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Real Entry Pay of Central Government Employees versus Agricultural Prices and Regular Wage Earnings in India, 1996–2026: A Comparative Analysis

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Abstract

Long queues for government jobs are usually read as a sign that jobs are scarce; a widening pay premium is one demand-side reason they could be long, and this paper measures that premium. Using five central government posts and one price index (CPI-IW) for every group, it compares real entry pay under the 5th, 6th and 7th Pay Commissions with the real minimum support price (MSP) of wheat and paddy, farm input costs, and regular wage and salary earnings, 1996 to 2026. Real entry pay in January 2026 is 1.65 to 1.85 times its January 1996 level; the real MSP is 1.05 to 1.09 times. Assistant Professor entry pay grew about 2.9% a year faster than the wheat MSP and 2.3% a year faster than the paddy MSP in trend terms (HAC $t =$ 11.1 and 9.1). A descriptive impulsive differential-equation model shows that real pay is flat between commissions and that virtually all the gain comes from commission jumps (1.55 times at the 6th CPC, 1.1 to 1.2 times at the 7th). Average regular wage and salary earnings grew 9% to 13% in real terms from 1999-00 to 2017-18 and fell 11% from 2011-12 to 2025. Two findings qualify this pattern: casual labourers' real earnings rose 1.7 to 2.0 times, and the real net return per quintal stayed roughly flat for wheat (2017-18 to 2026-27) and rose for paddy (2017-18 to 2024-25), although cost per hectare rose 45% in real terms from 2002-03 to 2014-15. The paper does not measure applicants; it shows a large pay premium that widens at each commission.

Keywords: central government pay, Pay Commission, minimum support

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price, real wages, regular wage earnings, government job demand, impulsive differential equation, JEL: J31, J45, Q18

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1. Introduction and hypotheses

The usual explanation for long queues at government recruitment is that jobs are scarce. This paper looks at a demand-side reason: has government pay, measured in the same inflation-adjusted rupees, pulled ahead of what a farmer or an average regular wage or salary earner receives? A widening pay premium is one possible demand-side factor that may contribute to excess demand for government jobs; it is neither necessary nor sufficient on its own to establish that queues exist or why. The paper measures the premium; it has no data on applicants, so it does not test whether the premium caused the queues.

We use central government posts because their pay is fixed nationally by Pay Commissions, so no state-wise data are needed. Pay scales are set by dated government orders: the 5th CPC (effective 1 Jan 1996), the 6th (1 Jan 2006) and the 7th (1 Jan 2016). The 8th CPC has not been implemented, so the January 2026 figures use the 7th matrix with dearness allowance (DA) at 60%. Real entry pay is basic pay plus DA in the first year of service, divided by CPI-IW (1995-96 = 100); real MSP is the MSP divided by the same index; net receipt from cultivation is the NSS Situation Assessment Survey measure of a household's receipts from crops less its paid-out costs (Ministry of Statistics and Programme Implementation, National Sample Survey Office, 2005).

One price index, the CPI for Industrial Workers (CPI-IW), deflates every group. Inflation raises the cost of living for employees, farmers and wage workers alike, so no group gets a separate deflator in the main results. The third comparison group is regular wage and salaried workers (and, separately, casual wage workers) from NSS and PLFS; these surveys do not identify the employer type consistently, so the group includes government and private employees and is not a private-sector series.

Hypotheses.

1. H1. Real entry pay of central government posts rose faster than the real minimum support price (MSP) of wheat and paddy between 1996 and 2026.

2. H2. Farm input costs also rose, so MSP growth alone does not measure growth in farm income; the cost evidence is mixed, with rising cost per hectare in some periods but stable per-quintal margins in others.
3. H3. Real average earnings of regular wage and salaried workers grew more slowly than government entry pay; evidence on private school teachers comes from separate local studies and is treated as descriptive only.
4. H4 (untested). Non-wage benefits (leave, medical cover, limited hours, security) may affect the attractiveness of central government employment, but their monetary value is not estimated in this study, so their effect on the total compensation differential remains an open empirical question.

H1 to H3 are tested with data. H4 is an untested hypothesis: it is stated but not priced, and it is not used as evidence for any quantitative result; Sections 5 and 6 explain why.

1.1. Related literature

Three strands of work bear on this paper.

Public and private pay. Glinskaya and Lokshin (2005), using the 1993-94 and 1999-2000 NSS employment surveys, estimate that public-sector workers earn about 62% to 102% more than formal private-sector workers, depending on how selection into the sector is handled. Azam and Prakash (2010) find that the raw public-sector wage gap is positive at every point of the wage distribution, for men and women and in urban and rural areas, and that observed worker characteristics explain only a small part of it at the lower quantiles. Both studies compare survey averages at a point in time. Neither follows the pay of fixed central posts through successive Pay Commissions, which this paper does.

Teacher pay. Kingdon (2010) examines the effect of the Sixth Pay Commission on teacher salaries. Kingdon (2017, 2020) reviews private schooling in India and reports that private-school teachers are paid a small fraction of government teachers; she attributes the low private pay to a large pool of unemployed graduates, while government schools follow administratively set scales (2020). These studies cover a few places and years, so Section 4.4 uses them as case studies and not as a national series.

Wages and farm incomes. Karan and Selvaraj (2008) study trends in wages and earnings and wage differentials in India's segmented labour market. The India Employment Report 2024 (International Labour Organization

& Institute for Human Development, 2024), as reported by Down To Earth, finds that average real monthly earnings of regular salaried workers fell from Rs 12,100 in 2012 to Rs 10,925 in 2022, while those of casual workers rose from Rs 3,701 to Rs 4,712; this agrees in direction with Section 4.4. On the farm side, Saxena et al. (2017) report that real farm income per cultivator grew about 7.3% a year after 2004-05, against about 2.0% a year in 1993-94 to 2004-05, narrowing the gap with non-farm incomes. Roy (2023), using the 2018-19 Situation Assessment Survey, finds that farmers who obtain the MSP and procurement report higher incomes, but that the reach of the MSP is limited to a few crops and states. Srivastava et al. (2017) analyse changes in crop production costs, and Ranganathan et al. give farmers' income evidence from secondary data (Section 4.6).

What these studies do not supply is a long-run comparison, with one deflator, of the entry pay of fixed central posts with the real MSP, farm input costs and regular wage earnings. This paper provides that comparison for 1996 to 2026. It does not analyse applicant behaviour, so it does not review the literature on job search and recruitment queues.

2. Data and sources

The numbers below are drawn from the cited sources and collected in the accompanying workbook (sheet Sources lists each source with a reliability label). Where a source gives a year other than 2003, that year is used and stated.

Table 1. Data, years and sources

Item	Years	Source	Reliability
Pay scales and DA of five central posts (Multi-tasking staff, Lower Division Clerk, Sub-Inspector/Group B entry, Group A entry, Assistant Professor)	1996, 2003, 2006, 2016, 2026	7th CPC report via referencer.in; DA rate tables; gconnect pay matrix; MHRD letter of 2 Nov 2017 (Assistant Professor Rs 57,700)	Official orders, reproduced by reference sites
Price index	1995-96 to 2025-26	RBI Handbook, Table 34 and Table 236 (CPI-IW, chained)	Official

Item	Years	Source	Reliability
MSP of wheat and paddy	1995-96 to 2026-27	RBI Handbook Table 25; Lok Sabha USQ 2551; Cabinet decisions as published in the PIB press releases of 1 October 2025 (Rabi), 13 May 2026 (Kharif) and 30 September 2026 (Rabi), with copies via Tribune/PTI and DeshGujarat	Official; latest years via news
Cost of production (A2+FL)	2017-18 to 2026-27; cost per hectare 2002-03 to 2014-15	Lok Sabha USQ 2924; PIB note, June 2024; Srivastava (ageconsearch)	Official and academic
Diesel, urea, DAP, MOP	2002 to 2026	PPAC price table; Business Today; Economic Survey 2005-06; Lok Sabha USQ 3987, USQ 790, USQ 878	Official; diesel 2026 via news
Pesticides	2011-12 to 2013-14 only	Lok Sabha USQ 2704 (WPI % change)	Official; no long series found
Wage earnings, regular and casual	1999-00, 2004-05, 2011-12, 2017-18, 2023-24, 2025	Karan and Selvaraj (ILO 2008); MoSPI Key Indicators 68th round; Motkuri (2019) for PLFS 2017-18; PLFS 2023-24 and 2025 reports	Official or ILO; PLFS 2017-18 via secondary paper
Private vs government teachers	1988 to 2014	Kingdon (2010); Kingdon (2017)	Academic; mostly ratios, not rupees

NSS rounds (to 2011-12) and PLFS (from 2017-18) use different survey designs, so the step between them is read as indicative. Pesticide prices are not available as a continuous series for the full period, so pesticides are left out of the price comparisons.

