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Impact of Pay Commissions' Recommendations on Public Employees Wages/Salaries and Public Expenditure

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ABSTRACT

Makers of Indian Constitution made it mandatory for Government of India to appoint Pay Commission every five years. The duration of five years was linked to the duration of development plans. It was assumed that completion of every five year plan will lead to substantial increase in GDP and per capita income in the planned Indian economy. Public employees perform pivotal in the formulation and implementation of policy and programs of economic development and social transformation. The time gap has been increased from 5 to 10 years now. Roles and functions of public servants in planned economies are almost similar to those of CEOs and managers of private enterprises. Besides, economic growth is invariably accompanied by inflation. As the pricing of commodities and factors of production and incomes tend to move in sync, the salaries and grades of pay of different cadres of public employees.

The paper focuses on the determination of relation between total public expenditure and expenditure on wages and salaries of public employees. State wise data from 2008 to 2014-15 have been taken from the website of Ministry of Planning and program implementation. Thus, the study is based on panel data. Hence, the data have been evaluated for unit root by Dickey-Fuller test of three versions of Random Walk Model; both the series are found stationary at first difference. Therefore, Distributed Lag Model is used and the results are subjected to Engle-Granger test of integration. The results satisfy the co-integration test, and the coefficients of regression and correlation are statistically significant, results are accepted as genuine. But the adjustment of current/lagged value to its desired level is spread over several periods. The short run equilibrium tends to converge towards long run equilibrium.

Keywords : Pay Commission, Employees, Public, Value Added, Wages and Profits.

1. INTRODUCTION

Income and prices, including factor rewards, are closely related to each other. Higher the level of national income, greater is the level of factor rewards and commodity prices. But the factor rewards are determined on the basis of capacity to pay, which depends on income and the relative scarcity/surplus of a factor on the one hand, and demand relative to supply of the factor on the other. Income or gross or net value added comprises wage/salary payments and profits. Therefore, the wage share of labor and profit of capital are inversely related. Greater the wage share, smaller is share of profits in value added. The economic growth results not only in greater output/income but it also results in higher commodity prices. The resultant inflationary pressures in the economy also warrant increase payments to employees and workers to protect their real earnings. This is what holds at macro level; but aggregate wage share in the income also depends on average or marginal contribution of workers/employees to production and income. Equilibrium is attained at the point where the cost of living equals productivity. Productivity represents the saturation point of demand for labor/workers by employers, while cost of living represents the supply price or cost of supply of workers/employees.

This study examines the impact of implementation of recommendations of Pay Commission on public budget/public expenditure. It also focuses on state-wise differentials of the impact of implementation of Pay Commission's recommendations. The study evaluates the nexus of earnings of government employees and total public expenditure. The paper also examines inter-temporal variation of employees' earnings from salaries and growth of public expenditure. It involves evaluation of impact of recommendations of Pay commission on earnings of employees. Income of the government is represented by public revenue, which comprises revenue from taxes, fees fines, and public debt, fiscal deficit and grants. But wages and salaries of workers and employees are the part of public expenditure. Obviously, wages and salaries paid by the government to the workers and employees constitute only a fraction of total public expenditure on all items.

Public expenditure increases with growth of revenue which, in turn, depends on the growth of GDP. Expenditure on wages and salaries is accounted by number of persons employed, average rates of wages and salaries, including pensions, annual increments to employees, sum of additional DA and ADA granted by government to its employees and pensioners, for neutralizing inflation effect on real earnings.

Pay Commissions follow certain procedure and norms in fixing new grades and level of income of employees in each grade. A large part of DA and ADA is merged in basic pay, which is further escalated by the benefit of growth to be shared with employees. New rates of DA are also fixed and the pay fixation of individual depends on the number of years of their service and their prevailing levels of pay in the existing grade. Besides, one to three increments are added to the newly fixed basic pay in new grade. This leads not only to great increase in public expenditure on wages and salaries but it also results in corresponding increase in total public expenditure on regular basis. But at the point of implementation of Pay Commission's recommendations very heavy expenditure has to be incurred because the payment of arrears of the past are also paid.

