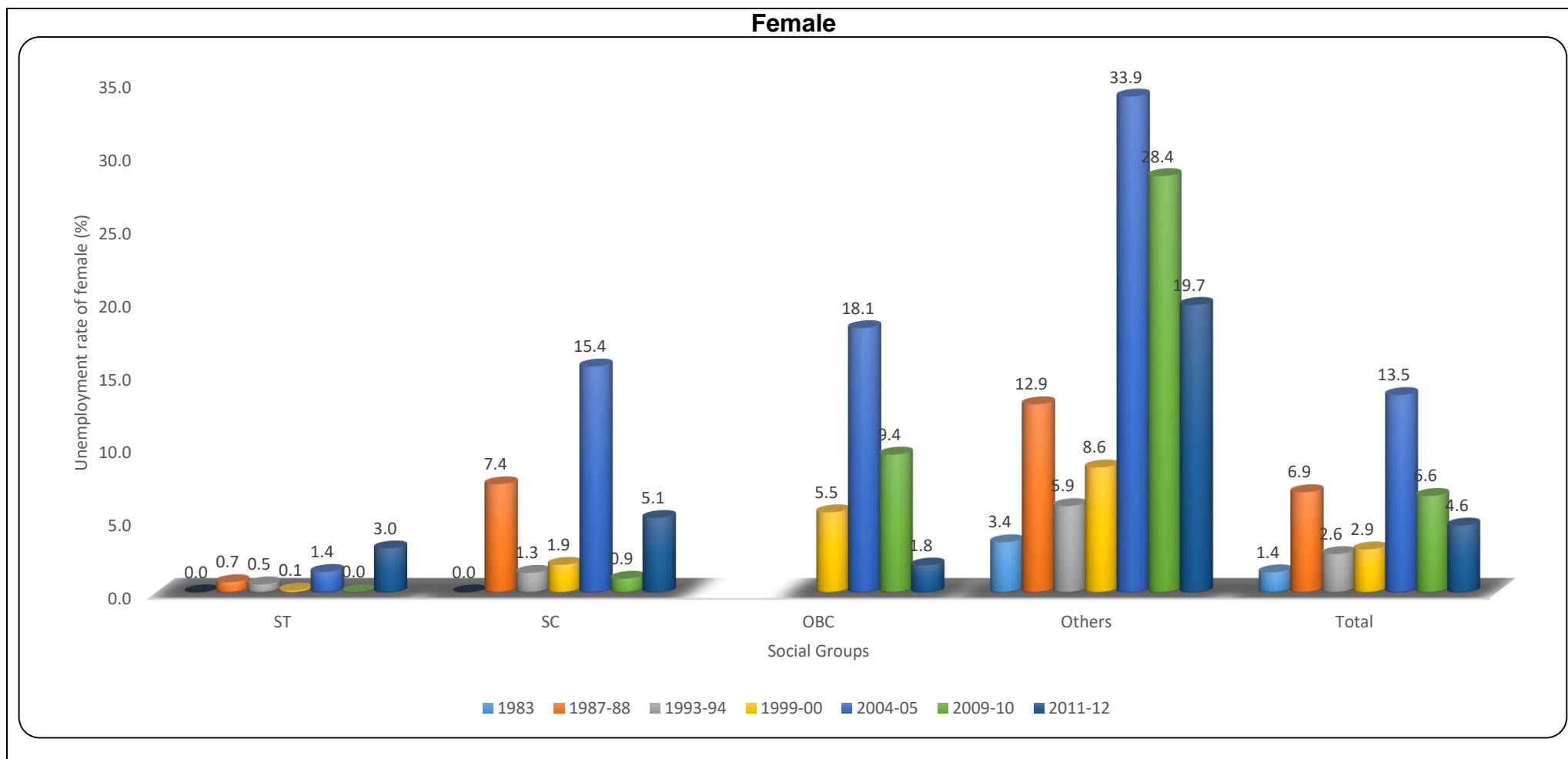
Similarly in case of CDS, the rate of male youth unemployment among ST raised to 17.8 per cent during 2011-12 and increased to 4.2 per cent among SC categories in Odisha. Male youth unemployment rate increased from 14.4 per cent to 19.3 per cent during 1999 to 2011-12. In general (Others) categories the male youth unemployment rate slightly increased to 13.4 per cent to 12.8 per cent during 1983 to 2011-12 (See Figure 2.16). However, among female, the youth unemployment rate among ST declined from 17.1 per cent to 6.3 per cent during 1983 to 2011-12. And the youth unemployment rate declined to 14.9 per cent during 2011-12 among SC categories. The rate of youth unemployment declined by 0.9 per cent during 1999 to 2011-12 whereas among general categories, youth female unemployment increased to 26.6 per cent during the same period (See figure 2.17).

Figure 2.14: Male youth unemployment rate (UPSS) by social groups in Odisha, 1983 to 2011-12



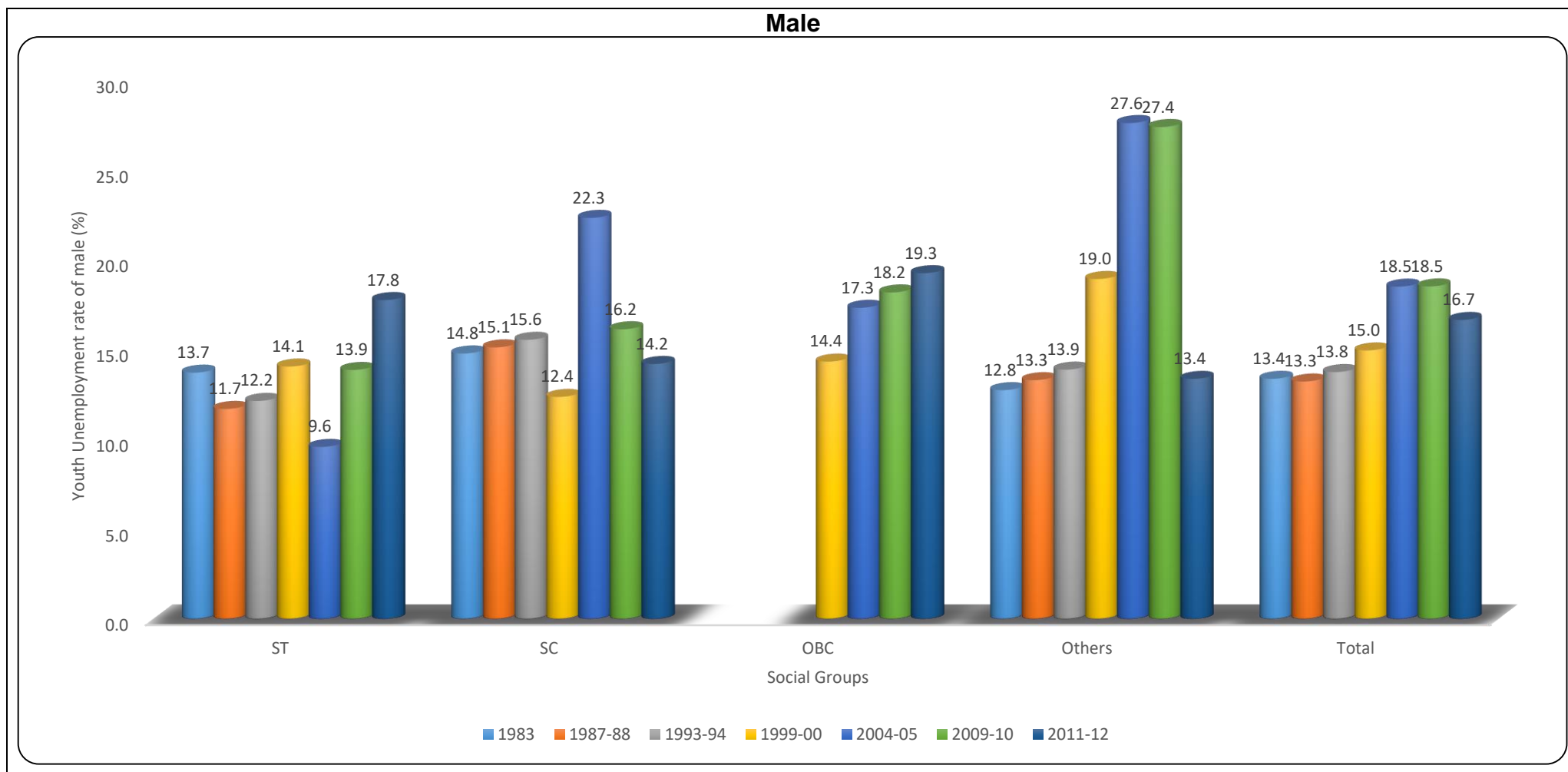
Source: Plotted using the estimates of NSS unit level data various round

Figure 2.15: Female youth unemployment rate (UPSS) by social groups in Odisha, 1983 to 2011-12



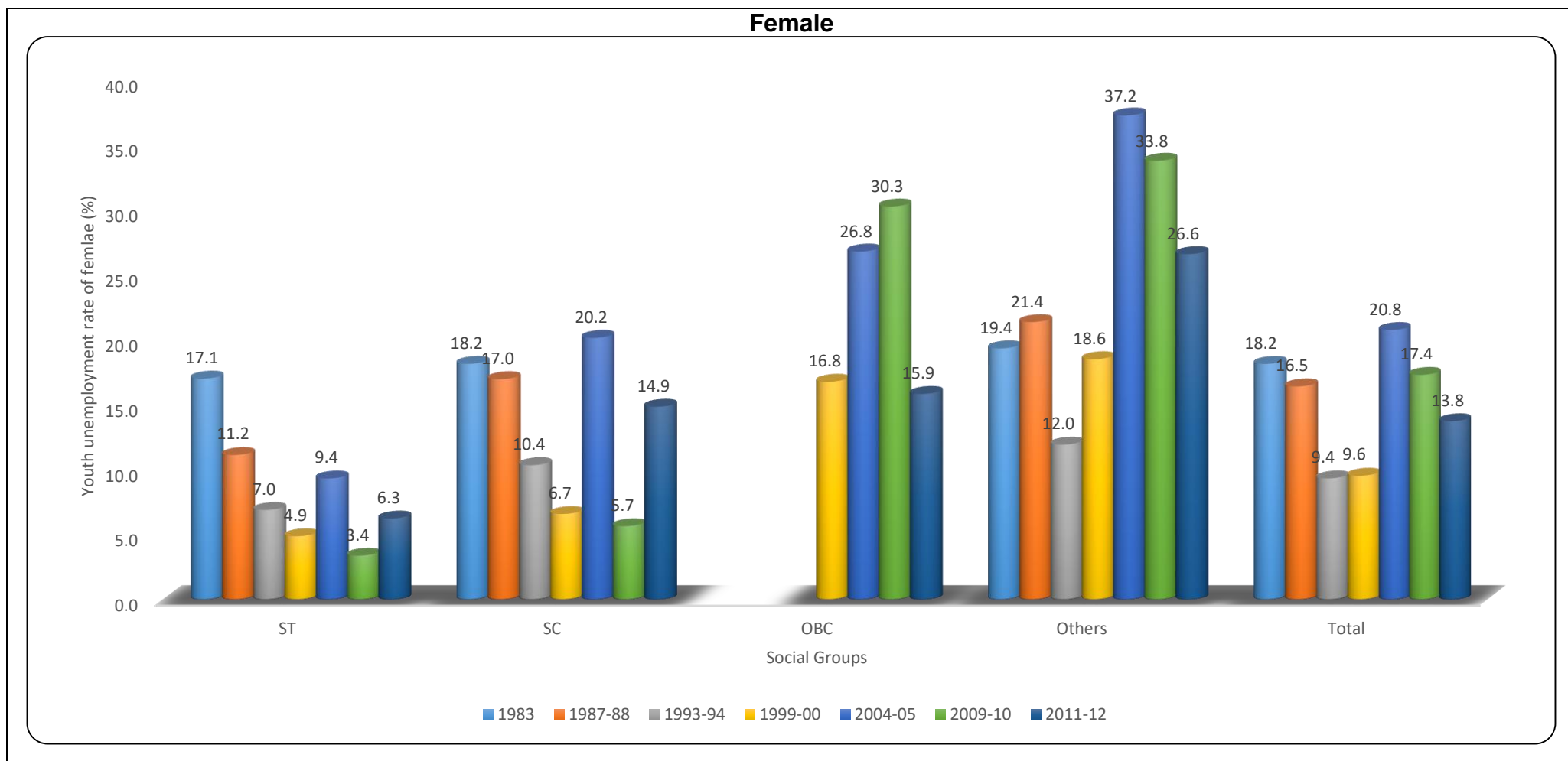
Source: Plotted using the estimates of NSS unit level data various round

Figure 2.16: Male youth unemployment rate (CDS) by social groups, 1983 to 2011-12



Source: Plotted using the estimates of NSS unit level data various round

Figure 2.17: Female youth unemployment rate (CDS) by social groups, 1983 to 2011-12



Source: Plotted using the estimates of NSS unit level data various round

2.5.2. Youth unemployment by level of education in Odisha:

Based on the level of education we have estimated the youth unemployment and examined it. It is important to note that youth unemployment rate is high among highly educated youths in Odisha (See Table 2.4). The earlier studies like (Fare & Tiongsen, (2007); Kannan and Raveendran, (2012); Rangarajan et al., (2011); Thomas, (2013); Mehrotra et al., (2014); Parida, (2015) and Sorsa et al., (2015) claim that youth unemployment is very high due to increasing participation in education by the young boys and girls; but it is likely to increase as these young boys and girls start entering into the labour market.

Table 2.4: Youth unemployment rate (UPSS and CDS) by level of education in Odisha, 1983 to 2011-12

By Level of Education		1983	1987-88	1993-94	1999-00	2004-05	2009-10	2011-12
UPSS	Illiterate	1.1	2.0	0.5	0.4	3.4	1.9	0.2
	Primary	4.2	5.0	4.1	3.9	7.4	4.9	3.7
	Secondary	18.7	31.0	19.2	19.8	10.5	17.0	9.3
	Graduate and Above	18.7	49.4	36.0	37.9	34.0	37.7	22.3
	Technical education	10.0	20.2	18.7	37.8	45.7	29.2	28.7
	Total	3.4	5.9	4.4	5.2	9.9	8.5	5.2
	CDS	Illiterate	15.5	11.8	8.9	8.3	10.0	12.1
Primary	13.0	12.5	12.3	12.1	18.8	14.7	14.7	
Secondary	19.0	30.8	24.8	28.0	20.1	23.9	19.5	
Graduate and Above	16.3	46.7	41.2	45.9	43.3	48.4	28.5	
Technical education	8.8	21.0	20.7	47.7	45.9	28.2	31.8	
Total	14.6	14.0	12.6	13.3	19.2	18.2	16.1	

Source: Authors' Estimate from NSS unit level data various round

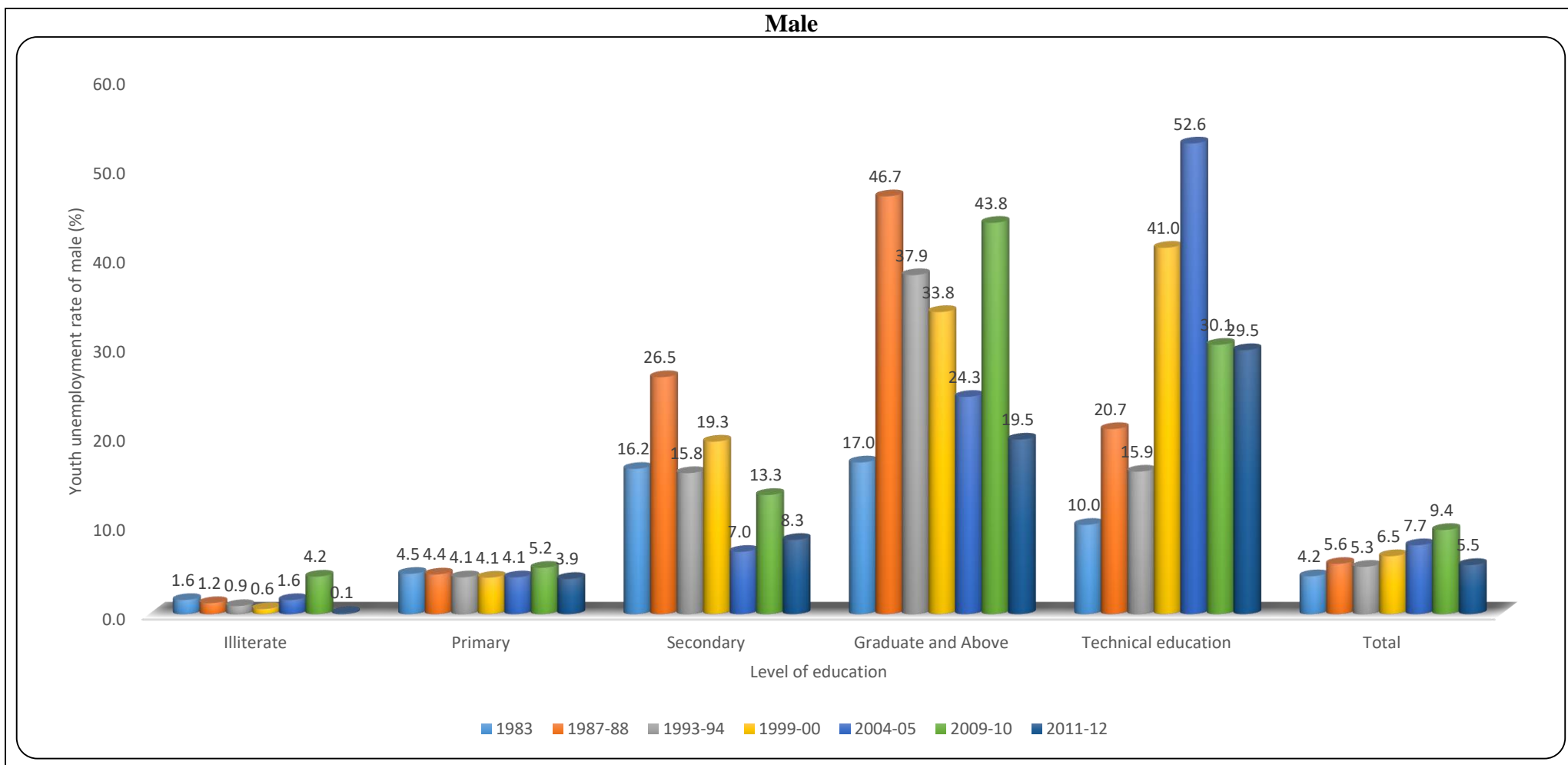
As per the current daily status (CDS), the youth unemployment rate is also increasing over the years (See Table 2.4). But it is important to note that the rate of

unemployment is quite higher among the educated youths. The unemployment rate increases with increasing level of education. Total youth unemployment rate increased from 14.6 per cent to about 16 per cent during 1983 and 2011-12. The unemployment rate among youth having secondary level of education increased from 19 per cent to about 19.5 per cent during 1983 and 2011-12. And unemployment rate among youth having graduation and above level of education increased from 16 per cent to about 28.5 per cent during 1983 and 2011-12.

As per the UPSS status, the youth unemployment rate is also increasing over the years (See Table 2.4). But it is also important to note that the rate of unemployment is quite higher among the educated youths. Total youth unemployment rate increased from 3.4 per cent to about 5.2 per cent during 1983 and 2011-12. However, the unemployment rate among youth having secondary level of education decreased from 18.7 per cent to about 9.3 per cent during 1983 and 2011-12. But, the unemployment rate among youth having graduation and above level of education increased from 18.7 per cent to about 22.3 per cent during 1983 and 2011-12.

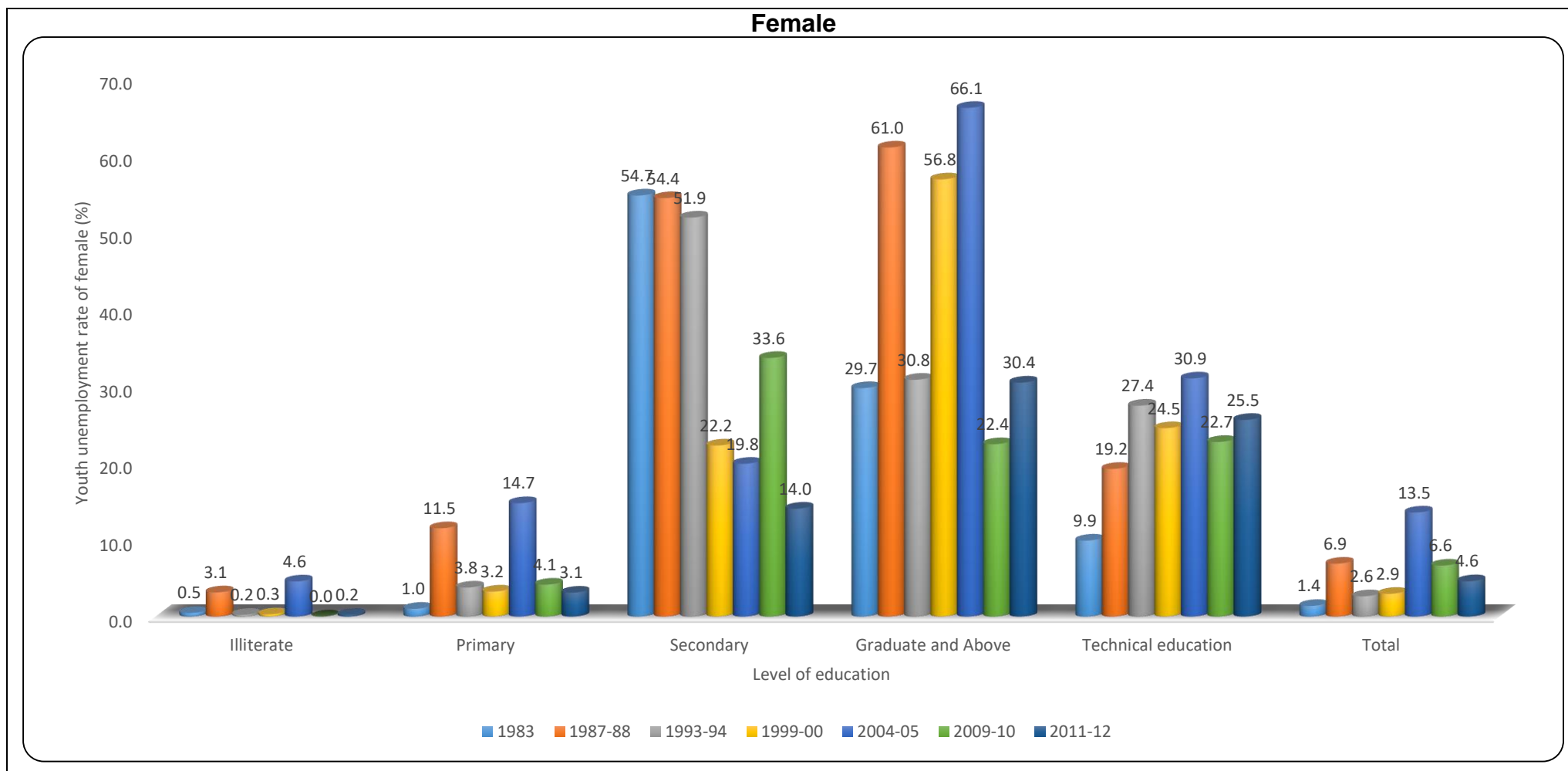
The gender wise comparison reveals that youth unemployment is very high among male as compared to females. Particularly at higher level of education (See Figure 2.18 and 2.19). But, it is important to note that even, in case of women the unemployment rate at lower level of education is quite high, which exceed the unemployment rate of their male counterparts.

Figure 2.18: Male youth unemployment rate (UPSS) by level of education in Odisha, 1983 to 2011-12



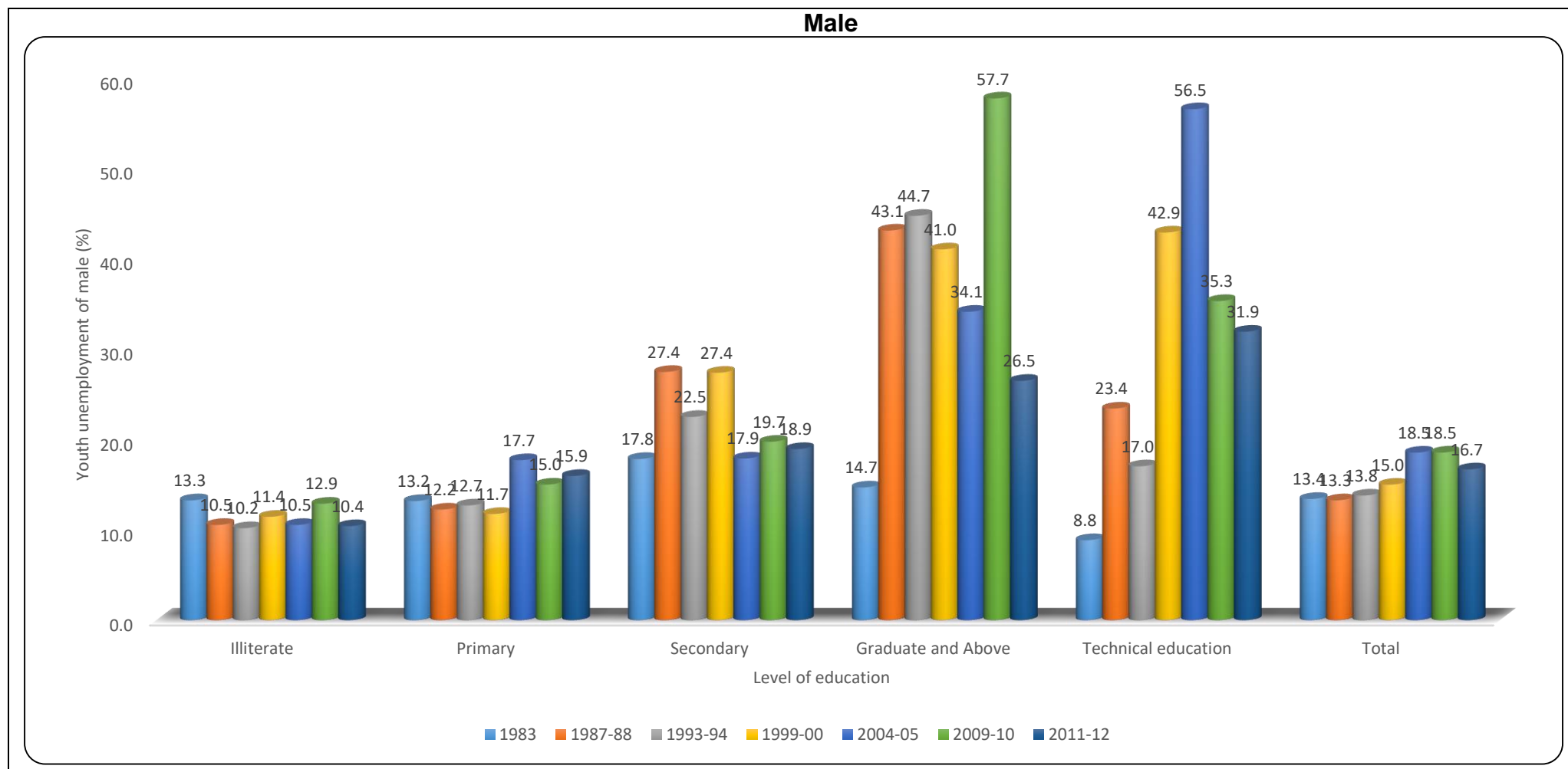
Source: Plotted using the estimates of NSS unit level data various round

Figure 2.19: Female youth unemployment rate (UPSS) by level of education in Odisha, 1983 to 2011-12



