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The Effect of Government Expenditure on Unemployment in India: A State Level Analysis

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Abstract

The relationship between government size and unemployment is an important topic of study in economics. Large public expenditure has been blamed for causing higher unemployment contrary to the belief that it would help in reducing unemployment. More research on the topic, however, needs to be done as the available literature has been based largely on data from developed countries. The present paper examines the existence of the relationship in states of India by using panel data analysis. For more comprehensive study, public expenditure is divided into development, non-development, and aggregate expenditures, while the types of unemployment under consideration are usual status and current weekly status. Indeed, it has been observed that development and non-development expenditures increase both the types of unemployment though the impact of the latter is higher. The findings are important as it implies that a cut in expenditure can be an important fiscal tool to fight unemployment. It was further observed that unemployment was higher among states with a more educated population, which also suggests a revisiting of the education policy in the country. States ruled by left parties have higher unemployment rate. Higher income states as well as states with higher growth rate tend to have lower unemployment rate.

Keywords: Crowding Out, Education, Government Size, Panel Data, Unemployment, India

JEL Classification Code: C23, E24, E62, H41, H72

1. Introduction

A number of studies have come up which say that larger government size or expenditure measured as a percentage of national income leads to higher unemployment. This is against the general belief held in many countries that larger government size instead would help in solving unemployment and many economic ills facing them. Many governments especially in developing countries with ever increasing expenditure requirements are consistently running into larger fiscal deficits, and balanced budget is never a topic for discussion. They have a myriad of responsibilities and increasing expenditure on health, education, infrastructure, employment generation, etc., are on top of their priorities. For them larger government spending is synonymous with higher economic growth.

In this paper, we take up the task of examining whether larger government size leads to higher unemployment based on state level data of India. The findings are important for two reasons. If the results come true, then the government can take up corrective steps, as employment generation is an important objective of its fiscal policy. Further, as most of the available studies on the topic are based on developed countries, the findings would help to add more to the available literature to generalize the existence of the relationship.

2. Literature Review

It was perhaps Abrams (1999) who initiated the study on larger government size causing higher unemployment in an elaborate manner. Based on a study of a group of OECD countries between the period 1984 and 1993, he observed government size to be a fairly good predictor of

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unemployment rate. He continued further to say that there are several ways in which bigger government size could increase unemployment rate. First, larger government expenditure implies higher income tax rates, which could affect work leisure choice and extend job search period. Second, big governments are likely to fund public health and unemployment insurance schemes, which reduce the cost of unemployment. Third, big governments may have more regulations and reduce efficient functioning of the labor market. Finally, it may reduce the size of the private sector. A number of studies have come up on the topic since then, largely based on data from developed countries, some of which may be briefly cited here.

Christopoulos and Tsionas (2002) studied the existence of the relationship using data of ten European countries. The hypothesis that government size does not affect unemployment was rejected in seven out of ten countries, while the reverse was rejected in all except Italy. The existence of the Abrams curve was again confirmed by Christopoulos et al. (2005) on the same group of countries by using panel data analysis. In a more elaborate study, Feldmann (2006) using data of 19 industrialized countries between 1985 and 2002 observed that government size had an adverse impact on unemployment, especially on women and the low skilled, and it was likely to increase unemployment substantially in the long run. Aysu and Dokmen (2011), after confirming the existence of the relationship based on a larger sample of 17 OECD countries and using a more recent data (1990–2007), suggested that countries that had big governments and high unemployment may consider reducing government size as a way of reducing unemployment. Two findings that were contrary to what many studies have observed may be cited here. Mahdavi and Alanis (2013) found long-run relationship between real per capita expenditure and unemployment in a study of 50 state and local governments of America during the pre-recession period 1977–2006. Larger government size had a small depressing effect on unemployment though there was an exception to social insurance expenditures. The other one is Seitaradis and Koulakiotis (2013), which found causality running from unemployment to government expenditure.

Some recent studies based on developing countries are now available, which in general agree with findings of government size causing higher unemployment. Feldmann (2010) using data of 52 developing countries found government size to substantially increase total unemployment rate, female unemployment rate, and youth unemployment rate. Nwosa (2014) observed government expenditure increases unemployment in Nigeria as well while it had negative though insignificant impact on poverty reduction. He cited the probable cause being bigger expenditure on establishment of higher learning with produces more job seekers and instead suggested to channel expenditure on creation of better infrastructural facilities. Similarly, Yongjin (2011) took a sample of 32 advanced and 51 developing countries and examined the impact of government size on economic growth and unemployment during the period 1996–2006. He came to the conclusion that larger government size had a positive effect on unemployment and the impact was much more in developing countries than in developed countries. Abouelfarag and Qutb (2020) observed that government expenditure increased unemployment rate in Egypt and this could be due to higher expenditure on interest, subsidy and employee compensation. On the other hand, investment in the country was low.