Farm household net receipt from cultivation (Rs 969 a month in 2002-03, Rs 3,081 in 2012-13, Rs 3,798 in 2018-19) comes from the NSS Situation Assessment Surveys as reported by Thiagu Ranganathan (IEG) and Down To Earth; both are secondary. The IEG table prints the same value (11,628 a year) for farming and for wages in 2002-03, which appears to be a transcription error, so the 2002-03 figure is taken from the primary report, NSS

Report No. 497, Statement 5 (cultivation Rs 969, wages Rs 819, total Rs 2,115 a month).

3. Method

The analysis is statistical first, with a small differential-equation model to explain the shape of the government pay series.

Emoluments and real terms. Pay is basic plus DA on 1 January of each year (HRA and TA excluded). DA is taken at the rate announced for that January, so the series is entitlement-based emoluments, not a record of the DA actually paid in that month (Appendix B.4). DA follows the published rate tables, including the 50% merger of April 2004 and the 125% merger into the 7th CPC pay matrix. Real pay divides nominal pay by the chained CPI-IW (1995-96 = 100) of the fiscal year in which 1 January falls (Reserve Bank of India, 2025).

Farm returns. MSP is placed in its crop year (the wheat crop sown in year t is bought at the MSP of marketing season t+1). Cost is the all-India weighted A2+FL cost of production (Lok Sabha, 2018; Press Information Bureau, 2024). Net return per quintal is MSP minus cost. A2+FL counts paid-out costs and the imputed value of family labour; it leaves out the rental value of owned land and interest on owned capital, so it understates full economic cost. The pay-to-MSP comparison measures how much crop a month's pay buys relative to 1996. It compares purchasing power, not incomes, and does not by itself show that farmers are worse off. Farm-household income is the primary farm comparison wherever survey data exist (Section 4.6).

Growth. Real CAGR is (end/start)^(1/years) - 1. Trend growth comes from the log-linear regression:

$$\ln y_t = a + b\,t + \varepsilon_t, \qquad g = e^b - 1$$

Breaks. To test whether the 6th and 7th CPC changed the path, we add level dummies D06, D16 and slope-change terms S06 = (t-10)D06, S16 = (t-20)D16, and compare the fit with the single-trend model by an F-test with 4 and 25 degrees of freedom.

Inference and diagnostics. Annual series are autocorrelated, so ordinary standard errors are too small. Trend and break results are therefore reported with Newey-West (HAC) standard errors, Bartlett kernel, 3 lags

(the rule 4(n/100)^(2/9) for n = 31), with a small-sample factor n/(n-k); 5 lags is used as a check. Confidence intervals use the t distribution with 29 degrees of freedom. Residuals are checked with the Durbin-Watson statistic, the Breusch-Godfrey test (order 1) and the Ljung-Box test (4 lags). The break hypothesis is tested both by the F-test and by a HAC Wald test of the four restrictions; with 31 observations and 6 parameters the HAC Wald test is known to reject too often, so the two are read together.

CAGR and trend growth. The CAGR uses only the first and last observation and ignores the path. The trend growth rate uses all 31 observations. For step series the two differ, and the paper says which one it reports: Section 4.5 and the abstract give trend growth, Section 4.1 gives end-point growth.

Impulsive ODE. Between commissions, real pay R follows dR/dt = r R, because DA compensates inflation only with a lag. At each commission date t_j, pay jumps by a factor $(1 + J_j)$:

$$\frac{dR}{dt} = r_k R \;\; (t \neq t_j), \qquad R(t_j^+) = (1 + J_j)\, R(t_j^-)$$

The solution gives ln R(T) - ln R(0) as the sum of drift terms and $\ln(1+J_j)$ terms. The model has five parameters (three drifts r_5, r_6, r_7 and two jumps J_6, J_7). Each is calibrated from the real series, not fitted by least squares: a drift is the average annual log change between the first and last January of a regime, and a jump is the ratio of real pay in the January a commission takes effect to the January before. Because the parameters come from end-points, they carry no standard errors, and the identity that the drift and jump terms sum to the observed total holds by construction, so it is not a test. A piecewise exponential model is used to describe changes in real entry pay between and at successive Pay Commission revisions; it is calibrated to the observed series and is not interpreted as a causal estimate. Its only test is how closely its path follows the 31 annual values (Section 4.5). No model of applicant behaviour is estimated, because the paper has no applicant data.

Estimating equations, for regime k running from January s_k to January e_k and a commission effective in January t_j:

$$r_k = \frac{\ln R(e_k) - \ln R(s_k)}{e_k - s_k}, \qquad 1 + J_j = \frac{R(t_j)}{R(t_j - 1)}$$

Wage earnings and teacher pay enter through growth comparisons over matching windows, because the surveys are few and years differ.

4. Results

4.1. Central government entry pay

Entry basic pay of the Assistant Professor rose from Rs 8,000 (January 2003) to Rs 57,700 (January 2026; Seventh Central Pay Commission, 2015), a 7.2-fold rise (+621%). The other four posts rose 6.4 to 7.1 times. After adding DA (55% in January 2003, 60% in January 2026), emoluments rose 6.6 to 7.4 times.

Table 2. Entry pay and real growth of five central government posts

Post	Basic Jan 2003 (Rs)	Basic Jan 2026 (Rs)	Emoluments Jan 2003 (Rs)	Emoluments Jan 2026 (Rs)	Nominal growth (x)	Real growth Jan 1996 to Jan 2026 (x, CPI-IW)	Real CAGR
Multi-tasking staff (Group D)	2,550	18,000	3,953	28,800	7.29	1.81	2.0%
Lower Division Clerk (Group C)	3,050	19,900	4,728	31,840	6.74	1.67	1.7%
Sub-Inspector / Group B entry	5,500	35,400	8,525	56,640	6.64	1.65	1.7%
Group A entry	8,000	56,100	12,400	89,760	7.24	1.80	2.0%
Assistant Professor (UGC)	8,000	57,700	12,400	92,320	7.45	1.85	2.1%

Prices also rose. CPI-IW (1995-96 = 100) went from about 154 in 2002-03 to about 625 in 2025-26, a 4.1-fold rise, so most of the nominal rise is inflation. Measured against 2003, real emoluments are 1.6 to 1.8 times higher; measured against 1996, 1.65 to 1.85 times. Most of the real gain came with the 6th CPC: the real emoluments of a Multi-tasking staff member were Rs 2,550 in January 1996, Rs 4,041 in January 2006, Rs 4,596 in January 2016 and Rs 4,610 in January 2026.