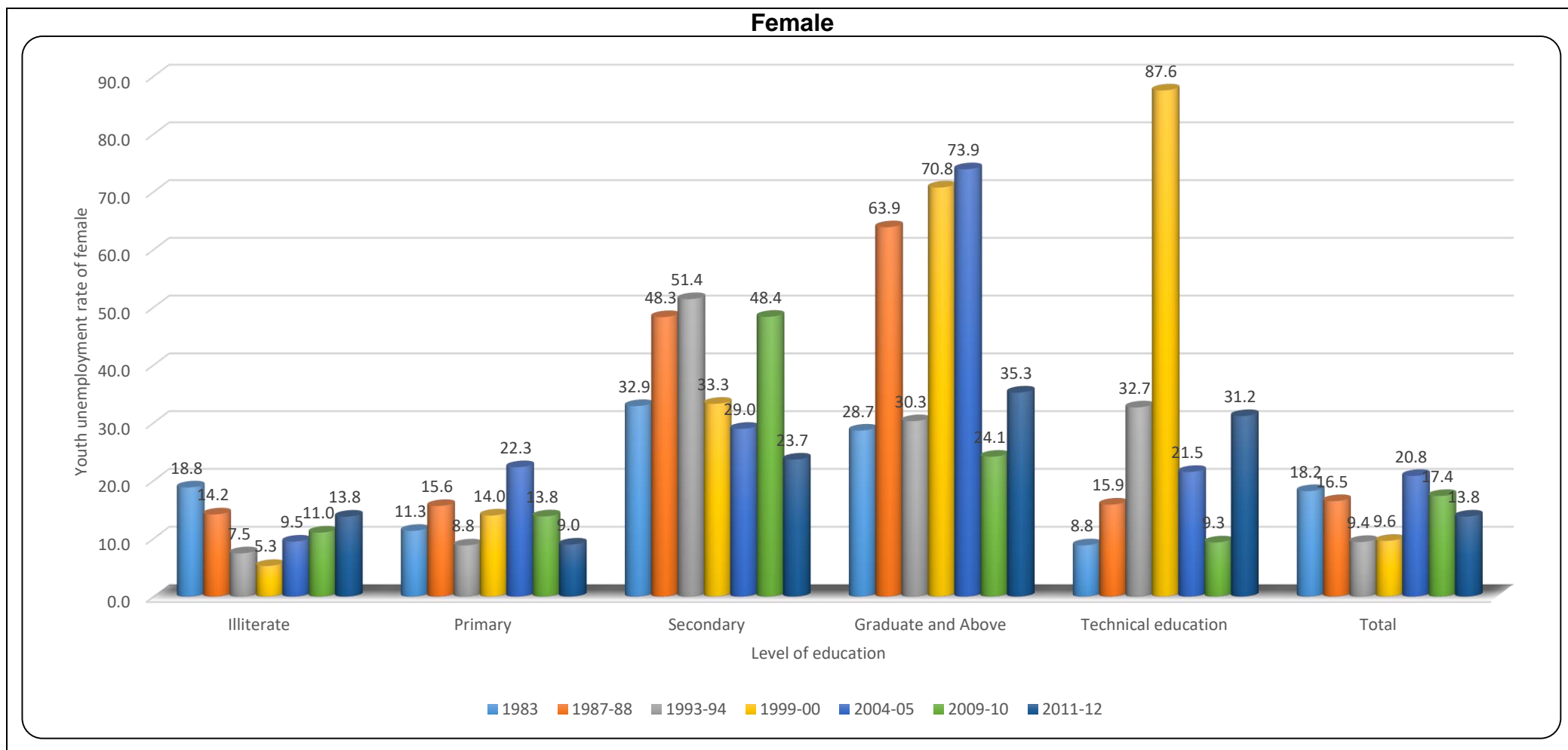
Source: Plotted using the estimates of NSS unit level data various round

Figure 2.20: Male youth unemployment rate (CDS) by level of education in Odisha 1983 to 2011-12



Source: Plotted using the estimates of NSS unit level data various round

Figure 2.21: female youth unemployment rate (CDS) by level of education in Odisha 1983 to 2011-12



Source: Plotted using the estimates of NSS unit level data various round

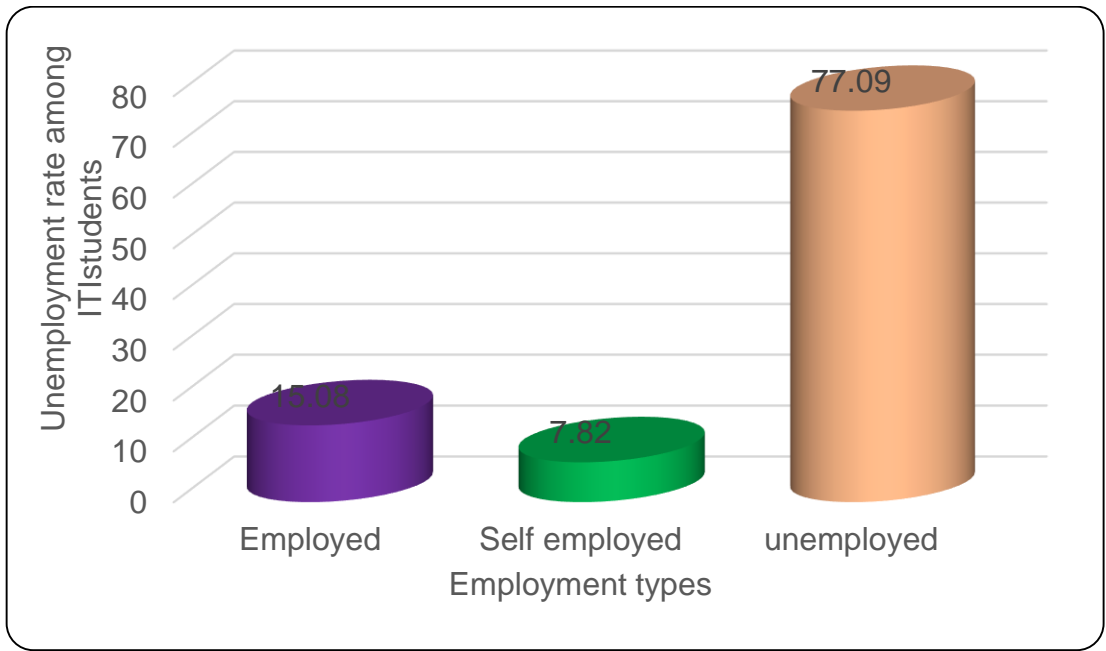
2.6. Unemployment Status of ITI Students (Evidence from Balasore Districts):

In this section we have discussed about the unemployment status of the ITI pass-outs. Using the primary data collected from *Balasore* District in Odisha, we have calculated the unemployment rate. We have collected data from 180 pass-out students. It shows that 77.09 per cent students are unemployed (Total 138 students).

We have not found any female ITI students from *Balasore* districts. Though Govt. ITI in *Balasore* is providing courses (Trade) that are relevant to female, their enrollment is quite low. And in the tracer study none of the pass-out females could be traced. All ITIs (both Govt. and private) in *Balasore* district providing the trade like Electrician, Fitter, Motor mechanics, Older and so on. A total of 42 colleges are currently functioning in *Balasore*. The tracer study also reveals that none of the ITI colleges are giving proper training to the students. That is why the reason for high unemployment rate among ITI pass out students (opinion of pass out students from various ITI colleges) (see figure. 2.21).

Out of total 138 unemployment students, 57 students belong to the the trade of electrician, 19 students are Fitter, 11 are Motor Mechanics and 7 belongs to trades which includes Tuner, Older, Diesel Mechanics and Automobile etc. It also find that most of these ITI colleges do not provide employment through campus selections. Nor their apprentice pogramme is helpful to the students for getting and retaining their jobs.

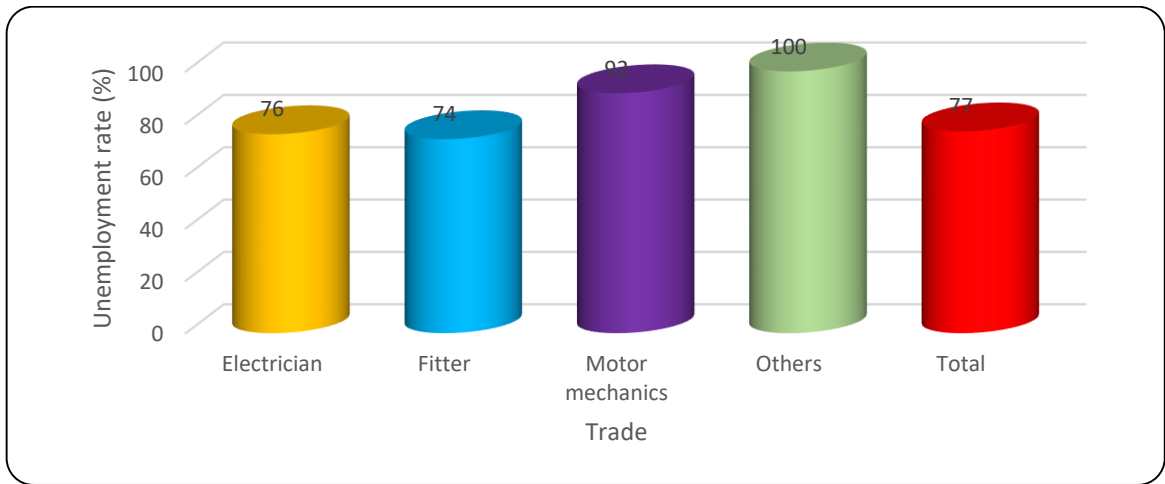
Figure 2.22. Unemployment in Balasore district among ITI Students.



Source: Plotted using primary survey

The rate of unemployment is high due to the skill gap between the demand side (institution or industry those who provides employment to the ITI students) and supply side (Pass out students). This is the reason, for which large number of ITI pass-outs are entering into higher education (graduation and B.Tech.). And quite a number of ITI pass-outs are also preparing for competitive exam to get jobs in railway and Staff Selection Commision (SSC) etc.

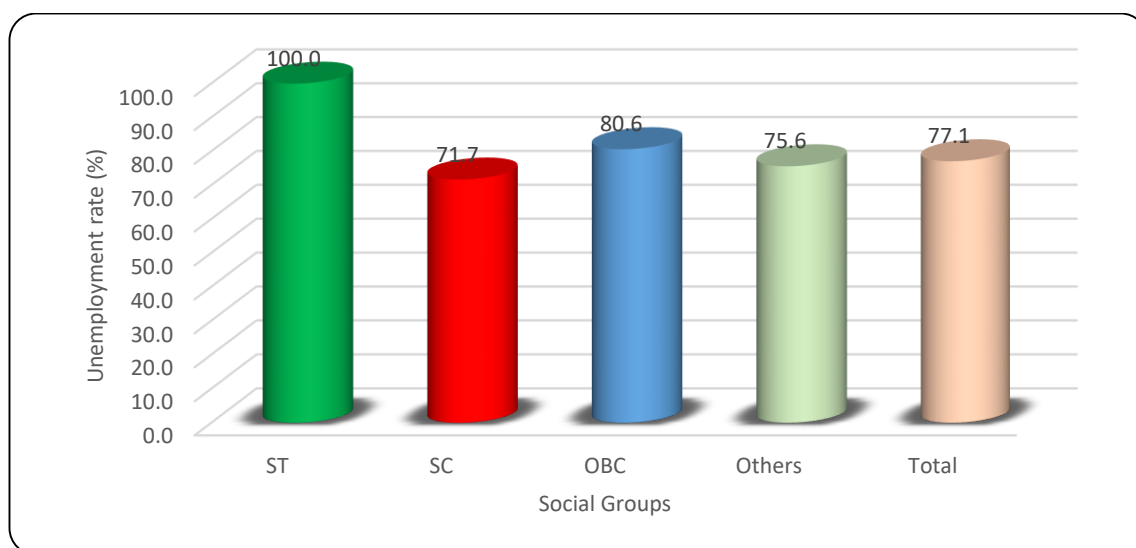
Figure 2.23. Unemployment status of ITI pass out students in Balasore district by TRADE.



Source: Plotted using primary data

The rate of unemployment among ITI pass out students is high as among STs and OBC category (see figure 2.24). Total unemployment rate among ST is 100 per cent, among OBC 81 per cent and about 76 per cent among general (Others) and 72 per cent among SC. Though unemployment rate among all caste groups are high, it is relatively low among SC.

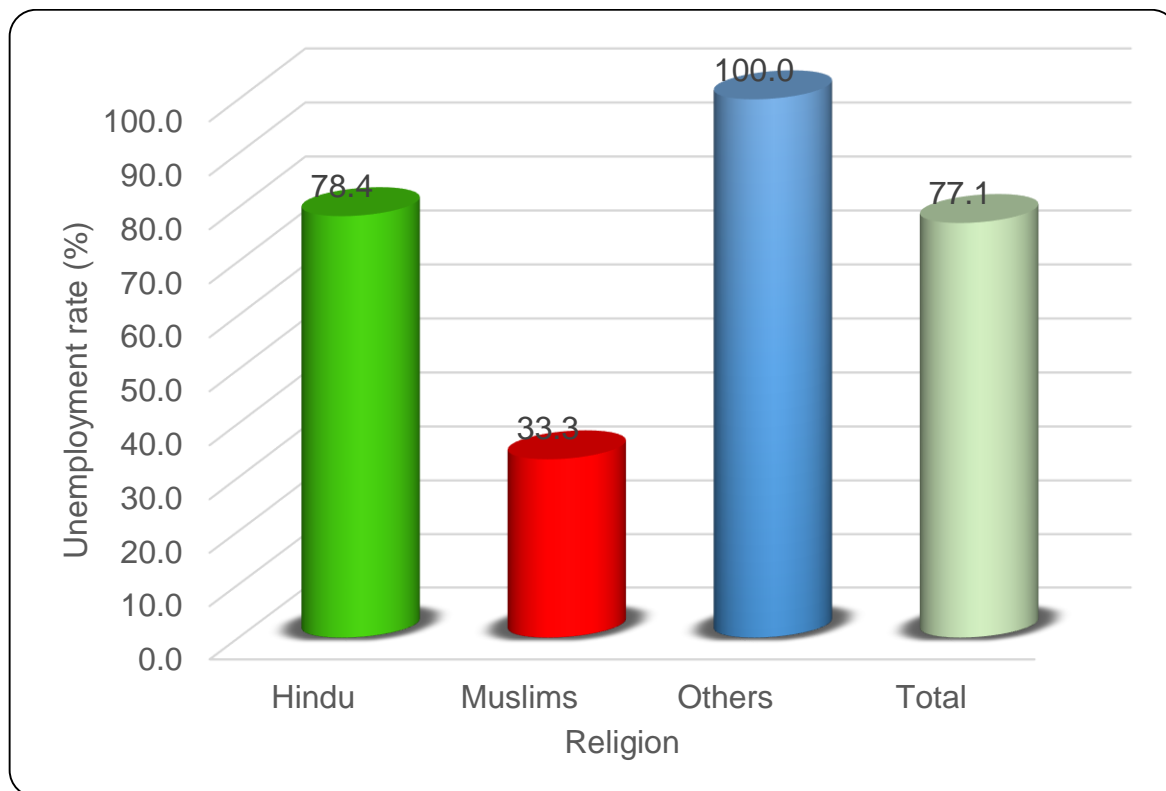
Figure 2.24. Unemployment rate among ITI pass out students in Balasore by social groups



Source: Plotted using primary data

Similarly, the Figure 2.25 explains religion-wise unemployment rate among ITI pass out students in *Balasore* district. Out of 77.1 per cent of unemployment 78.4 per cent belong to Hindu, 33.3 per cent belong to Muslims and 100 per cent others (includes Christian, Punjabi etc.). Though *Balasore* is having Muslims but more people are belong to Hindu. Most of the people wants to get job earlier. That's why people have enrolled their children in ITI and other vocational education but due to low skill education students are not able to get jobs. This situation is basically more in Hindu family and others than Muslim family.

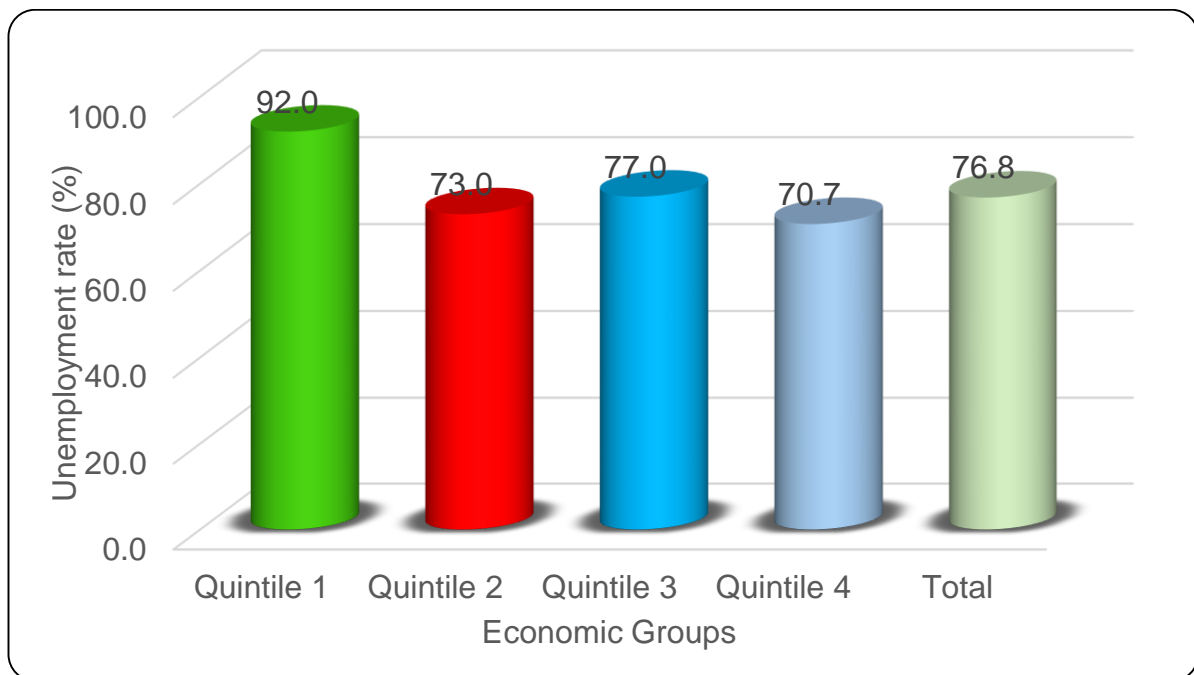
Figure 2.25. Unemployment rate among ITI pass out students by religion in Balasore



Source: Plotted using primary data

Economic status also plays an important role to get employed after passing the technical education. The result of the survey data explains that lower economic status have the positive effect on unemployment i.e. more number of students are unemployed in lower economic groups (92 per cent unemployed in quintile 1 (see figure 2.26). Quintile 2 and quintile 4, the share of unemployment rate are 73 per cent and 70.7 per cent.

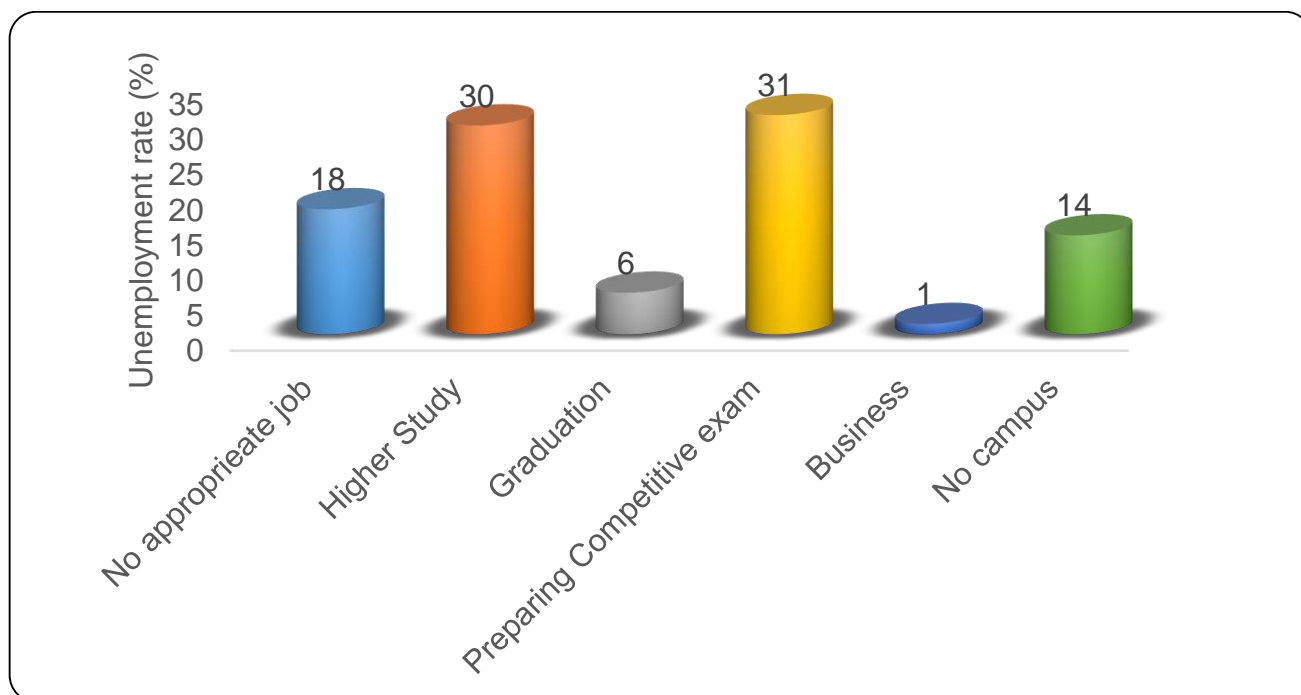
Figure 2.26. Unemployment rate among ITI pass out students by economic groups in Balasore



Source: Plotted using primary data

According to the opinion of the pass-out students the unemployment rate is high due to the following reasons: no appropriate jobs, no campus selection, inappropriate training (see Figure 2.27). About 18% students have given their opinion that, there are no appropriate jobs after completing ITI courses due to the skill gap between pass out student's capability and enterprises skill requirement. Due to this the ITI pass out students go for the higher study to get the appropriate jobs (30% student's opinion). Out of the total unemployment rate, 6 per cent had gone for doing graduation. About 31% students are preparing for the competitive jobs because their qualification is not sufficient to get the job due to the low training from the institution. Only 1% are doing business and due to no campus selection 14% students in no campus selection.

Figure 2.27. Reasons for not taking up jobs (Opinion from ITI pass out students)



Source: Plotted using primary data

2.7. Summary of findings

To sum up it can be stated that though overall unemployment rate is showing a cyclical trend, youth unemployment is consistently rising in Odisha. More importantly, the unemployment among educated youths is quite higher and it is increasing over the years. When we explored the unemployment status of the ITI pass-out, it also revealed that among these vocationally educated youth unemployment is quite higher. And this high unemployment is mainly due to the miss-match between their skill endowments and the skill requirement of their employer industries. Given this fact, it is important that the government of Odisha as well as the Central government should think about it and take necessary measures to address this skill gap. The skill up-gradation of ITI students through appropriate course design in consultation with industries located within the district is required. Furthermore, establishing an interlink-age between ITI colleges and industrial units is essential to generate industrial employment.

In the next chapter we are going to explore the sectoral employment pattern in Odisha, and to identify the employment generating sectors that could generate employment for both educated and relatively low- skilled youths in Odisha.

Chapter-III

Employment Generating Sectors in Odisha

3.1. Introduction:

In this chapter an attempt is made to study the trends and pattern of overall employment in Odisha, and to identify the sectors that is generating youth employment in Odisha. In a context, where a Lewisian (Lewis, 1954) transition is taking place, identifying the employment generating sectors in non-farm sector is important. Because, focusing on the employment generation in these sectors would likely to sustain the structural transformation, which would help sustaining growth of output in Odisha.

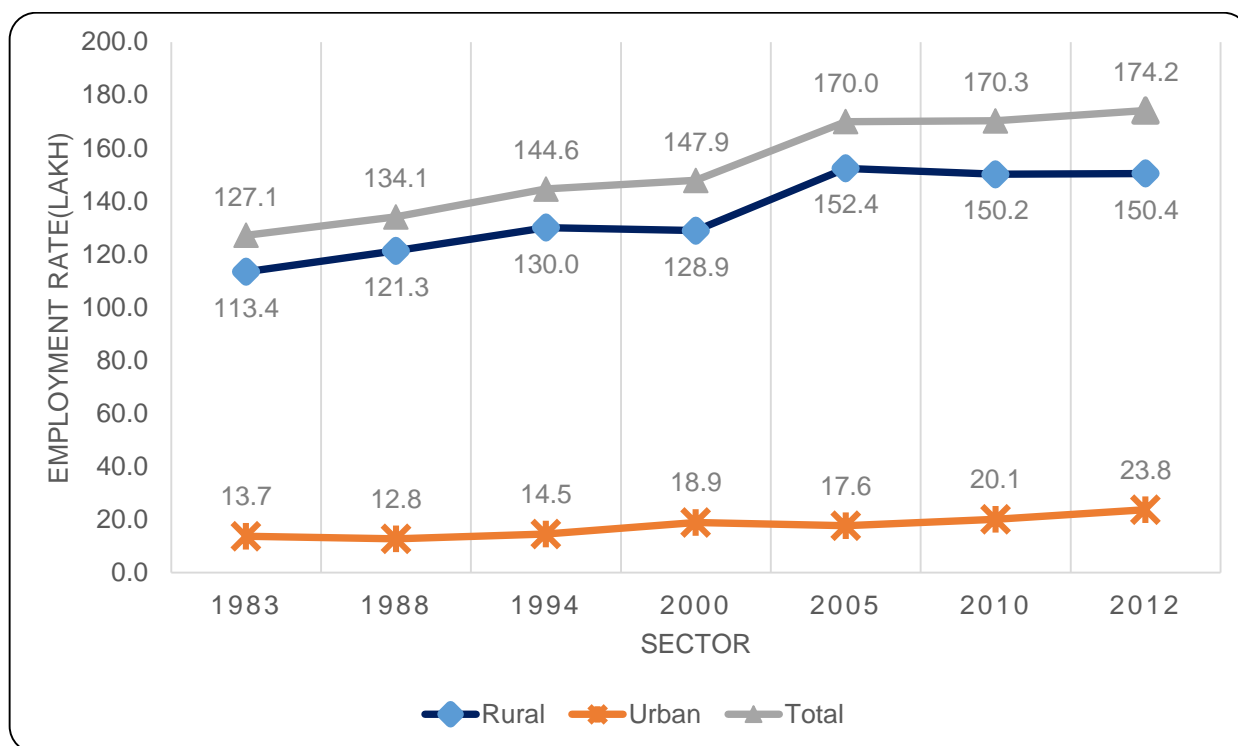
3.2. Employment trends in Odisha, 1983-2012

3.2.1. Sectoral (rural and urban) Employment trends in Odisha:

Total employment in Odisha is showing an increasing trend (See Figure 3.1). In absolute terms, total employment increased from 127 lakhs to 174 lakhs during 1983 and 2012. Since, Odisha is one of the backward and agrarian states of India in which a large share of population are living in rural areas. The share of rural employment is very high in total employment (it is about 86 percent during 2011-12). Total employment in rural areas was about 113.5 lakhs during 1983. It increased to about 150.5 lakhs during 2011-12. Though total employment in urban Odisha is quite low, it increased from 13.7 lakhs (about 11 per cent) to 23.8 lakhs (about 14 per cent) during 1983 to 2011-12.

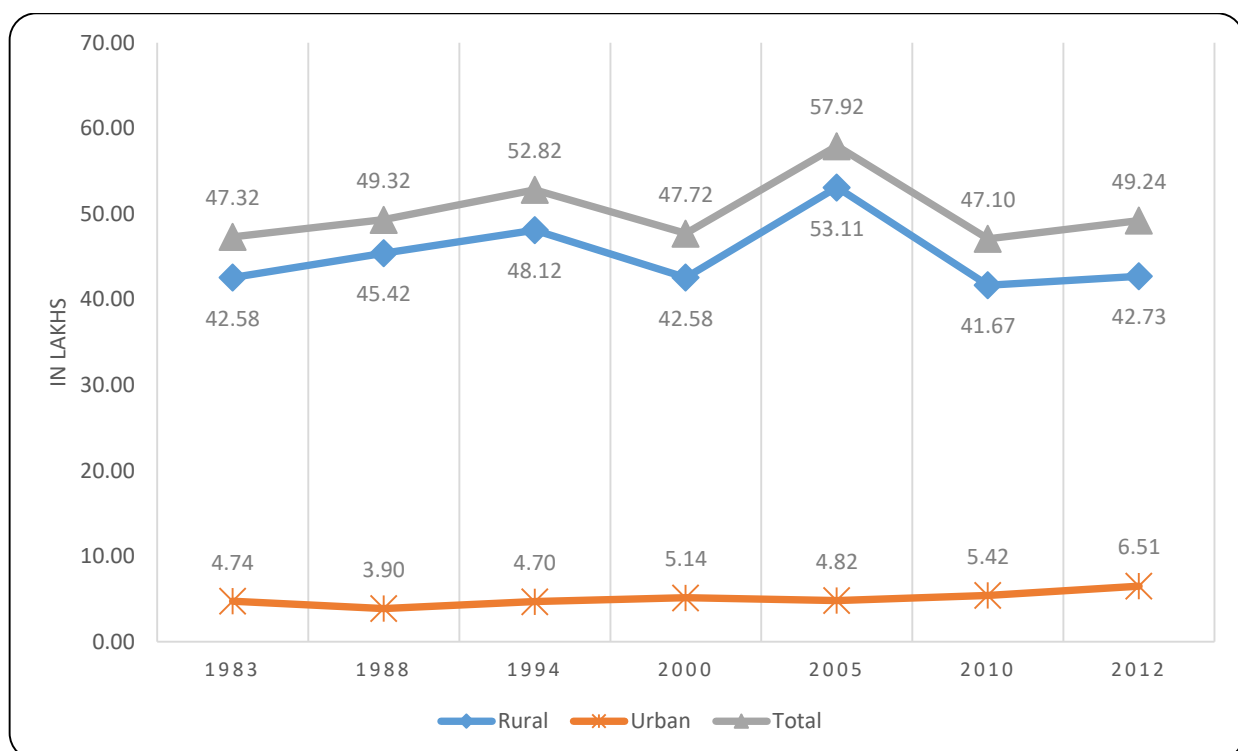
Similarly, total youth employment in Odisha is showing an increasing trend (See Figure 3.2). In absolute terms, total employment increased from 47.3 lakhs to 49.2 lakhs during 1983 and 2012. Though the share of rural youth employment on total youth employment declined from about 90 per cent to about 86 percent during 1983 and 2011-12, in terms of absolute number it is almost stagnant. Total youth employment in rural Odisha was about 42.6 lakh during 1983. And during 2011-12, it is about 42.7 lakhs (See Figure 3.2). However, the youth employment in urban Odisha increased from about 4.7 lakhs to about 6.5 lakhs during the same period.