An important channel according to which bigger government size can cause unemployment in developing countries is the use of scarce resource for excess job creation instead of using the money in productive expenditures. It is also worth mentioning that governments in the developing world, acting as 'employment of the last resort', often spend a large amount of money in generating public employment. Cases of blotted civil service in many countries especially in Africa and South Asia are widely reported. For example, certain policies like giving job guarantee to educated youths or rewarding government jobs to supporters for those in administration, etc., led to high employee size in some African countries (Linduaer, 1994). In India, periodic pay revision is a source of major strain on the finances of the states and hiring restraint was a major fiscal reform measure introduced to control the spiraling expenditures (The World Bank, 2005). A number of studies is available both of developed and developing countries to show that large public employment crowd out private employment (Ncube, 2001; Behar & Mok, 2013; Craigwell & Jackman, 2014; Algan et al., 2002; Malley & Moutos, 1996). When the number of jobs created in the government sector is less than the number of jobs destroyed in the private sector, then unemployment will increase.

3. Methodology

We adopted a panel data analysis using available data of states in India. The dependent variable under consideration is unemployment rate, while the independent variables are public expenditure, growth rate of state domestic products, per capita income, ideology and educational level. There are other variables like foreign direct investment and inflation, which may affect unemployment, but they have been dropped due to unavailability of state level data. The assumption we make here is that causality runs from independent variables to the dependent variable.

In panel data the state specific character is taken into account unlike in the pooled data. There are two main models, one is known as fixed-effects model and the other

is the random-effects model. The basic fixed-effects model according to Wooldridge (2009) can be written in the form:

$$y_{it} = b_0 + b_1 x_{it} + d_i + e_{it}$$

where the suffix '*i*' relate to the particular state while '*t*' refers to time. The unobserved factors influencing the dependent variable are two – constant over time and time varying. The first one is represented by d_i and the latter by e_{it}.

The model is called fixed-effects model because the state effect represented by d_i is fixed of changes in time. The equation is usually estimated by least square dummy variable method (LSDV) or the time demeaned method. In LSDV all the states are represented by dummy variables while in the second method, the mean value of the variables is subtracted from the variables themselves to remove the state effects from the equation. Another competitor of fixed-effects method is the random-effects model where the time in-variant factor is included in the time varying error term say $u_{it} = d_i + e_{it}$. The model then becomes:

$$y_{it} = b_0 + b_1 x_{it} + u_{it}$$

There is, however, a caveat. If the variables included in the error are correlated with the regressors, then there will be miscalculation. To avoid this, we apply the Hausman test to choose between the models. The null hypothesis of the Hausman test is that random-effects model is a better model and if it is rejected, then fixed-effects model would be selected. The regression function in our study may be mentioned as follows:

Unemployment rate = *f* (government size, ideology, log per capita income, growth rate, academic level)

3.1. The Variables

3.1.1. Unemployment Situation in India

Unemployment data that we are using in this paper are from the various survey rounds of the National Sample Survey Organisation (NSSO) on Employment and Unemployment Survey and Periodic Labour Force Survey (PLFS). An unemployed person has been defined as one who "did not work, but was seeking and/or available for work" (NSSO, 2019: C-6). The NSSO classifies unemployment into three categories, viz., usual status unemployed (further classified as principal status and adjusted), current weekly status (cws) and current daily status (cds). It further classifies unemployment as urban and rural unemployment and each of them is further classified as male and female unemployment. Thus, the various classifications are able to give various facets of unemployment in the country. The unemployment rate is given per 1000 person /person days in the labor force.

In this study we use unemployment of usual status (principal status or ps) and current weekly status (cws) data. Usual status (ps) measures persons who are unemployed for a longer period of time or at least six months in a year of the reference period of the survey. On the other hand, a person is considered unemployed (cws) if he was unable to get employment even for one hour in the reference week preceding the day of the survey. Unemployment in cws approach is a much more comprehensive measure of unemployment as it includes both long term as well as short-term unemployment. For more understanding, definitions of the other two types may be explained very briefly. A person who is reported to be unemployed in terms of usual status (ps) may have working in a subsidiary job. For example, a person looking for teaching job in the public sector might be currently working in a private school. Unemployment figure obtained by removing such persons is called us (adjusted) with the symbol us (ps + ss) and are lower than us (ps). Unemployment (current daily status) measures the most comprehensive unemployment, but its use has been stopped since the Periodic Labour Force Survey 2017–18.

