

## FACETS OF UNEMPLOYMENT PROPORTION: A STUDY ACROSS TWO NSSO TIME POINTS

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### ABSTRACT

*Our Indian economy is facing, the problem of unemployment from a long time. Different economists and social scientists are stressing on this fact and making several policies to get rid of this problem. But this increases with time to time. The recent released PLFS: 2017-18 report show that there is a huge increase in unemployment rates among different sectors (rural & urban) and especially among female population. To analyse the extent and nature of unemployment in present situation we have made a comparative analysis between the unit level data pertaining to NSSO 68<sup>th</sup> round EUS (2011-12) and PLFS (2017-18). Our Regression results show that there is a sharp increase in the proportion of unemployment in India with the increase in non-agricultural casual labour based households along with the regular wage based households, minority communities, adult females and high levels of education. Previously also unemployment was very much persistent among the educated youths, but now-a-days the increase in educated unemployment is significantly excessive high. This creates a problem for a developing country like India which is presently enjoying the fruits of 'demographic dividend'.*

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**Keywords:** States of Employment, Educational Unemployment, Vulnerability, Labour Market, PLFS.

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### Introduction

It has been long noted by the classical economists that labour market is qualitatively different from other input markets. In giving his/ her labour power to the services of the production labourers has to be present physically. Unlike the other inputs like land and capital the input owner here cannot be segregated from the services of the inputs. This makes a fundamental difference between labour and other inputs. The advent of social choice theory broad this point enliven into the mainstream thinking. Prof. Kenneth Arrow (Basu, Pattanaik & Suzumara, 1995) admitted that labour market has a social character that is not prevalent in other input markets. Discussion about unemployment of labour cannot be mere technical issue or even a simple macro-economic mechanistic adjustment. It always brings these social characters into its forefront. In a developing country like India with the dominance of informal sector, the social fabric of labour market becomes more important. In many family run firms or in small enterprises a distinguishing line between labour and entrepreneur becomes blurred. Either they are same or they are closely linked to the social network. As Kapoor (2019) has noted in many cases the available jobs in the informal sector are distributed within the social milieu to enable each to earn something. For example, all shops are not open & close at the same time. They may be synchronised so that each has at least some customers. Again the plying of rickshaws (man driven, oil driven, battery driven others) are also distributed across various time slots and are in specific routes. Thus though the workers are self employed but they wishes to be gainfully employed even for little hours of time to collect their means of subsistence by avoiding competition.

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According to Prof. A K Sen (1975) there are three aspects of employment such as 'Income aspect', 'Production aspect', & 'Recognition aspect'. The 'income aspect' says that employment gives sufficient level of income to the employed. The 'production aspect' tell us that employment yields an output. The 'recognition' aspect tells us that employment gives a person the recognition of being engaged in something worth of his while. The recognition aspect of employment is hard to find in a developing country like India where people remain temporarily out of labour force to avoid competition of accumulating the basic means of livelihood. But now a day it is seen that the 'income aspect' is also not fulfilling all terms and conditions properly. Even a situation of open unemployment is very much persistent in present days. By reviewing several literatures, it is found that different socio-economic factors are responsible for this.

Thus, the study of unemployment should have socio-economic ramification. The present work wishes to undertake such an exercise using NSSO data across two time points (2011-12 & 2017-18). The paper is divided as follows. Section 2 gives data description, and methodology used. Section 3 describes our analytical exercise. In Section 4, we conclude.