Figure-3.1: Employment Trends in Odisha by Sector (value in lakhs)



Source: Plotted using the estimates of NSS unit data, various rounds

Figure-3.2: Youth Employment Trends in Odisha by Sector (in lakhs):



Source: Plotted using the estimates of NSS unit data, various rounds

Table 3.1. Employment Trends in Odisha by sex in both rural and urban Odisha, 1983 to 2012 (value in lakhs).

Year	Rural			Urban			Rural + Urban		
	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
1983	80.1	33.3	113.4	11.7	2.0	13.7	91.8	35.3	127.1
1988	87.5	33.8	121.3	10.9	1.9	12.8	98.4	35.8	134.1
1994	83.7	46.3	130.0	11.6	3.0	14.5	95.3	49.3	144.6
2000	83.0	45.9	128.9	14.8	4.1	18.9	97.8	50.1	147.9
2005	97.7	54.7	152.4	13.9	3.7	17.6	111.6	58.4	170.0
2010	105.8	44.4	150.2	16.8	3.3	20.1	122.6	47.7	170.3
2012	105.5	44.9	150.4	19.2	4.5	23.8	124.8	49.4	174.2

Source: Table generated by using the estimates of NSS unit data, various rounds

3.2.2. Sectoral Employment trends by gender groups in Odisha:

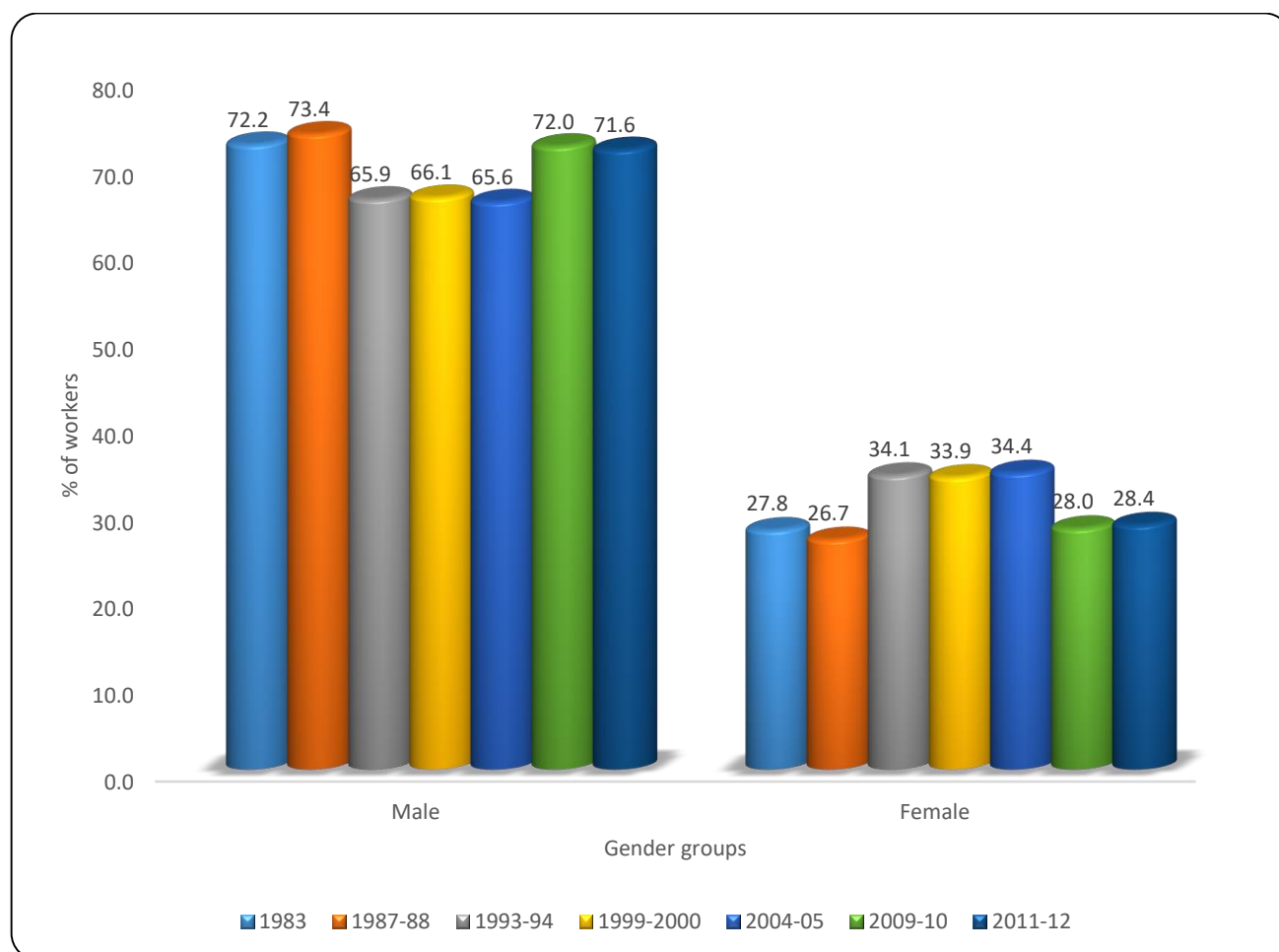
The gender wise comparison of total employment implies that the share of females in total employment is about 30 per cent in Odisha. During 1983, the share of female employment to total employment was 28.6 per cent, it increased to about 37 per cent during 1994-2000, but it declined further to 29.4 per cent during 2011-12 (See Figure 3.3).

The rural-urban comparison reveals that the share of female employment is higher in rural areas as compared to urban areas. In rural Odisha about 30 per cent of the total workers are female, whereas in urban areas the share of females in total workforce is about 20 per cent. It is important to note that both rural and urban employment trends in Odisha is showing that the share of female employment had increased during 1999-2000, but it declined during 2011-12 (see Figure 3.4 and 3.5). Nevertheless, we have observed a net increase in female employment share in urban Odisha (see Figure 3.5) from about 16 per cent during 1983 to 20 per cent during 2011-12.

The declining share of female employment in rural Odisha could be due to the falling absolute employment in agriculture. Because in rural areas, females are mostly engaged in agriculture and often they do supportive activities (Mehrotra et al., 2014; and Parida, 2015). While in urban areas, due to growth of service sector employment, mainly due to the growth of social services (including education, health), and hotel trade and financial services etc., the share of female workers in urban areas might have increased in Odisha.

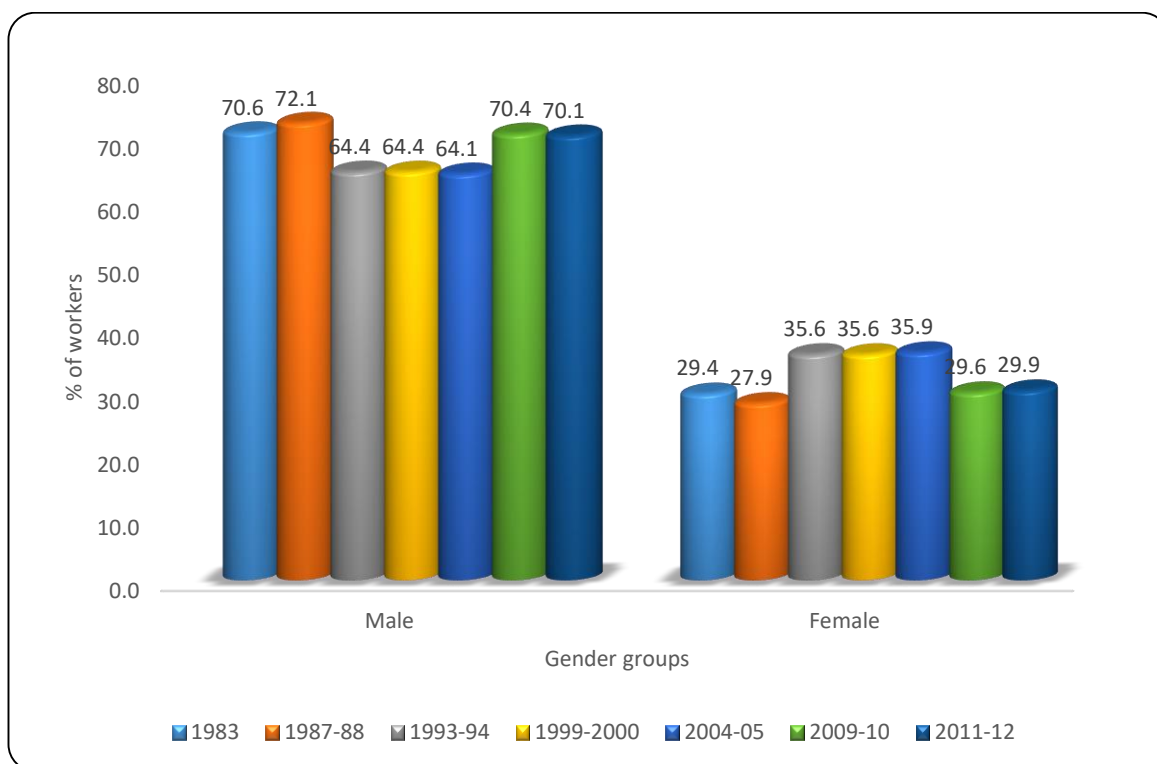
In the next subsection we have explored the sectors, those drive overall employment growth in Odisha.

Figure-3.3. Share of Male and Female Worker in Odisha.



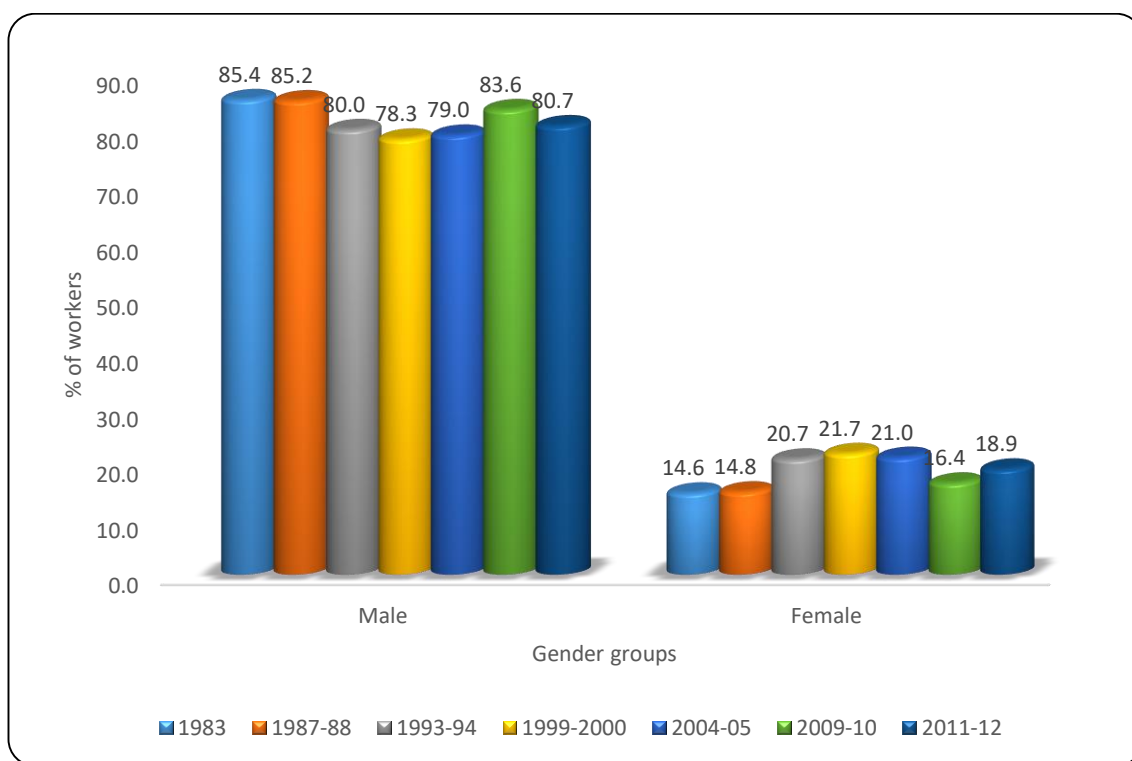
Source: Plotted using the estimates of NSS unit data, various rounds

Figure: 3.4. Share of Male and Female Worker in Rural Odisha



Source: Plotted using the estimates of NSS unit data, various rounds

Figure-3.5. Share of Male and Female Worker in Urban Odisha



Source: Plotted using the estimates of NSS unit data, various rounds

3.2.3. Farm and non-farm employment trends in Odisha:

Agriculture sector was the largest employment generating sector in Odisha during 1983. Out of total 127 lakhs worker, about 91 lakhs (about 72 per cent) were engaged in this sector during 1983 (see Table 3.2 and Figure 3.6). Agriculture sector continued to generate enough employment with increasing numbers till 2004-05. However, during the post 2004-05 period, absolute employment in agriculture declined. This decline could be due to the growing mechanization (also See Mehrotra et al., (2014) in agriculture.

The growth of employment in manufacturing sector is very slow in Odisha. About 12.5 lakhs workers were engaged in manufacturing activities during 1983 which increased to about 17 lakhs (about 0.15 lakh per annum). But the share of manufacturing employment is remained constant at about 10 per cent (See Figure 3.7). Furthermore, it is important to note that the share of rural manufacturing sector is about 85 per cent (in 2011-12) in Odisha. This implies the fact that manufacturing sector in Odisha is still remained in a very primitive stage, which needs special policy attention.

The recent growth of construction sector drives the growth of employment in non-manufacturing¹ sector in Odisha. About 4 lakhs workers were engaged in non-manufacturing activities during 1983, which increased substantially to about 21 lakhs (about 0.6 lakh per annum). But it is important to note that during the post 2004-05 period, it increased substantially from about 12 lakhs to 21 lakhs (See Table 3.2). When we have compared between rural and urban areas, it reveals that a significant share of non-manufacturing employment is generated in rural Odisha. This growth of construction sector employment might be partly due to the introduction of MGNREGA employment in Odisha (Also see Parida, 2016 for MGNREGA employment in rural Odisha)

Service sector is the second major employment generating sector in Odisha. During 1983, it contributed about 16 percent to the total employment in Odisha (See Figure 3.8). This share increased to about 22 percent during last 30 years and it is now (during 2011-12) providing employment to about 38 lakhs population in Odisha.

¹ It consists of Construction, Mining and Quarrying, Electricity, Water Supply and Gas sectors.

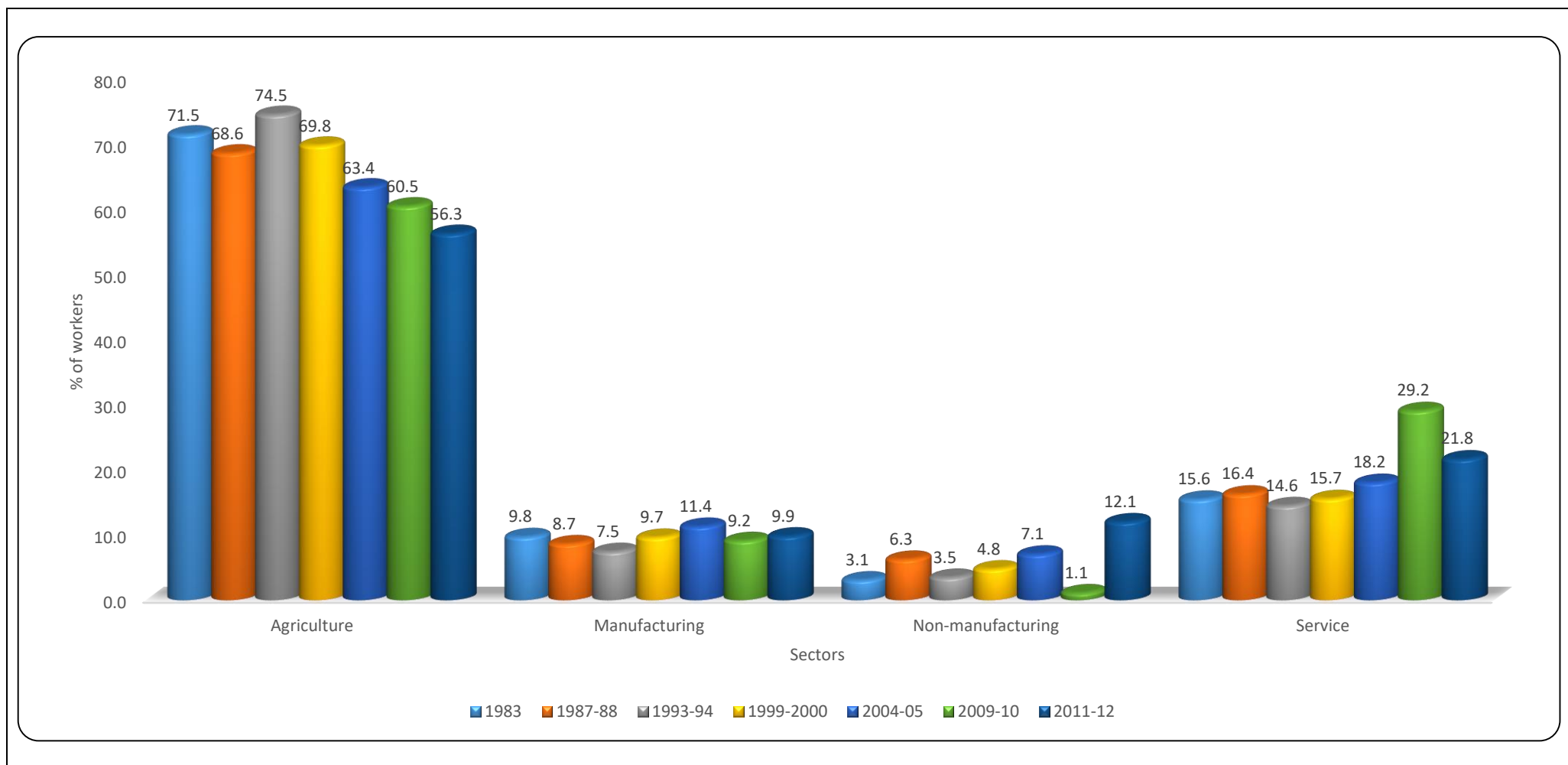
Out of this 38 lakhs, about 23 lakhs service sector employment is generated in rural areas and rest 15 lakhs in urban areas (See Table 3.2).

Table-3.2. Sectoral total employment trends in Odisha (value in lakhs)

Sectoral employment (in lakhs)	Rural + Urban areas						
	1983	1988	1994	2000	2005	2010	2012
Agriculture and Allied	90.9	92.0	107.7	103.3	107.7	103.2	98.0
Manufacturing	12.5	11.6	10.8	14.3	19.4	15.7	17.2
Non-manufacturing	3.9	8.5	5.1	7.1	12.0	1.8	21.0
Service	19.8	22.0	21.1	23.2	31.0	49.7	38.0
Total	127.1	134.1	144.6	147.9	170.0	170.4	174.2
Rural Area							
Agriculture and Allied	88.9	90.6	105.4	100.8	105.2	101.4	94.7
Manufacturing	9.3	9.4	8.3	10.6	16.9	11.8	14.6
Non-manufacturing	2.6	7.1	3.7	4.8	9.8	1.0	18.2
Service	12.6	14.3	12.7	12.8	20.5	35.9	23.0
Rural Total	113.4	121.3	130.0	128.9	152.4	150.2	150.4
Urban Area							
Agriculture and Allied	2.0	1.4	2.3	2.5	2.5	1.8	3.4
Manufacturing	3.2	2.2	2.5	3.7	2.5	3.9	2.5
Non-manufacturing	1.3	1.4	1.4	2.4	2.2	0.8	2.8
Service	7.2	7.7	8.4	10.4	10.5	13.8	15.0
Rural Total	13.7	12.8	14.5	18.9	17.6	20.1	23.8

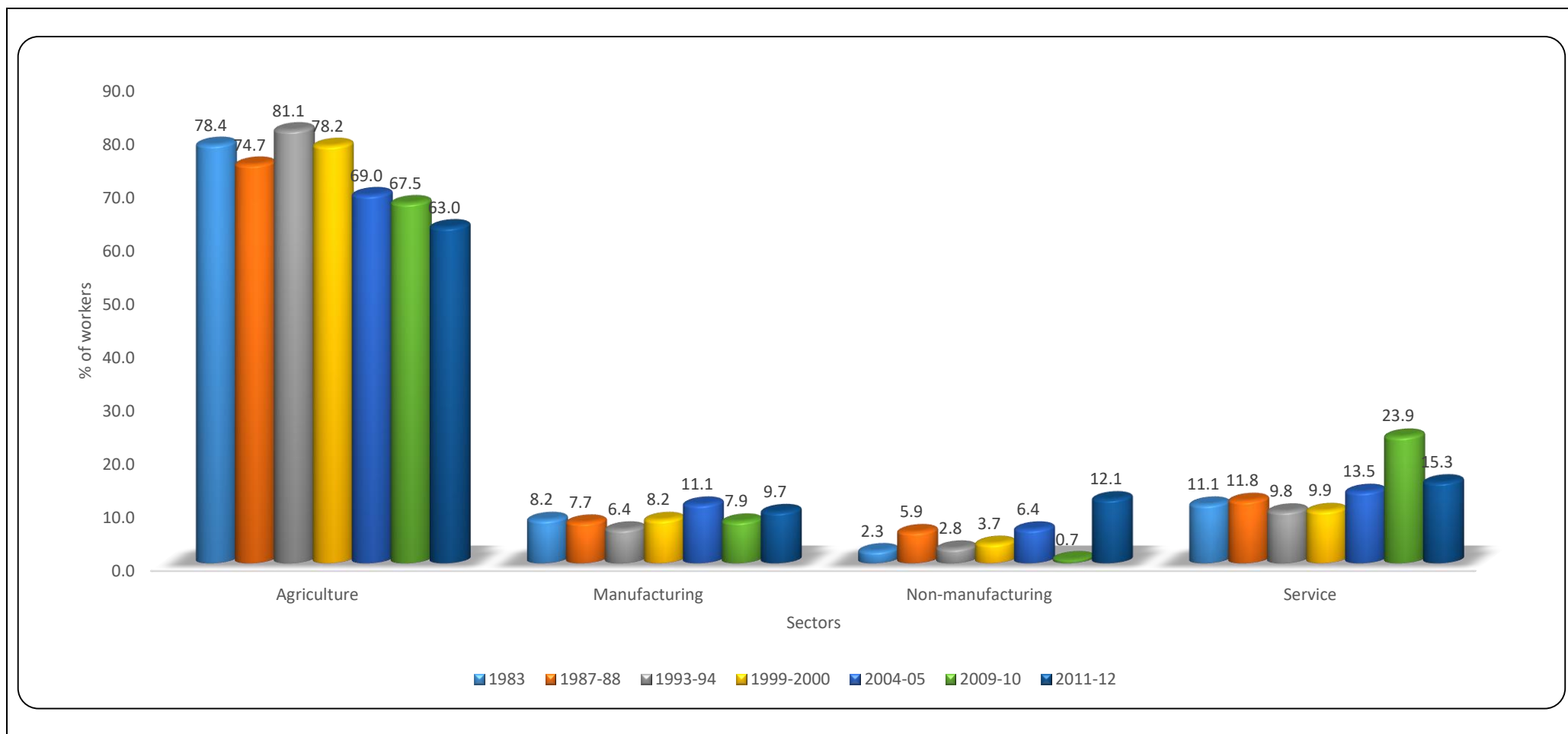
Source: Table generated by using the estimates of NSS unit data, various rounds

Figure-3.6. The share of sectoral employment in Odisha:



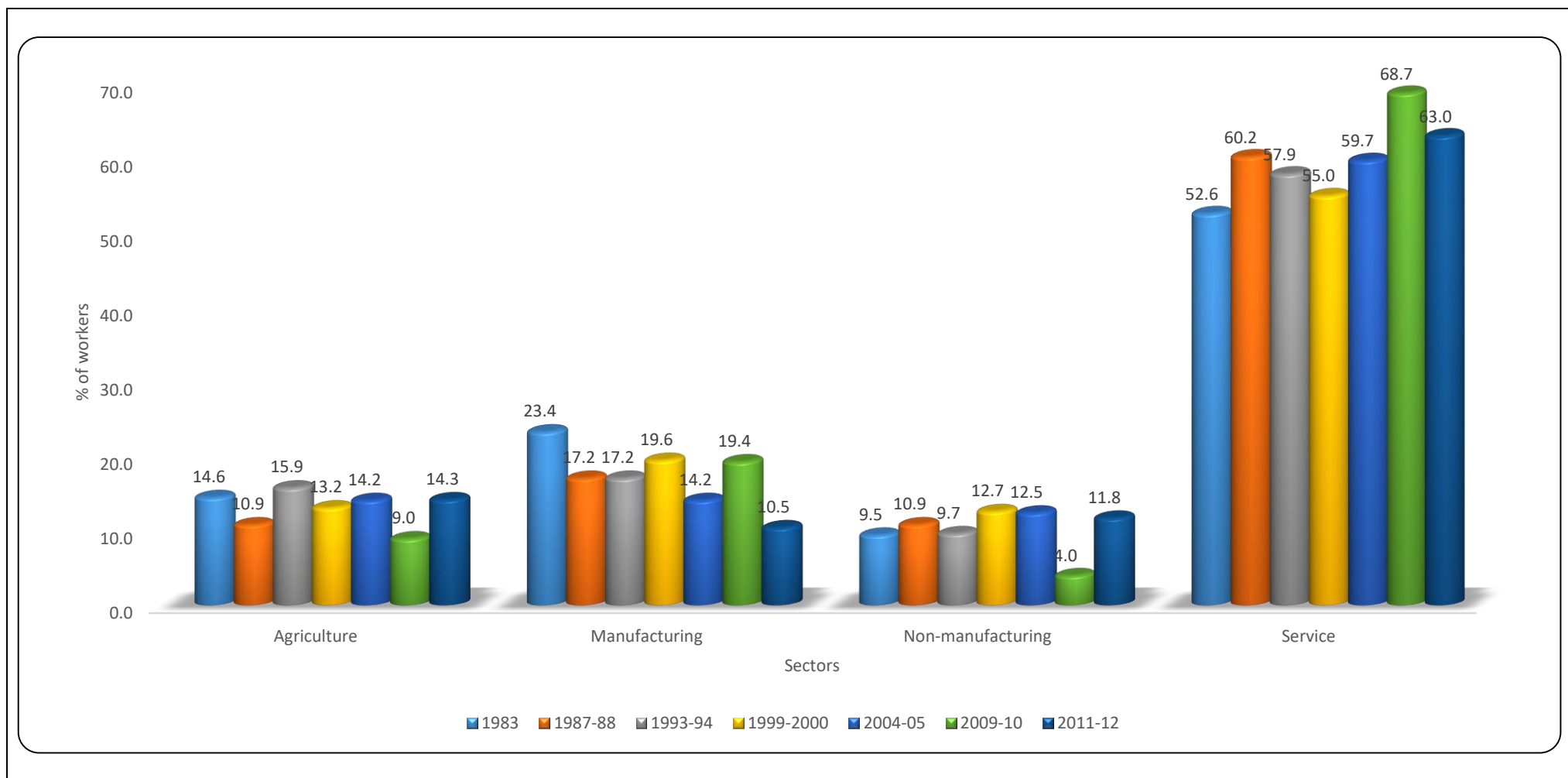
Source: Plotted using the estimates of NSS unit data, various rounds

Figure-3.7. The share of sectoral employment in rural Odisha:



Source: Plotted using the estimates of NSS unit data, various rounds

Figure-3.8. The share of sectoral employment (%) in urban Odisha:



Source: Plotted using the estimates of NSS unit data, various rounds

Agriculture sector was too the largest employment generating sector for youths in Odisha during 1983. Out of total 147 lakhs youth worker, about 35 lakhs (about 74 per cent) were engaged in this sector during 1983 (See Table 3.3 and Figure 3.9). But youth employment in agriculture sector is showing a cyclical trend in Odisha. It increased from 34.7 lakhs to 40.3 lakhs during 1983 and 1994, then declined to 34.3 lakhs during 1999-200, and increased to 37 lakhs during 2004-05, but since then it had been declining to reach 26.3 lakhs during 2011-12. Due to growing mechanization the job prospects of this sector is limited, and hence this it is expected that this sector is not going to drive the growth of employment in Odisha.