A picture of unemployment in the various rounds of the survey can be mentioned. Unemployment is higher in urban areas than in rural areas. Secondly, female unemployment is higher than male unemployment and the gap is much higher in urban areas. Finally, unemployment rate of the year 2017–18 is much higher than that of the previous rounds. This shows that India, which has been witnessing higher economic growth in recent years, at the same time is experiencing higher unemployment as well. This phenomenon has been described as 'jobless growth'. Jagannathan (2018) has given the opinion that there is excess labor supply as well as use of excess capital. Citing HDFC Bank estimates, he continued further that employment elasticity of growth is declining for every period, which means the economy must grow faster and faster to give more employment. Abubakar and Nurudeen (2019) estimated that growth rate in the country is jobless because it has not reached the threshold limit beyond, which unemployment will decline.

3.1.2. Government Size

The budget is divided into revenue and capital accounts. Expenditures in both the accounts are further divided as development, non-development and others. Development expenditure includes social and economic expenditures such as expenses on health, education, agriculture, rural development, transport, etc., while non-development expenditures include general and fiscal services like interest payments, expenditures on administration, pensions, etc. Other expenditures are those that are not included in both development and

non-development expenditures and include transfers to local bodies, discharge of internal debt, etc. Thus, by the very nature of expenditure classification, development expenditures are more productive while that of non-development expenditures are less productive. Earlier expenditures were classified as plan and non-expenditures, but have be stopped after the dissolution of the Planning Commission.

A picture of development, non-development and total expenditure of the states during the period 1983–84 to 2017–18, which is altogether a period of 34 years, is given in Figure 1. It is seen that aggregate expenditure of the states fluctuated around 15% of the GDP with an increase by a big margin to 17.16% in 2015–16 and further to 19.37% in 2017–18. This may perhaps be due to higher devolution from the central government since the Fourteenth Finance Commission recommendations. Much of the increase in expenditure has been in the form of development expenditures while other expenditures have remained more or less the same. Many of the responsibilities for the provision of goods and services like healthcare, education, roads, law and order, etc., largely fall on the states and, hence, development expenditures of them are high. With the dissolution of the Planning Commission and the popularity of higher decentralization in the academic circle and policymakers, higher expenditure of the states is likely to increase in the future.

3.1.3. Growth Rate of State Incomes

The particular year in which the state is experiencing higher economic growth may witness lower unemployment because of the increase in economic activity. Similarly, states with higher per capita income may be having more economic activity as well and, hence, unemployment may also be low. We use net state domestic product (NSDP) of 2011–12 series to estimate the growth rate while per capita net state domestic product at current prices also of 2011–12 series is used as per capita income. They are taken from Reserve Bank of India (RBI) publications.

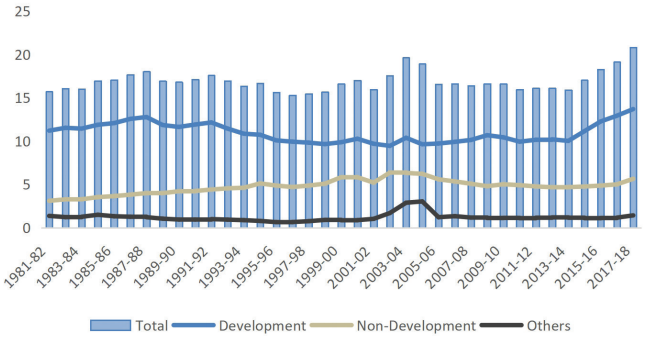

Figure 1: Expenditures of the States (% of GDP)

Source: Estimated Using RBI Data

3.1.4. Political Ideology

Political ideology of the ruling party in the state can influence economic outcomes. In this regard, Spargo (1915:157) once wrote: "The problem of unemployment is co-extensive with the capitalist system. Wherever the capitalist economy prevails we find the problem of unemployment". Socialist governments try to give more employment to people and, hence, when left parties rule the state, it may be having lower unemployment. The reverse may also be true. Unemployment may be higher when the government fixes higher minimum wages, obstruct taking of land by industries from farmers, have more public employment, which may increase bureaucratic hurdles and also crowd out private employment. To see whether left-ruled states have lower unemployment in states like West Bengal, Tripura and Kerala, which were ruled by left parties for a long time are represented by a dummy variable taking the value '1' and '0'otherwise.