Constitution makers of India have had a long term perspective of welfare of all sections of the people and segments of the society; they made a provision of reservation for weaker sections of the society, that is schedule tribes and schedule castes, they also took care of protecting the financial interest of government

employees in general, especially central government and public sector employees. They recognized the fact that as time passes, inflationary pressure in the economy reduces purchasing power of money, and hence, real wages and salaries of employees; this was sought to be protected by the provisions of dearness allowance based on basic pay. Such allowances as DA, ADA and dearness pay to pensioners, linked to change in wholesale price index, are linked to basic pay. When these allowances become several times more than the basic pay, then a part of these allowances is merged with basic pay at the time of pay revision. As against the above, with age and experience, government employees acquire greater understanding and insights about their responsibilities and tasks to be performed along with greater expertise, skills and knowledge; all these need recognition, inducement and incentives over and above annual increments. This has been taken care by constitutional provision for appointing Pay Commission every five years. But due to lapse on the part of the government of India during seventies the periodicity of appointment of Pay Commission was extended from five to ten five years. This was done by an Act of parliament. Ever since 1986, when recommendations of Fifth Pay Commission were implemented, two more Pay Commissions have been appointed and their recommendations had been implemented.

2. MARGINAL PRODUCTIVITY AS BASE OF FACTOR REWARDS

The Economic theory states that factor rewards should be determined on the basis of marginal productivity of given factor. Besides, researches have shown that human capital or man-power, especially the educated man-power, makes much greater contribution to growth than technology and physical capital (Schultz, T. W., 1962, Prakash, Shri, 1977, Prakash, Shri and Balakrishnan Brinda, 2010). It is also recognized that the development administration is qualitatively different from the routine or civil administration. Development administration involves paradigm of growth and the implementation of development policy at the grass roots. This has to be understood in the context of decentralization of responsibility of development from center to state in 1970 with the appointment of state Planning Boards at state level; responsibility for development was further devolved from state to district. At the district level, District Magistrate, formerly known as District Collector, is responsible for the development of the district. Responsibility of development devolves from D.M. on to block development officer (BDO) and from (BDO) to Gram Panchayat and its Sarpanch. Over and above this, policy formulation at the center, state and district involves different levels and types of knowledge. Therefore, the Pay Commissions are expected to keep the degree of responsibility, risk of mis-deliverance and efficiency of implementation in the context of prevailing facts and development status of the economy. The recommendations of the Pay Commissions are assumed to be based on all above considerations.

Implementation of recommendations of Pay Commission involves heavy drain/liability on public exchequer, which is generally reflected in the annual budgets of the central government. However, a part of the burden of financial responsibility of implementing Pay Commission's recommendations has also to be borne by the state governments.

3. RATIONALE OF APPOINTMENT OF PAY COMMISSIONS

Basic question is why Pay Commission has to be appointed? The ensuing paragraph furnishes answer to the question. Government of India appoints Pay Commission every ten years under its constitutional obligation. Besides the constitutional mandate for the appointment of Pay Commissions, there are economic factors that account for the appointment of Pay Commissions. Thus, the answer to the above question is five-fold:

1. As the economy grows and consequently, public revenue increases, paying capacity of Government increases; therefore, the growth gains have to be shared with the workers and employees;
2. Government grants DA and Additional DA to its employees and workers twice a year in the months of January and July with a view to partially neutralize the effect of inflation and protect real incomes of its employees;
3. Year on year accumulation of sums of DA and ADA over the years brings out a situation in which basic pay of employees across occupations and cadres of public employees become much lower than the cumulated sums of DA and ADA. This needs elimination;
4. The anomaly becomes all the more undesirable because all such benefits as HRA, DA, ADA, Annual Increments in Basic Pay, Pension, Gratuity granted to the employees are linked to their basic pay;
5. Existing grades and pay reflect the status of economic growth of the country when these grades were determined 10 years ago. But the lapse of time of one decade radically improves the growth status of the economy. For example, Indian economy has come out of the status of developing to the emerging market economy. All these reasons necessitate up-gradation of pay, pay grades and structure of salaries and wages of public servants.

All these considerations induce the government to appoint the Pay Commissions. Pay commissions follow certain procedure and norms in fixing new grades and level of income in each grade. A major proportion of DA and ADA is merged in basic pay, which is further escalated by the benefit of growth to be shared with employees. New rates of DA are also fixed on the basis of current inflation rate.