The manufacturing sector, particularly, rural manufacturing has contributed significantly to the growth of youth employment in Odisha. While youth employment in urban manufacturing sector had remained constant around 1 lakh, jobs in the rural manufacturing sector increased from 3.8 lakhs to 5.2 lakhs during 1983 and 2011-12 (See Table 3.3 and Figure 3.10). A policy measure that would focus on urbanization and urban industrialization would likely to boost growth of jobs in manufacturing sectors in Odisha. And as a result large number of young job seekers who are either displaced from agriculture and having a low level of skill can be employed.

Though youth employment in construction sector increased substantially from about 1.5 lakhs to 7.1 lakhs during 1983 and 2011-12. Major share of this construction employment growth is observed in rural Odisha only (See Table 3.3 and Figure 3.11). As discussed earlier, this growth of construction sector employment might be partly due to the introduction of MGNREGA employment. The recent decline in poverty (See Chauhan et al., 2016) and the improvements in household's living standards (See Mehrotra et al., 2014) could also explain it partly. Because with improved standard of living people start constructing *pucca* or cemented houses. And hence demand for construction workers increases in rural areas. However, urbanization could drive the growth of construction sector employment further and sustain it for a couple of decades.

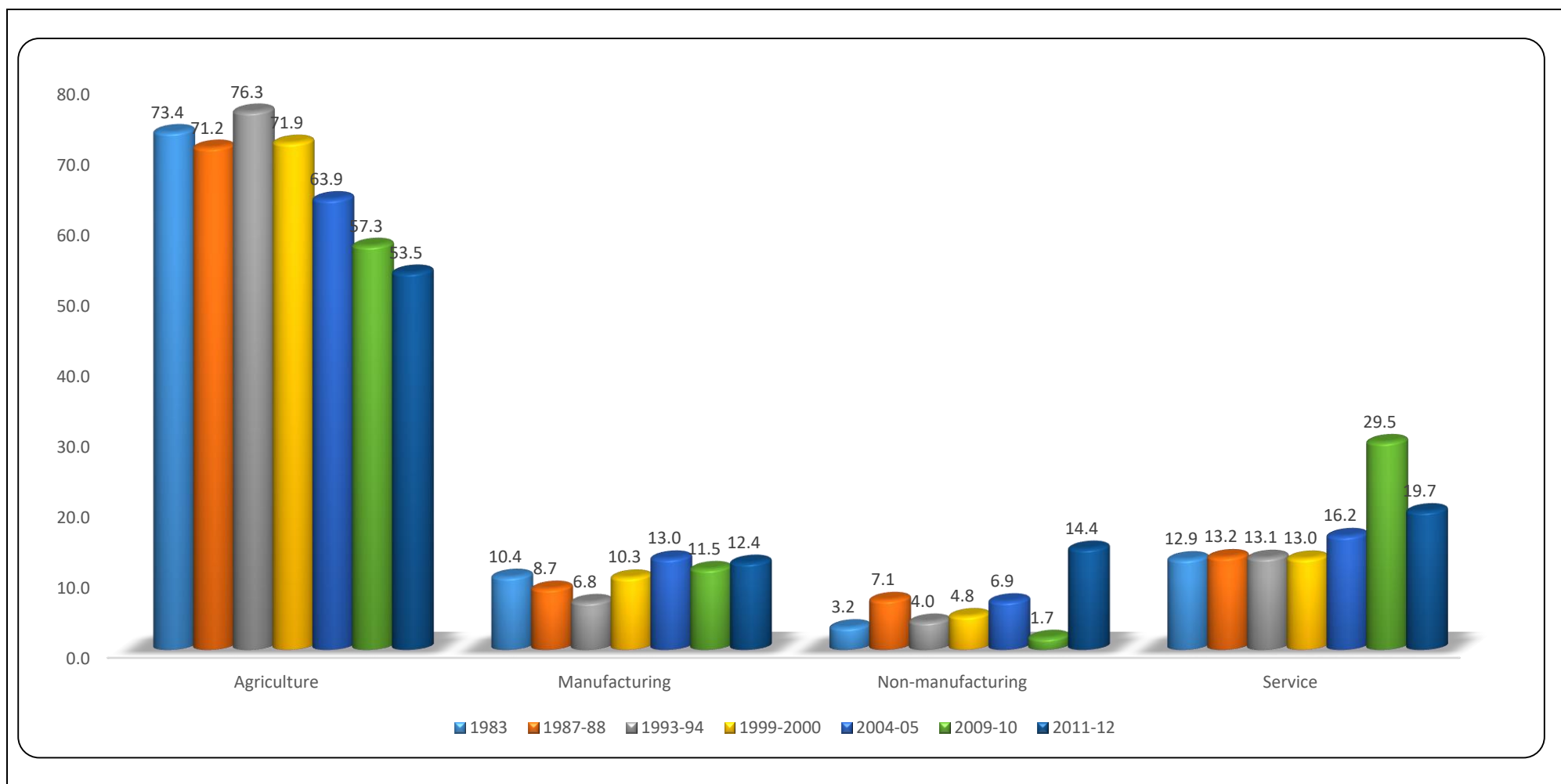
Though service sector contributes significantly to the growth of youth employment in both rural and urban Odisha, once again the share of rural areas is higher than that of the urban areas. In rural areas, mostly the informal sectors would

have contributed to the growth of service sector employment. This shows a significant growth from about 3.7 lakhs to 6.1 lakhs (almost doubled) during 1983 and 2011-12. While in urban areas, the growth of service sector employment is bit gradual. It increased from about 2.5 lakhs to 3.6 lakhs during 1983 and 2011-12. In the process of urbanization, the service sector has to play a greater role for generating jobs for youths.

Table 3.3. Sectoral youth employment trends in Odisha (value in lakhs)

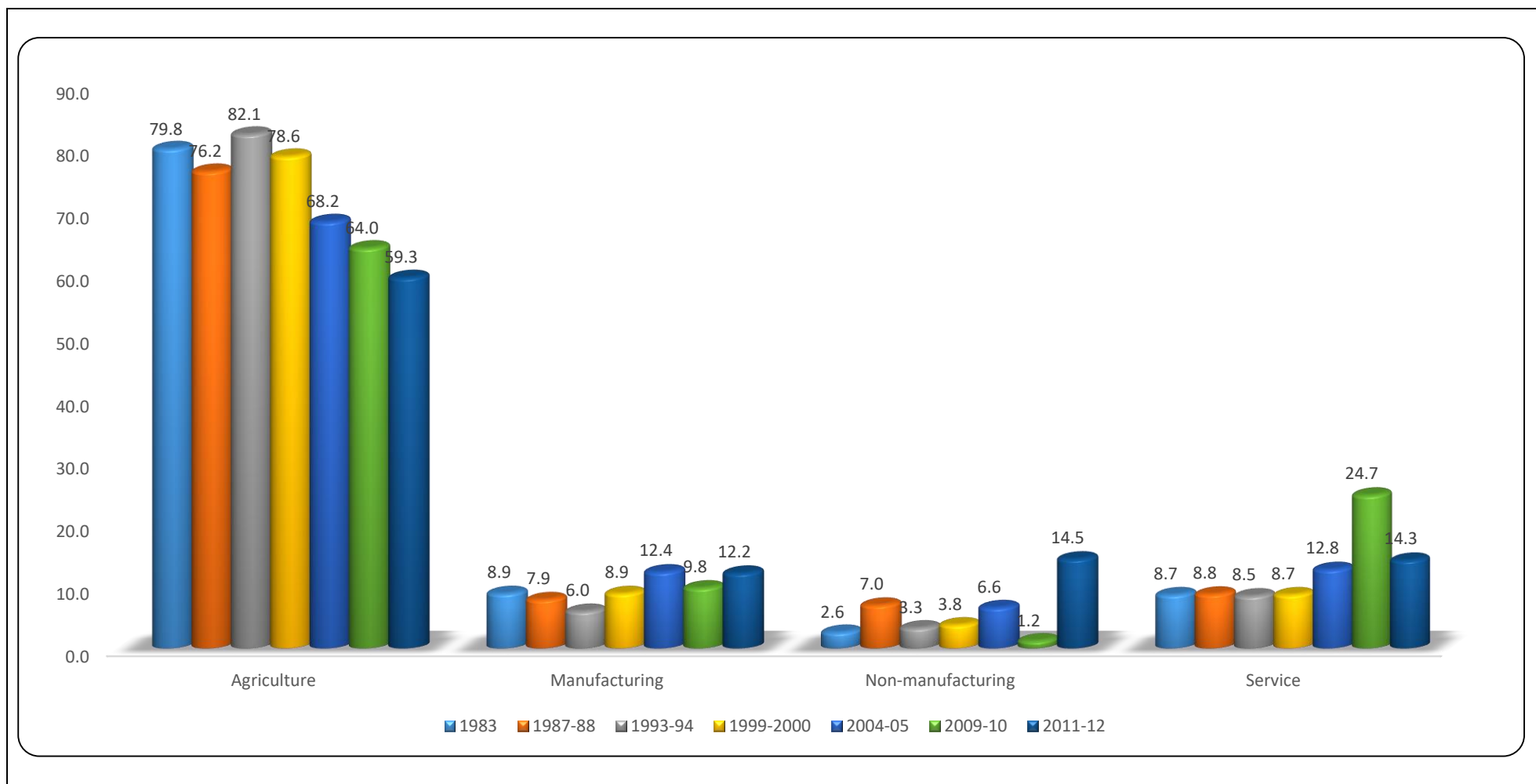
Sectoral employment (in lakhs)	Rural + Urban areas						
	1983	1988	1994	2000	2005	2010	2012
Agriculture and Allied	34.7	35.1	40.3	34.3	37.0	27.0	26.3
Manufacturing	4.9	4.3	3.6	4.9	7.5	5.4	6.1
Non-manufacturing	1.5	3.5	2.1	2.3	4.0	0.8	7.1
Service	6.1	6.5	6.9	6.2	9.4	13.9	9.7
Total	47.3	49.3	52.8	47.7	57.9	47.1	49.2
Rural Area							
Agriculture and Allied	34.0	34.6	39.5	33.5	36.2	26.7	25.3
Manufacturing	3.8	3.6	2.9	3.8	6.6	4.1	5.2
Non-manufacturing	1.1	3.2	1.6	1.6	3.5	0.5	6.2
Service	3.7	4.0	4.1	3.7	6.8	10.3	6.1
Rural Total	42.6	45.4	48.1	42.6	53.1	41.7	42.7
Urban Area							
Agriculture and Allied	0.7	0.5	0.8	0.9	0.7	0.3	1.0
Manufacturing	1.2	0.6	0.7	1.1	0.9	1.2	1.0
Non-manufacturing	0.4	0.3	0.5	0.7	0.6	0.3	1.0
Service	2.5	2.5	2.8	2.5	2.6	3.5	3.6
Rural Total	4.7	3.9	4.7	5.1	4.8	5.4	6.5

Figure 3.9. Share of youth employment (%) in Odisha, 1983-2012



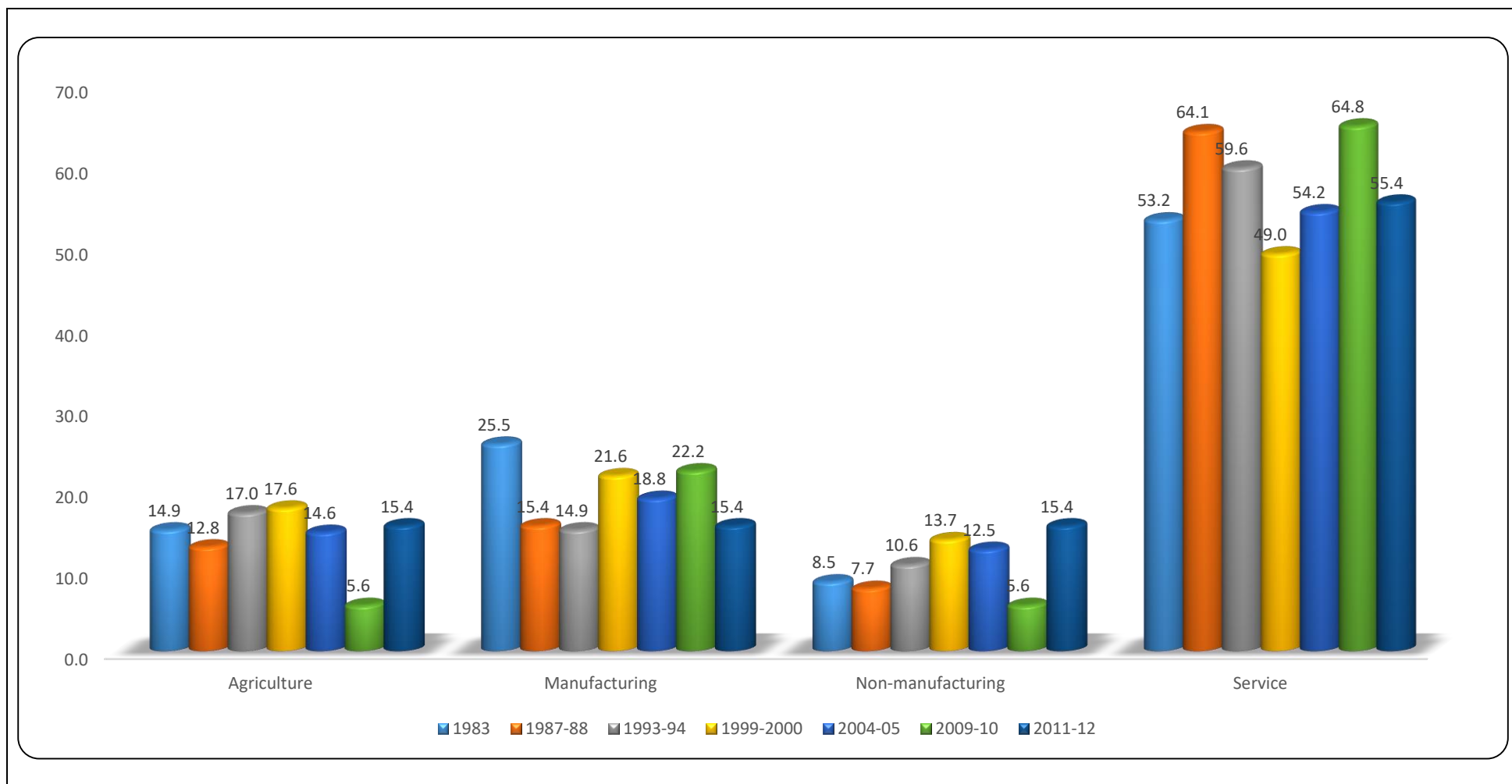
Source: Plotted using the estimates of NSS unit data, various rounds

Figure 3.10. Sectoral youth employment (%) in rural Odisha, 1983-2012



Source: Plotted using the estimates of NSS unit data, various rounds

Figure 3.11. Sectoral youth employment (%) in urban Odisha, 1983-2012



Source: Plotted using the estimates of NSS unit data, various rounds

3.3. Quality and Type of Youth employments in Odisha

It is also important to explore the type of employment generated in agriculture and non-agriculture, and the skill requirements of these sectors. In a context where both central and state government are focusing on skill development, an assessment of the skill requirements of non-farm sectors is important. In this section we have explored the type or quality of employment generated in Odisha over the years and in most recently.

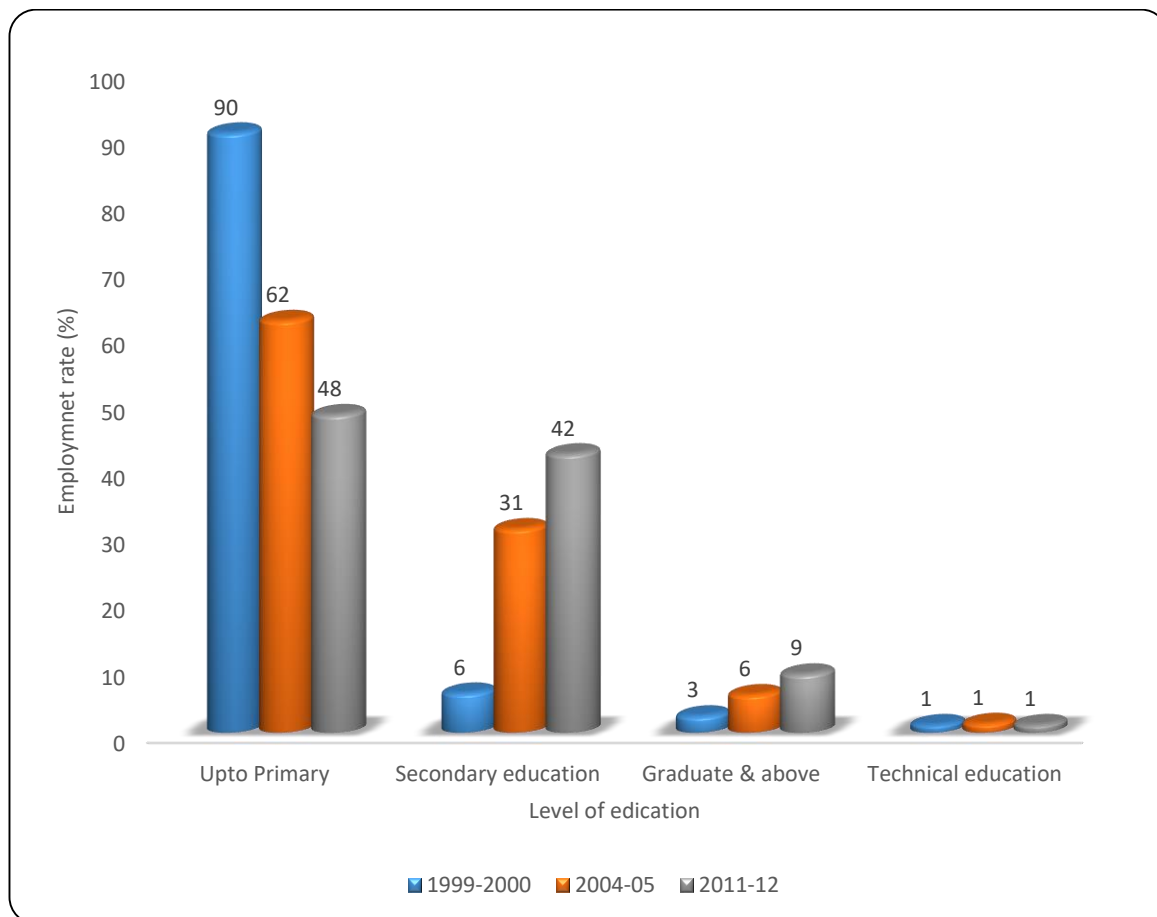
3.3.1: Employment patterns by Level of Education and Skill

When we divided the total workforce by the level of education in Odisha we found that about 90 per cent of the work force were having only primary level of education during 1999-2000 (See Figure 3.12). Though the share of workers with only primary level of education reduced over the last decade, its share remained very high (48 percent during 2011-12). However, it is important to note that the share of workers having secondary level of education increased substantially from about 6 per cent to 42 per cent during 1999-2000 and 2011-12 (See Figure 3.12). But the share of relatively skilled workers (with graduate and above level of education or having technical/vocational education) is still very low. It constitutes about 10 percent of the total workforce only.

A comparison of male and female workers reveals that, the share of low skilled workers among males is relatively lower than that of females. The share of male workers (within male) with up to primary level of education reduced from about 87 percent to 39 percent during 1999-2000 and 2011-12 (See Figure 3.13). Whereas, the share of female workers (within female) with up to primary level of education reduced from about 98 percent to 71 percent during 1999-2000 and 2011-12(See Figure 3.14). Furthermore the share of male workers (within male) with secondary level of education increased significantly from about 8 percent to 49 percent during 1999-2000 and 2011-12. While the share of female workers (within female) with secondary level of education increased from about 1 percent to 25 percent only during 1999-2000 and 2011-12. Though the share of male workers (within male) with graduate and above level of general education or having technical/vocational education increased from about 5 percent to 12 percent during

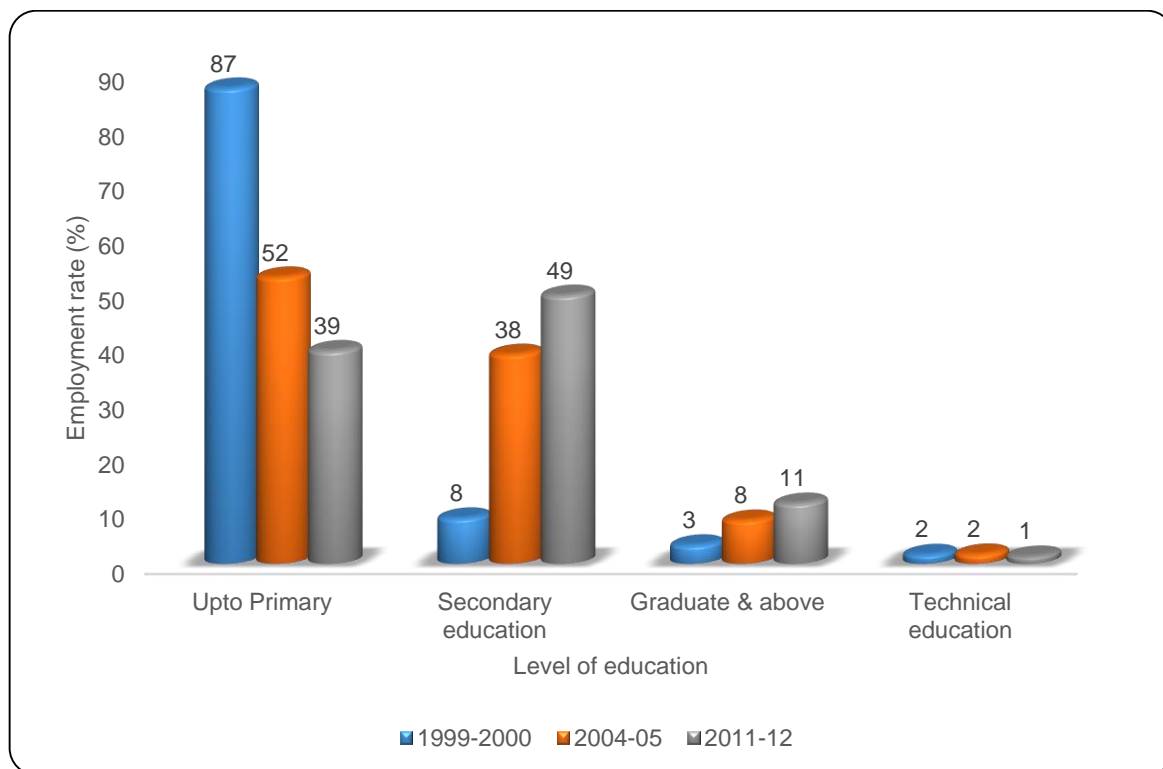
1999-2000 and 2011-12, the share of female workers (within female) in this category is still quite low (about 4 per cent during 2011-12).

Figure 3.12. Employment rate by level of education



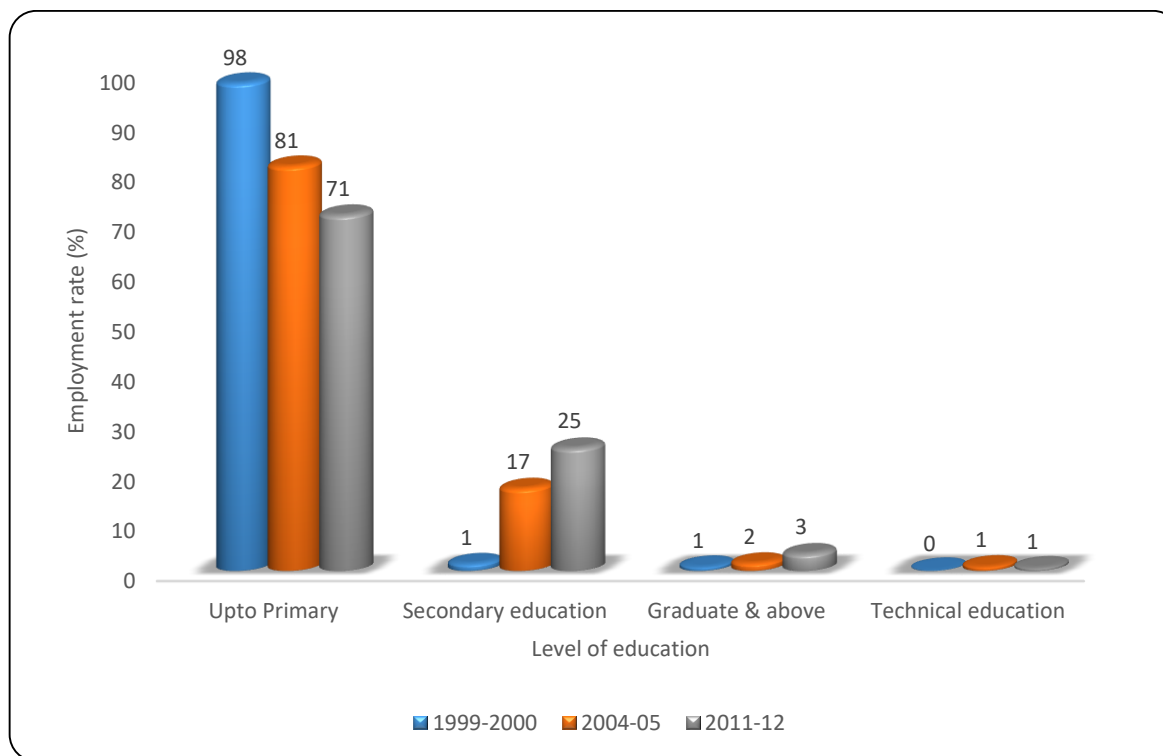
Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.13. Male employment rate by level of education



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.14. Female employment rate by level of education



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Table 3.4. Sectoral employment by education level in Odisha (value in Lakhs)

Sectoral employment by education level	Male											
	1999-2000				2004-2005				2011-2012			
	<i>Up to primary</i>	<i>secondary education</i>	<i>Graduate & above</i>	<i>Technical education</i>	<i>Up to primary</i>	<i>secondary education</i>	<i>Graduate & above</i>	<i>Technical education</i>	<i>Up to primary</i>	<i>secondary education</i>	<i>Graduate & above</i>	<i>Technical education</i>
Agriculture	61.8	3.0	0.5	0.2	40.6	22.7	2.2	0.3	30.9	31.5	3.2	0.0
Manufacturing	6.0	0.8	0.2	0.2	5.0	4.5	0.7	0.3	3.6	5.0	0.9	0.4
Non-manufacturing	4.9	0.5	0.1	0.2	5.8	3.1	0.3	0.2	8.2	7.4	1.2	0.2
Service	11.9	3.9	2.5	1.0	6.8	12.3	5.6	1.1	5.8	17.1	8.3	1.0
Total	84.7	8.1	3.3	1.6	58.2	42.5	8.8	1.9	48.4	61.0	13.7	1.6
	Female											
Agriculture	37.6	0.2	0.0	0.0	35.9	5.9	0.0	0.0	23.9	8.2	0.3	0.0
Manufacturing	6.9	0.1	0.0	0.0	6.7	2.1	0.1	0.1	5.2	1.9	0.2	0.0
Non-manufacturing	1.4	0.1	0.0	0.0	2.4	0.2	0.0	0.0	3.5	0.4	0.0	0.0
Service	3.0	0.3	0.3	0.1	2.4	1.6	0.7	0.4	2.6	1.7	1.1	0.3
Total	48.9	0.7	0.4	0.1	47.4	9.7	0.9	0.5	35.2	12.2	1.7	0.3
	Male + Female											
Agriculture	99.4	3.2	0.6	0.2	76.5	28.6	2.2	0.3	54.7	39.7	3.6	0.0
Manufacturing	13.0	0.8	0.2	0.3	11.7	6.6	0.8	0.3	8.7	6.9	1.1	0.4
Non-manufacturing	6.3	0.6	0.1	0.2	8.2	3.2	0.3	0.2	11.7	7.8	1.2	0.2
Service	15.0	4.2	2.8	1.1	9.2	13.9	6.4	1.5	8.4	18.8	9.5	1.3
Total	133.7	8.8	3.7	1.7	105.6	52.3	9.7	2.3	83.6	73.3	15.4	2.0

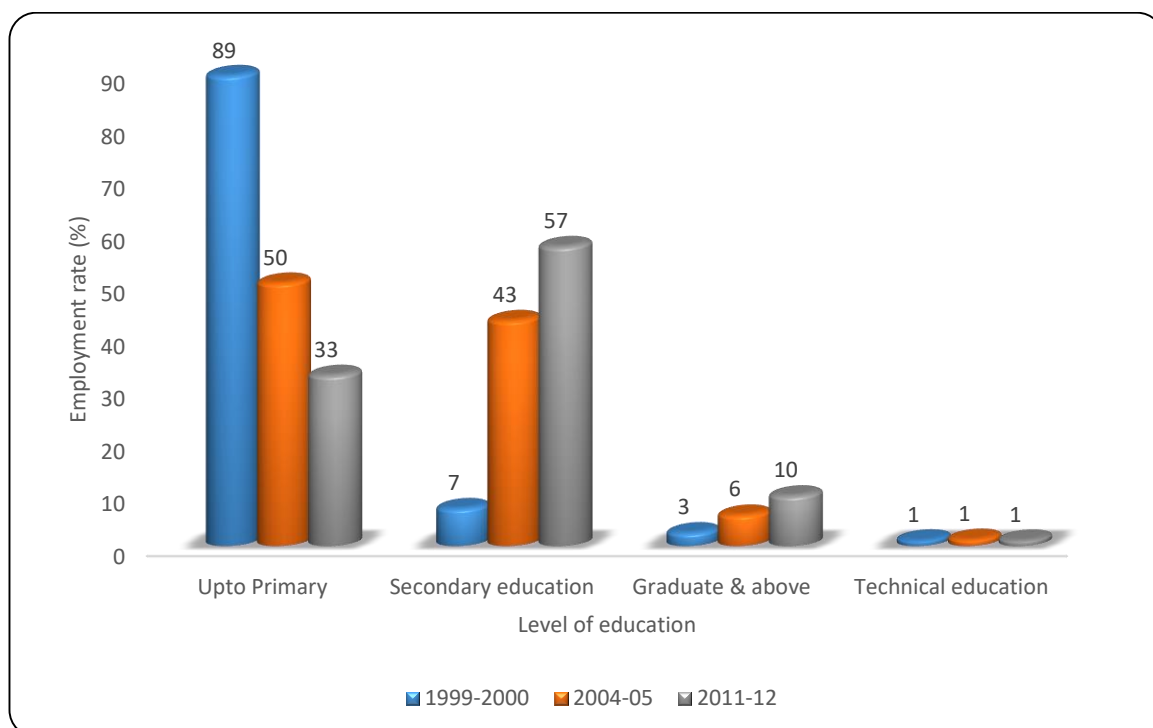
Source: Table generated by using the estimates of NSS unit data, various rounds

The sectoral employment patterns (high share of agriculture and low in non-farm sectors) could be partly responsible for this low level of skill among workers in Odisha. With the recent structural transformation, and recent focus on skill development through central and state government initiatives. It is expected that the share of relatively skilled workers would increase in Odisha.