3.1.5. Education Level

We measure the proportion of people who are illiterate, educated below graduate level and those who are graduates and above for examining the impact on educational level on unemployment in the country. The data has been obtained from NSSO surveys. It must be mentioned here that in India organized sector jobs are very limited and most of the jobs are in the unorganized sector. But the number of educated youths seeking jobs is increasing everyday as evident by the number of jobseekers registered in the employment exchanges. Thus, unemployment is expected to be higher among the educated.

4. Results and Discussion

We conducted panel data analysis to examine the impact of government size measured by expenditure as percentage of net state domestic product on unemployment rate of states. The data of the states of Jharkhand, Chhattisgarh and Uttarakhand were merged with that of their respective parent states of Bihar, Madhya Pradesh and Uttar Pradesh. The per capita incomes of merged states viz. Bihar, Madhya Pradesh and Uttar Pradesh were then obtained as a result of dividing combined NSDPs by estimated population figures. However, the per capita income of the parent state of Andhra Pradesh represents combined figure as there was problem in merging of data with Telangana. The years under consideration are 1993–94, 1999–00, 2004–05, 2009–10, 2011–12 and 2017–18. The use of earlier data is hampered as Reserve Bank of India publications on state finances does not include data on development and non-development expenditures beyond 1990–91. We also drop small states and concentrate on 17 bigger states. Thus, the same sample size is 102, which is 17 states × 6 years.

Table 1: Impact of Government Size on Unemployment (us)

Dependent Variable is Unemployment Rate (Usual Status)			
Constant	29.671 (41.302)	35.264 (43.820)	37.39 (41.599)
Log per capita income	−3.642 (5.110)	−5.143 (5.434)	−5.937 (5.151)
Growth rate	−0.060 (0.205)	−0.184 (0.222)	−0.103 (0.207)
Ideology	47.173* (25.665)	43.068* (25.510)	47.993* (25.756)
Development expenditure	0.961* (0.536)		
Non development expenditure		3.078*** (0.694)	
Aggregate expenditure			1.159*** (0.289)
Graduates	6.359** (2.879)	6.976** (2.929)	7.118** (2.908)
Sample size *R*-sq (between) Hausman test chi-square value	102 0.434 2.16	102 0.486 3.47	102 0.445 3.05

Note: *, ** and *** denote significance levels at 10 %, 5% and 1 % respectively.
The figures in the brackets represent robust standard errors. The Hausman test has been performed without taking robust estimates.

In all the regression results given in Table 1, the null hypothesis that random-effects model is appropriate is not rejected as the value of chi-square is not significant. All the results were obtained using random-effects model and taking unemployment of type usual status (us) as the dependent variable. We see the coefficients of per capita income are not significant. The negative signs of the coefficients imply that with higher economic activity unemployment declines. There is also a tendency for unemployment to reduce when that particular year is experiencing higher growth. The coefficients of ideology are positive and significant in all the regression results. The two states under consideration are Kerala and West Bengal while Tripura have been left out of being a small state. According to Rajeev (2018), Kerala has a high unemployment rate and one particular reason is the prevalence of high wage rate and militancy of trade unions, which led to flight of industries in neighboring state. Another reason was the stress on non-vocational education in the state, which has low demand in the job market. Thus, one may say that high unemployment in Kerala may be due to several causes out of which some characteristics prevalent in a left-ruled state may be possible reasons. Though not included in the sample under study, another state Tripura often ruled by left parties for a long time has high unemployment. Its economy was dominated by agriculture with a very high unemployment rate and low per capita income (Saldanha & Yadavar, 2018).

Unemployment is higher when the proportion of population with graduates and above is higher. People with higher degrees often look for white collar jobs or jobs in the organized sector, which may not be easily available, but for illiterates, job preference is less and hence unemployment is lower. In fact, unemployment is synonymous with educated unemployment in India. There are studies on this topic. Based on CMIE data, Kumar (2019) said that unemployment has been the highest among individuals who are graduates and above. In 2018 (September-December 2018) unemployment was 1.3% among educated up to 5th standard while the Figure was 13.2% among graduates plus. Mehrotra and Parida (2019) observed that unemployment (cws) has increased from 3% in 2011–12 to 8.8% in the year 2017–18. The increase has been the highest among the educated youths. Bairangya (2015) examined unemployment in India and found that unlike in developed countries, unemployment is higher the more educated a state is. He divided states into high, medium and low industrialized states and observed that unemployment increases with the level of education, but it is lowest in the highly industrialized states. The findings indicate that it is the demand factor for labor, which is determining the level of unemployment. Bairangya (2018) further continues that it is unwillingness for educated youths to join low paid informal sector for the cause of unemployment, but on the other hand there is scarcity of salaried jobs. The problem is not new, but the situation has worsened.

