Institute of Actuaries of India

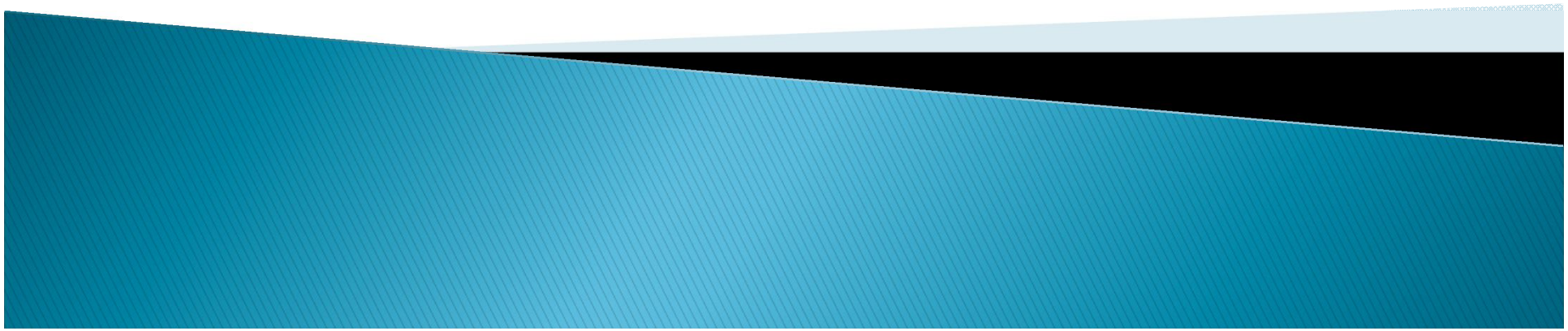
Vinod Kumar Kuttierath,
Head-Research, Institute of Actuaries of India, India

Changing Risks, Expecting the Unexpected

17th Global Conference of Actuaries & 2015 AGFA

2nd & 3rd February, 2015 Mumbai - India

Takeaways from the study on salary scales in PSU Banks in India (1947-2013)



Coverage..

- Objectives
- Limitations
- Substitutions for limitations
- Data, sources and model
- Observations and findings

Objectives

- To understand:
  - Trends in Consumer Price Index
  - Progression in basic salary vis-à-vis CPI
  - Progression in basic salary plus dearness allowance
  - Inter-relation between dearness allowance and CPI
  - Factor/s driving long term salary growth other than CPI
  - Long term trends in basic salary, basic salary plus dearness allowance, consumer price index.

Limitations

- No separate data available of wage settlements of the State Bank group, currently with 6 banks/ members.
- Waiting periods for career escalations are different in different times and not standardised for PSU banks.
- No mechanism in place either with individual banks or IBA of regular reporting of demographic profile of bank employees.

Substitutions for limitations

- State bank group earns only a moderately higher level of salary scales in comparison with PSU Banks however, patterns/ trends remain the same. A significant impact on yearly compounding factors and long term projections less likely.
- Average time taken for career escalations in different times are estimated from information available from employees of different banks.
- To overcome demographic limitations and maintain uniformity among all PSU banks, employees are identified as cohorts entering at an average age 23 at entry and groups joining between any two bi-partite settlements.

Data, Sources and model (1/2)

- Memorandum of nine bi-partite settlements between IBA and Bank Unions sourced from IBA.
- Pension regulations, 1995 notified and published by different PSU banks.
- Officers Service Rules, 1979 updated as on Nov'07, the month of ninth wage settlement.
- Month wise CPI data from Aug'68 to Nov'13, Base 1960=100 Labour Bureau, Government of India.
- Reports published by Bank Unions on Wage revisions, progressions in DA.

Data, Sources and model (2/2)

- Other related information available from the websites of PSU Banks, RBI, Ministry of Labour, Ministry of Finance and other sources.
- Basic models in excel for all analysis and projections.