Deflator sensitivity. The main results use CPI-IW. Farm households buy a different basket, so Table 3 repeats the 1995-96 to 2025-26 real growth with CPI-AL (agricultural labourers), chained from the same RBI Table 236 rates. Every real series is higher under CPI-AL, because CPI-AL rose less (index 560 against 625). The ratio of the two real-growth factors does not change, because the same deflator divides both and cancels. From 1995-96 to 2025-26 (January 1996 to January 2026 for pay), the real-growth factor of Assistant Professor entry pay is 1.70 times that of the wheat MSP and 1.75

times that of the paddy MSP under either index. This is a growth-factor ratio (endpoint growth factors over 30 years), not a ratio of annual growth rates or CAGRs; the annual trend gap is reported in Section 4.5. The finding that pay outgrew the MSP therefore does not depend on the deflator; only the level of real growth does. The CPI-AL index for 2025-26 rests on a spliced 2019 base and a final inflation rate of 0.9%, so the CPI-AL column should be read as a check, not a replacement.

Table 3. Deflator sensitivity: real growth under CPI-IW and CPI-AL, 1995-96 to 2025-26

Series (1995-96 = 1)	**Real growth, CPI-IW**	**Real growth, CPI-AL**	**Pay growth factor / wheat MSP growth factor**
Multi-tasking staff (Group D)	1.81	2.02	1.66
Lower Division Clerk (Group C)	1.67	1.86	1.53
Sub-Inspector / Group B entry	1.65	1.84	1.51
Group A entry	1.80	2.00	1.65
Assistant Professor (UGC)	1.85	2.06	1.70
Wheat MSP	1.09	1.21	
Paddy MSP	1.05	1.18	

Source: own calculation (workbook sheet CPI_AL_Sensitivity) from 7th CPC pay matrix and DA tables, RBI Handbook Tables 25, 34 and 236. Pay is January 1996 against January 2026; MSP is 1995-96 against 2025-26.

4.2. Farm inputs and returns per quintal

The MSP is an output price per quintal, not farm income: income also depends on yield, area, input spending, procurement access and crop mix. Before comparing it with pay, we check what happened to what the farmer spends.

Table 4. Farm input prices, nominal and real growth

Input	Period	Nominal growth (x)	Real growth (x, CPI-IW)	Source
Diesel, Delhi (Rs per litre)	3 Jan 2003 to 9 Oct 2026	5.0 (19.07 to 95.20)	1.23	PPAC; Business Today
Urea (MRP, Rs per quintal)	Feb 2002 to 2023-24	1.11 (483 to 538)	0.28	Economic Survey 2005-06; Lok Sabha USQ 790
DAP (MRP, Rs per quintal)	Feb 2002 to 2023-24	2.89 (935 to 2,699)	0.73	Economic Survey 2005-06; Lok Sabha USQ 878
DAP	Feb 2002 to Jun 2012	2.65 (935 to 2,480)	1.23	Lok Sabha USQ 3987
MOP	Jun 2012 to 2023-24	2.00 (1,670 to 3,336)	1.08	Lok Sabha USQ 3987 and 878
Cost of cultivation per hectare, all crops	2002-03 to 2014-15	3.51 (9,768 to 34,232)	1.45	Srivastava (agecon-search)

Four points follow. First, diesel and DAP rose several-fold in rupees, and DAP's real price rose about 23% to mid-2012 before falling under later subsidy and price control. Second, urea hardly moved in rupees, so it fell sharply in real terms. Third, the total cost of cultivating a hectare rose 45% in real terms from 2002-03 to 2014-15, so costs per hectare outran general prices in those years (Srivastava et al., 2017); this is a cost measure, not a profit measure. Fourth, no continuous pesticide price series is available; the only official figures are WPI changes of 1.1%, 5.5% and 4.0% in 2011-12 to 2013-14, against 13.5%, 12.4% and 2.2% for fertilizers and 8.5%, 11.6% and 18.7% for diesel.

Per quintal, the picture is milder in the years where official cost data exist.

Table 5. Cost, MSP and net return per quintal, wheat and paddy

Crop	Crop year	Cost A2+FL (Rs/qtl)	MSP (Rs/qtl)	Net per quintal (Rs)	Real net (1995-96 Rs/qtl)
Wheat	2017-18	817	1,735	918	218

Crop	Crop year	Cost A2+FL (Rs/qtl)	MSP (Rs/qtl)	Net per quintal (Rs)	Real net (1995-96 Rs/qtl)
Wheat	2024-25	1,182	2,425	1,243	205
Wheat	2026-27	1,264	2,610	1,346	215
Paddy	2017-18	1,117	1,550	433	103
Paddy	2024-25	1,533	2,300	767	127

Years in the table are crop years: the wheat crop of year t is matched to the MSP of the Rabi Marketing Season t+1 (2017-18, for example, uses the Rs 1,735 of Rabi Marketing Season 2018-19), and paddy uses the Kharif MSP of year t. From 2017-18 to 2026-27 wheat cost rose 1.55 times and the MSP 1.50 times, so real net per quintal stayed flat (0.99 times). For paddy the MSP outpaced cost (net per quintal 1.23 times in real terms, 2017-18 to 2024-25). So H2 holds for cost per hectare and for fertilizer and diesel in the early 2000s, but a per-quintal squeeze is not visible in the recent cost series. The cost-per-hectare result (2002-03 to 2014-15) and the per-quintal margins (2017-18 onward) cover different periods and measures, so they do not contradict each other, and input prices alone do not measure profitability. Yield per hectare, not collected here, would turn these into income per hectare.

4.3. Government pay against the farm price

The wheat MSP rose 6.8 times in rupees (Rs 380 in 1995-96 to Rs 2,585 in 2025-26; Reserve Bank of India, 2025) and the paddy MSP 6.6 times (Rs 360 to Rs 2,369). Deflated by the same CPI-IW, that is 1.09 times for wheat and 1.05 times for paddy over thirty years, a real rise of 0.3% and 0.2% a year. Government entry pay rose 1.65 to 1.85 times in real terms, so it grew 1.5 to 1.75 times as fast as the real MSP.

The same gap appears in physical units. A month's emoluments buy more grain than before:

Table 6. Wheat quintals bought by one month's emoluments

Post	Wheat quintals per month, Jan 1996	Jan 2006	Jan 2016	Jan 2026
Multi-tasking staff	6.7	10.8	11.8	11.1

Post	Wheat quintals per month, Jan 1996	Jan 2006	Jan 2016	Jan 2026
Lower Division Clerk	8.0	11.9	13.0	12.3
Sub-Inspector / Group B	14.5	20.8	23.2	21.9
Group A entry	21.1	32.3	36.8	34.7
Assistant Professor	21.1	33.2	37.8	35.7

Wheat quintals use the MSP of the matching crop year (1995-96, 2005-06, 2015-16, 2025-26). H1 holds for all five posts.

4.4. Wage and salary earnings and private-school teachers

Surveys of regular and casual wage workers (Karan and Selvaraj, 2008; Ministry of Statistics and Programme Implementation, 2013, 2019, 2024, 2026) give average earnings, not entry pay. Their real growth over matching windows is below that of government entry pay for regular workers, but not for casual labour.