Now we turn our attention to the skill endowments of the youth workforce in Odisha. We too observed a similar skill scenario. About 89 percent of the total youth workforce was having up to primary education during 1999-2000 (See figure 3.15). This share declined significantly to 33 percent during 2011-12. Among male youths this share declined from 84 per cent to 24 per cent during 1999-2000 and 2011-12, whereas among female youths this share declined from 98 per cent to 56 per cent during 1999-2000 and 2011-12 (See figure 3.17). Furthermore, the share of male youths having secondary level of education increased from 10 per cent to 65 per cent during 1999-2000 and 2011-12, whereas among female youths this share increased from 2 per cent to 39 per cent during 1999-2000 and 2011-12 (See figure 3.16). And as a result the overall share of youth workers with secondary level of education increased from 7 per cent to 57 per cent during 1999-2000 and 2011-12 (See figure 3.15).

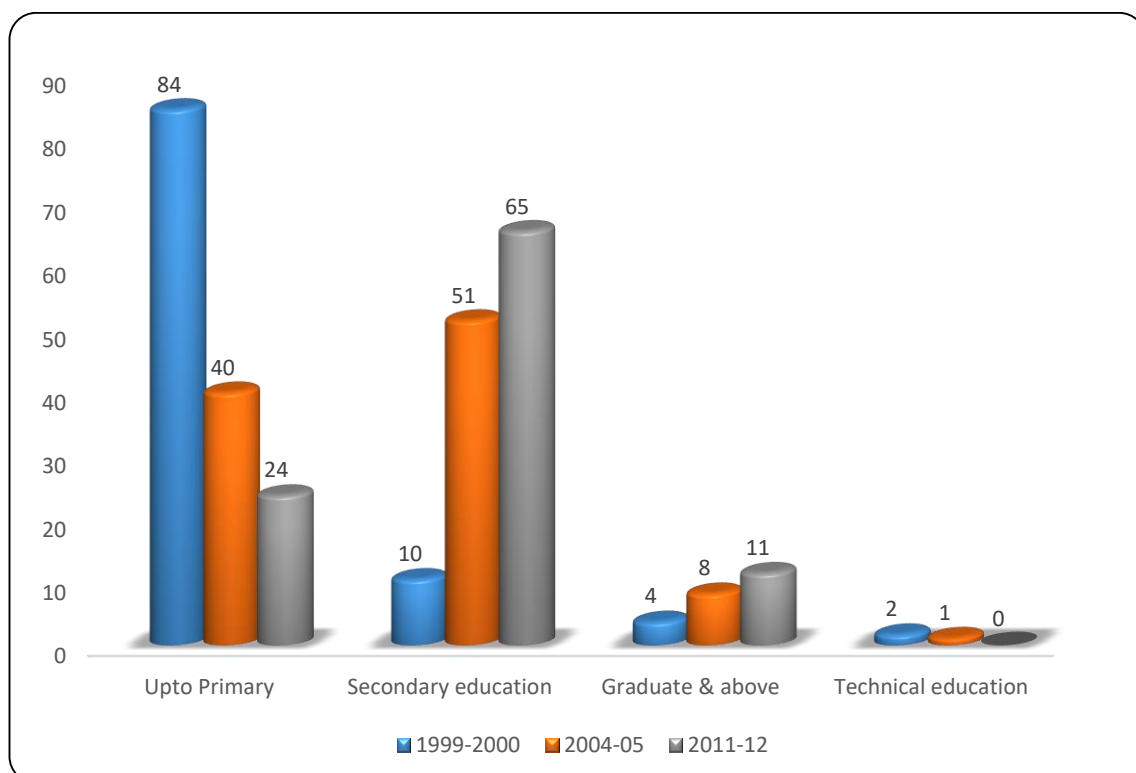
It is important to note that the rising share of educated youths in to the work force is crucial for raising the share of relatively better educated workers in the overall work force in Odisha. However, the share of youth with graduation and above level of education and with vocational or technical education is still quite low. It is about 11 per cent of the total work force during 2011-12. In this context, the recent skill development initiatives would likely to help. An increased proportion of skilled workers, has not only positive implications on labour productivity, it is also likely to have positive effect on economic growth and overall development.

Figure 3.15. Youth employment rate by level of education in Odisha



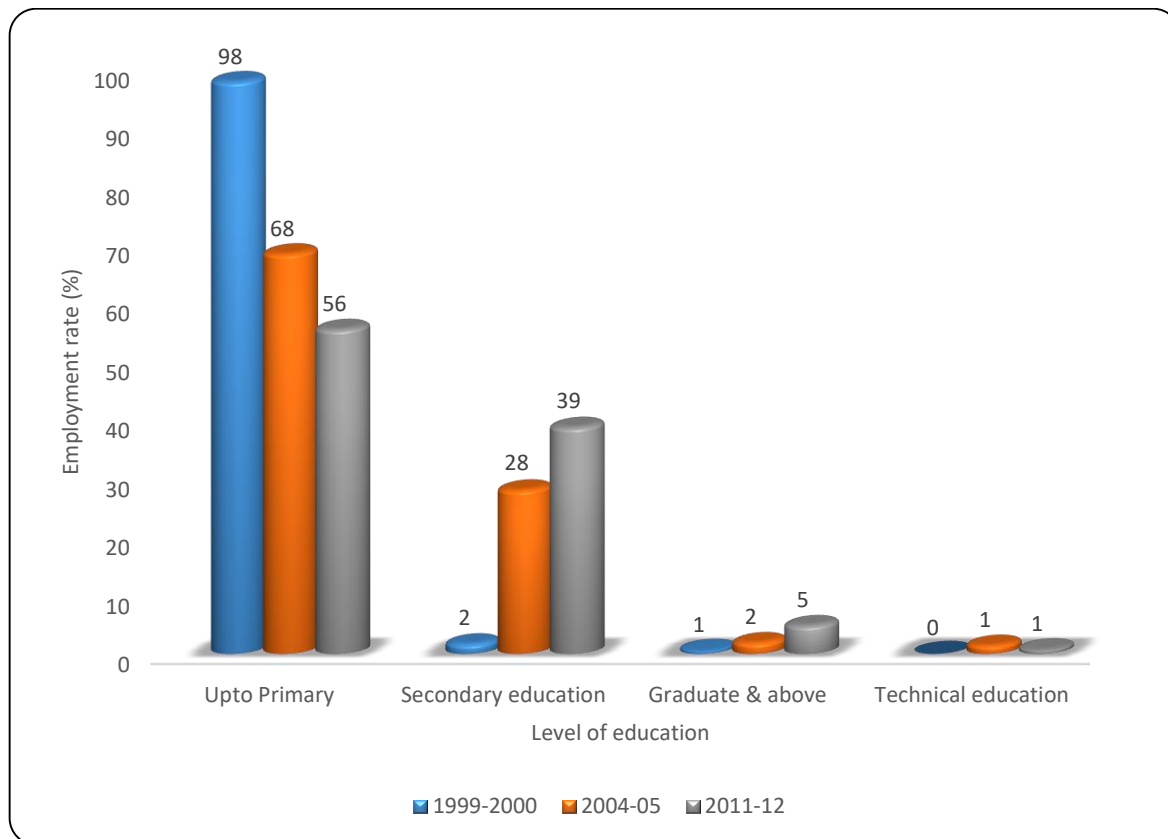
Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.16. Male youth employment rate by level of education in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.17. Female youth unemployment rate by level of education in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Table-3.5. Sectoral youth employment in Odisha by level of education (Value in lakhs)

Sectorss	Male											
	1999-2000				2004-2005				2011-2012			
	Up to primary	Secondary education	Graduate & above	Technical education	Up to primary	Secondary education	Graduate & above	Technical education	Up to primary	Secondary education	Graduate & above	Technical education
Agriculture	18.6	1.6	0.2	0.1	10.1	11.3	1.1	0.1	4.9	11.5	1.5	0.0
Manufacturing	1.9	0.2	0.0	0.1	1.0	2.1	0.3	0.1	0.5	2.1	0.3	0.1
Non-manufacturing	1.5	0.3	0.0	0.0	1.8	1.3	0.1	0.0	1.7	3.6	0.5	0.1
Service	3.2	1.0	0.8	0.3	1.8	4.2	1.5	0.2	0.9	5.2	1.7	0.2
Total	25.2	3.1	1.1	0.5	14.7	18.9	3.0	0.4	8.1	22.4	3.9	0.4
	Female											
Agriculture	13.7	0.1	0.0	0.0	10.8	3.5	0.0	0.0	4.7	3.5	0.2	0.0
Manufacturing	2.6	0.1	0.0	0.0	2.4	1.5	0.1	0.1	1.6	1.3	0.1	0.0
Non-manufacturing	0.5	0.0	0.0	0.0	0.7	0.2	0.0	0.0	1.0	0.3	0.0	0.0
Service	0.6	0.1	0.1	0.0	0.4	0.8	0.3	0.2	0.7	0.6	0.4	0.1
Total	17.3	0.3	0.1	0.0	14.3	5.9	0.4	0.3	8.0	5.6	0.7	0.1
	Male + Female											
Agriculture	32.3	1.7	0.2	0.1	20.9	14.8	1.2	0.1	9.6	15.0	1.7	0.0
Manufacturing	4.5	0.3	0.1	0.1	3.4	3.6	0.3	0.1	2.2	3.4	0.4	0.1
Non-manufacturing	2.0	0.3	0.0	0.0	2.4	1.5	0.1	0.0	2.7	3.8	0.5	0.1
Service	3.8	1.1	0.9	0.3	2.2	5.0	1.8	0.5	1.6	5.7	2.1	0.3
Total	42.6	3.4	1.2	0.5	28.9	24.8	3.4	0.7	16.0	28.0	4.7	0.5

Source: Table generated by using the estimates of NSS unit data, various round

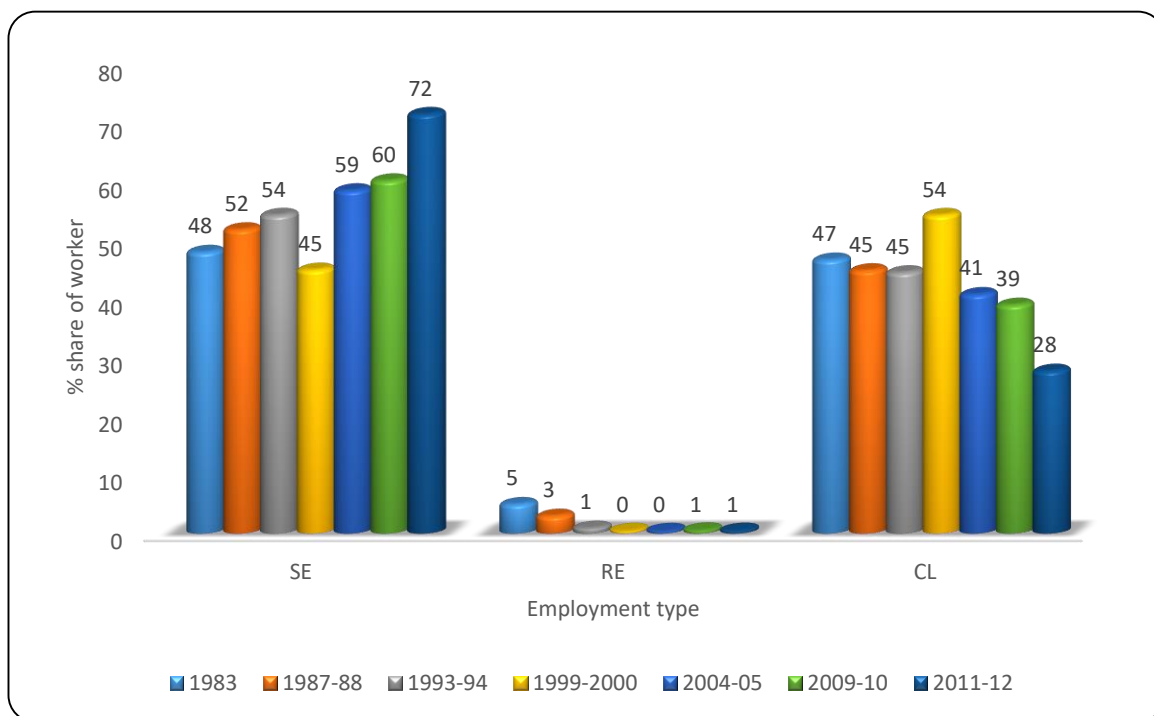
3.3.2. Quality of employment generated in Odisha.

The quality of employment generated in each of the farm and non-farm sectors can be assessed by examining the type of employment generated in these sectors. The type of employment (self-employment, regular salaried workers and casual workers) also partly explains the informality issues in the labour market.

To begin with agriculture, we find that a large proportion of the workers are engaged as either self-employed or casual labour (See Table 3.6). This is quite obvious. However, the share of casual labour reflects, the volume of landless agricultural labour working in this sector. Over the last 30 years we have seen a cyclical trend of causal employment in agriculture. The share of causal employment increased from 47 per cent to about 54 per cent during 1983 and 1999-2000, but then it declined to 28 per cent during 2011-12. With the growth of mechanization in agriculture, the share of these workers are likely to decline further in the coming years. Though the share of self-employed is very high and it continued to rise from 48 per cent to 72 per cent during 1983 and 2011-12 (See Figure 3.18).

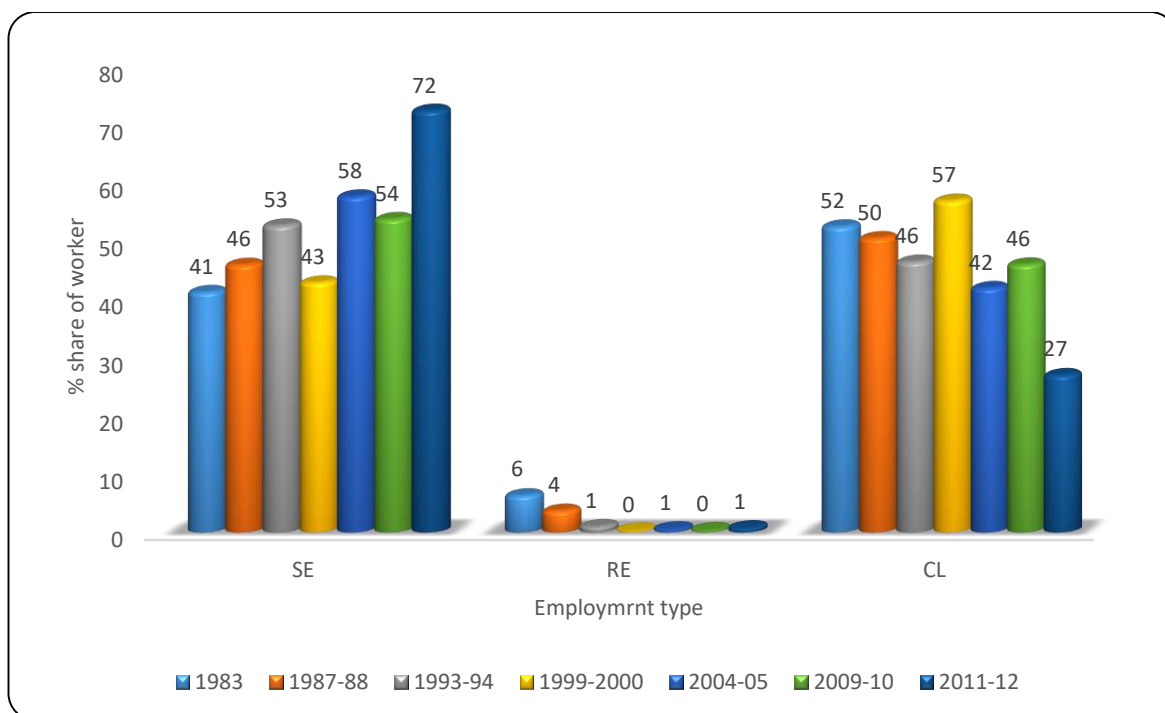
In case of youth workers in agriculture, we too find a similar trend. The share of self-employed is rising with corresponding decline in the share of casual workers (See Figure 3.19). According to Parida (2015), a large share of these self-employed workers are unpaid family member of the households who normally do not receive any remuneration for their labour. In absolute numbers (adding self-employed and causal together) the size of youth workforce in agriculture is declining. It is expected that this trend would continue due to growing mechanization. This is a good sign indeed. Because, if these workers could be shifted to non-farm sectors then overall productivity would likely to rise in Odisha.

Figure 3.18. Total workforce in agriculture by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.19. Youth workforce in agriculture by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

**Table 3.6. Workforce in agriculture by nature (Type) of employment in Odisha
(In absolute terms)**

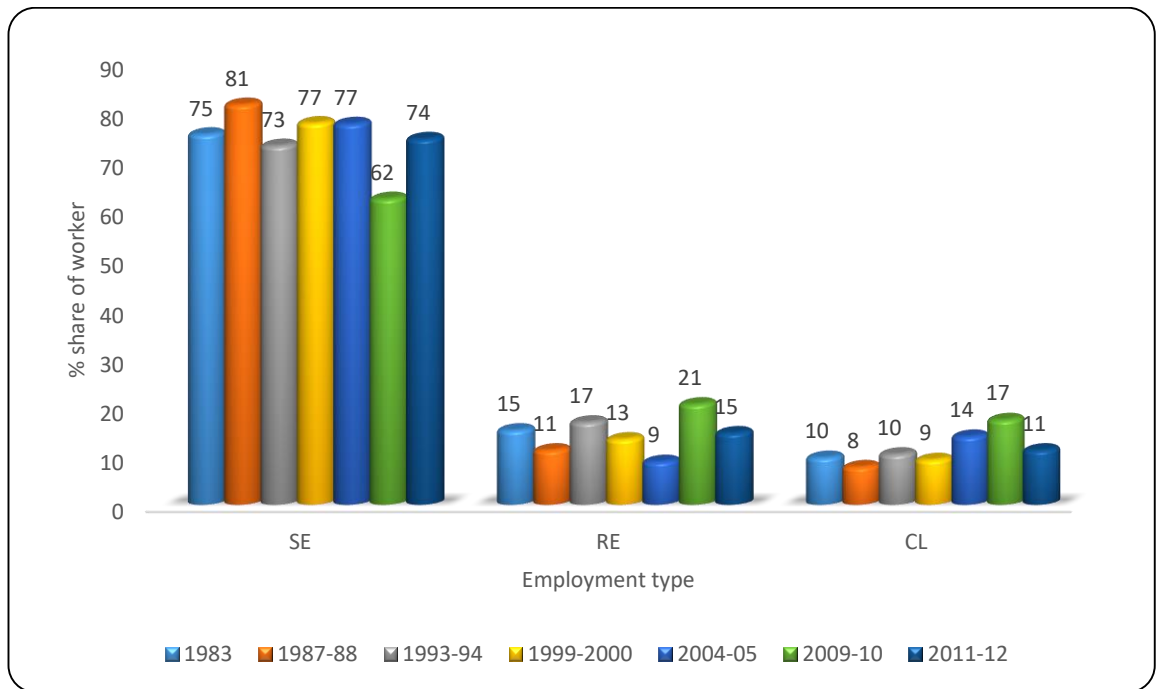
Year	Overall			Youth		
	SE	RE	CL	SE	RE	CL
1983	43.8	4.6	42.6	14.3	2.2	18.2
1987-88	47.8	2.8	41.4	16.1	1.3	17.7
1993-94	58.6	1.0	48.1	21.2	0.4	18.7
1999-2000	46.6	0.5	56.2	14.7	0.1	19.5
2004-05	63.1	0.5	44.1	21.3	0.2	15.5
2009-10	62.2	0.6	40.4	14.5	0.1	12.4
2011-12	70.2	0.5	27.4	19.0	0.2	7.1

In manufacturing sector, we also find that a large proportion of the workers are engaged as self-employed (See Figure 3.20). The share of regular workers is only about 15 per cent. And the share of casual labour is about 11 percent. These shares are also most constant over the years. The overall growth of manufacturing employment (in absolute number) is not very impressive. It almost constant during since 2004-05 (See Table 3.7). This is something which should be a cause of concern for the government.

In case of youth workers we also observe a similar thing. A large proportion of the workers are engaged as self-employed (See Figure 3.21). The share of self-employed remained constant at about 75 percent during last 30 years in Odisha. The share of regular workers among youths increased slightly from 12 per cent to about 18 per cent during 1983 and 2011-12. And the share of casual labour is declined from 12 percent to about 7 percent during the same period. Though absolute number of youth employment increased, it is very negligible (See Table 3.7).

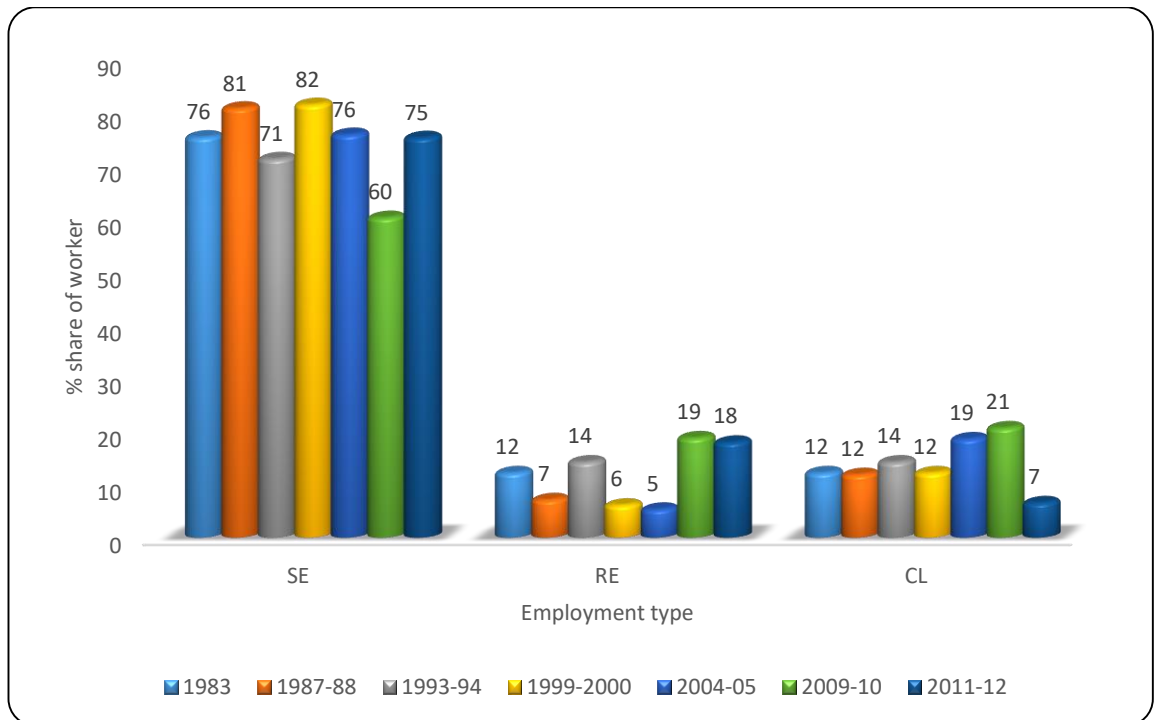
This is something which should be a cause of concern for the government. The high share of self-employed workers in manufacturing sectors reflects that the under-developed nature of this sectors in Odisha. Those who engaged in manufacturing activities are mostly are employed as traditional artisans, craftsmen etc. in occupations like carpentry, handloom weavers or in food processing units etc.