Observations and findings (1/ 21)

- Wage settlements for Clerical and Sub-ordinate staff members in PSU Banks happen in every five years as a result of negotiations between Bank Unions and Indian Banks Association.
- Officer's Service Rules also amended in every five years' time to reflect wage and service related changes, applicable to Scale-I to Scale-VII officers.
- All existing employees are eligible for pension as a terminal benefit effected from 1st Nov'93 except all those who joined in service on or after 1st Apr'10.

Observations and findings (2/21)

- The amount and level of pension of an employee to be based on the average basic pay of 10 months preceding the retirement and also the dearness allowance applicable in time to time in future times.
- Gratuity is another terminal benefit based on the Basic pay and dearness allowance at the time of retirement, a benefit as a right to all employees as per the Payment of Gratuity Act, 1972, the ceiling of which is ten lakhs as amended by The Payment of Gratuity (Amendment) Act, 2010.

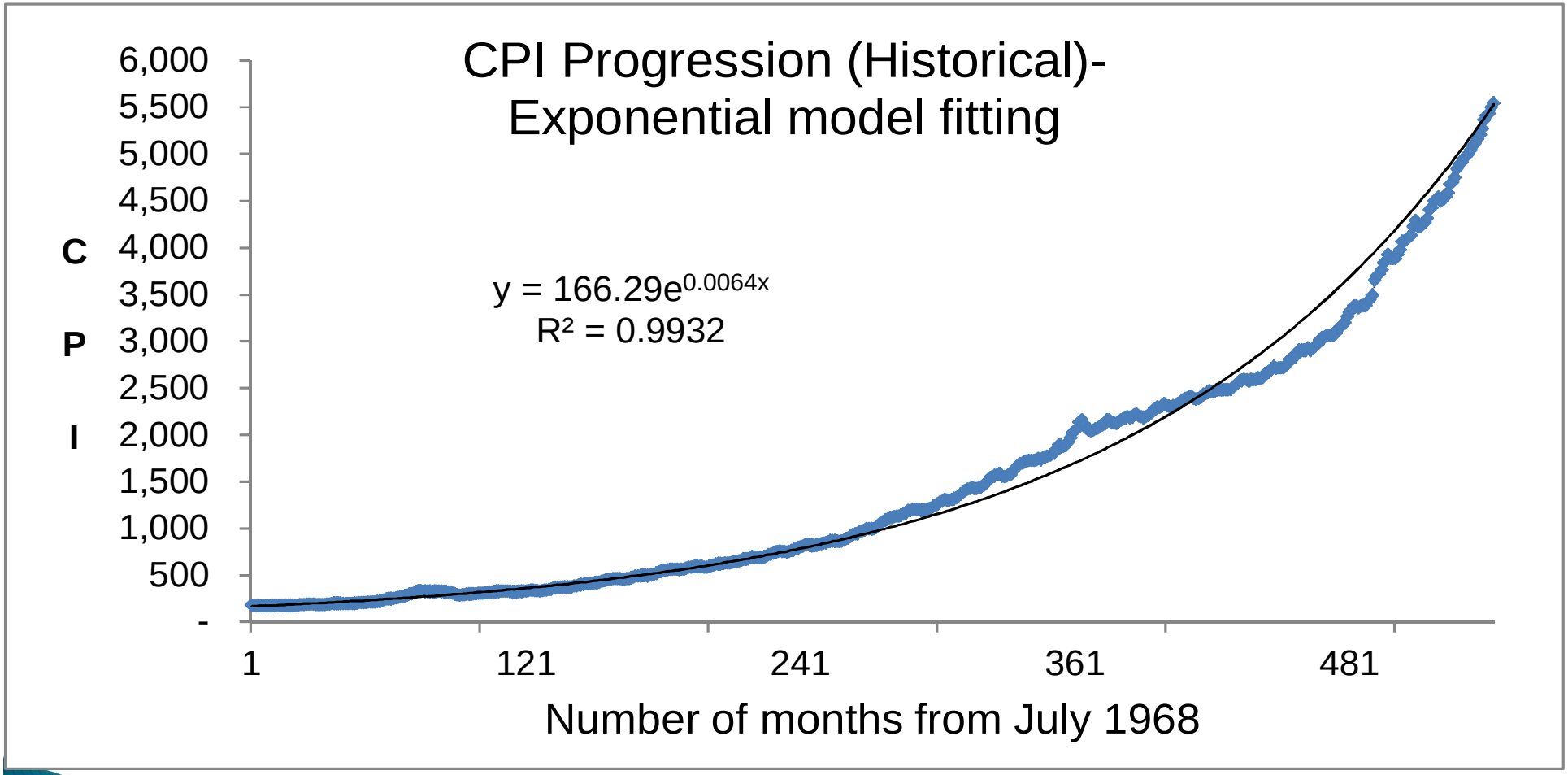
Observations and findings (3/21)