Table 7. Real growth of regular and casual wage earnings against government entry pay

Group	Window	Real growth (x, CPI-IW)	Real CAGR
Regular wage/salaried, urban	1999-00 to 2017-18	1.13	0.7%
Regular wage/salaried, rural	1999-00 to 2017-18	1.09	0.5%
Casual wage, urban	1999-00 to 2017-18	1.70	3.0%
Casual wage, rural	1999-00 to 2017-18	2.00	3.9%
Regular wage/salaried, all India	2011-12 to 2025	0.89	-0.8%
Government entry pay, five posts	1999-00 to 2017-18	1.62 to 1.82	2.7% to 3.4%
Government entry pay, five posts	2011-12 to 2025	1.13 to 1.17	0.9% to 1.2%

Two cautions apply. Government figures are entry pay while wage figures are averages over all regular wage or salaried workers, whether employed by government or by private employers (the surveys used here do not separate them), so levels are not comparable and only growth is. And casual wages rose strongly in real terms, which does not fit a story in which every non-government worker fell behind; the cause is not tested here. Each observation

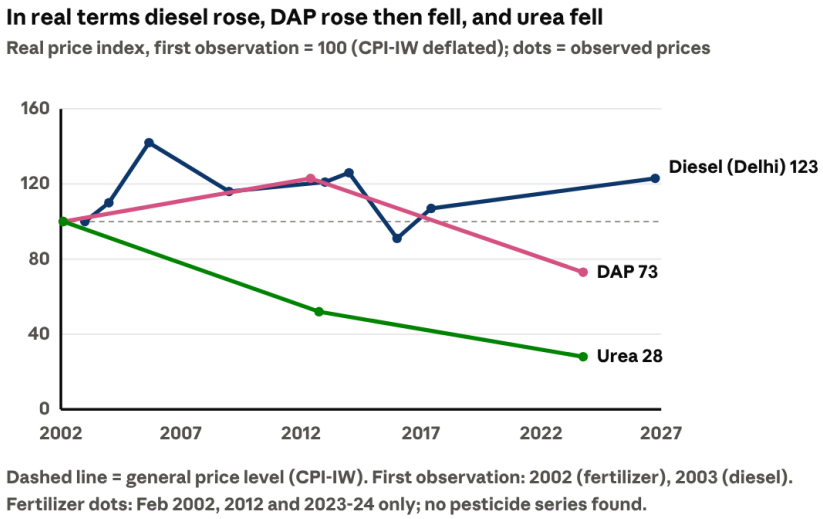


Figure 1: Real prices of diesel, DAP and urea (first observation = 100, CPI-IW deflated). Source: own calculation (workbook sheet Input_Prices) from PPAC, Economic Survey 2005-06, Lok Sabha USQ 3987, 790 and 878, and RBI CPI-IW.

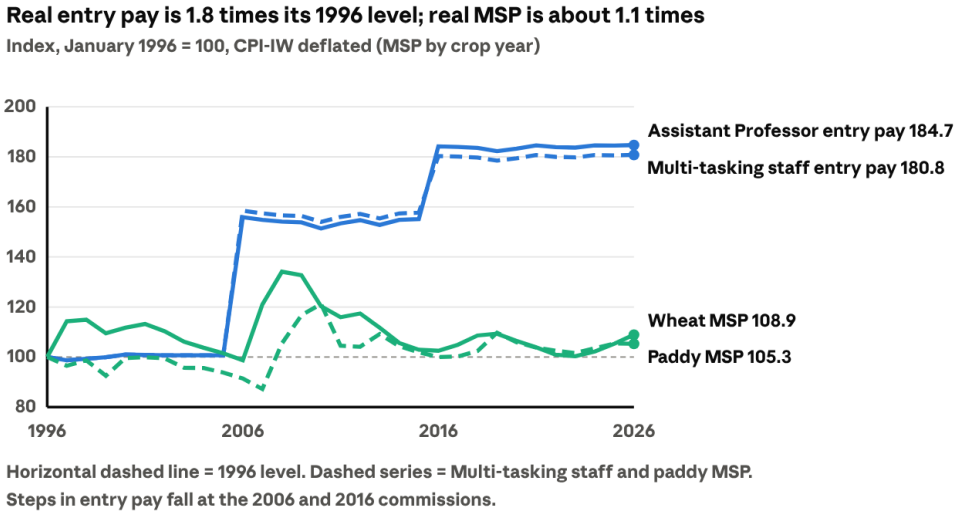


Figure 2: Real entry pay of central posts and real MSP of wheat and paddy, 1996 = 100 (CPI-IW deflated; MSP by crop year). Source: own calculation (workbook sheet Stats) from RBI Handbook Tables 34 and 236, 7th CPC and DA tables, RBI Table 25 and Lok Sabha USQ 2551, 1996 to 2026.

is the average earnings of regular wage or salaried workers (NSS: daily wage; PLFS: preceding-month earnings in current weekly status) or of casual labour (daily wage, work other than public works). The 1999-00 to 2017-18 windows rest on the PLFS 2017-18 figure, which is secondary, and windows that cross from NSS to PLFS join two survey designs; the 2011-12 to 2025 window does not use the 2017-18 figure.

Private teachers. Published studies (Kingdon, 2010, 2017) give the ratio of private-school to government-school teacher pay rather than rupee amounts.

Table 8. Private-school teacher pay as a percentage of government teacher pay

Period and place	Private pay as % of government	Source
Late 1980s to 1994 (Delhi, MP, TN, UP)	39% to 49%	Kingdon (2010)
c. 1998 to 2006 (UP; 20 states)	20%	Kingdon (2010)
2007-08 (rural Bihar and UP)	8%	Kingdon (2010)
2014 (rural Punjab; Rs 1,925 against Rs 59,654)	3.2%	Kingdon (2017)

The published government-to-private ratios are about 2 to 2.5 to 1 in the early 1990s, 5 to 1 around 2004-05, 12.5 to 1 in 2007-08 and 31 to 1 in rural Punjab in 2014. Kingdon attributes the early-2000s widening to the 5th CPC and the later widening to the 6th CPC. In 1995-96 prices a government teacher in UP earned Rs 4,530 a month in 2004-05 against an implied Rs 906 for a private teacher; in rural Punjab in 2014-15 the figures were Rs 16,086 and Rs 519. The 2004-05 and 2007-08 private rupee amounts are derived by multiplying the published ratio by government pay, and the three rows are different places, so they are separate case studies, not one time series. Teacher qualifications, school types and employment conditions differ between the studies and are not harmonised here, and the rural Punjab figure is not extrapolated to private-school teachers in India.

4.5. Trends, breaks and the ODE

Annual series for January 1996 to January 2026 (n = 31) give the log-linear trends below.

Table 9. Log-linear trends and break tests, January 1996 to January 2026

Series (real)	Trend growth per year	t-statistic (OLS)	R-squared	F-test for breaks at 2006 and 2016 (p-value)
Multi-tasking staff	2.55%	11.2	0.81	2,278 (< 0.001)
Assistant Professor	2.65%	12.3	0.84	2,034 (< 0.001)
Wheat MSP	-0.22%	-1.5	0.07	2.9 (0.042)
Paddy MSP	0.31%	2.5	0.18	1.4 (0.28)
Ratio, Assistant Professor pay to wheat MSP	2.88%	13.9	0.87	9.2 (< 0.001)
Ratio, Assistant Professor pay to paddy MSP	2.33%	10.0	0.77	17.5 (< 0.001)

Table 10. Robustness of the trends: HAC inference and residual diagnostics

Series (real)	Trend growth per year	95% interval (HAC)	HAC t	Durbin-Watson	Breusch-Godfrey p	Break test, HAC Wald p
Multi-tasking staff	2.55%	1.92% to 3.18%	8.4	0.59	< 0.001	< 0.001
Assistant Professor	2.65%	2.06% to 3.24%	9.2	0.65	< 0.001	< 0.001
Wheat MSP	-0.22%	-0.48% to 0.04%	-1.8	0.62	< 0.001	0.059
Paddy MSP	0.31%	0.15% to 0.48%	4.0	0.91	0.003	0.005
Ratio, Assistant Professor to wheat MSP	2.88%	2.34% to 3.42%	11.1	1.17	0.052	< 0.001
Ratio, Assistant Professor to paddy MSP	2.33%	1.80% to 2.85%	9.1	0.91	0.003	< 0.001

Source: own calculation (workbook sheet Robustness_HAC), n = 31, Newey-West with 3 lags. With 5 lags the HAC t-statistics are 7.8 (Multi-tasking staff), 8.7 (Assistant Professor), -1.8 (wheat MSP), 4.1 (paddy MSP), 11.1 (Assistant Professor to wheat MSP) and 9.0 (Assistant Professor to paddy MSP), so no conclusion changes.