### Definitions of Measurement, Data and Methodology

Here we have considered the NSSO data for measuring employment-unemployment situation of the country, since NSSO data is considered as rich enough among all other secondary data sources for measuring employment-unemployment situation of Indian economy. National Sample Survey Office (NSSO) has tried to measure the employment unemployment situation of the country on behalf of the Govt. of India, by providing three types of definitions. These are i) Usual Status Approach, ii) Current Weekly Status Approach, iii) Current Daily Status Approach. Here we also have used the Usual Status Approach in this study to measure the chronic unemployment situation of the country. Again this Usual Status is subdivided as Usual Principal Status and Usual Subsidiary Status. The Principal Status approach considers a person as employed if he/she is gainfully engaged in any work for major time of 365 days preceding the date of survey. And Subsidiary Status considers a person as employed if he/she is gainfully engaged in a work for 30 days or more during the last 365 days. If a person is not employed as per the principal status approach but employed according to subsidiary status approach, then also the usual status approach considers the person as employed. So this Usual Status Approach measures the open unemployment in the Indian economy and it helps to understand the true employment unemployment situation of the country.

In this study we have used 68<sup>th</sup> round EUS (2011-12) data and PLFS: 2017-18 data provided by NSSO, to make a comparative analysis. We have done a State level analysis (for rural and urban areas) to see the impact of different socio-economic variables on the proportion of unemployment in Indian economy. It should be noted that since our study is focused on the employment unemployment situation of the country, so here we have exempted the age group 0-5 years old.

However, it is argued that the north-east part of the country faces a great problem of unemployment from many years (De, 2011). The casual wage based households are considered here since increase in casual labourers actually stimulates the underemployment (Thomas, 2012, Shaw, 2013) situation of the country. But now a day it is often noticed that unemployment is very much high among regular wage-based households as Kapoor (2019) has mentioned that according to PLFS: 2017-18 data there is a change in the terms and conditions as well as payment for regular wage based households. Unemployment is more prominent among the minority communities, such as Islam (Mansoor, Abraham, 2021) & Christian people (Naik, Kadam, 2012) as well as the socially vulnerable classes such as SCs & STs (Kumar, Kumar & Mitra, 2009). Again it is argued that working age group population, especially among the females unemployment is very much present (Sundari, 2020, Swaminathan, 2020). Lastly, it is also noticed that people having lower levels of education or no education are employed compared to the highly qualified persons (Bairagya, 2018, Kumar & Kumar, 2019). This may be because of highly qualified individuals are requiring white collar jobs that are unavailable in the economy. Now let us consider an appropriate methodology to analyse the significance of different independent variables on the proportion of unemployment. Since our dependent variable is limited between zero and unity. So, we have done Tobit regression analysis to find out the significance of different socio economic variables on the proportion of unemployment and analyse the changes taking place from time to time. It is one of the popularly used censored regression model.

Let us at first consider the following model,

$$Y_i^* = \beta_0 + \beta_1 X_i + U_i$$

Where,  $Y_i^*$  = proportion of unemployment

$X_i$ = north east dummy(NER), Proportion of regular wage household(REGULAR HH), Proportion of non agricultural casual labour household (NONAGCASUAL HH), proportion of ST population(ST), proportion of Islamic population(ISLAM), proportion of Christianity( CHRISTAIN), proportion of not literate(NOT LITERATE), proportion of diploma(DIPLOMA), proportion of graduate(GRADUATE), proportion of adult female (ADULTFEMALE), average MPCE (AVGMPCE), average land possessed(LAND POSSESSED).

Here,  $Y_i=0$  if  $Y_i^* \leq 0$  &  $Y_i^* >= 1$

$Y_i= Y_i^*$  otherwise

And after that we have used the Truncated regression analysis (as MODEL-2) since Tobit model is a censored regression model but truncation gives us the opportunity to see the true effects of explanatory variable on the explained variable by setting up a limit and omitting those which are outside of that limit. For first three models we have done stepwise regression analysis but stepwise regression analysis is not supported in the STATA software for truncated regression.

### Results and Discussions

Here, our main objective is to find out the effects of different socio-economic variables on the proportion of unemployment in India. We have also tried to make a comparison between the 68<sup>th</sup> round EUS: 2011-12 and PLFS: 2017-18 data results. Let us at first consider the following table (1) which gives us a comparative analysis among two different time points of the effects of different independent variables on proportion of unemployment according to the unconditional Tobit regression model.