This tells us that we are experiencing higher growth and yet failed to generate employment specially those who are more educated. This makes us to rethink our education policy. In some countries in the Far East, it is reported that supply of higher education was left largely to the private sector, and the government gives more emphasis on primary and secondary education (The World Bank, 1993). In this country too we can go for smaller number, but better funded institutions of higher learning. The policy may be unpopular, but this may be a solution for solving higher educated unemployment in the country. Skill enhancement is very important and greater emphasis on it should be given for employment generation.

Table 2: Impact of Government Size on Unemployment (cws)

Dependent variable is unemployment rate (cws)			
Constant	35.189(47.397)	38.936(50.254)	42.963(48.685)
Log per capita income	−4.290(5.891)	−4.644(6.218)	−6.243(6.133)
Growth rate	0.012(0.318)	−0.094(0.356)	−0.034(0.336)
Ideology	48.558**(19.679)	43.644**(19.665)	48.440**(19.893)
Development expenditure	1.192*(0.654)		
Non development expenditure		2.344***(0.902)	
Aggregate expenditure			1.157**(0.496)
Graduates	8.214***(2.911)	8.426***(2.967)	8.906***(2.985)
Sample size	102	102	102
R-sq (between)	0.470	0.484	0.455
Hausman test chi -square value	5.05	6.24	9.75**

Note: *, ** and *** denote significance levels at 10 %, 5% and 1 % respectively.
The figures in the brackets represent robust standard errors. The Hausman test has been performed without taking robust estimates.

When the dependent variable is usual status unemployed, all the measures of government expenditure are positive and significant. This implies that government expenditure as a whole increases unemployment rate of the long term, which is often referred to as chronic unemployment. If we closely examine the coefficients of the various measures of expenditure, we find that the impact of non-development expenditure is much higher than that of development expenditure.

The same regression is performed again with unemployment rate (us) being replaced with current weekly status (cws), which measures a more comprehensive picture of unemployment in the country (Table 2). In the third regression, the hypothesis that random-effects model is more appropriate is rejected and fixed-effects model has to be selected. One problem with the latter model is its inability to estimate time invariant variable, which in our case is the ideology. To include it in our model we chose random-effects model for our estimates.

The results are very similar. The coefficients of development and non-development expenditures are positive and significant, which means public expenditure increases unemployment rate. Here also, the impact of development expenditure is lower than that of non-development expenditures. Similar result is obtained here with respect to the ideology and education level variables.

5. Conclusion

The basic aim of this paper is to examine whether larger government size leads to an increase in unemployment rate. We divide expenditure as development, non-development and total, and the type of unemployment under consideration is usual status unemployment, which is long-term unemployment or chronic unemployment while the other is current weekly status unemployment, which is a more inclusive form of unemployment. The coefficients of all types of government expenditures have been found to be positive and significant which seem to validate other findings that government size increases unemployment in developing countries. The results should be a worry for policy makers in the country.

A very important finding has been that unemployment was higher among states with more graduates and above. Higher education is a sector where the government puts a lot of money and the finding calls for serious introspection on the country's higher education program. A new policy should be framed with details on how much to be invested in the sector, which type of institutions to be set up, the role of private sector, etc. with an eye on more employment generation and economic growth. Simply setting up of more institutions of higher learning may not be paying much dividend. Case studies on the education policies of some of the far eastern countries, which achieved high growth, can be considered as to what good policies can be taken from them. The externalities of primary education *vis*-à-*vis* higher education should be discussed.

In the US, some economists prescribed smaller government even by cutting taxes as they believe that bigger government size leads to lower growth. But government plays a much bigger role in a country like India as the private sector is yet to develop and supplement government sector on a larger scale. There is a genuine need, however, for cutting unproductive expenditures wherever it is possible. Another policy is to enhance the productivity of the present expenditure budget. A revisiting of expenditure should not be confined to education only and calls for a kind of zero-based budgeting for all sectors. Dalton (1954) once mentioned the distinction between spending little and spending wisely. What we desire is the latter.

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