The ratio rows test H1 directly. Assistant Professor entry pay rose about 2.9% a year faster than the wheat MSP and 2.3% a year faster than the

paddy MSP, both with large t-statistics. The real wheat MSP trend is not different from zero. Government pay breaks at 2006 and 2016 are significant, but they follow from the commission calendar, so they confirm the institution rather than add a finding. The wheat MSP break is weak: p = 0.04 on the F-test and 0.06 on the HAC Wald test. The paddy MSP shows no break on the F-test (p = 0.28) but p = 0.005 on the HAC Wald test, so the paddy result is not robust and is not relied on. Where the two tests disagree, the break evidence is sensitive to the test used; HAC standard errors address inference on the reported coefficients but do not remove every specification concern in break testing, and no claim in this paper requires a robust break finding. Residuals are strongly autocorrelated (Durbin-Watson 0.6 to 1.2), so Table 10 gives HAC inference. It leaves the main result unchanged: the HAC t-statistics for the two ratios are 11.1 and 9.1, and the 95% intervals for the growth gap are 2.3% to 3.4% a year (wheat) and 1.8% to 2.9% (paddy). The wheat MSP trend stays indistinguishable from zero (HAC t = -1.8). These are trend rates over 31 annual points; the end-point CAGR gap between Assistant Professor pay and the wheat MSP is 1.8% a year (1.70 times over 30 years), smaller because it ignores the path.

Impulsive ODE. Real pay does not drift upward between commissions: DA keeps it flat against inflation, and the whole rise comes from the jumps.

Table 11. Impulsive ODE: drift and jump terms

Term	**Multi-tasking staff**	**Assistant Professor**
Drift under 5th CPC, 1996 to 2005 (per year)	+0.07%	+0.07%
Jump at 6th CPC (factor)	1.57	1.55
Drift under 6th CPC, 2006 to 2015 (per year)	-0.06%	-0.06%
Jump at 7th CPC (factor)	1.14	1.19
Drift under 7th CPC, 2016 to 2026 (per year)	+0.03%	+0.03%
Real pay in 2026 with drift only, no jumps (1996 = 1)	1.00	1.00
Actual real pay in 2026 (1996 = 1)	1.81	1.85

Without the commission jumps, real entry pay in 2026 would equal its 1996 level, so jumps account for 99% of the real rise. Pay therefore moves in steps set by commissions, which a linear trend hides. It also means each new

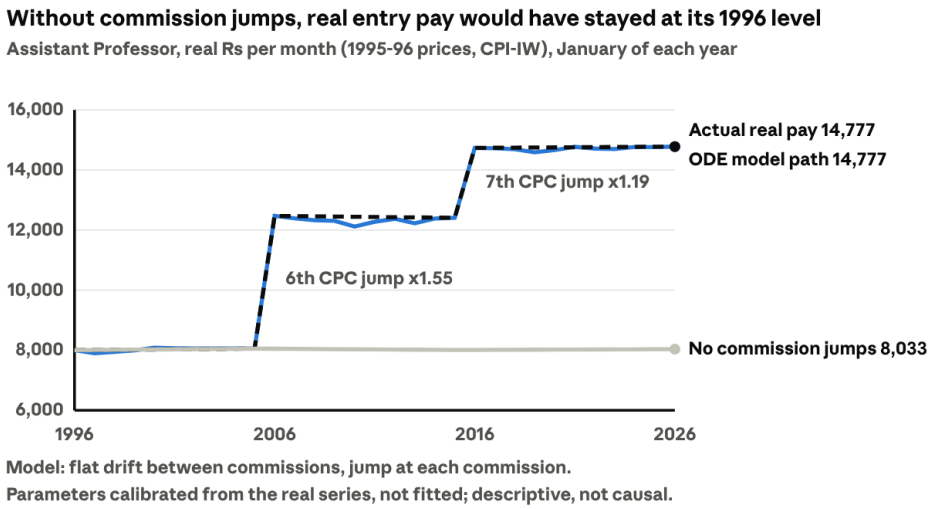


Figure 3: Assistant Professor real entry pay: observed, descriptive ODE path and path without commission jumps. Source: own calculation (workbook sheet ODE_Pay, rows 31 to 63) from CPI-IW (RBI Tables 34 and 236) and 5th, 6th and 7th CPC pay and DA tables.

commission is a visible event that can reset how attractive the job looks to a young applicant. The 1 January 2005 value includes the 50% of DA merged into Dearness Pay in April 2004; leaving it out would show a false fall in 2005.

Fit of the ODE. The ODE path follows the 31 annual real-pay values of the Assistant Professor with a root-mean-square error of 0.8% (in logs), a mean absolute deviation of 0.5% and a largest deviation of 2.6%. The no-jump path misses by 0.44 in logs. The R-squared of 0.999 is high mainly because the series is dominated by two large steps, so the RMSE is the more informative number. The five parameters are calibrated from end-points and have no standard errors, and the 99% share is an accounting decomposition within this model, not a causal estimate (workbook sheet ODE_Pay, rows 65 to 71).

4.6. Government, wage and farm earnings together

Each line in the figure is an index set to 100 at its own first observation (government January 1996, regular wage 1999-00, farm 2002-03), so the lines show change, not level, and their start years differ. Government entry pay

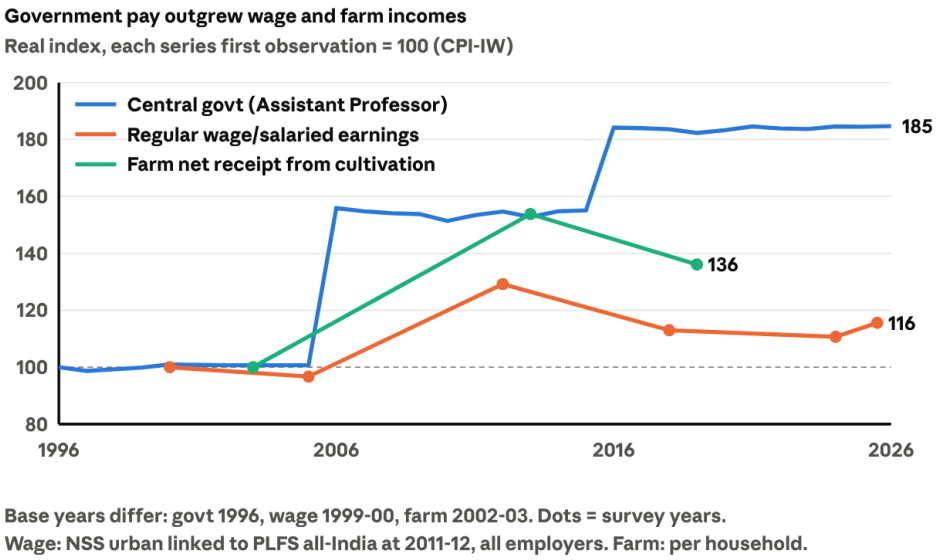


Figure 4: Real index of central government pay, regular wage and salary earnings and farm net receipt from cultivation (each series: first observation = 100). Source: own calculation (workbook sheet Combined_Plot) from Sections 4.1 and 4.4 and NSS Situation Assessment Surveys (IEG, Table 2-1; Down To Earth).

rose 1.83 times in real terms from January 2003 to January 2026. In the nearest windows, regular wage and salary earnings rose about 1.20 times (2004-05 to 2025, urban NSS linked to all-India PLFS) and farm net receipt from cultivation per household rose 1.36 times from 2002-03 to 2018-19, after a 1.54-fold rise to 2012-13 and an 11.5% fall since. The ordering supports H1 and H3. The 2002-03 survey covered only land-owning households in a drought year (IEG), so the rise to 2012-13 may overstate like-for-like growth; the fall since compares two surveys of the same type. The farm line is not a profit series: it is a household figure with different definitions in three surveys, and it ends in 2018-19, so it cannot show what happened since. The wage line has only six survey points and joins two surveys.