- The Consumer Price Index (CPI) base 1960=100 is the sole factor deciding changes in dearness allowance to all bank employees on a quarterly basis and also the main factor deciding changes in basic pay.
- The future changes in dearness allowance for pensioners also decided by the changes in CPI.
- Historical yearly compounding growth rate observed in the year 2013 for CPI for last 5,10, 15, 20, 25, 30, 35, 40 and 45 years are 10.3%, 8%, 6.7%, 7.5%, 7.9%, 8%, 8.3%, 8.1% and 7.8%

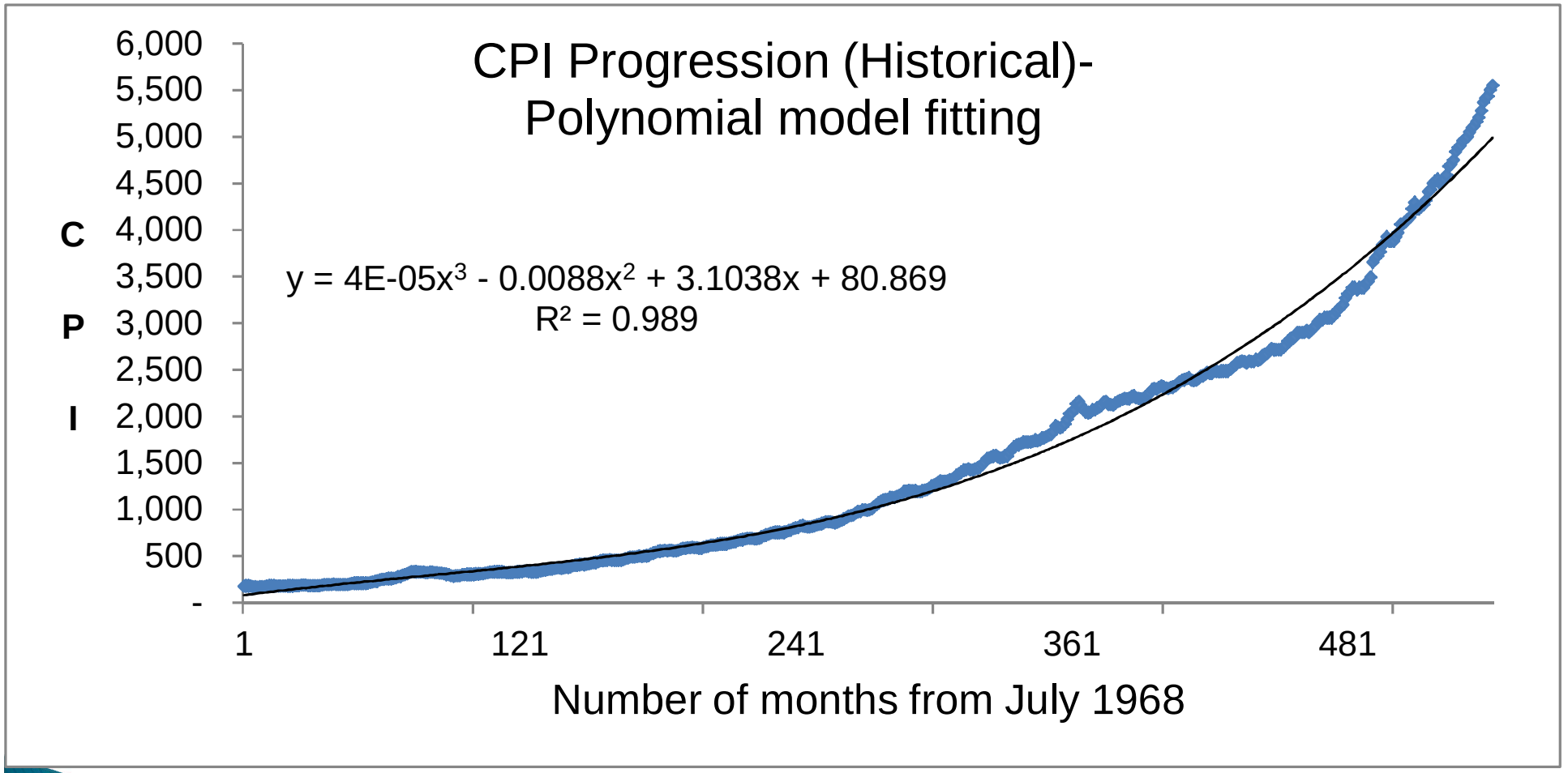
Observations and findings (4/ 21)