As we can see from table (1) that the North-East part of the country has a positive significant effect on the proportion of unemployment according to EUS: 2011-12 but there is no any significance of this region on the employment situation of the country according to PLFS: 2017-18. Again table (1) tells us that the households based on casual labourers stimulates the unemployment situation of the country according to both the data points, as casual labourers are engaged without any specific job contract and can be thrown out at any time (Jadav & Sen, 2013). However the regular wage based households implies a significant increase in unemployment according to PLFS: 2017-18. This type of result is not seen as per EUS: 2011-12. Again it is seen that the STs had negative significant effect, where as the Muslims had some positive significant effect on the unemployment situation of the country according to EUS: 2011-12. But we cannot get such type of result in case of PLFS: 2017-18 data. Rather here we can observe that there is a significance of rise in unemployment situation of the country with Christian population. Considering the effects of education it can be noticed that not literate people have a negative significant effect and the graduates have a positive significant effect on the proportion of unemployment according to both the data points. It is noticed that there is a sharp increase in educated unemployment according to PLFS: 2017-18 data. It is also seen that for the adult-female population that means those females who belongs to the age group 15-59 years have some high and positive significant effect on the unemployment situation of the country.

Again it is also noticed that with the increase in land holding the proportion of unemployment increases as they afford to be unemployed for a long time. But the PLFS: 2017-18 data does not provide us any information regarding land holdings, so we cannot compare between these two rounds in this ground.

Now let us consider the conditional marginal effects of Tobit regression model as given by table (2). Here we can see that there is a probability of increasing unemployment as a significant effect of North East part of the country according to EUS: 2011-12, but such result is not seen for 2017-18. The coefficient of conditional marginal effect here is almost same with that of unconditional. Again we can notice that with the increase in non-agricultural casual wage based household there is a probability of increasing unemployment by 5.2% point and 5.0% point according to EUS: 2011-12 & PLFS: 2017-18 data, but surprisingly it can be noticed that with the increase in regular wage based household by 1% point there is a probability of increasing unemployment by 9.8% point according to PLFS: 2017-18 data.

This type of result is not seen before. Here also the magnitude of conditional and unconditional effect becomes same. Again we can notice that with the 1% point increase in Islam and ST population there was a probability of increasing unemployment by 1.8% point and decreasing unemployment by 1.4% point according to EUS: 2011-12 data. But it is seen from 2017-18 data results that there is a probability of increasing unemployment with 1% increase in Christian population.

**Table 1: Unconditional Effects of Tobit Regression Model According to EUS: 2011-12 & PLFS: 2017-18**

	EUS: 2011-12				PLFS:2017-18			
	Coefficient	Std. Err	t	p>t	Coefficient	Std. Err	t	p>t
NER	0.005142	0.00169	3.04	0.003	-	-	-	-
REGULAR HH	-	-	-	-	0.009847	0.003907	2.52	0.014
NONAGCASUAL HH	0.053737	0.011039	4.87	0	0.050602	0.014212	3.56	0.001
ST	-0.01491	0.006371	-2.34	0.023	-	-	-	-
ISLAM	0.018274	0.004157	4.4	0	-	-	-	-
CHRISTAIN	-	-	-	-	0.014785	0.006011	2.46	0.017
NOT LITERATE	-0.07237	0.010893	-6.64	0	-0.03978	0.015145	-2.63	0.011
DIPLOMA	-0.32584	0.076302	-4.27	0	-	-	-	-
GRADUATE	0.028809	0.014717	1.96	0.055	0.140023	0.043162	3.24	0.002
ADULTFEMALE	0.04476	0.00958	4.67	0	0.045436	0.013547	3.35	0.001
AVGMPCE	-	-	-	-	-	-	-	-
AVGLAND	0.084396	0.040108	2.1	0.039	-	-	-	-
CONSTANT	0.000349	0.000951	0.37	0.715	0.001476	0.001054	1.4	0.166
Sigma	0.00407	0.000352			0.005182	0.000432		
No. of observations	70				72			
LR Chi2	80.05				157.25			
prob>chi2	0				0			
Left censored obs	3				0			
Right censored obs	0				0			
Uncensored obs	67				72			
upper limit	1				1			
Lower limit	0				0			