5. Discussion

The evidence supports the claim that central government entry pay has pulled ahead of the farm price and of average regular wage and salary earnings over the past thirty years. It does not show that farmers are worse off year by year in every respect, and it does not show that wage workers as a whole fell behind. The measured premium is consistent with a demand-side explanation of recruitment queues but does not demonstrate one.

Main findings. Against the same price index, entry pay of five central posts is 1.65 to 1.85 times its 1996 level, while the real MSP of wheat and paddy is 1.05 to 1.09 times. A Multi-tasking staff member's month of pay buys 11 quintals of wheat in 2026 against 6.7 in 1996. Average regular wage and salary earnings grew 9% to 13% in real terms from 1999-00 to 2017-18, and fell 11% from 2011-12 to 2025 on the all-India series, a window that joins NSS and PLFS and is indicative only. Evidence on private school teachers comes from separate local studies, not a national series, and is not used as a quantitative result.

Findings that qualify the main result. Casual labourers' real earnings rose 1.7 to 2.0 times between 1999-00 and 2017-18, faster than most government posts. At the farm gate, wheat cost and MSP rose together from 2017-18 to 2026-27, so the per-quintal margin did not fall. The cost squeeze shows up in cost per hectare (up 45% in real terms from 2002-03 to 2014-15) and in diesel and DAP in some periods, not in a per-quintal collapse. Farm net receipt from cultivation per household rose 1.54 times from 2002-03 to 2012-13, about as much as government pay over those years, and then fell 11.5% by 2018-19; that series stops there.

Interpretation of the pay differential. The ODE result matters for interpretation. Government pay is flat in real terms between commissions and jumps at each one, a 1.55-fold jump at the 6th CPC and a 1.1 to 1.2-fold jump at the 7th. The comparison series do not exhibit a comparable commission-linked step change, although their data coverage differs; this is one possible way the premium could reach prospective applicants. If applicants respond to pay, this pattern could increase the relative attractiveness of government employment following a pay revision, although applicant responses are not tested in this study, and the 8th CPC, when implemented, would be another such step.

Benefits not priced (H4). Leave, medical cover, fixed hours and job security are not priced here, because no suitable data source provides a defensible monetary estimate of these benefits for the posts examined. They could increase the compensation differential, but their value differs by employee, post, location and the alternative job considered, so the paper does not estimate the monetary value of leave, medical cover, pension arrangements, job security or working hours, and does not use H4 as evidence for its quantitative results. A fair test would price them and would also account for the pension arrangements of each recruitment cohort: the National Pension System for central staff joining on or after 1 January 2004 and, from 1 April 2025, the option of the Unified Pension Scheme for those covered by it (PFRDA regulations notified 19 March 2025). Eligibility for a scheme is not the same as the benefit actually received.

Relation to job-queue evidence. The paper shows a pay premium and its growth. It does not measure applicants. Combining the premium with application counts from recruitment agencies is the next step, and the state-level wage comparison in Appendix A does not provide it. Whether commission revisions change applicant behaviour is a question for future empirical research, not a result of this paper.

6. Limitations

- **Entry pay against averages.** Government figures are minimum entry pay, defined as the first cell of the relevant pay scale or pay matrix; wage and farm figures are averages or crop-level prices. The comparison therefore rests on growth over matching periods and does not equate the levels of these series.

- **Pay only, no benefits.** HRA, TA, leave, medical cover, pension and security are excluded, so the measured premium may understate the compensation gap; the paper does not estimate their value.
- **Gross crop price, not income.** MSP and cost per quintal do not give income per hectare. Yield, area, sugarcane FRP and non-MSP crops are not covered, and many farmers sell below MSP or outside procurement.
- **Pesticides.** No continuous price series is available; only three years of WPI changes are reported.
- **Private teachers.** Pay figures are mostly ratios from separate studies in a few places, not a national series, and are not extrapolated to all private-school teachers in India; two private rupee amounts are derived.
- **Survey breaks.** NSS and PLFS differ in design; the PLFS 2017-18 person-level averages come from a secondary paper; they fit the gender-wise ranges in the MoSPI report, which gives no person-level average. NSS 1999-00 and 2004-05 are not split by public and private employer.
- **Break tests.** The breaks at 2006 and 2016 coincide with commission dates fixed by the institution, so significant breaks are not independent evidence of a causal effect. Where the F-test and the HAC Wald test disagree (wheat and paddy MSP), the result is sensitive to the test, and HAC standard errors do not remove every specification concern.
- **One deflator.** CPI-IW is used for everyone. A sensitivity run with CPI-AL (agricultural labourers) raises government real growth to 1.8 to 2.1 times and the real wheat and paddy MSP growth to about 1.2 times, so the choice does not reverse the finding.
- **Dating.** Survey years run July to June and are matched to January pay dates; the 2026-27 MSP uses 2025-26 prices.

7. Conclusion

Over 1996 to 2026, real entry pay of five central government posts grew 1.65 to 1.85 times, while the real MSP of wheat and paddy grew 1.05 to 1.09 times. Entry pay outran the wheat MSP by about 2.9% a year and the paddy MSP by about 2.3% a year in trend terms, with high statistical confidence after HAC correction. Average regular wage and salary earnings grew far less (9% to 13% in real terms from 1999-00 to 2017-18, and a fall of 11% from 2011-12 to 2025), and published teacher-pay ratios from separate studies run from about 2 to 1 in the early 1990s to 5 to 1 around 2004-05 and 31 to 1 in

one 2014 rural Punjab survey; these are case studies of different places, not a national series. The wage windows that join NSS and PLFS are indicative only. Break tests at the 2006 and 2016 commission dates depend on the test used (the paddy MSP result is not robust) and, because the dates are fixed by the commission calendar, are not independent evidence of an effect.

Two findings qualify this pattern. Casual labourers' real earnings rose by 1.7 to 2.0 times, and recent per-quintal margins in wheat and paddy are not shrinking, although cost per hectare, diesel and DAP rose strongly in real terms at times. The conclusion is therefore narrower than "farmers and wage workers are worse off": the government premium over the farm price and over regular wage and salary work has widened, and it widens in steps at each Pay Commission.

The impulsive ODE is a descriptive representation of how real entry pay changes across Pay Commission revisions: between commissions real pay is flat, and virtually all of the real gain comes from jumps of 1.55 times (6th CPC) and 1.1 to 1.2 times (7th CPC). The model captures the step-like pattern of the pay series but does not establish whether, or to what extent, these changes affect applicants' decisions. If applicants respond to pay, the premium, which is large and renewed by commissions, is consistent with demand for government jobs that does not rest on a shortage of posts. Linking this premium to applicant counts is the main task for further work.

Appendix A. Supplementary State-Level Descriptive Evidence: Haryana and Neighbouring States

This appendix gives one descriptive state-level comparison: average earnings from the Periodic Labour Force Survey in Haryana against the all-India average. It has a different scope from the main analysis (one state against the national average) and covers only two recent years. No applicant, vacancy or unemployment data are analysed in this paper.