- The long term compounded growth rate of CPI clusters around 8%; hence no reason to assign a different best estimate value for CPI.
- An exponential and a three degree polynomial model closely fit to the historical CPI data with duration in months as the independent variable.

Observations and findings (5/ 21)



Observations and findings (6/21)



Observations and findings (7/ 21)

- CPI projected for next 25 years with parameters of fitted polynomial and exponential models show compounded annual growth rates at 5.32% and 7.98% respectively.
- The average of the above indicators is 6.65% which could be an indicator for future CPI progressions for long periods.
- The value is also justified in view of RBI setting its short and long term monetary policy to be based on CPI than WPI in future times with a target of CPI at 8% in a year and to 6% at the end of two years.

Observations and findings (8/21)

- CPI drives dearness allowance; DA is the major factor driving basic pay of employees and basic pay is a major component deciding pension benefit provisions
- A percentage is applied to every 4 points of change in quarterly average CPI which decides the overall quantum of DA as a percentage of basic pay
- The wage settlements merges a part of DA with basic pay which mainly decides the movement of basic salary over periods.
- The stage to stage movement of basic pay on wage settlement show the impact of DA merging

Observations and findings (9/21)

- Career escalations also take basic pay upward, the scale may vary depending on the waiting time in a cadre.
- The average annual growth rate of stage to stage movement in basic pay, considering all bi-partite settlements are 11.45% and 10.55% for Sub-ordinate staff and Clerical cadres respectively.
- For Scale-I to Scale-VII, it varied from 9.86% to 10.88%; Scale-I and Scale-II have shown higher rates of growth. However, the last two settlements in 2002 and 2007 were moderate.