Figure 3.20. Total workforce in manufacturing sector by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.21. Youth workforce in manufacturing by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

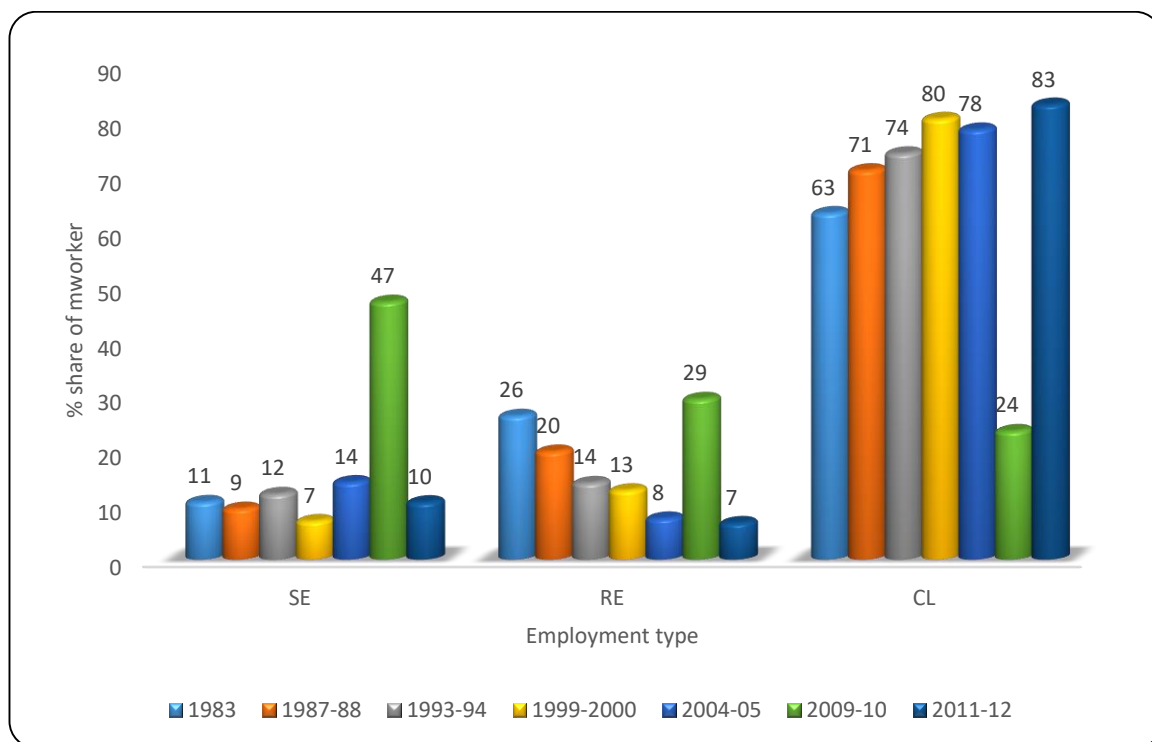
Table 3.7. Workforce in manufacturing sector by nature (Type) of employment in Odisha (In absolute terms)

Year	Overall			Youth		
	SE	RE	CL	SE	RE	CL
1983	9.4	1.9	1.2	3.7	0.6	0.6
1987-88	9.5	1.3	0.9	3.4	0.3	0.5
1993-94	7.8	1.8	1.1	2.5	0.5	0.5
1999-2000	11.0	1.9	1.3	4.0	0.3	0.6
2004-05	15.0	1.7	2.7	5.7	0.4	1.4
2009-10	9.7	3.2	2.7	3.2	1.0	1.1
2011-12	12.7	2.5	1.9	4.6	1.1	0.4

In non-manufacturing sector, we have observed an impressive growth of employment (See Table 3.8). But when we calculate the share of self-employed, casual and regular workers, it is important to note that about 83 per cent of the workers are casual labour. And about 10 percent are self-employed. The share of regular workers in this sector reduced from about 26 percent to only 7 percent (See Figure 3.22). This is mainly because of the nature and composition of this sector, which has changed from mining quarrying, electricity, water supply and gas sector to construction sector. The share of construction sector (also See Parida, 2015 and Mehrotra et al., 2014) drives the growth of jobs in non-manufacturing sector in India.

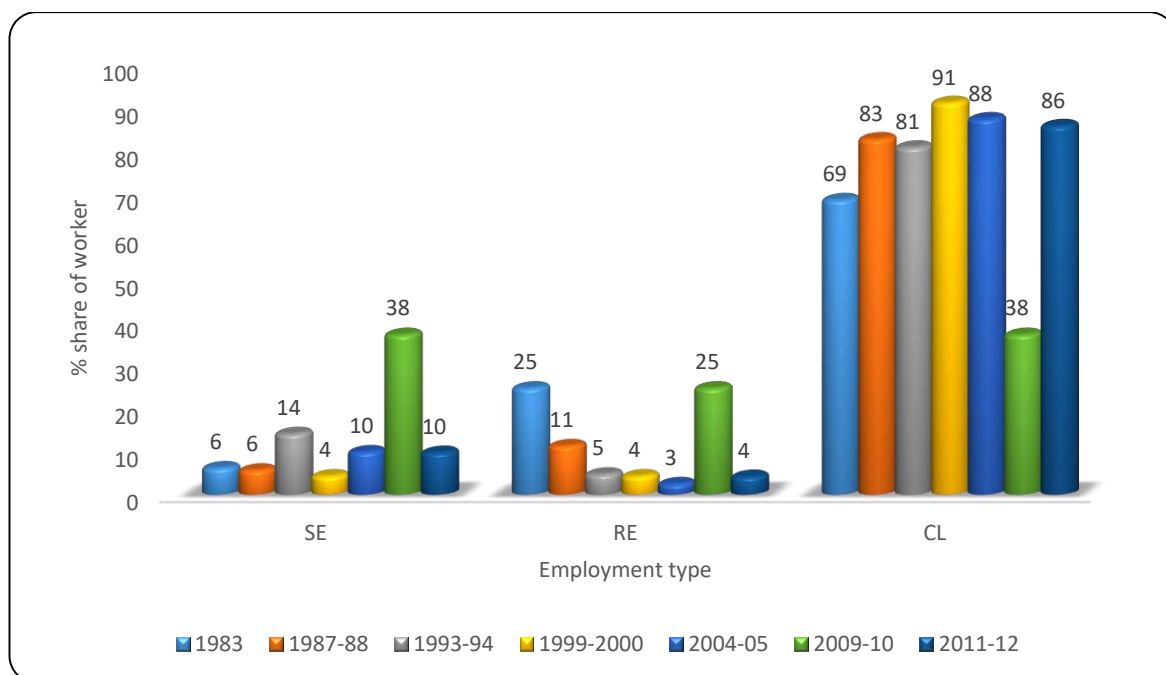
In case of youth workers we also observe a similar thing. A large proportion of the workers are engaged as casual workers (See Figure 3.23). The share of self-employed increased from 6 percent to about 10 percent during last 30 years in Odisha. The share of regular workers decreased drastically from 25 per cent to about 4 per cent during 1983 and 2011-12. And the share of casual labour is increased from 69 percent to about 86 percent during the same period. The absolute number of youth employment in this sector increased substantially (See Table 3.8). it is important to note that construction sectors has a greater potential to provide jobs to those who are searching alternate jobs due to limited opportunities in farm sector. Particularly, those who lack skill for them non-farm (construction in particular) is the immediate substitute which provides relatively better earning as well.

Figure 3.22. Total workforce in non-manufacturing by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.23. Youth workforce in non-manufacturing by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

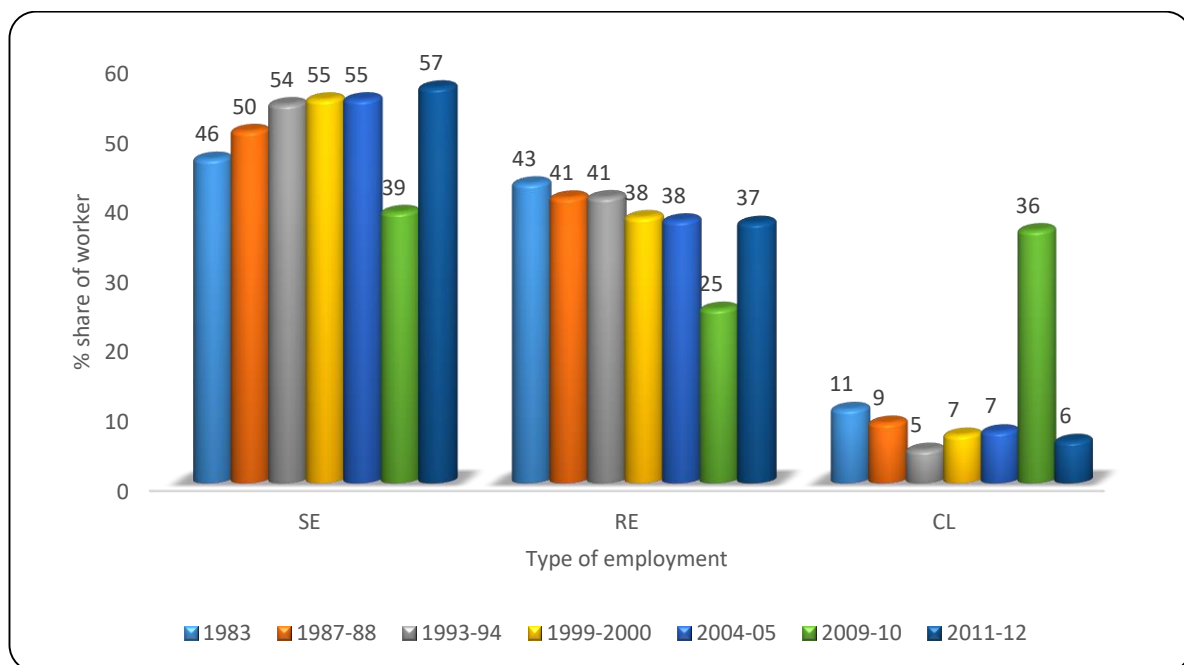
Table 3.8. Workforce in non-manufacturing sector by nature (Type) of employment in Odisha (In absolute terms)

Year	Overall			Youth		
	SE	RE	CL	SE	RE	CL
1983	0.4	1.0	2.4	0.1	0.4	1.1
1987-88	0.8	1.7	6.1	0.2	0.4	2.9
1993-94	0.6	0.7	3.7	0.3	0.1	1.7
1999-00	0.5	0.9	5.7	0.1	0.1	2.1
2004-05	1.7	0.9	9.4	0.4	0.1	3.5
2009-10	0.8	0.5	0.4	0.3	0.2	0.3
2011-12	2.2	1.4	17.4	0.7	0.3	6.1

In the service sector a continuous growth of overall and youth employment is noticed (See Table 3.9). This sector too registered a large proportion of self-employed the workers (See Figure 3.24). The share of self-employed in service sector was about 46 per cent during 1983, which had increased to about 57 per cent during 2011-12. The share of casual worker in this sector, however, is quite low. It was about 11 percent to during 1983, and this share came down further to about 6 per cent during 2011-12. But it is important to note that service sector holds a maximum share of regular salaried workers in Odisha. The share of regular worker in service sector is about 37 percent (See Figure 3.24) during 2011-12. This is highest as compared to any other non-farm sectors in Odisha.

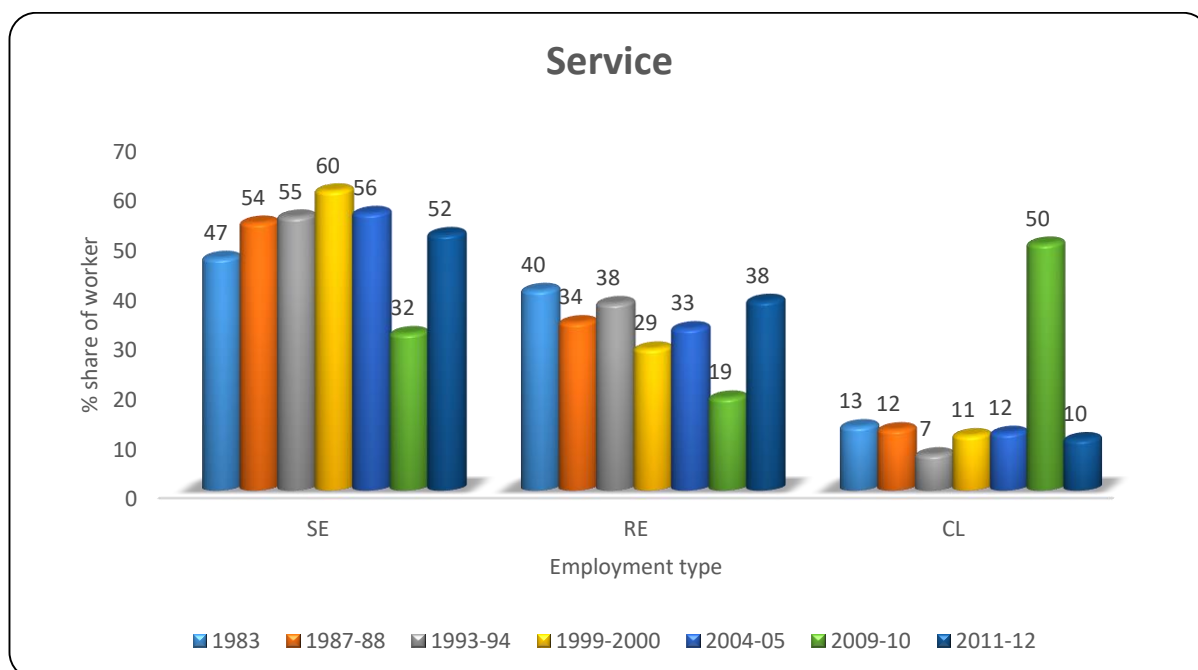
The youth employment in service sectors too shows a similar pattern. In the service sector a continuous growth of youth employment is noticed (See Table 3.9). This sector too registered a large proportion of self-employed the workers (See Figure 3.25). The share of self-employed in service sector was about 47 per cent during 1983, which had increased to about 52 per cent during 2011-12. The share of casual worker in this sector, however, is quite low. It was about 13 percent to during 1983, and this share came down further to about 10 per cent during 2011-12. But it is important to note that service sector holds a maximum share of regular salaried workers in Odisha. The share of regular worker in service sector is about 40 percent (See Figure 3.25). This share is highest as compared to the share any other non-farm sectors in Odisha. Hence, this sector has a greater potential to increase youth employment in Odisha.

Figure 3.24. Total workforce in service by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Figure 3.25. Youth workforce in service by nature (Type) of employment in Odisha



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Table 3.9. Workforce in service sector by nature (Type) of employment in Odisha (In absolute terms)

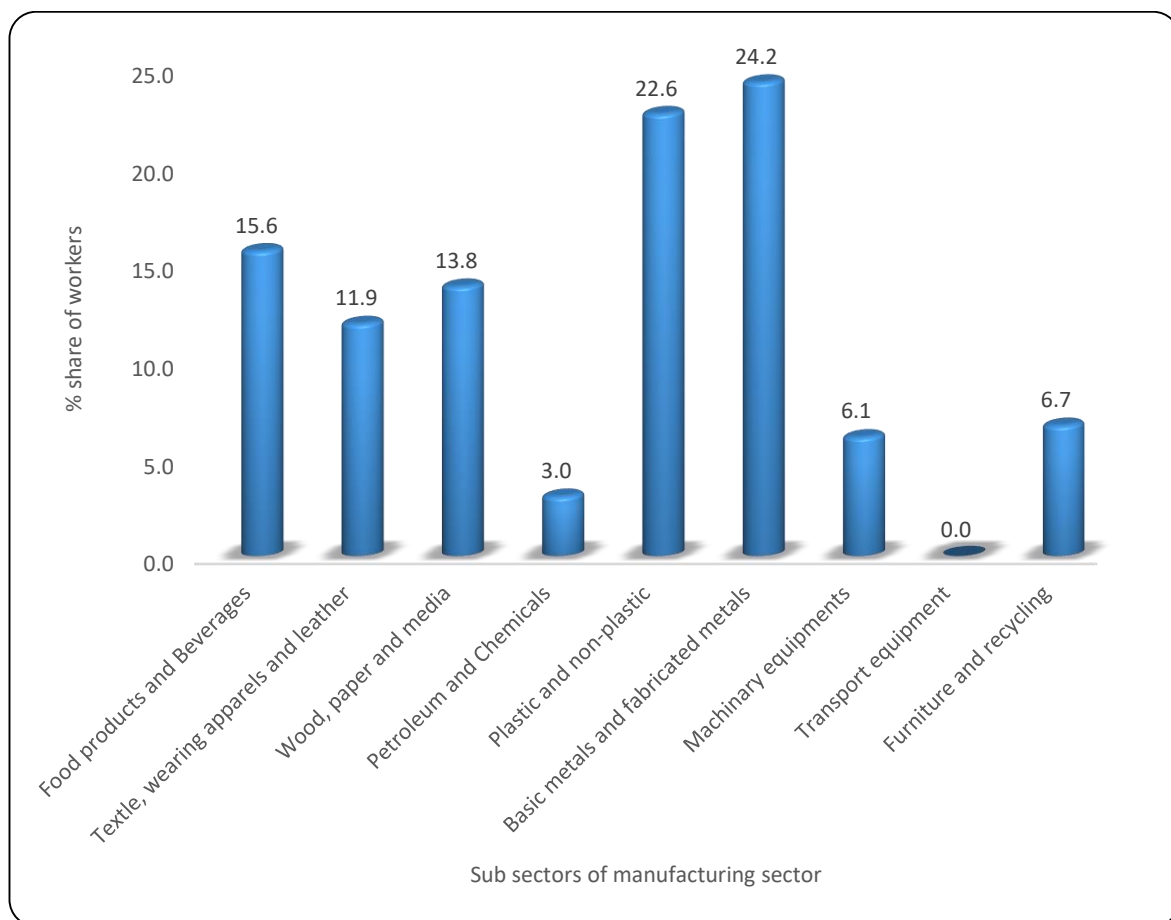
Year	Overall			Youth		
	<i>SE</i>	<i>RE</i>	<i>CL</i>	<i>SE</i>	<i>RE</i>	<i>CL</i>
1983	9.2	8.5	2.1	2.9	2.5	0.8
1987-88	11.1	9.0	1.9	3.5	2.2	0.8
1993-94	11.4	8.6	1.0	3.8	2.6	0.5
1999-00	12.7	8.8	1.6	3.8	1.8	0.7
2004-05	17.1	11.7	2.3	5.3	3.1	1.1
2009-10	19.3	12.4	18.0	4.4	2.6	6.9
2011-12	21.6	14.2	2.3	5.0	3.7	1.0

In the next subsection we have explored the subsectors with non-farm sectors that could generate youth employment in Odisha.

3.4. Subsectors of non-farm sectors that could drive growth of youth employment in Odisha

Within manufacturing sector, subsectors like basic and fabricated metal (24.2 per cent), Plastic products (22.6 per cent), food and beverages (15.6 per cent) wood and paper products (13.8 per cent), and textile and apparel (about 12 per cent) together generated youth employment during 2011-12 (See Table 3.10 and Figure 3.26) . Most of these subsectors are labour intensive in nature.

Figure 3.26. Share (%) of employment in subsectors of manufacturing sector in Odisha, 2011-12



Source: Plotted by using the estimates of NSS unit level data, various rounds.

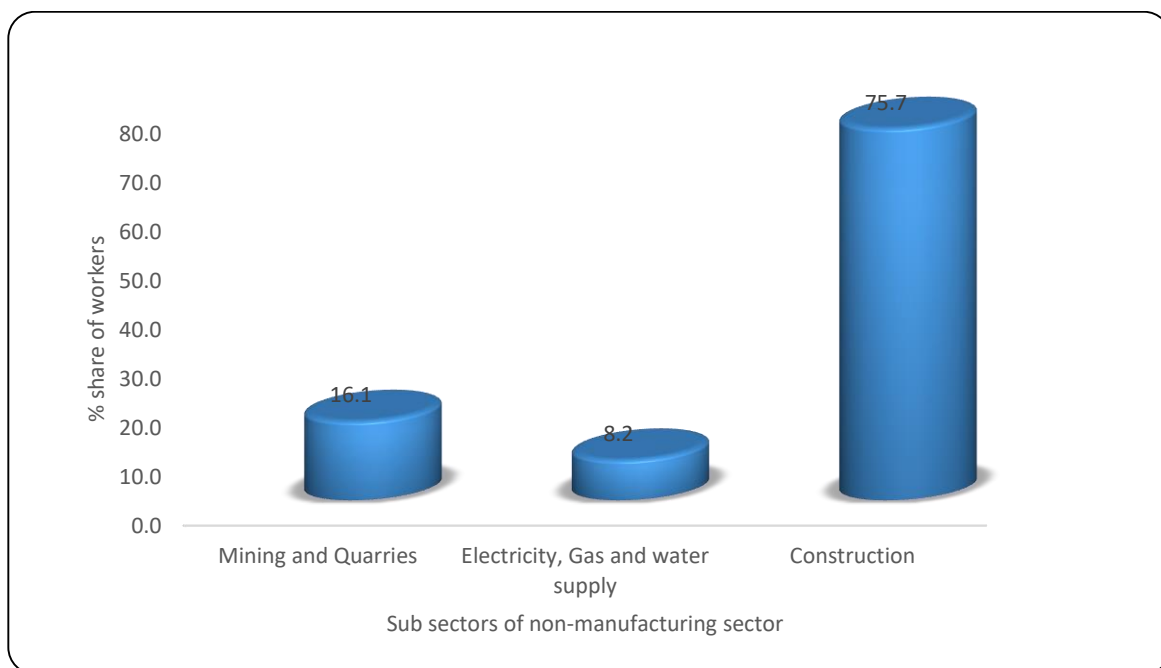
Table 3.10. Sub-sectoral of manufacturing sector youth employment in Odisha, 1988, 2005 and 2012 (values in Lakh).

Sub-Sectors of Manufacturing sector	1987-1988			2004-2005			2011-12		
	SE	RE	CL	SE	RE	CL	SE	RE	CL
Food products and Beverages	0.4	0.1	0.0	1.2	0.1	0.3	1.0	0.0	0.1
Textiles, wearing apparels and leather	1.5	0.2	0.1	0.9	0.0	0.2	0.8	0.2	0.0
Wood, paper and media	0.7	0.0	0.1	2.6	0.1	0.3	1.9	0.0	0.0
petroleum and Chemicals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Plastic and non-metallic	0.5	0.0	0.1	0.7	0.0	0.4	0.4	0.1	0.2
Basic Metals and Fabricated metals	0.2	0.1	0.1	0.1	0.1	0.2	0.1	0.5	0.1
Machinery equipment's	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Transport equipment	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Furniture and Recycling	0.1	0.0	0.0	0.1	0.0	0.0	0.5	0.1	0.0
Total	3.4	0.3	0.5	5.7	0.4	1.4	4.6	1.1	0.4

Source: Table generated by using the estimates of NSS unit data, various rounds

Within non-manufacturing sector, construction sector is the single largest sector which contributed about 76 percent of the total employment in this sector. Apart from construction and mining and quarrying also contribute (about 16 per cent) to the growth of employment (See Table 3.11 and Figure 3.27). Since, in terms of the natural resource endowments, the state Odisha is one of the front line states of India, the scope for employment generation in Mining and Quarrying sector is also high.

Figure 3.27. Share (%) of employment in subsectors of non-manufacturing sector in Odisha, 2011-12



Source: Plotted by using the estimates of NSS unit level data, various rounds.

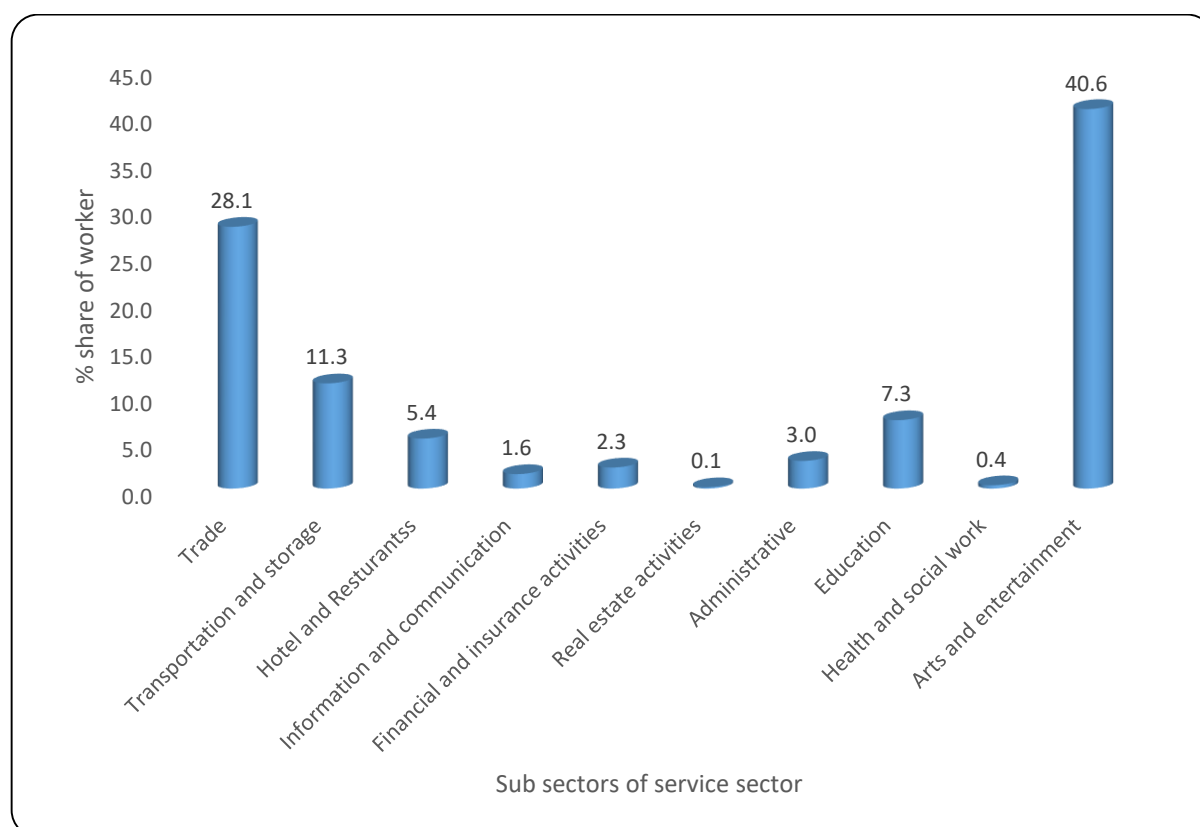
Table 3.11. Sub-sectoral of non-manufacturing sector youth employment in Odisha, 1988, 2005 and 2012. (Values in lakh)

Subsectors of Non-manufacturing sector	1987-1988			2004-2005			2011-12		
	SE	RE	CL	SE	RE	CL	SE	RE	CL
Mining and Quarries	0.05	0.20	1.05	0.03	0.01	0.38	0.19	0.06	0.22
Electricity, Gas and water supply	0.01	0.05	0.00	0.00	0.04	0.00	0.01	0.07	0.00
Construction	0.16	0.12	1.86	0.36	0.09	3.14	0.56	0.17	6.38
Total	0.22	0.37	2.91	0.40	0.13	3.53	0.76	0.30	6.60

Source: Table generated by using the estimates of NSS unit data, various rounds

The subsectors like arts and entertainment (40.6 per cent), retail trade (28 percent), transportation and storage (11.3 per cent), and education (about 7 per cent) drive growth of employment during 2011-12. (See Table 3.12 and Figure 3.28). Since Odisha is one of the most backward states, focusing growth of health and education sector would likely to boost growth of service sector employment substantially.

Figure 3.28. Share (%) of employment in subsectors of service sector in Odisha, 2011-12



Source: Plotted by using the estimates of NSS unit level data, various rounds.

Table 3.12. Sub-sectoral of service sector youth employment in Odisha, 1988, 2005 and 2012.

Subsectors of Service sector	Values in lakh								
	1987-1988			2004-2005			2011-12		
	SE	RE	CL	SE	RE	CL	SE	RE	CL
Trade	2.50	0.24	0.10	3.27	0.87	0.24	2.92	0.86	0.19
Transportation and storage	0.33	0.20	0.12	0.52	0.56	0.64	0.34	0.76	0.50
Hotel & Restaurants	0.07	0.12	0.00	0.37	0.09	0.07	0.53	0.23	0.00
Information & Communication	0.00	0.01	0.00	0.0	0.0	0.0	0.05	0.17	0.00
Financial & insurance activities	0.00	0.11	0.01	0.02	0.16	0.00	0.12	0.19	0.01
Real estate Activities	0.00	0.02	0.00	0.12	0.05	0.01	0.01	0.01	0.00
Administrative	0.01	0.66	0.02	0.00	0.40	0.00	0.05	0.26	0.11
Education	0.05	0.33	0.02	0.30	0.60	0.00	0.19	0.85	0.00
Health & social work	0.01	0.15	0.00	0.09	0.14	0.00	0.01	0.04	0.00
Arts, entertainment	0.54	0.34	0.54	0.63	0.20	0.10	0.75	0.30	0.20
Total	3.51	2.18	0.81	5.32	3.06	1.06	4.98	3.66	1.01

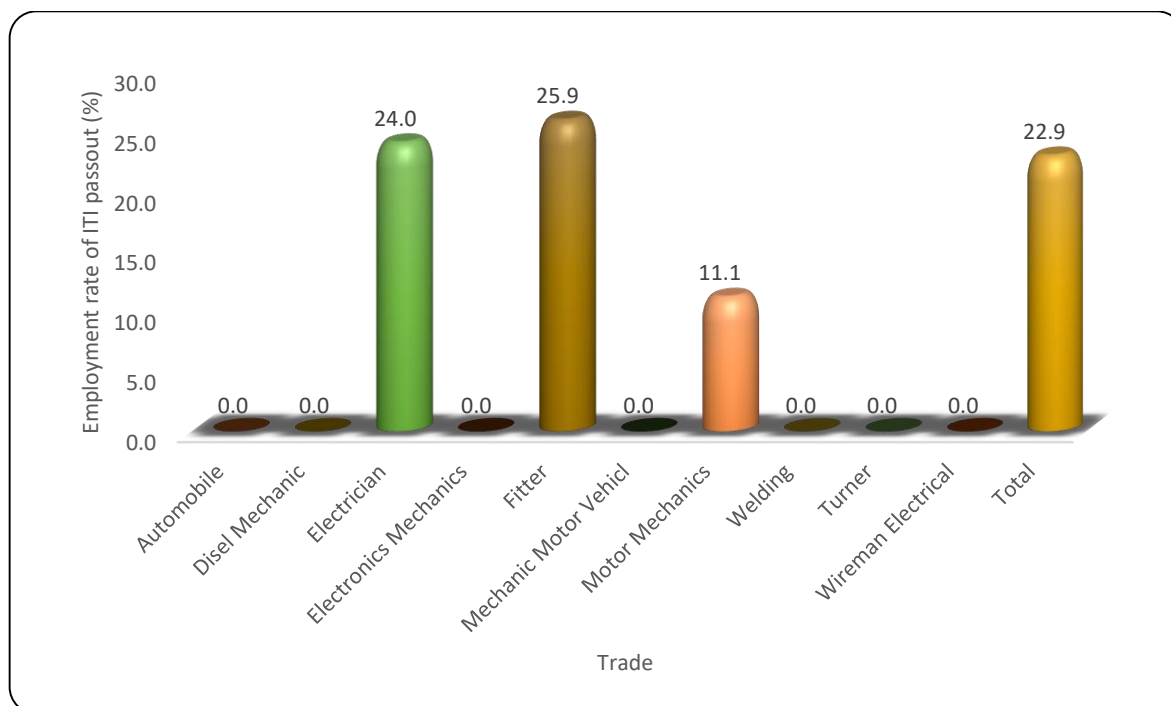
Source: Table generated by using the estimates of NSS unit data, various rounds

3.5. Employment status of ITI pass-out students (evidence from *Balasore* district)

In this section we have examined the employment status of ITI pass-out students in *Balasore* district. We find that about 22.9 per cent of the total pass-out students are currently employed in various jobs. When we have examined the employment status by various trades, we find that among electrician about 24 per cent, among fitter about 26 per cent, and motor mechanics about 11 per cent are currently engaged in either paid/salaried jobs or as self-employed (See figure 3. 29).