**Table 2: Conditional Marginal Effects of Tobit Regression Model According to EUS: 2011-12 & PLFS: 2017-18**

	2011-12				2017-18			
	dy/dx	Delta Method Std. Err.	z	P>z	dy/dx	Delta Method Std. Err.	z	P>z
NER	0.005	0.001643	3.04	0.002	-	-	-	-
REGULAR HH	-	-	-	-	0.009846	0.003907	2.52	0.012
NONAGCASUAL HH	0.052252	0.010753	4.86	0	0.050598	0.014211	3.56	0
ST	-0.01449	0.006199	-2.34	0.019	-	-	-	-
ISLAM	0.017769	0.004049	4.39	0	-	-	-	-
CHRISTAIN	-	-	-	-	0.014784	0.006011	2.46	0.014
NOT LITERATE	-0.07037	0.010628	-6.62	0	-0.03977	0.015144	-2.63	0.009
DIPLOMA	-0.31683	0.074302	-4.26	0	-	-	-	-
GRADUATE	0.028013	0.014311	1.96	0.05	0.140015	0.04316	3.24	0.001
ADULTFEMALE	0.043523	0.009327	4.67	0	0.045433	0.013547	3.35	0.001
AVGLAND	0.082064	0.039011	2.1	0.035	-	-	-	-
AVGINCOME	-	-	-	-	-	-	-	-
No. of obs:	70				72			
Model vce	OIM				OIM			
At mean:								
NER	0.2				-			
REGULAR HH	-				0.251405			
NONAGCASUAL HH	0.117313				0.094783			
ST	0.091923				-			
ISLAM	0.11171				-			
CHRISTAIN	-				0.0552			
NOT LITERATE	0.133117				0.12904			
DIPLOMA	0.009247				-			
GRADUATE	0.053983				0.030813			
ADULTFEMALE	0.208503				0.246114			
AVGLAND	0.014286				-			

It is also noticed that there is a probability of decreasing unemployment by 7.0% point & 3.9% point according to 2011-12 & 2017-18 data, thus the magnitude of coefficient decreases here. But for the

graduate people as we can see with an increase in graduate by 1% point there was a probability of increasing unemployment by 2.8% point previously but now it increases to 14% point. This type of rise in unemployment with higher education is really worried for our Indian economy.

Let us consider table (3) to analyse the unconditional effects of different socio-economic variables on the proportion of unemployment according to the Truncated regression model as per EUS: 2011-12 & PLFS: 2017-18 respectively.

Table (3) tells us that the north-east part of the country had some positive significant effect according to EUS: 2011-12 but this type of result is not seen by 2017-18 data. Again the non agricultural casual wage based household has some positive significant effect on the proportion of unemployment, but its magnitude declines from 2011-12 to 2017-18 data point. The regular wage based household again have some positive significant effect on unemployment situation of the country as per 2017-18 data point but such a result is not seen by 2011-12 data. The people belong to Islam community had some positive significant effect according to EUS: 2011-12 while people from Christian communities have a positive significant effect according to PLFS: 2017-18 data point on the proportion of unemployment of the country.