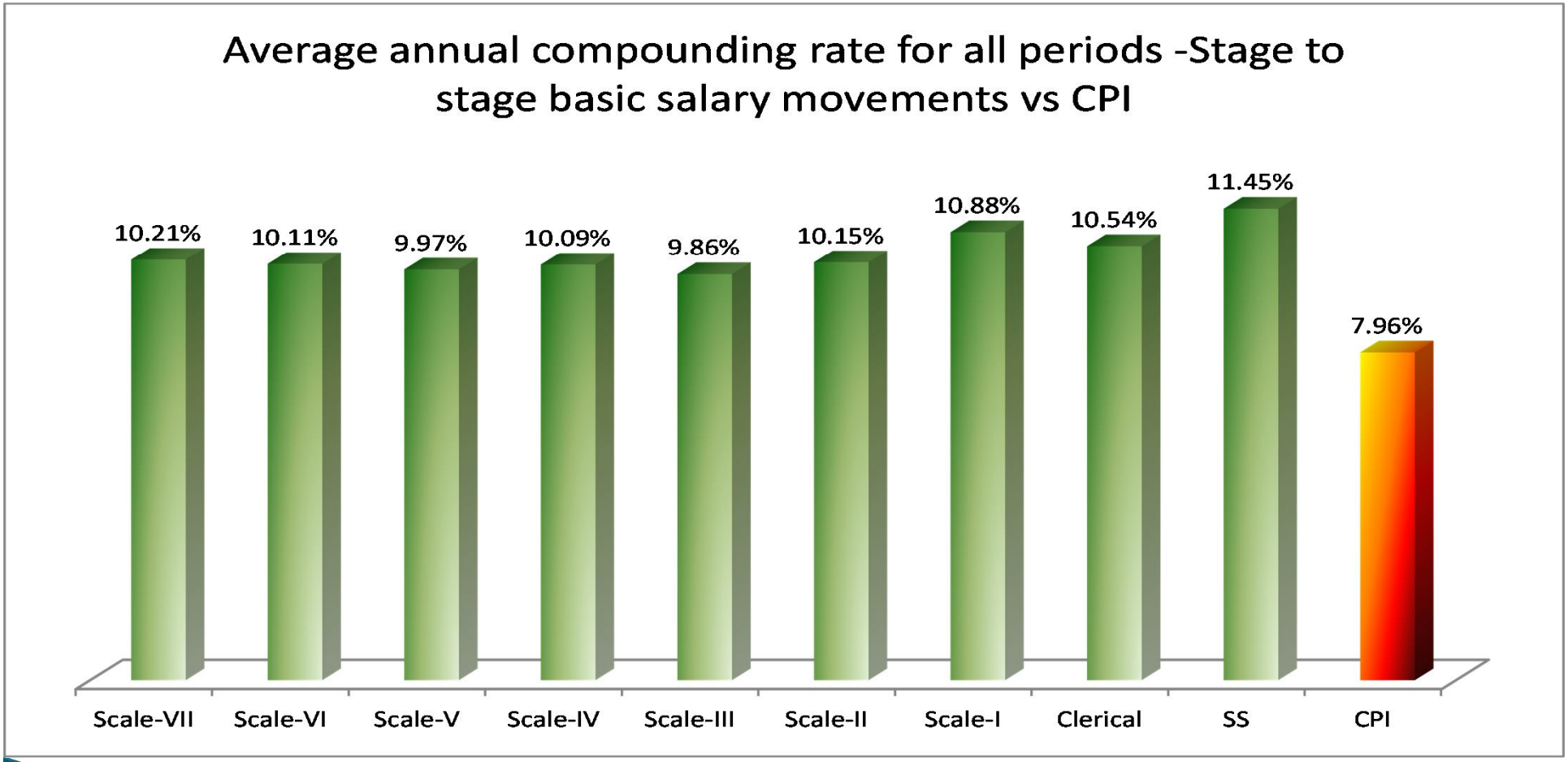
Observations and findings (10/21)

- This means a partial merging of DA with the basic pay at the time of wage settlements results to a compounding growth of basic pay close to 3% above the annual compounding of CPI for all times; thanks to the percentage applied on each slab of DA in time to time.
- In absence of any other factor, a best estimate might be:
  - compounded annual growth rate of basic pay= compounded annual growth rate of CPI + 3%
- Historically the average value for all years, all stages and all cadres, annual compounded growth of basic pay comes out as 10.4%

Observations and findings (11/ 21)

- The question as to how scientific the way of declaration and neutralisation of DA have been taking place in the industry need to be answered in order to understand the extra 3% compounded annual growth observed in DA levels over and above the CPI growth rates.
- The career growth adds an additional factor close to 2.5% to the basic pay compounded growth; historically,
  - Basic pay growth= CPI growth (8%) + Wage inflation (~3%) + Career inflation (~2.5%)

Observations and findings (12/21)



Observations and findings (13/ 21)