The pay fixation of individuals depends on the number of years of their service and their prevailing level of basic pay in existing grade. Besides, one to three increments are added to the newly fixed basic pay in new grade according to the years of service. Bunching is also taken into account for adjustment of current to the new basic pay in revised grade. This also prompted the author to use distributed lag model of econometrics. This leads to not only great increase in public expenditure on wages and salaries but it also results in corresponding increase in total public expenditure on regular basis. But at the initial point of implementation of pay commission's recommendation very heavy expenditure has to be incurred because the lump-sum payment of arrears of the past has also to be made.

Constitution makers of India have had a long term prospective of welfare of all sections of the people and segments of the society just as they made a provision for reservation for weaker sections of the society, that is schedule tribes and schedule caste, they also took care of protecting the financial interest of government employees in general and especially central government and public sector employees. They recognize the fact that as time passes inflationary pressure in the economy reduces purchasing power of money and hence real wages and salary of employees, this was sought to be protected by the provisions of dearness allowances based on basic pay. Such allowances were linked to change in wholesale price index as DA, ADA and dearness pay to pensioners are linked to basic pay; when these allowances become several times more than the basic pay then a part of these allowances are merged with basic pay at the time of pay revision. As against the above, with age and experience government employees acquire greater

understanding, experience, expertise, skill, knowledge and insights about their responsibilities and tasks to be performed. All these factors of competence and ability need recognition, inducement and incentives over and above annual increments. This has been taken care by constitutional provision for appointing Pay Commission every five year. But due to lapses on the part of government of India during nineteen seventies, the periodicity of appointment of Pay Commission was extended from five to ten years. This was done by the Act of Parliament ever since 1986, when recommendations of Fifth Pay Commission were implemented. Three more Pay Commissions have been appointed since then.

The marginal productivity theory states that factor rewards should be determined on the basis of marginal productivity of given factors. Besides, past researches have shown that human capital or man-power, especially the educated man-power, makes much greater contribution to growth than technology, or capital (Schultz, T. W., 1962, Prakash, Shri, 1977. Prakash, Shri and Balakrishnan, Brinda, 2010, Sharma, Shalini, Sharma, Amit and Bhatnagar, Gunjan, 2011, Sharma, Amit, 2010). It is also recognized that development administration is qualitatively different from routine or civil administration; development administration involves paradigm of growth and the implementation of development policy at the grass roots. This has to be understood in the context of decentralization of responsibility of development from center to state and state to district at the district level, DM, also known as district collector, is responsible for the development of the district. From DM responsibility of development devolves on block development officer (BDO) and from BDO to Gram Panchayat and its Sarpanch at the village level. Over and above this, policy formulation at the center, state and district involves different levels and types of knowledge. Therefore, the Pay Commissions are expected to keep the degree of responsibility, risk of mis-deliverance and efficiency of implementation in the context of prevailing facts of the economy and status of its development. The recommendations of the Pay Commissions are assumed to be based on all above considerations.

Implementation of recommendations of Pay Commission involves heavy drain/liability on public exchequer, which is generally reflected in the annual budgets of the central and state governments. Part of the burden of financial responsibility of implementing Pay Commission's recommendations for its own employees has also to be borne by the state governments.

4. FOCUS OF STUDY AND DATA BASE

The paper focuses on the determination of relation between total public expenditure and expenditure on wages and salaries of public employees. State wise data from 2007-8 to 2014-15 have been taken from the website of Ministry of Planning and program implementation.

5. METHODS AND MODELS OF DATA ANALYSIS

The study is based on secondary panel data. Hence, the data have first been evaluated for unit root by Dickey-Fuller test of three versions of Random Walk Model. The test has been applied at level and first difference. RWM models at first difference are spelled out hereunder:

$$DY_t = \delta Y_{t-1} + U_t \quad (1)$$

$$DY_t = \beta_0 + \delta Y_{t-1} + U_t \quad (2)$$

$$DY_t = \beta_0 + \delta Y_{t-1} + \beta_1 T + U_t \quad (3)$$

Y refers to expenditure on wages and salaries of public servants, β_0 stands for the coefficient of drift, which measures the divergence of Y_t from Y_{t-1} and U represents the influence of random factors, which make the first difference DY_t of Y_t and Y_{t-1} non-zero. But $\delta = 1 + P$, where P is the root of the equation. Unit value of the root implies that the time series data are non-stationary and the results of regression estimated from such time series are spurious. The above inference is derived from the application of Dickey-Fuller unit root test.