Table A.1. Average earnings in Haryana and all India (PLFS)

Average earnings (PLFS)	**Haryana**	**All India**
Regular wage, Rs per month, Jul 2023 to Jun 2024	22,738	20,702
Regular wage, Rs per month, Jan to Dec 2025	26,784	22,699
Casual labour, Rs per day, Jul 2023 to Jun 2024	484	418
Casual labour, Rs per day, Jan to Dec 2025	551	453

Average earnings (PLFS)	Haryana	All India
Self-employed gross, Rs per month, 2023-24	18,443	13,279
Self-employed gross, Rs per month, 2025	21,393	14,861

Source: MoSPI, Periodic Labour Force Survey quarterly bulletins and the 2025 annual report (Tables 38 to 40); the 2023-24 figure is the mean of four quarters. These are nominal figures for two years, so they say nothing about long-run change, and self-employed earnings are gross of costs. A two-year comparison cannot test H1; the main analysis therefore uses the long Pay Commission series in Sections 3 and 4.

Appendix B. Pay and DA audit trail

This appendix lets a reader rebuild every nominal emolument used in the paper. Emoluments are basic pay plus dearness allowance (DA); house rent and travel allowances are excluded. They are entitlement-based: DA is taken at the rate announced for each January, which is not always the rate actually paid in that month (B.4 and Table B.5).

B.1 Orders behind each date. The orders below are those on which the series rests. Copies marked as such are hosted by government or government-institute sites; the others are reproductions. Only two orders were consulted in Gazette form: G.S.R. 622(E), including its First Schedule, and the UGC Regulations 2018.

Date	Event	Order	Copy used
1 Jan 1996	5th CPC scales; DA reset on the revised pay	Government resolution No. 50(1)/IC/97 of 30 September 1997 (the date is given in Department of Expenditure OM No. 2(30)/97-E.II(B) of 3 October 1997; the text of the resolution itself was not consulted); CCS (Revised Pay) Rules, 1997, notified 30 September 1997 (as stated in DoPT OM of 25 May 1998); DA from 1.1.1996 at the AICPI 12-month average of 1510 (1960 = 100)	referencer.in (secondary)

Date	Event	Order	Copy used
1 Apr 2004	50% of DA merged into basic as Dearness Pay	Ministry of Finance, Department of Expenditure, OM F.No. 105/1/2004-IC, 1 March 2004	referencer.in copy of the OM
1 Jan 2006	6th CPC pay bands and grade pay	CCS (Revised Pay) Rules, 2008, G.S.R. 622(E), 29 Aug 2008; OM F.No. 1/1/2008-IC, 13 Sep 2008	dpar.py.gov.in copy
1 Jan 2016	7th CPC pay matrix	Ministry of Finance Resolution No. 1-2/2016-IC, 25 Jul 2016; CCS (Revised Pay) Rules, 2016, G.S.R. 721(E), 25 Jul 2016; Level 1 Rs 18,000, Level 10 Rs 56,100	nii.res.in copy
1 Jan 2026	DA raised from 58% to 60%	Ministry of Finance, Department of Expenditure, OM No. 1/1(i)/2026-E.II(B), 22 Apr 2026 (number, date and rates taken from the ICMR circulated copy and matched with a second site; the Department of Expenditure original was not consulted)	ICMR copy

The half-yearly DA rates between these dates (workbook sheet DA_Rates) come from the referencer.in DA table, which reproduces the Department of Expenditure memoranda; the individual memorandum numbers have not been checked one by one. Copies of the following were consulted: the freeze of 23 April 2020 (as cited in an ICAR endorsement), the restoration OM of 20 July 2021, the OM of 25 October 2021 (28% to 31% from 1 July 2021, also cited in a DDA circular of 28 October 2021) and the January 2026 OM. A separate OM of 22 April 2026 for employees on 6th CPC scales (No. 1/1(ii)/2026-E.II(B)) was also consulted; it cites the July 2025 memorandum of 6 October 2025. OM numbers and dates from two typed compilations without source scans are not used as evidence.

B.2 Entry basic pay by post (Rs per month).

Post	5th CPC, 1996	6th CPC, 2006	7th CPC, 2016 (and 2026)
Multi-tasking staff (Group D)	2,550	7,000	18,000
Lower Division Clerk (Group C)	3,050	7,730	19,900
Sub-Inspector / Group B entry	5,500	13,500	35,400
Group A entry	8,000	21,000	56,100

Post	5th CPC, 1996	6th CPC, 2006	7th CPC, 2016 (and 2026)
Assistant Professor (UGC)	8,000	21,600	57,700

Of these, the 2006 entry pays of the PB-1, PB-2 and PB-3 posts (Rs 7,000, 7,730, 13,500 and 21,000) are checked against Section II of G.S.R. 622(E), which also places Group D staff in PB-1 with grade pay Rs 1,800 from 1 January 2006 after retraining where needed; the first cells of Levels 1, 2, 6 and 10 of 2016 (Rs 18,000, 19,900, 35,400 and 56,100) are checked against a printed copy of the 2016 Rules; and the Assistant Professor entry pay of all three commissions (Rs 8,000, Rs 21,600 and Rs 57,700) against the MHRD letter of 9 June 2020 and the MHRD letter of 31 December 2008; the 1996 scales of the four non-teaching posts match the 5th-to-6th CPC mapping table of a government training-institute portal (MCRHRDI; secondary). That table, and Part A Section I of the First Schedule of G.S.R. 622(E) (read in the full Gazette), map the Group D scale S-1 to pay band -1S (Rs 4,440-7,440, grade pay Rs 1,300, entry Rs 5,740), whereas Rule 7 places Group D staff in PB-1 with grade pay Rs 1,800 from 1 January 2006 after retraining, with arrears, and Part B moves Group D posts to PB-1 with grade pay Rs 1,800 after training. The paper uses Rs 7,000 (PB-1 plus grade pay Rs 1,800), which also gives the 7th CPC Level 1 of Rs 18,000; the interim -1S entry of Rs 5,740 applies only to staff not yet retrained. Band minimum plus grade pay would give Rs 7,100 for the Lower Division Clerk; the Gazette entry pay is Rs 7,730, which is used here. The other values come from secondary pay-scale tables listed in the workbook (sheets Pay_Scales and Sources).

B.3 Annual series, January of each year (Rs per month). The series for the other three posts is basic pay multiplied by the same factor, 1 + DA applied.

Year (Jan)	DA key	DA applied	MTS basic	MTS emoluments	Asst Prof basic	Asst Prof emoluments
1996	5P 1996-01	0%	2,550	2,550	8,000	8,000
1997	5P 1997-01	8%	2,550	2,754	8,000	8,640
1998	5P 1998-01	16%	2,550	2,958	8,000	9,280
1999	5P 1999-01	32%	2,550	3,366	8,000	10,560
2000	5P 2000-01	38%	2,550	3,519	8,000	11,040
2001	5P 2001-01	43%	2,550	3,647	8,000	11,440

Year (Jan)	DA key	DA applied	MTS basic	MTS emoluments	Asst Prof basic	Asst Prof emoluments
2002	5P 2002-01	49%	2,550	3,800	8,000	11,920
2003	5P 2003-01	55%	2,550	3,953	8,000	12,400
2004	5P 2004-01	61%	2,550	4,106	8,000	12,880
2005	5M 2005-01	67%	2,550	4,259	8,000	13,360
2006	6 2006-01	0%	7,000	7,000	21,600	21,600
2007	6 2007-01	6%	7,000	7,420	21,600	22,896
2008	6 2008-01	12%	7,000	7,840	21,600	24,192
2009	6 2009-01	22%	7,000	8,540	21,600	26,352
2010	6 2010-01	35%	7,000	9,450	21,600	29,160
2011	6 2011-01	51%	7,000	10,570	21,600	32,616
2012	6 2012-01	65%	7,000	11,550	21,600	35,640
2013	6 2013-01	80%	7,000	12,600	21,600	38,880
2014	6 2014-01	100%	7,000	14,000	21,600	43,200
2015	6 2015-01	113%	7,000	14,910	21,600	46,008
2016	7 2016-01	0%	18,000	18,000	57,700	57,700
2017	7 2017-01	4%	18,000	18,720	57,700	60,008
2018	7 2018-01	7%	18,000	19,260	57,700	61,739
2019	7 2019-01	12%	18,000	20,160	57,700	64,624
2020	7 2020-01	21%	18,000	21,780	57,700	69,817
2021	7 2021-01	28%	18,000	23,040	57,700	73,856
2022	7 2022-01	34%	18,000	24,120	57,700	77,318
2023	7 2023-01	42%	18,000	25,560	57,700	81,934
2024	7 2024-01	50%	18,000	27,000	57,700	86,550
2025	7 2025-01	55%	18,000	27,900	57,700	89,435
2026	7 2026-01	60%	18,000	28,800	57,700	92,320

B.4 Treatment rules.