**Table (3): Unconditional Effects of Truncated Regression Model According to EUS: 2011-12 & PLFS: 2017-18**

	TRUNCATED				Coefficient	PLFS:2017-18		
	EUS:2011-12		p>t			Std. Err	t	p>t
NER	0.005854	0.00276	2.12	0.034	-0.00168	0.002636	-0.64	0.523
REGULAR HH	-0.0067	0.011299	-0.59	0.553	0.012627	0.005113	2.47	0.014
NONAGCASUAL HH	0.064136	0.016187	3.96	0	0.040127	0.019323	2.08	0.038
ST	-0.0253	0.015543	-1.63	0.104	-0.00222	0.01137	-0.2	0.845
ISLAM	0.022363	0.005635	3.97	0	0.004622	0.00589	0.78	0.433
CHRISTAIN	0.01444	0.015038	0.96	0.337	0.024241	0.012088	2.01	0.045
NOT LITERATE	-0.08511	0.015555	-5.47	0	-0.03553	0.017491	-2.03	0.042
DIPLOMA	-0.38114	0.139756	-2.73	0.006	0.07245	0.144298	0.5	0.616
GRADUATE	0.074822	0.041787	1.79	0.073	0.144852	0.051043	2.84	0.005
ADULTFEMALE	0.049448	0.013638	3.63	0	0.042765	0.01716	2.49	0.013
AVGMPCE	-0.45453	0.35089	-1.3	0.195	-0.01054	0.012106	-0.87	0.384
AVGLAND	0.152032	0.062361	2.44	0.015				
CONSTANT	0.002276	0.005486	0.41	0.678	0.003063	0.004208	0.73	0.467
Sigma	0.004852	0.00061	7.96	0	0.005432	0.000506	10.73	0
No of obs		67			72			
Wald chi2		69.64			439.34			
prob>chi2		0			0			
No. of truncated obs.		3			0			
Upper limit		1			1			
Lower limit		0			0			

Not literate people have some negative significant effect on the proportion of unemployment of the country in both the time point but it's magnitude declines from 2011-12 to 2017-18. Again, for the graduate people the significant increase in unemployment is almost double from 2011-12 to 2017-18. Again, the adult-female population significantly increases the unemployment situation of the country according to both the data points. With increase in land holding the proportion of being unemployed also increases as per 2011-12 data but such type of result is not noticed by 2017-18 data because 2017-18 data does not provide us any information regarding land size and land holding of the country.

Now let us check the conditional marginal effects as per truncated regression analysis by considering table (4).

From table (4) we can see that the north east part of the country had a positive significant effect on the proportion of unemployment of the country according to EUS: 2011-12 but such a significant impact is not noticed by 2017-18 data. Again the conditional marginal effects here tells us that with the increase in non-agricultural casual wage based households unemployment increases by 5.6% point and 4.0% point respectively according to the two data points. There the effect of casual wage-based households has declined quietly from 2011-12 data to 2017-18 data. Again it is noticed by 2017-18 data that with the increase in regular wage based household by 1% point there is a probability of increasing the proportion of unemployment by 1.2% point, this is exactly similar to the magnitude of its unconditional effect. Again it is seen that previously there is an increase in unemployment by 1.2% point with 1% point

increase in Islam population but now a days it increases by 2.4% point with 1% point increase in Christian population. This is exactly similar to their unconditional effects. It is also noticed that there is trend of declining unemployment with the increase in not literate people & increasing unemployment with highly educated people.

Here it can be seen that with 1% point increase in graduate people the probability of increasing unemployment goes from 6.6% point to 14% point, while with 1% increase in not literate people the probability of decreasing unemployment reduces from 7.5% to 3.5%. Again the adult female population shows a positively significant and sufficiently high magnitude of unemployment assigned with it in both the data point. Again with increase in land holding by 1% point unemployment increases by 13.4% point which is sufficiently high but due to lack of availability of data we cannot compare this with 2017-18 time point.

Thus, the conditional and unconditional marginal effects show same type of results for both tobit and truncated regression analysis.