The paper uses Distributed Lag Model with partial adjustment hypothesis. The following equations represent the distributed lag model:

$$SLWE^*_t = \alpha_0 + \alpha_1 TPE_1 + U_t \tag{4}$$

SLWE* is the desired or warranted level of expenditure on salaries and wages of public employees as per recommendations of Pay Commission. But paucity of resources, delay in acceptance and approval of the Commission's recommendations; and further delays in implementation of new pay grades are caused since detailed calculations are involved in the fixation of new pay in the new grades of all employees. Besides, working out of arrears and actual payments to be made may also involve further lags. Therefore, actual adjustment or change in actual to the warranted value is assumed to be a fraction of desired or warranted change. This leads to the formulation of the second equation of DLM. This equation may be defined as the adjustment equation:

$$(SLWE_t - SLWE_{t-1}) = \lambda(SLWE^*_t - SLWE_{t-1}) \tag{5}$$

$$SLWE^*_t = (1/\lambda) \{SLWE_t - (1-\lambda) SLWE_{t-1}\}$$

Substitution of the above value of $SLWE^*_t$ in equation 4 leads to the following equation:

$$(1/\lambda) \{SLWE_t - (1-\lambda) SLWE_{t-1}\} = \alpha_0 + \alpha_1 TPE_1 + U_t$$

Reorganization of terms yields the following relation

$$SLWE_t = \lambda\alpha_0 + (1-\lambda)SLWE_{t-1} + \lambda\alpha_1 TPE_1 + \lambda U_t$$

Or $SLWE_t = \Pi_0 + \Pi_1 SLWE_{t-1} + \Pi_2 TPE_1 + \Pi_3$ (6)

Where $\Pi_0 = \lambda\alpha_0$,

Or $\alpha_0 = \Pi_0/\lambda, \lambda = (1-\Pi_1); \alpha_1 = \Pi_2/\lambda$;

and $U_t = \Pi_3/\lambda$

$0 < \lambda < 1$ holds and λ is the coefficient of adjustment per unit of time. If $\lambda = 1$, lagged value of the dependent variable, occurring among the determinants on the right hand side vanishes and observed and warranted values coincide. It implies that the series is stationary at level and inclusion of lagged value of the dependent variable among its determinants is redundant. It makes DLM inappropriate in such cases. If $\lambda=0$, no adjustment is required as the observed and warranted values coincide. Generally coefficient of adjustment is greater than zero but less than 1. Greater the value of the coefficient of adjustment, quicker is the adjustment and less time period is required for complete adjustment. But lower the value of the coefficient, slower and lower is adjustment process and relatively more time is taken in completing the adjustment of actual to desired change. Equation 6 is the reduced form equation of the SEM and its coefficients are reduced form parameters from which the values of the structural parameters are derived. Therefore, structural equation 4 represents long run relation, while reduced form equation shows short run but transitory equilibrium.

6. THEORETICAL THRUST UNDERLYING DLM

Income and prices, including factor rewards are closely related to each other. Higher the level of national income greater is the level of factor rewards and commodity prices. The level of factor rewards is determined on the basis of employers' capacity to pay, which depends on income of employers and the relative scarcity/surplus of a factor. Income or gross or net value added comprises wage payments and profits, and therefore, the shares of wages and profits of capital in value added/income are inversely related. Greater the wage share, smaller is the share of profits and vice versa. The process of growth results not only in greater output/income but it also results in higher commodity prices and factor rewards. The inflationary pressures released by growth of income in the economy also warrant increased payments to employees and workers to protect real earnings. This is what holds at macro level but aggregate wage share in the income also depends on average or marginal contribution of workers/employees to production and income. Equilibrium is attained at the point, where the cost of living equals productivity. Productivity represents the saturation point of demand from the side of employers, while cost of living represents the minimum supply price of employees. However this study is related to the earnings of government employees and impact of recommendations of Pay Commission's recommendations on the earnings public employees. Income of the government is represented by public revenue, which is derived from taxes, fees and fines, public debt, fiscal deficit and grants, while wages and salaries of workers and employees is the part of public expenditure. Obviously, wages and salaries paid by the government to its employees are only a fraction of total public expenditure on all items. But public expenditure increases with the growth of revenue and GDP. Expenditure on wages and salaries is accounted by the number of persons employed, average rates of wages and salaries, annual increments, additional DA ADA granted by government to neutralize inflation effect on real earnings:

$$SWLE_t = EMP_t * AR SWLE_t \quad (7)$$

EMP_t shows total number of public employees at time t , and $AR SWLE_t$ represents average salary-wage rate at time t . But inflows and outflows of employees from public service keeps both the stock of employees and their average rate of salary-wages change year on year basis. Outflows of manpower comprise those who retire, die and leave the service. Inflows represent recruitment against the vacancies cause by attrition, and newly created jobs to meet the increased manpower requirement (For details, See, Prakash, Shri, 1977). New recruits invariably start at entry level salary-wage rate of the grade. This lowers the average rate whereas the increased payments to currently employed increases average rate of remuneration. The actual average rate is the net of these opposite changes.

7. EMPIRICAL RESULTS

Results furnished by Dickey-Fuller test show that the time series of salaries-wages and total public expenditure are non-stationary at level. However, both these series are found to be stationary at first difference. It suggests that the regression model should include first lag of the dependent variable among its determinants. For this reason and on strong theoretical grounds, Distributed lag model is preferred for data analysis.

8. OLS ESTIMATE OF DISTRIBUTED LAG MODEL

The following is the OLS estimate of the equation of Distributed Lag Model:

$$\begin{aligned} SLWE_t &= 165.8918 + 0.7781 SLWE_{t-1} + 0.0786 TPE_t; R^2 \\ &= 0.9974; F = 8589.39; P^* \\ t: &(0.64) (15.67) (7.89) \end{aligned}$$

The model fits the data very well on all counts: (i) Both the regression coefficients have expected positive sign, which indicates possible absence of multi-collinearity; (ii) The coefficients of multiple correlation, lagged Salary and Wage Expenditure and Total Public Expenditure; (iii) The function explains as high as 99.74 per cent of total inter-temporal and inter -state variation of salary-wage expenditure. Though the sign and significance of the coefficients of DLM suggest the estimated function to be free from multi-collinearity, yet step-wise regression method is used to make it sure that the estimated model does not actually suffer from multi-collinearity, OLS estimate of regression of $SLWE_t$ on lagged $SLWE_{t-1}$ is examined:

$$\begin{aligned} SLWE_t &= 103.0578 + 1.1634 SLWE_{t-1}; R^2 \\ &= 0.9966; F \\ &= 59533.51; P^* \\ &= 1.6E-251 \\ &t: (0.35) (243.99) \end{aligned}$$

The function fits the data quite well. The coefficients of correlation and lagged SLWE are positive and statistically significant. It implies that the lagged value of SLWE is the significant determinant of expenditure on salaries and wages. The result is in tune with the fact that the stock and annual flows of public employees differ from each other. But the total stock of employees at any point in time is equal to the stock brought forward from the past plus new recruitment minus those who have gone out due to attrition. This implies that the lagged expenditure on salary-wages represents committed expenditure. As the dropping of TPE as the determinant of $SLWE_t$ has altered neither the sign nor the significance of the regression coefficient and the proportion of total variation explained by this function is less than the proportion of total variation explained by DLM means that neither TPE_t nor $SLWE_{t-1}$ emerges as redundant. This shows that the DL function is free from the malady of multi-collinearity.

The following is an OLS estimate of $SLWE_t$ as the function of TPE_t

$$\begin{aligned} SLWE_t &= 332.0551 + 0.2354 TPE_t; R^2 \\ &= 0.994328; F \\ &= 41368.24; P^* \\ &= 4.6E-267 \\ &t: (0.99) (203.39) \end{aligned}$$

The function fits the data well on all counts. Besides, the explained proportion of variation is, as expected, high but slightly lower than the total variation explained by DLM. Signs and significance of the coefficients have not been altered by the dropping of lagged $SLWE_{t-1}$ as the determinant of $SLWE_t$. Thus, both these regression functions together conclusively show that DLM is not affected by multi-collinearity.