However, in almost all other trades, pass-out students are not engaged in any occupation. Most of them are either perusing higher education (mostly in general education) or preparing for competitive examinations (which has nothing to do with their skill endowments). This low rate of job participation is mainly due to lack of job opportunities for this level of skill on one hand and due to the poor skill endowments on the other. Because, about 30 per cent of the total pass-out students reported that they had been thrown out by their employer within three months of their joining.

Figure 3.29. Employment rate of ITI pass out students by trade in Balasore district



Source: Plotted by using primary data

3.6. Summary of Findings

The overall employment trends and youth employment trends in Odisha is showing that a structural transformation is taking place in Odisha. In this process, the both absolute and share of employment in agriculture and allied sectors is declining over the last one decade. Though growth of jobs in manufacturing sector is almost stable (or constant), the subsectors like basic and fabricated metal, Plastic products food and beverages, wood and paper products, and textile and apparel contributed to the growth of jobs (particularly for youths) in Odisha. Within non-manufacturing sectors the subsectors like construction (major) and mining and quarrying drove growth youth employment in Odisha (mainly growth of casual employment). And, in the service sector, the subsectors like arts and entertainment, retail trade, transportation and storage, and education have driven growth of youth employment in Odisha.

On the basis of this findings, it could be argued that the policy measure that focuses growth of manufacturing sector along with development of social sector including education and health sectors would have greater potential for generating employment opportunities. And thereby it would help sustain the growth of jobs and the structural transformation process which started during 2004-05 in Odisha. Sustaining the structural transformation would have also implication on poverty reduction and overall growth of Gross State Domestic Products (GSDP) and overall economic development in the long run.

CHAPTER-IV

Youth Labour Force Participation in Odisha

4.1. Introduction:

In this chapter, the determinants of youth labour force participation decision is estimated in Odisha by using the NSS unit level data and Primary data (collected from Odisha). The major objectives is to find out the role of general and technical education on youth employability.

This chapter is organized in to five major sections. Section one describes the data and variables. This section also provides the socio-economic profile of the sample district. The second section outlines the econometric methods used in the empirical estimation of the labour force participation decision. And the third section provides the results and discussion. Finally section five provides the summary of the chapter.

4.2. Description of data, variables and sample area:

4.2.1. Sources of Data

This chapter is based on both primary and secondary data. The secondary data from NSS for the period 1993-94, 1999-2000, 2004-05, 2009-10 and 2011-12 are used. In these periods NSS has conducted thick round of employment and unemployment survey. These thick round survey data are used which would likely to provide concrete information. In addition we have also used the primary data collected from *Balasore* districts during 2016.

4.2.2. Description of variables

The dependent variable is the labour force participation (LFP), which is binary in nature. It assumes value one for labour force participation, and zero otherwise. The explanatory variables includes both continuous and binary variables. The household's monthly per capita expenditure, and its square term; age of the respondent, and its square term; years of schooling (completed years), and its square term are continuous variables used as explanatory variables. The caste dummy (three categories including ST, SC and Others), sex dummy (male and female), marital status dummy (married, separated and unmarried), households

economic status dummy (based on MPCE quintiles 1 to 5), sector dummy (rural and urban), general education dummy (illiterate, primary, secondary, graduate and above), trades of technical education (fitter, electrician, automobile, and others) etc. are used as additional explanatory variables.

To include the wage variable, in this model a predicted wage is imputed by running a wage regression using Heckman (1979) selection correction (see annexure 1) under the assumption that youths with similar characteristics can get similar salary in the labour market even they do not work or work as self-employed. The details of the explanatory variable are given in annexure 1.

4.2.3. Socio-economic profiles of Balasore:

The district *Balasore* is one of the coastal districts of Odisha, which touches the feet of Bay of Bengal. It lies in the northern part of the state. *Balasore* district is separated in October 1818 from the West Bengal presidency. It covers the area 3634 square km. According to the census 2011, the total population is 2,320,529 (1,185,787 male & 1,134,742 female) and density of population is 638/km². Out of the total population still 30% illiterates. About 21% population belongs to SC category and 12% in ST. *Balasore* district is surrounded by West *Medinipur* district of West Bengal on its northern side, Bay of Bengal in east, and in the southern part it is connected with *Bhadrak* district, while the districts *Mayurbhanj* and *Kendujhar* locked from its western part. In terms of total ITI colleges, the district *Balasore* (41 ITIs) is ranked third among all the 30 districts in Odisha. The districts *Khurda* (50 ITIs) and *Mayurbhanj* (44 ITIs) are however, ranked first and second position in terms of the number of it is colleges in those districts. The district Balasore is chosen for convenience. The other sampling details are already explained in chapter 1.

4.3. Econometrics methodology:

Since the dependent variable is binary, logit or probit regression methods are appropriate choices. But in this case we have used the probit regression. Normally probit and logit results are not very different, and one can estimate probit coefficients from logit estimates and vice-versa. Since we have a large sample size (NSS) data we expect that the error disturbance term would follow a normal distribution and hence used the probit model.

Furthermore, when we use the monthly per capita expenditure as an explanatory variable we have tested this variable for possible endogeneity¹. And hence we have run an additional IV-probit regression model for comparison.

Both probit and IV-probit model assume a normal distribution for the error term and could be explained by the following equation...

$$Y_{1i}^* = \beta X_{1i} + \alpha Y_{2i} + u_i \quad (4.1)$$

$$Y_{2i} = \Pi_1 X_{1i} + \Pi_2 X_{2i} + v_i \quad (4.2)$$

Where $i = 1, 2, \dots, N$ Y_{2i} is a $1 \times p$ vector of endogenous variables (if Y_{2i} is absent in equation 1 then it would become simple probit model) X_{1i} is a $1 \times k_1$ vector of exogenous variables, X_{2i} is a $1 \times k_2$ vector of additional instruments and equation Y_{2i} is written in the reduced form. Here α and β are vectors of structural parameters Π_1 and Π_2 are matrices of reduced-form parameters. By assumption² $(u_i, v_i) \sim (0, \Sigma)$ and σ_{11} is normalized to one to identify the model. This is a recursive model: Y_{2i} appears in Y_{1i}^* , but Y_{1i}^* does not appear in the equation Y_{2i} . We do not observe Y_{1i}^* instead we have information on

$$Y_{1i} = \begin{cases} 0 & Y_{1i}^* < 0 \\ 1 & Y_{1i}^* \geq 0 \end{cases}$$

Here the order condition for identification of the structural parameters requires that $k_2 \geq p$ and Σ is not block diagonal between u_i and v_i , otherwise Y_{2i} would not be endogenous. While estimating in Stata by default IV-probit uses maximum likelihood estimation (MLE), but we have used the two-step option, which is based on Newey's (1987) minimum chi-squared method of estimation. Both these methods are used alternatively, but a few do not use MLE to avoid large number of iterations. The estimated results are explained in the next section.

¹ When one or more of the regressors are correlated with the error term simple probit model provides biased estimates. The sources of bias could be either due to omitted variable, error-in-variable, or due to simultaneous causality in the model.

² Both u and v are independent and identically distributed multivariate normal for all i

4.4. Econometric Results and Discussion

We have estimated a simple probit model (Model 1 and Model 2) and an iv-probit model (to detect the endogeneity problems) for exploring determinants of labour force participation in Odisha. And to know, how these determinants are affecting the labour force. The result of the econometric models (probit model) are given in Table-4.1. The result of IV-probit model which is indicated by the Wald chi-square test statistics suggests that the log MPCE and its square terms are endogenous, and hence simple probit estimation under the assumption that these variables are exogenous provides biased estimates. So, in this case, iv-probit regression model provides robust estimates.

The second variable is wage rate. The results show that, the predicted wage positively and significantly affects labour force participation decision. It means higher wage rate attracts more youth to participate in the labour market. Alternatively, we can argue that the workforces are less likely to participate in the labour force if the wage rate is quite low.

We have got a contradictory sign for the age. Normally, it is expected that with increasing age, individuals would likely to participate in the labour market with increasing number. And hence the sign of wage variable is expected to be positive. The reason for the negative estimated coefficient might be due to the fact that our estimation is limited to only youth sample. Most of these are currently attending various level of education (particularly higher education). Further we have also seen from the previous chapter that the work participation of illiterate and individuals with primary level of education is high. This could be the reason behind the negative estimated sign.

Furthermore, it is confirmed from the coefficients of, year of schooling and education dummies. All of these variables show negative estimated coefficient. But it is important to note that the level of education are not significantly affecting the labour force participation behavior of youth in Odisha.

However, youths belong to socially marginalized groups like Scheduled Tribe (ST), Scheduled Caste (SC) are more likely to participate in the labour market as compared to Others (General and OBC). We have got the positive estimated

coefficient for ST and SC dummies. Youths belonging to these groups are more likely to participate in labour force, because normally they possess a very low level of education and mainly because their poor standard of living.

Table 4.1. Probit and IV-probit regression result

Variables	Simple Probit Estimates				IV- Probit Estimates		
	Model-1		Model-2		Model-3 ³		
	Coef ⁴	Z-value	Coef	Z-value	Coef	Z-value	dy/dx
Log MPCE	-0.30	-4.33***	-0.32	-4.62***	-49.8	-4.30***	-49.8
Log MPCE square	0.01	1.62*	0.01	1.82*	3.31	4.38***	3.31
Log wage (predicted)	2.99	7.87***	1.65	8.48***	2.50	9.65***	2.50
Age	-0.15	-2.32**	0.04	1.11	0.32	2.37**	0.32
Age square	0.00	0.31	0.00	-3.42***	-0.01	-3.06***	-0.01
Years of schooling			-0.09	-17.1***	0.21	2.89***	0.21
Years of Schooling sq			0.00	10.33***			
Caste Dummies (Reference category: Others)							
ST	0.54	24.28***	0.54	24.57***	-0.82	-2.14**	-0.82
SC	0.15	6.16***	0.16	6.77***	-0.76	-2.76**	-0.76
Sex Dummies							
Female	0.39	2.35**	-0.18	-2.05**			
Marriage Dummies (Reference Category: Unmarried)							
Married	-1.66	-35.92***	-1.65	-35.8***	-1.14	-5.04***	-1.14
Separated/ Divorced	0.22	1.68***	0.23	1.75***	1.06	1.63*	1.06
Sector Dummies (Reference category: Urban Area)							
Rural Area	0.24	10.94***	0.24	11.03***	-0.77	-2.02	-0.77
Year Dummies (Reference category: year 1993-1994)							
1999-2000	0.32	9.11***	0.33	9.35***	11.6	3.73***	11.6
2004-05	-0.51	-14.01***	-0.51	-13.9***	11.2	3.47***	11.2
2009-10	-0.19	-4.29***	-0.19	-4.22***	12.9	3.11***	12.9
2011-12	0.07	2.47**	0.07	2.52**	6.01	3.92***	6.01
Education Dummies (Reference Category: Illiterate)							
Primary	-0.54	-13.2***					
Secondary	-0.86	-16.6***					
Graduation & above	-0.81	-5.82***					
Constant	3.95	4.75					
Pseudo R2	0.28		0.27				
Wald Chi (20)	11186		10931		759		
No of observation	28988		28988		28988		
Wald Test Chi2 (2)					367		

Source: Author's Estimation using NSS unit level data, various rounds

Note: ***, ** and * imply that 1 per cent, 5 per cent and 10 per cent level of significance.

³ This model with marginal effects.

⁴ Coefficients

Furthermore, we have estimated a simple probit model to find out the determinants of workforce participation among ITI pass-outs in *Balasore* district. Apart from the fact we have discussed, we have further explored that the coefficients of technical education (see the coefficients of various traded in Table 4.2 is positive. That implies the fact that labour force participation among ITI pass-out students are higher as compared to the general school students.

But as we have already found in the previous chapters that the unemployment among these students is very high. This is because of their low work participation. Hence in this context, it could be argued that employment generation for the vocationally trained youths is more important than simply providing vocational education. Furthermore focus on the quality of training is also crucial, otherwise the skill gap would increase.

Table 4.2. Simple probit results, evidence from *Balasore* district

Variables	Probit 1		Probit 2	
	Coef.	Z- value	Coef.	Z- value
Logincome			17.01	0.75
Log incomesquare			-0.79	-0.73
Log wage (predicted)	0.24	1.21	0.21	1.12
Age	0.38	1.81	0.40	1.94
Age square	-0.01	-1.48	-0.01	-1.62
<i>Caste dummies (Reference category: ST)</i>				
SC	12.90	0.02	14.28	0.02
OBC	12.60	0.02	13.97	0.02
Others	12.60	0.02	14.06	0.02
<i>Education Dummies (Reference category: 8th Pass)</i>				
10th pass	-7.42	-0.02	-8.88	-0.02
12th pass	-7.29	-0.02	-8.70	-0.02
Graduate and above	-7.62	-0.02	-9.08	-0.02
<i>Trade dummies (Reference category: Others)</i>				
Automobile	4.33	0.01		
Electrician	4.80	0.01		
Fitter	4.83	0.01		
<i>Economic group Dummies (Reference category: Quintile 1)</i>				
Quintile 2	1.29	2.17		
Quintile 3	1.24	2.19		
Quintile 4	1.40	2.39		
Family Size	0.11	1.75	0.09	1.53

Fathers age group Dummies (Reference category: 70 and above)				
Less than 50	0.41	0.48	0.25	0.30
Greater than 50 & less than 70	-0.12	-0.15	-0.28	-0.35
Constant	-21.40	-0.02	-111.63	-0.08
Pseudo R2	0.2		0.2	
LR chi2(19)	40.9		36.0	
Number of Observation	177		177	

Source: Authors estimation using primary data.

4.5. Summary of findings:

The major findings of this chapter suggests that poverty and household income distress are playing an important role in the process of youth labour force participation in Odisha. General education has a little role to play in this process. However, possession of technical education increases the likelihood of labour force participation of youths. And hence focusing on job creation is more important for combating youth unemployment problem in Odisha.

Chapter-V

Projection of Demand and Supply of Labour in Odisha

5.1. Introduction:

In this chapter both demand (sectoral employment) and supply (labour force) of labour are projected for the years 2019-2020 using the ILO (1984) methodology. The major objective is to find out the demand and supply gaps and hence to suggest policy for generating employment opportunities. The supply side projection is made using the size of current enrollments, labour force participation rates (for male and female separately). Whereas the sectoral labour demand is estimated based on the growth of output, growth elasticity of output, capital-out ratio, and employment elasticity. And finally we have presented different scenarios based on a few assumptions.

The rest of this chapter is organized in four main sections. The immediate next section provides a discussion on the variables used in the projection of both demand and supply of labour. Then we discuss about the projection methods. And the final two sections provide the demand and supply projections in Odisha for the year 2019-20. And we discuss the gap and suggest policy measures.

5.2. Variables used in the demand and Supply projection:

5.2.1. Variables used in the projection of supply of Labour

The Labour Force Participation Rate (LFPR) is ratio between labour force (workers and unemployed) and total population. We have calculated the youth labour force participation rates for male and female categories by their level of education separately. The estimated figures are given in Table 5.1. It is observed that the LFPR of males are quite higher than that of their female counterparts. Furthermore, the LFPR of both male and females increases with their increasing level of education. Hence projection based on the overall male and female LFPR would provide a biased estimates. We have used the education and sex specific LFPR to project the labour force.

Table 5.1. Labour Force Participation Rates by Level of Education and Sex 2011-12.

Level of Education	Youth LFPR (in %)		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Illiterate	0.96	0.52	0.74
Primary Education	0.96	0.40	0.68
Middle Education	0.79	0.19	0.49
Secondary	0.54	0.12	0.33
Higher Secondary	0.42	0.08	0.25
Graduate	0.43	0.00	0.21
Post graduate	0.87	0.32	0.59
Tech Edu. (BG ¹)	0.69	0.68	0.68
Tech Edu. (GA ²)	0.60	0.36	0.48
Total	0.75	0.28	0.51

Source: Author's estimates based on NSS unit level data

The second important variable is the current size of the labour force. We have estimated the current size of the labour force by their level of education and sex (See Table 5.2). It is clear that the size of male labour force is more than double of the total female labour force in Odisha. Furthermore, the share of low skilled labour (illiterate and with up to primary level of education) is very high in Odisha.

¹ BG- below Graduate Level

² Graduate and Above level

Table 5.2. Size of Current Labour Force in Odisha in 2011-12

Education Level	Size of Labour force (2011-12) in lakhs		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Illiterate	29.40	28.45	57.85
Primary Education	33.31	11.75	45.05
Middle Education	36.27	6.84	43.11
Secondary Education	13.93	1.28	15.21
HSE	6.38	0.81	7.19
Graduate	0.13	0.02	0.14
Post graduate	8.25	1.23	9.48
Tech Edu. (BG)	1.35	0.19	1.53
Tech Edu. (GA)	0.52	0.19	0.70
Total	129.53	50.75	180.27

Source: Author's estimates based on NSS unit level data

The third most important variable is the size of current enrollments at various level of education. We have calculated the number of male and females, those who are currently attending education and hence they are not participating in the labour market (See Table 5.3). Only the persons belonging to the age group for the age group 15 to 29 years are considered in this case.

Table 5.3. Size of Current Enrollment at Various Level of Education at 2011-12.

Enrolments	Absolute Value in lakh			% share		
	<i>Male</i>	<i>Female</i>	<i>Total</i>	<i>Male</i>	<i>Female</i>	<i>Total</i>
Not attained	38.52	45.88	84.39	45.64	54.36	100
Primary Education	0.04	0.02	0.06	67.57	32.43	100
Middle Education	0.00	0.01	0.02	18.41	81.59	100
Secondary Education	3.38	2.79	6.18	54.78	45.22	100
Higher Secondary Education	4.08	2.86	6.94	58.82	41.18	100
Graduate	0.18	0.03	0.21	85.10	14.90	100
Post Graduate	3.18	2.37	5.56	57.30	42.70	100
Tech Edu. (below graduate)	0.80	0.01	0.81	98.17	1.83	100
Tech Edu. (Graduate & above)	0.40	0.30	0.70	56.80	43.20	100
Total	50.59	54.29	104.9	48.24	51.76	100

Source: Author's estimates based on NSS unit level data

Finally, we have calculated the attrition rate (ratio of persons, who would go out of work force and total work force) male and female workers separately. For doing this, we have estimated the sector wise (farm and non-farm sectors number of workers in the age group 54 and above (in 2004-05) and the number of workers in the age group 59 and above. Then we took the difference and compute the number of persons, who had gone out of the work force. And finally divide this number with the respective sectoral workforce and multiply 100 to get the attrition rate. This attrition rate is used to find out the number of persons, who would likely to leave the labour force. The attrition rate of 2011-12 (See Table 5.4) is used to project the size of labour force in 2019-20.

Table 5.4. Sectoral Attrition Rates Male and Female Workers at 2011-12:

Sector	Attrition rate 2011-12 (%)	
	<i>Male</i>	<i>Female</i>
Agriculture	0.45	1.6
Manufacturing	2.7	2.6
Non-manufacturing	1.5	0.3
Service	2.2	5.2
Total	0.94	1.8

Source: Author's estimates based on NSS unit level data

5.2.2. Variables used in the projection of Demand for Labour

First, we have calculated the capital output ratio (COR³), because capital (physical and financial) is an important input in the process of production. . And Employment generation depends on the techniques (capital-labour ratio or capital-output ratio) which used for the production.

The capital output ratio (COR) is relatively higher in manufacturing and service sectors in Odisha. It is highest in manufacturing sector, which is very obvious (See Table 5.5). Because, in manufacturing sector, normally in factories output is produced using machines and labour. But the capital output ratio (COR) is less in the agriculture sector and non-manufacturing sectors in Odisha. However, it is observed that the capital-output ratio (COR) of agriculture sector slightly increasing from 0.08 per cent to 0.09 per cent during 2009-10 and 2011-12 in Odisha. Only 0.01 increase capital output ratio due to mechanization in the agriculture sector. This is the reason for declining employment in the agriculture sector in Odisha. Similarly, in manufacturing sector, the capital output ratio (COR) increased from 1.17 per cent to 1.35 per cent during 2009-10 and 2011-12 in Odisha (See Table-5.5). Increasing COR has negative implication on growth of employment in this sector.

³ It is abbreviated as COR is related to be availability of natural resources in a country and is a tool used for the production of some output over a certain period of time.

Table 5.5.: Sectoral Capital-output Ratio in Odisha, 2009 to 2012

Sectors	Capital-Output ratio	
	2009-10	2011-12
Agriculture	0.08	0.09
Manufacturing	1.17	1.35
Non-manufacturing	0.05	0.06
Service	0.14	0.13

Source: Estimation based on GFCF data from DES, Odisha (current Price)

The second important variable is the sector-wise growth elasticity in Odisha. The sectoral growth elasticity is expected to influence the employment positively. From Table 5.6 it is clear that the growth elasticity⁴ is highest in the service sector (1.3) followed by the non-manufacturing sector (1.24) in Odisha during 2011-12. This higher growth elasticities might have partly responsible for growth of jobs in these sectors.

Table 5.6: Sectoral Growth Elasticity in Odisha, 2009 to 2012

Sectors	Growth Elasticity	
	2009-10	2011-12
Agriculture	0.56	0.09
Manufacturing	1.34	0.52
Non-manufacturing	0.72	1.24
Service	1.16	1.30

Source: Estimation based on GSDP data from RBI (current Price)

The sectoral employment elasticity⁵ is crucial to growth of jobs. In the agriculture sector and manufacturing sector, employment elasticity was negative during 2009-10 (See Table-5.7). While employment elasticity in agriculture continued to become negative, it was positive in manufacturing sector. And hence the growth of jobs in these sectors. The growth of jobs in agriculture sector continued

⁴ Growth elasticity of the sector is defined as the percentage change in i^{th} sector output with respect to a percentage change in GDP.

⁵ Employment elasticity of any sector is defined as the percentage change in sector employment with respect to a percentage change in gross value added of the particular sector.

to be negative, while manufacturing job growth revived from negative to positive. However, the job growth in service and non-manufacturing sectors were positive and relatively higher during 2009-10 and 2011-12 due to the positive and relatively high employment elasticity in Odisha.

Table 5.7.: Sectoral Employment elasticity in Odisha, 2009 to 2012

Sectors	Employment Elasticity	
	2009-10	2011-12
Agriculture	-0.21	-5.43
Manufacturing	-0.63	2.09
Non-manufacturing	1.53	0.66
Service	0.13	0.98

Source: Estimation based on GSDP data from RBI (current Price) and NSS

5.3. Methodology of Demand and Supply projection

5.3.1 Methods of supply projection

Labour market is the supply side of the economy. The size of future labour force depends on the population growth, a number of persons attending education and hence likely to enter the labour force, and the number of persons currently working or searching jobs, and the number of persons, those who are likely to go out of the labour force.

The most important information that is required to project the future labour force size includes: (1) The current capacity of the educational system in the state and the anticipated outflow of qualified manpower from different educational institutions; (2) Existing stock of qualified manpower belonging to various skill categories; and (3) Rate of attrition of the manpower stock on account of death and retirement during the plan period.

The size of labour force in Odisha during 2019-20 is estimated using the following: (1) The labour force newly entering (or expected to enter) from within or outside the educational system; (2) Labour force already existing in the country net of attrition on account of health and retirement. The new entrants into the labour force include the inflow of illiterate persons and of educated youths at various educational levels. The new entrants are estimated by multiplying the age

(particularly, age group 15 to 29 years), sex and education specific labour force participation rates (LFPR) with the number of persons that are currently attending and not attending education. To estimate the illiterate labour force (illiterates), we have to deduct the sum of educated labour force (with primary and above levels of education) from the total labour force which is projected to grow at constant rate “r”. Finally, the number of persons likely to be out of labour force (due to retirement or death) would be estimated from the age distribution of the labour force. The mortality rate of the labour force could be calculated taking into account the age and sex distribution of the labour force and applying this to the age and sex specific mortality rates for the whole population. The total annual rate of attrition from the labour force will be the sum of retirement and mortality rates in each year. Hence, the total labour force in the future years would be calculated using the following Equation 5.1:

$$LF_t = ELF_t^e + LF^1 + (1 - d) \times LF_{t-1}^e \quad (5.1)$$

Where $ELF_t^e = P^e \times ENR_t^c$

LF_t = Labour force in the year t

ELF_t^e = Labour force by level of education e in the year t

LF^1 = Size of uneducated Labour force in the year t

d = Rate of attrition due to death or retirement

ELF_{t-1}^e = Labour force by level of education e in the year t-1

P^e = Age and sex specific labour force participation rate by level of education e.

ENR_t^c = Enrolment of students in class c in the year t

5.3.2 Methods of Demand projection

The size of employment that would be generated during 2019-20 would depend on the level of output produced during the same period and the type of techniques used in the production process. In a static context, the size of employment that can be generated, varies positively with the degree of labour-intensity (the quantity of labour per unit of output or investment). The size of employment generation also depends on the choice of product mix that would be produced. At the macro level, projection of the total volume of employment depends on the level of output.

To estimate the future level of employment we have to use the current (2011-12) level of employment of the i^{th} sector and the rate of growth of employment in that sector (See Equation 5.2). The rate of growth of employment in the i^{th} sector is the rate of growth of output in the i^{th} sector of the economy multiplied by the corresponding sectoral elasticity of employment, sectoral growth elasticity and capital-output ratio.

$$E_{it} = E_i (1 + r_{ei})^t \quad (5.2)$$

Where $r_{ei} = g \times u_i \times \eta_i \times \rho$

r_{ei} = Annual rate of increase in employment in sector i

g = Annual rate of growth of GDP

u_i = Sectoral growth elasticity (i.e., elasticity of i^{th} sector output with respect to GDP)

ρ =capital-output ratio

η_i = Sectoral employment elasticity (i.e., rate of increase in i^{th} sector employment due to unit change in i^{th} sector output)

E_{it} = Employment of the i^{th} sector at the end of period t

E_i = Employment of the i^{th} sector during the benchmark year

These are the standard formula used for calculating future demand and supply of labour. These formula are used by ILO (1984) and ASSOCHAM (2014) for projecting the labour demand and supply. ASSOCHAM (2014) also examined the credibility of this projection method.