**Table (4): Conditional Marginal Effects of Truncated Regression Model According to EUS: 2011-12 & PLFS: 2017-18**

	Truncated							
	2011-12				2017-18			
	Conditional Marginal Effects of Truncated Model				Conditional Marginal Effects of Truncated Model			
	dy/dx	Delta Method Std. Err.	z	P>z	dy/dx	Delta Method Std. Err.	z	P>z
NER	0.005173	0.002383	2.17	0.03	-0.00168	0.002629	-0.64	0.523
REGULAR HH	-0.00592	0.010002	-0.59	0.554	0.01259	0.005093	2.47	0.013
NONAGCASUAL HH	0.05668	0.013742	4.12	0	0.04001	0.019267	2.08	0.038
ST	-0.02235	0.013582	-1.65	0.1	-0.00221	0.011337	-0.2	0.845
ISLAM	0.019763	0.004721	4.19	0	0.004609	0.005873	0.78	0.433
CHRISTAIN	0.012761	0.013189	0.97	0.333	0.02417	0.012052	2.01	0.045
NOT LITERATE	-0.07522	0.013125	-5.73	0	-0.03543	0.017439	-2.03	0.042
DIPLOMA	-0.33683	0.121214	-2.78	0.005	0.072239	0.14387	0.5	0.616
GRADUATE	0.066124	0.036643	1.8	0.071	0.144429	0.05087	2.84	0.005
ADULTFEMALE	0.043699	0.011987	3.65	0	0.042641	0.01711	2.49	0.013
AVGINCOME	-0.40169	0.301747	-1.33	0.183	-0.01051	0.012065	-0.87	0.384
AVGLAND	0.134357	0.052791	2.55	0.011	-	-	-	-
No. of obs:	67				72			
Model vce	OIM				OIM			
<b>At mean:</b>								
NER	0.208955				0.208333			
REGULAR HH	0.26233				0.251405			
NONAGCASUAL HH	0.122423				0.094789			
ST	0.095285				0.101477			
ISLAM	0.116661				0.110522			
CHRISTAIN	0.052631				0.0552			
NOT LITERATE	0.138755				0.12904			
DIPLOMA	0.009629				0.005393			
GRADUATE	0.056279				0.030813			
ADULTFEMALE	0.217317				0.246114			
AVGMPCE	0.014215				0.286373			
AVGLAND	0.014639				-			

## Conclusion

Our analysis is based on a comparison of NSSO data across two rounds (EUS: 2011-12 & PLFS: 2017-18). For this we have used a number of socio-economic variates. We find wide difference among various types of social groups in terms of employment. Unemployment among women is higher. Unemployment is more pronounced among socially backward section & Christian population of the country. More alarming is the high educational unemployment. There has been noticed a high growth of unemployment with higher levels of educational attainments (Sharma and Sharma, 2017, Bairagya, 2018). It was already high in 2011-12, but in 2017-18 it becomes more pronounced. An additional feature of the PLFS: 2017-18 data is that there is a high proportion of unemployment among the regular salaried households.

A way out of this dilemma is appropriate skill formation fostering of entrepreneurial ability. Since established jobs become rarer and rarer, it is necessary to emphasise on innovative skill building procedures. Govt. helps in providing training and technical knowhow to the budding youths of India is an

utmost prerogative of the present time. This would enable to bloom of a thousand flowers. Instead of seeking jobs in various public and private enterprises young people of India could themselves find out newer channels of employment and productive activities. History has shown India never lacked the entrepreneurship of searching & flourishing in new arenas. Very recently, the so-called poor iron smelters in Howrah, W.B have been able to supply a crucial part of the great Hadron Collider at CERN's, Switzerland. The humble looking craftsmen have created an exact fit of the parts. This is in contrast to similar parts produced in U.S.A and other parts in Europe that require slicing and readjusting. These simple workers of India that really show the great power of ingenuity & innovativeness that our country possesses. We are simply to cut open the chains and unleash these Leviathans then into the greater world. This was a visualisation of Swami Vivekananda, one of our greatest saints.

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