- **DA merger.** From April 2004 serving employees drew basic plus 50% Dearness Pay plus a fresh DA. For the 2005 row the applied rate is therefore 17% + 50% = 67%. Leaving out the 50% would show a false fall in 2005.
- **Fitment.** At each commission the DA restarts from zero on the new scale. The jump is the ratio of real emoluments in the January the commission takes effect to those in the January before (Section 3).
- **Dates.** DA instalments apply from 1 January and 1 July; the January rate is used. Orders are issued months later with arrears, so the rate applied is the entitlement for that January.
- **DA freeze.** The January 2020 (21%) and January 2021 (28%) instalments were frozen and restored only from July 2021, so DA actually paid in those two Januaries was 17%. The Department of Expenditure froze the instalments by an OM of 23 April 2020 (file no. 1/1/2020-E-II(B), as given in a secondary copy); OM No. 1/1/2020-E-II(B) of 20 July 2021 raised DA to 28% from 1 July 2021, kept 17% until 30

June 2021 and folded the frozen instalments into the new rate, with no separate arrears (copy: Puducherry Finance Department copy). The principal series is therefore entitlement-based: it uses the announced rate, not the DA actually paid. Table B.5 gives the actual-paid sensitivity. Using the paid rate lowers the Assistant Professor real pay of those two years by 3.3% and 8.6%, and changes the trend growth from 2.65% to 2.60% a year and the pay-to-wheat-MSP trend gap from 2.88% to 2.83%. The 1996, 2006, 2016 and 2026 values and the jumps do not change.

- **Rounding.** DA is basic times rate, not rounded to the rupee as payroll rules require; the difference is under Rs 1 a month.
- **January 2026.** As of October 2026 no revised pay structure of the 8th CPC has been implemented (a secondary source reports its terms of reference in a Resolution dated 3 November 2025, with recommendations expected within 18 months of constitution), so the 7th matrix with DA at 60% is used.

Table B.5. Actual-paid sensitivity for the DA freeze, Assistant Professor (Rs per month)

January	DA announced	DA paid	Emoluments, announced	Emoluments, paid DA	Real pay, announced (1995-96 prices)	Real pay, paid DA	Change
2020	21%	17%	69,817	67,509	14,661	14,176	-3.3%
2021	28%	17%	73,856	67,509	14,770	13,501	-8.6%

Using the paid DA, the trend growth of Assistant Professor real pay falls from 2.65% to 2.60% a year (HAC t = 9.3). The trend gap against the wheat MSP falls from 2.88% to 2.83% a year (95% interval 2.31% to 3.34%, HAC t = 11.4) and against the paddy MSP from 2.33% to 2.28% (1.76% to 2.79%, HAC t = 9.2). The 1996, 2006, 2016 and 2026 values and the commission jumps do not change, so the main conclusions are unchanged; only the two annual observations differ. The paid rate is verified only for the freeze period; for other Januaries the DA actually drawn in January was the previous half-year rate until the order arrived, and arrears were paid later, which is why the entitlement series is used throughout.

Appendix C. Data dictionary and replication

C.1 Workbook sheets. The companion workbook (central_govt_pay_study.xlsx) holds every number in the paper. Blue cells are typed from a source, black cells are formulas and green cells link to another sheet. Sources is the register of every source with a reliability label (official, copy of an official order, secondary, or derived by the author).

Sheet	Content	Unit and base	Type
DA_Rates	DA rate by effective date, 1996 to 2026	% of basic pay	Copy of official OMs (secondary)
Pay_Scales, Emoluments	Entry pay by post under the 5th, 6th and 7th CPC; emoluments at commission dates	Rs per month, current	Mixed; see Appendix B
Emol_1996_base, Real_Emoluments	Emoluments divided by CPI-IW	Rs per month, 1995-96 prices	Derived
CPI_Series	CPI-IW and CPI-AL chained from RBI Table 236 rates	1995-96 = 100, fiscal years	Official rates, derived index
MSP_Series, Farm_Costs, Input_Prices	MSP by crop year, A2+FL cost, fertilizer and diesel prices	Rs per quintal, Rs per tonne, Rs per litre	Official, some secondary
Farm_vs_Govt	Real growth of pay and MSP; quintals of grain per month of pay	Ratios, quintals	Derived
Private_Earnings	NSS and PLFS earnings, nominal and real, with survey notes	Rs per month or per day	Official, 2017-18 secondary
Stats	Annual series, trends, break tests, CAGR	Logs, percent	Derived
ODE_Pay	Drift and jump parameters, decomposition, model path, fit	Logs, Rs per month	Derived
CPI_AL_Sensitivity, Robustness_HAC	Deflator check; HAC inference and diagnostics	Ratios, statistics	Derived; HAC values from the supplied script

Sheet	Content	Unit and base	Type
Combined_Plot	Indices for the three-group figure	100 at first observation	Derived

C.2 Key variables.

Variable	Definition
Emoluments	Basic pay plus DA (plus the 50% Dearness Pay for the 2005 row); no house rent or travel allowance; entitlement basis (DA at the announced January rate)
Real entry pay	Emoluments in January divided by CPI-IW of the fiscal year containing that January, with 1995-96 = 100
Real MSP	MSP of the crop year divided by CPI-IW of the same fiscal year
Net per quintal	MSP minus all-India weighted A2+FL cost, then deflated by CPI-IW
Trend growth	exp(b) - 1 from ln y = a + b t on 31 annual points, t = 0 in 1996
CAGR	(end / start)^(1 / years) - 1 on the first and last observation
Jump J_j	Ratio of real emoluments in the January a commission takes effect to the January before

C.3 Replication.

1. Rebuild the nominal series from Appendix B and the workbook sheets DA_Rates and Pay_Scales.
2. Chain CPI-IW and CPI-AL from the Table 236 rates in CPI_Series (1995-96 = 100) and divide each series by the index of the matching fiscal year.
3. Reproduce the growth multiples, trends and break F-tests in Stats; the OLS columns are formulas.
4. Reproduce the HAC columns of Robustness_HAC with the script supplied with the workbook (hac_trend_tests.py: Newey-West, Bartlett kernel, 3 lags, factor n/(n-k); Durbin-Watson, Breusch-Godfrey order 1, Ljung-Box 4 lags).
5. Reproduce the ODE parameters and fit in ODE_Pay (rows 6 to 10 and 65 to 71).
6. Check the wage and farm series against the reports named in the References; Sources gives the table or page.

Data availability

The series used in this paper come from the public sources listed in the References. The companion workbook (central_govt_pay_study.xlsx) collects every series and calculation, and the script hac_trend_tests.py reproduces the HAC results; both are provided as supplementary files.

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Note. Items marked (secondary) are known through a news or reference site that reproduces an official order or report. The workbook sheet Sources lists the same sources with reliability labels.

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