9. RESULTS OF PARK TEST OF HETEROSCEDASTICITY

Incidentally, results of Park test, applied to the estimate of DLM, shows that the function is also not afflicted by heteroscedasticity. OLS estimate log of error squares on TPE are given below:

$$\begin{aligned} \ln U^2 &= 27.535 + 0.3728 \text{ TPE} ; R^2 \\ &= 0.0325; F \\ &= 0.234; P^* \\ &= 0.7879 \text{ t} \\ &= (-0.049) (0.27) \end{aligned}$$

The model poorly fits the data and the coefficient of TPE is not statistically significant. Therefore, it is inferred that DLM is free from heteroscedasticity. Since the DLM passes through the diagnostic tests, its results may now be discussed.

Engel = Granger test of Cointegration

Since the series are stationary at first difference and non-stationary at level, results furnished by the estimation of DLM are subjected to Engle-Granger (E-G) test of co-integration. If the results satisfy the E-G co-integration test, and if the coefficients of regression and correlation of DLM are statistically significant, results are accepted as genuine.

The OLS estimate of regression of residuals of DLM at level is reported below:

$$\begin{aligned} U_t &= 0.346 + 0.0384U_{t-1}; R^2 \\ &= 0.0014; F \\ &= 0.286; P^* \\ &= 0.59 \\ &\text{t: (0.001) (0.072)} \end{aligned}$$

The model does not fit the data at all. It does not furnish any evidence about co-integration. Therefore, the regression of residuals of DLM at first difference is examined. The following are the OLS estimates of the same:

$$\begin{aligned} DU_{t-1} &= 0.3466 - 0.9616 U_{t-1}; R^2 \\ &= 0.4726; F \\ &= 179.22; P^* \\ &= 1.33E-29 \\ &\text{t: (0.001) (13,39)} \end{aligned}$$

The function fits the data of first differences of residuals of DLM well. Therefore, the variables in the DLM may be considered to be well integrated. So, the results may be treated as genuine. However, the model is further subjected to the diagnostic Park test of heteroscedasticity.

10. ADJUSTMENT PROXESS OF DLM

But the value of the coefficient of adjustment, λ , of observed to warranted value of Salary-Wage expenditure has a very high value: $\lambda = 0.9214$; it is extremely close to unit. It implies that the adjustment of actual to desired warranted expenditure on Salary-Wages of public employees completed quickly. The following is the actual period wise percentage of adjustment:

Table 6.1

<i>Period:</i>	<i>I</i>	<i>II</i>	<i>III</i>	<i>Completed Total</i>	<i>Residual</i>
I	0.9214	0.9214	0.0786
II	0.9214	0.0724	0.9938	0.0062
III	0.9214	0.0724	0.0005	0.9943	

The above table reveals that 99.38% of total adjustment of actual to change in public expenditure on salary-wages of public employees is accomplished in two years. Thus, there is not great deal of length of lag in adjusting current to the warranted level of public expenditure on employees' salaries-wages. At the end of the second year, as little as 0.62% of total adjustment remains to be completed.

The time series of both the variables are found stationary at first difference. Therefore, the length of lag is one and Distributed Lag Model is used. DLM takes care of not only the need for inclusion of one lag in the model but it also facilitates differentiating between reduced form and structural equations of the model on the one hand, and it enables researcher to distinguish short from long run equilibrium relation on the other hand.

But the adjustment of current/lagged value to its desired level is spread over slightly more than two periods. However, the short run equilibrium tends to converge towards long run equilibrium. But the length of long run depends on the value of adjustment coefficient. It may, therefore be surmised that the system may reach long run equilibrium at the most in five years.

11. CONCLUSIONS

Main findings of the paper lead to the following conclusions:

1. Public employees' salaries and wages are significantly affected by the implementation of the Pay Commissions' recommendations;
2. Public employees' salaries and wages are determined by the lagged salaries and current total public expenditure;
3. But the adjustment of observed to desired level of salaries-wages is spread over about three years.

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