5.4. Labour Demand Supply projections for Odisha

5.4.1. Projection of Labour Supply during 2019-20:

Before calculation the projection of labour force we should know the number of new entrants those who would likely to join the labour force by 2019-20(See Table-5.8). The projected new entrants by their education level is given in Table 5.8. About 64.13 lakhs (about 37 lakhs male and 27 lakhs female) new entrants are likely to join the labour force. About 18.63 lakhs (2.06 lakhs male, 16.57 lakhs female) labour force would be illiterate/ or with a very low level of education. With primary education level about 22.38 lakhs (15.67 lakhs male and 6.72 lakhs female) are likely to enter. Whereas with middle education level about 9.90 lakhs (8.24 lakhs

male and 1.66 lakhs female), with secondary education level about 6.96 lakhs (5.82 lakhs male and 1.15 lakhs female), with higher secondary education level about 1.87 lakhs (1.66 lakhs male and 0.22 lakhs female), with graduate level of education about 0.08 lakhs (0.08 male and nil female), with post-graduate level of education about 3.39 lakhs (2.65 lakhs male and 0.74 lakhs female), with technical education (below graduate level) about 0.55 lakhs (0.54 lakhs male and 0.01 lakhs female) and with technical education (graduate and above) about 0.35 lakhs (0.24 lakhs male and 0.11 lakhs female) would likely join in the labour force in Odisha during 2019-20 (see Table-5.8). Based on this calculation, it could be argued that about 6.47 lakhs people per annum (3.56 lakhs per annum male and 2.91 lakhs female labour force) would likely to join in the labour force by 2019-20 in Odisha.

Table 5.8. Number of youths would likely to join the Labour Force if LFPR would remain constant as in 2011-12 (in lakhs).

Enrolments	Expected Volume of new entrants 2020		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Not attained	2.06	16.57	18.63
Primary Education	15.67	6.72	22.38
Middle Education	8.24	1.66	9.90
Secondary Education	5.82	1.15	6.96
Higher Secondary Education	1.66	0.22	1.87
Graduate	0.08	0.00	0.08
Post Graduate	2.65	0.74	3.39
Tech Edu. (below graduate)	0.54	0.01	0.55
Tech Edu. (Graduate & above)	0.24	0.11	0.35
Total	36.96	27.17	64.13

Source: Author's estimates based on NSS unit level data

The total labour force in Odisha would likely to be about 232 lakhs (with 158 lakhs male and 74 lakhs female). And hence the labour force would likely to increase by about 52 lakhs (28.5 lakhs male and about 23 lakhs female) (See Table 5.9).

These are the workers they would be searching for non-farm jobs. Hence the growth of non-farm job is crucial for reducing overall open unemployment in Odisha.

Table 5.9: Projected Labour Force for the Year 2020 in Odisha (in lakhs).

Projected Labour Force	Odisha		
	<i>Male</i>	<i>Female</i>	<i>Total</i>
Total likely to go out of the labour force	8.44	3.86	12.30
Total would likely to join the labour force	36.96	27.17	64.13
Labour force in 2011-12	129.53	50.75	180.27
Projection of Labour force in 2020	158.04	74.06	232.10
Expected increasing labour force	28.52	23.31	51.83

Source: Author's estimates based on NSS unit level data

5.4.2. Sectoral Employment demand Projection in Odisha, 2019-20

While projecting the future workforce, at the outset, we set a lower and an upper limits of the projected workforce. And then we have projected the total workforce in four alternative scenarios for 2019-20 in Odisha. The second and third column of Table 5.10 shows the projected and actual employment figures respectively, for the year 2011-12. It is clear that the projected figures are very close to the actual figures. Further, we have projected the sectoral employment under a few restrictive assumptions, which is given in various scenarios below.

Table 5.10: Projected sectoral employment in Odisha, 2019-20

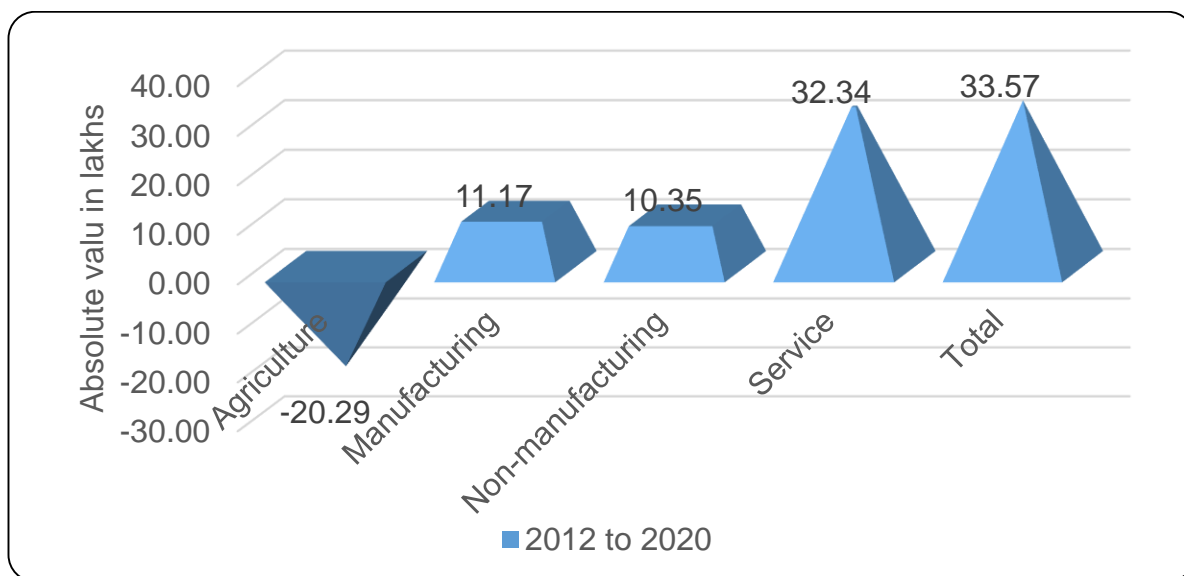
Sectors	Projected employment (in Lakhs) in 2019-20 under the Following Assumptions					
	Projected employment in 2011-12 (based on 2011-12 information)	Actual estimates 2011-12	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Agriculture	97.72	98.00	77.71	91.12	86.95	76.80
Manufacturing	17.09	17.20	28.37	8.75	20.55	29.06
Non-manufacturing	21.08	21.00	31.35	41.04	40.45	31.97
Service	38.02	38.00	70.34	42.14	54.10	72.45
Total	173.91	174.20	207.77	183.05	202.05	210.28

Source: Author's estimates based on NSS unit level data

Scenario-1:

If the employment elasticity and growth rate remains constant as in 2011-12, then the size of the workforce would increase to 207.77 lakhs by 2019-20 (See Table-5.10) from 174.20 lakhs in 2011-12 (actual estimates of 2011-12). That means the size of the workforce will increase by 33.6 lakhs (about 4.2 lakhs per annum). In this case total employment in agriculture sector would come down to about 77.7 lakhs. Whereas, the employment in all other sectors would rise. The employment in non-manufacturing would increase to 31.3 lakhs. The employment in manufacturing would increase to 28.3 lakhs. The employment in service sector would increase to 70.3 lakhs. For the absolute increase and decrease in sectoral employment see Figure 5.1)

Figure 5.1: Absolute change in sectoral employment (in lakhs) based on scenario 1

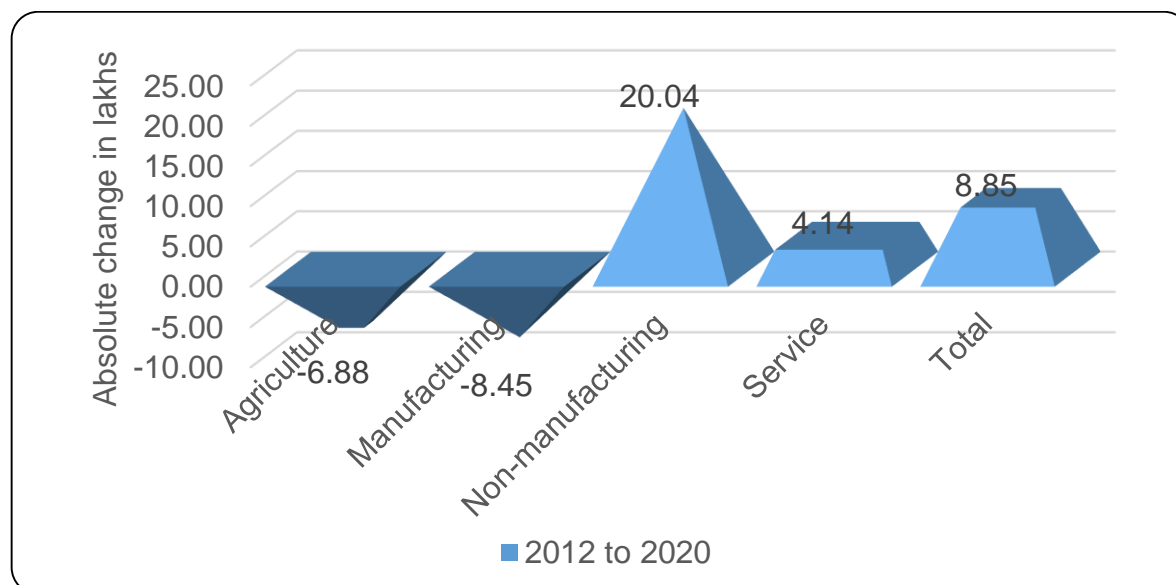


Source: Author's estimates based on NSS unit level data

Scenario-2:

If the employment elasticity and growth rate of Odisha change to a situation like 2009-10, then the size of the workforce would increase to 183 lakhs by 2019-20 (See Table-5.10) from 174.20 lakhs in 2011-12 (actual estimates of 2011-12). That means the size of the workforce will increase about 9 lakhs (about 1 lakhs per annum). In this case total employment in agriculture and manufacturing sectors would come down to about 91 lakhs and about 9 lakhs respectively. Whereas, the employment in all other sectors would rise. The employment in non-manufacturing would increase to 41 lakhs. And employment in service sector would increase to 42 lakhs. For the absolute increase and decrease in sectoral employment see Figure 5.2).

Figure 5.2: Absolute change in sectoral employment (in lakhs) based on scenario 2

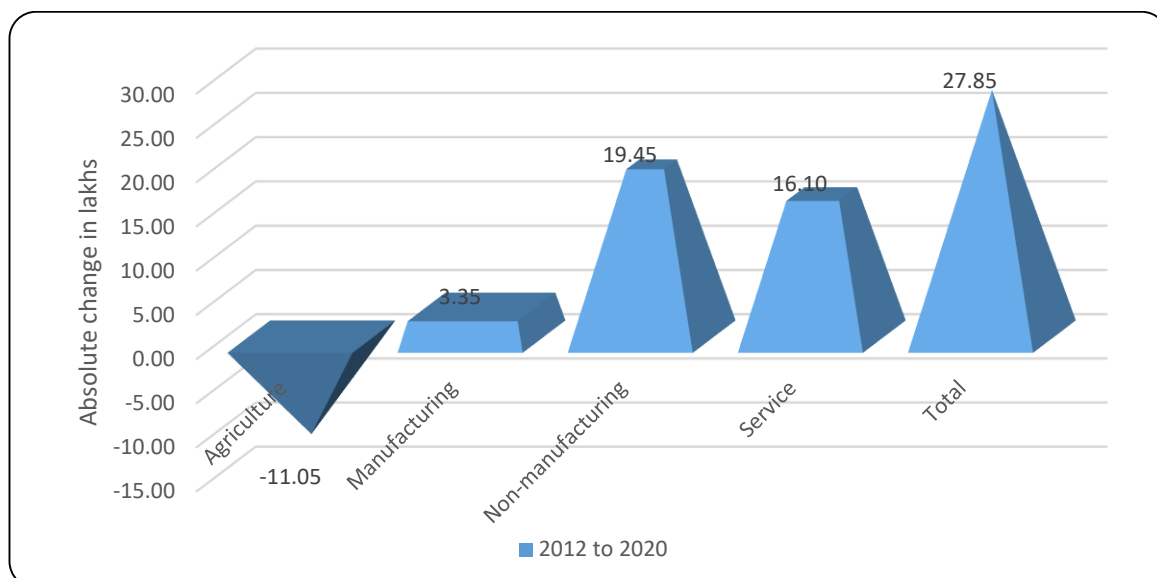


Source: Author's estimates based on NSS unit level data

Scenario-3:

In the third scenario, we assumed that the growth rate remains constant as in 2011-12, and employment elasticity becomes the average of 2009-10 and 2011-12. In this case the size of the workforce would increase to 202 lakhs by 2019-20 (See Table-5.10) from 174.20 lakhs in 2011-12 (actual estimates of 2011-12). That means the size of the workforce will increase about 28 lakhs (about 3.2 lakhs per annum). In this case, total employment in agriculture sector would come down to about 87 lakhs. Whereas, the employment in all other sectors would rise. The employment in non-manufacturing would increase to 40.5 lakhs. The employment in manufacturing would increase to 20.5 lakhs. The employment in service sector would increase to 54 lakhs. For the absolute increase and decrease in sectoral employment (see Figure 5.3).

Figure 5.3: Absolute change in sectoral employment (in lakhs) based on scenario 3

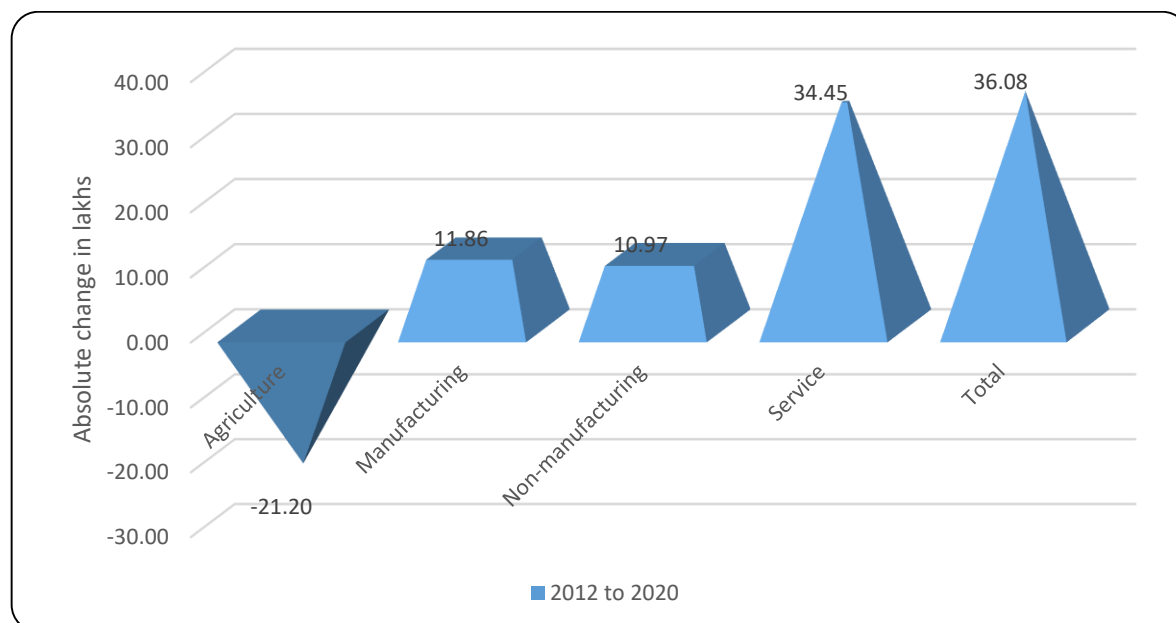


Source: Author's estimates based on NSS unit level data

Scenario-4:

This is the last and final assumption for projecting workforce in 2020. It assumed that employment elasticity remains constant as in 2011-12 and growth rate become doubled. By following this assumption, we have calculated the size of the workforce/ employment which will increase to 210.28 lakh during 2019-20 from 174.20 lakhs during 2011-12 (See Table-5.10). That means the size of the workforce will increase about 36 lakhs (about 4.5 lakhs per annum). In this case total employment in agriculture sector would come down to about 77 lakhs. Whereas, the employment in all other sectors would rise. The employment in non-manufacturing would increase to 32 lakhs. The employment in manufacturing would increase to 29 lakhs. The employment in service sector would increase to 72 lakhs. For the absolute increase and decrease in sectoral employment (see Figure 5.4).

Figure 5.4: Absolute change in sectoral employment (in lakhs) based on scenario 4



Source: Author's estimates based on NSS unit level data

5.5. Summary of findings

From the demand and supply projection of labour force, it can be concluded that the demand for labour would increase by (at most in the best possible scenario) by 4.5 lakhs per annum, whereas the supply of labour would likely to increase by 6.5 lakhs per annum. Hence, a gap of 2 lakhs per annum would be generated within labour market in Odisha. And as a result the unemployment rate is likely to increase further, if timely measures are not taken.

Chapter VI

Conclusion and Policy Suggestion

6.1 Conclusion

This study attempts to explore the recent trends, composition, and patterns of youth unemployment in Odisha. Sectoral employment patterns, and the factors influencing the labour force participation decision of youths in Odisha. It also attempted to project the size and composition of the labour force and sectoral employments by 2019-20, to find out the exact number of jobs to be created to combat the rising unemployment problem in Odisha.

The major findings of the study suggest that though overall unemployment declined during 2011-12, educated youth unemployment is increasing over the last three decades. A massive decline in agricultural employment along with the recent fall in manufacturing sector employment are the major reason for the slow growth of jobs in Odisha. Within manufacturing sector though the growth of jobs is almost stable (or constant), the subsectors like basic and fabricated metal, plastic products, food and beverages, wood and paper products, and textile and apparel contributed to the growth of jobs (particularly for youths) in Odisha. Within non-manufacturing sectors the subsectors like construction (major) and mining and quarrying drove growth in employment in Odisha (mainly growth of casual employment). And, in the service sector, the subsectors like arts and entertainment, retail trade, transportation and storage, and education have driven growth of employment in Odisha.

At all Odisha level, poverty and household income distress is playing an important role in the process of youth labour force participation. General education has a little role to play in this process. However, possession of technical education increases the likelihood of labour force participation of youths. And hence focusing on job creation is more important for combating youth unemployment problem in Odisha. From the demand and supply projection of labour force, it can be concluded that the demand for labour would increase by (at most in the best possible scenario) by 4.5 lakhs per annum, whereas the supply of labour would likely to increase by 6.5 lakhs per annum. Hence, a gap of 2 lakhs per annum would be generated within

labour market in Odisha. And as a result the unemployment rate is likely to increase further, if timely measures are not taken.

6.2 Policy Measure

On the basis of this findings, it could be argued that the policy measure that focuses on growth of manufacturing sector along with development of social sector including education and health sectors would have greater potential for generating employment opportunities. And thereby it would help sustain the growth of jobs and the structural transformation process which started during 2004-05 in Odisha. Both low-skilled and better skilled jobs should be created. Increasing investment on infrastructure for expanding construction of roads, buildings, excavating canals, etc., would boost the growth of construction sector jobs. While focusing on the development of rural industrialization (manufacturing based on agriculture) would not only solve the problem of youth unemployment but also control large scale youth out-migration from the rural to urban areas. Which otherwise would reduce the burden of urban informal sectors, and likely to reduce the size of illegal urban settlements in Odisha. Sustaining the structural transformation would have also implication on poverty reduction and overall growth of Gross State Domestic Products (GSDP) and overall economic development in the long run.

6.3 Limitation and scope for further research

The major limitation of this study is the use of secondary data, which is likely to exclude much relevant information of NSS data. The sample size at the district level is too small and hence is likely to miss some important information. Though this study attempted to estimate the sectoral labour demand and supply of labour based on macro-level data, the analysis of skill gap based on this quantitative measures is limited. The limitation of the study is primary data which has only collected from single district out of thirty districts in Odisha. The scope of this study is limited to only Odisha, and hence the findings of this study cannot be generalized to the all India level. And also primary survey is conducted in one district of Odisha only. One district cannot generalise the entire Odisha.

Since the major limitations of this study is very common to any social science research (mostly economics), our finding is also limited those aspects. Hence, the

policy measures drawn from this study could attract the attention of the government and decision makers for sustaining the socio-economic development of Odisha. A study focusing both demand side and supply side aspects through a combined study of educational institutions and establishment would be appropriate for estimating skill gap using both quantitative and qualitative measures. This could be a topic for further research in Odisha.

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Annexure

Annexure 1: Heckman Selection Method

Heckman Selection Model- Two step estimates				
<i>Variables</i>	Second Stage Equation		First Stage Equation	
	<i>Coefficients</i>	<i>Z-value</i>	<i>Coefficients</i>	<i>Z-value</i>
Age	0.07	2**	0.30	12.73***
Agesquare	0.00	-1.2	-0.01	-11.43***
Sexdum2	-0.14	-3.72***	-0.88	-38.58***
Genedudum2	0.21	7.02***		
Genedudum3	0.19	4.7***		
Genedudum4	0.31	6.18***		
Tachedudum	0.23	2.94***		
Logmpce			-0.32	-4.69***
Logmpcesquare			0.01	1.94**
Yearsschooling			-0.09	-16.57***
Yearsofschoolingsquare			0.01	15.16***
Socialgroupdum1			0.54	24.74***
Socialgroupdum2			0.16	6.78***
Sectordum1			0.23	10.8***
Maritaldum2			1.90	48.96***
Maritaldum3			0.43	3.77***
Yeardum5			0.33	9.27***
Yeardum4			-0.50	-13.76***
Yeardum3			-0.18	-3.93***
Yeardum2			0.07	2.51***
Femalemarried			-1.65	-35.91***
Femaledivorced			0.22	1.69*
Constant	-0.70	-1.95	-1.79	-5.36
Lambda	0.07	2.04		
Rho	0.05			
Sigma	1.37			
Wald chi2(7)	224.42			
Number of obs	29000			
Censored obs	14825			
Uncensored obs	14175			

Source: Author's estimates by using NSS unit level data

Note: ***, ** and * imply that 1 per cent, 5 per cent and 10 per cent level of significance.

Annexure 2: Details about variables

<i>Variable</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
LFP	31122	0.49	0.50	0	1
Age	31122	21.61	4.22	15	29
Agesquare	31122	484.92	183.84	225	841
Logmpce	31122	6.19	1.92	0	12.65
Logmpcesqu~e	31122	42.01	17.14	0	160.07
Logwagepre~t	31098	0.15	0.34	-0.582	1.12
Sexdum2	31122	0.49	0.50	0	1
Genedudum2	31098	0.48	0.50	0	1
Genedudum3	31098	0.19	0.39	0	1
Genedudum4	31098	0.06	0.23	0	1
Tachedudum	31122	0.02	0.12	0	1
Socialgrou~1	29011	0.22	0.41	0	1
Socialgrou~2	29011	0.16	0.36	0	1
Sectordum1	31122	0.77	0.42	0	1
Maritaldum2	31119	0.41	0.49	0	1
Maritaldum3	31119	0.02	0.14	0	1
Yeardum5	31122	0.15	0.36	0	1
Yeardum4	31122	0.16	0.36	0	1
Yeardum3	31122	0.24	0.43	0	1
Yeardum2	31122	0.25	0.44	0	1
Femalemarr~d	31119	0.25	0.44	0	1
Femaledivo~d	31119	0.02	0.12	0	1

Source: Author's estimates by using NSS unit level data

Annexure 3. Results of Heckman selection model (Balasore)

Results of Heckman selection model -- two-step estimates				
Variable	Second stage		First stage	
	Coef.	Z value	Coef.	Z value
Age	-0.3	-0.6	1.4	0.0
Age square	0.0	0.7	0.0	-2.2
Father_Age	0.0	0.8	0.0	-0.1
Father_Education			-0.1	-0.6
castedum1	0.0		-10.2	.
castedum2	-0.1	-0.4	0.5	1.4
castedum3	-0.2	-0.6	-0.1	-0.3
Religion	2.0	3.9		
religiondum1			5.2	0.0
religiondum2			5.5	0.0
Annual_Income	0.0	1.0		
Experience	0.2	0.9	-0.2	0.0
Expsquare	0.0	-1.0	0.0	1.8
Tradenewdum1	-0.5	-2.2	6.9	0.0
Tradenewdum2	0.0		7.3	0.0
Economicgroupdum2			0.7	2.1
Economicgroupdum3			0.7	1.1
Economicgroupdum4			0.7	2.0
Constant	10.3	1.3	-38.1	
Lambda	-0.4	-1.5		
Rho	-0.8			
Sigma	0.4			
Wald chi2(10)	37.6			
Number of Observation	163			
Censored observation	137			
Uncensored observation	26			

Source: Author's estimates by using survey data

Annexure 4

Schedule No.:

A study on Vocational Education and Youth Employability in Odisha
 Shiba Shankar Pattayat, Research Scholar (M.Phil.in Economics)
 Centre for Economic Studies, Central University of Punjab, Bathinda-151001
ITI Survey Schedule



Name of the Institution:					Block Name			
Place			Date of establishment:			Nature of funding (<i>Pure Govt.=1; Purely private=2; semi-government=3</i>)		
Course offered: (<i>Engineering=1; Non-engineering=2; both=3</i>)			Who help you to design the curriculum of various courses (<i>teachers=1; principal=2; experts from other reputed institutes=3; any others (specify) =4</i>)					
Do you send you teachers for training and refresher courses? (<i>Yes=1; No=2</i>)			If Yes, how often you send them for such courses: (<i>every year=1; once in two years=2; once in five years=3; do not send=4; no idea=5</i>)					
No. of Class rooms:		No. of labs:		No. of Conference rooms:		No. toilets		No. of student common rooms
Please provide the following information (during 2015-16)								
Trades under engineering courses	No of teachers		No of student enrolled	No of student passed	No of student Dropped out	No of student sent for Apprentice programme	No of student got campus selection jobs	Average month salary of the selected students (in Rs.)
	P	T						
Tool & Die Maker								
Draughtsman Civil)								
Draughtsman (Mechanical)								
Fitter								
Turner								
Information Technology & E.S.M.								
Machinist								
Refrigeration								
Mech. Instrument								
Electrician								
Wireman								
Mechanic Motor Vehicle								
Mechanic Radio & T.V.								
Mechanic Electronics								

Surveyor								
Pattern Maker								
Mechanic Agriculture								
Welder (Gas & Electric)								
Forger & Heat Treater								
Foundry Man								
Carpenter								
Sheet Metal Worker								
Plumber								
Diesel Mechanic								
Mechanic Tractor								
Plastic Printing Operator								
Pump Operator								
Motor Driving-cum-Mechanic								
Trades under Non-engineering courses:								
Computer Operator & Programming Assistant (COPA)								
Stenography English								
Stenography Hindi								
Cutting & Sewing								
Book Binder								
Dress Making								
Seceratarial Practice								
Hair & Skin Care								
Fruit &Vegetable Processing								
Embroidery & Needle Worker								
Bleaching & Dyeing Calico Print								
Weaving of Fancy Fabric								
Letter Press Machine Mender								
Hand Compositor								
Commercial Art								
Manufacture Foot Wear								
Leather Goods Maker								



A study on Vocational Education and Youth Employability in Odisha

Shiba Shankar Pattayat, Research Scholar (M.Phil.in Economics)
Centre for Economic Studies, Central University of Punjab, Bathinda-151001
ITI pass-out Students Survey Schedule (Tracer Study)

Name:		Age (in years)		Sex: (Male=1; Female=2)		Caste (ST=1; SC=2; OBC=3; & Others=4)	
Religion:(Hindu=1; Muslims=2; & Others=3)		Father's Age (in years)		Father's education general: (illiterate=1; primary=2; Secondary=3; Higher secondary =4; Graduate=5; Post Graduate=6)			
Father's education technical/vocational: (no technical education=1; below graduate level=2; graduate level =3; post graduate level =4)					Father's Annual income (in Rs.):		
Your family size (no. of members)		Your General education (8 th pass=1; 10 th pass=2; 12 th pass=3; Graduate=4; Post Graduate=5)				Year of passing from general education	
Your tech/vocational education (below graduate level=2; graduate level =3; post graduate level =4)				Year of joining technical education		Year of passing from technical education	
How much did you spend on you technical education? (Full course fee in Rs.)				Had you availed any fellowship/scholarship for your technical education (Yes=1; No=2)			
If yes, then what is the total amount of fellowship you received? (in Rs.)				Who financed this fellowship (central govt-1; state govt.=2; your institution=3; others=4)			
After completing the technical course what was your employment status? (Got a salaried job without delay =1; become self-employed=2; remain unemployed for some time=3)							
If remain unemployed for some time then provide the reasons							
Have you gone for any apprentice programme? (Yes=1; No=2)			If yes, then for how long? (in months)			Have you appeared in any campus selection? (Yes=1; No=2)	
Did you get your job through campus selection? (Yes=1; No=2)			If yes, then for how long did you work in your first job? (in years)			Did you completely satisfy with your first job (Yes=1; No=2)	
If not satisfied with the first job then provide reasons: (put √ in the side boxes)		Low salary	Far off places	Bad working conditions	Training was not sufficient	Heavy work load	Any other (specify)
How many times you have changed your jobs		What was the monthly salary that you used to get from each of these jobs? (in Rs)					
		First job		Second job		Third job	Fourth job

Annexure 6