Average y-o-y compounded growth of Basic pay on DA merging vis-à-vis growth in CPI							
	Wage settlement years						
Group	1984	1987	1992	1998	2002	2007	Overall
Scale-VII	6.02%	15.50%	14.68%	7.28%	11.09%	9.87%	10.21%
Scale-VI	6.46%	15.10%	14.03%	7.41%	10.89%	9.67%	10.11%
Scale-V	7.24%	14.27%	14.15%	7.50%	10.70%	8.55%	9.97%
Scale-IV	7.36%	15.05%	14.54%	7.54%	10.39%	8.39%	10.09%
Scale-III	7.82%	14.23%	14.71%	7.58%	10.20%	7.14%	9.86%
Scale-II	8.35%	16.31%	14.88%	7.69%	9.76%	7.10%	10.15%
Scale-I	9.55%	19.31%	16.02%	8.02%	9.26%	7.19%	10.88%
Clerical	9.82%	15.58%	14.17%	10.35%	8.05%	8.79%	10.54%
SS	11.78%	18.19%	14.61%	10.77%	8.54%	8.36%	11.45%
CPI	10.50%	7.70%	10.20%	8.60%	5.90%	4.90%	7.96%

Observations and findings (14/21)

- Main reasons for the lower stage-to stage compounding growth during 8th and 9th settlements are justified in view of lower compounded annual growth in CPI for 5 years period immediately preceding years of settlements close to 6.5% and 5% respectively.
- This is significantly lower than the CPI compounded growth in preceding 5 years in 1997 (8.6%) and 1992 (10.2%).

Observations and findings (15/21)

- For projections of basic pay and basic pay plus DA, scenarios have created as:
  - Employees joining as Scale-I officers and moving through the Scale-I to Scale-VII path
  - Employees joining in the Clerical cadre moving to Scale-I and moving further to Scale-II and above
  - Employees joining in the Clerical cadre and continuing in the same category.
  - Employees joining as Sub-ordinate staff, moving to Clerical cadre and further to Scale-I and above.
  - Employees joining as Sub-ordinate staff, continuing in the same category.

Observations and findings (16/ 21)

- The notional stage to stage salary of all cadres till year 2045 have set by using an annual compounding rate at 8%.
- This is in expectations of CPI limiting to 6% over long periods and wage inflation limiting to 2%; targeting bench marks for projected basic pay.
- The year on year increase in DA is assumed at 9.34% leading to progression of DA as 9.34%, 19.55%, 30.72%, 42.93%, 56.28% for the interim periods of wage settlements and become cyclical between two bi-partite settlements in nature.

Observations and findings (17/ 21)

- Both exponential and three degree polynomial models are fitted on the notional data and each of the categories for different years
- Parameters of fitted curves used for creating smoothed projected values of progressions of basic pay and basic pay plus DA.
- Clerical cadre continuing without career growth and Class-I officers experience ~12% compounding growth in their basic pay and ~12.5% for basic plus DA over their service
- Staff joining in Clerical cadre and moving up in the career, experienced higher growth levels.

Observations and findings (18/ 21)

- Compounded annual growth of basic pay over future service periods may fall in the range (14%, 14.5%) for employees joining in clerical cadre moving in career growth path; ~2.5% contributed by the career growth.
- For this group, there are at least two points contributing significantly to the overall growth level of Basic pay and Basic pay plus DA; Movement from Clerical to Scale-I and from Scale-I to Scale-II.
- The impact of the additional growth by career escalations result into almost doubling the Basic pay and Basic pay + DA at superannuation.

Observations and findings (19/21)

- Application of above referred compounding growth rates at any stage of the service is incorrect.
- There are few high impact times for the changes to happen in Basic pay. For e.g., movement of clerical cadre to Scale-I within normal waiting periods lead to 100% growth in basic and Scale-I to Scale-II lead to ~50% growth at a time.
- The compounded rate reflects only the rate of increase required to reach to Basic pay levels at superannuation from the Basic pay at the time of joining.

Observations and findings (20/21)

- The compounding rates can only be applied on the entry level pay and to reach to their retirement point by counting the total years' of service of the employee.
- Both exponential and polynomial models fit well with the data/ proxy data.
- While proxy data for future times arrived by applying assumptions of DA growth and neutralisation, future settlement times and waiting periods for career movements lead to step functions;

Observations and findings (21/ 21)

- Fitted models take a smooth curve with gradual progression. Changes in assumed parameter values will lead to changes in proxy data and hence model coefficients, the sole variable in the models remain the number of years' service.
- Historical figures on wage inflation (~3%) and career growth inflation (~2.5%) may continue to be the same for future; A thumb rule for those who opt for career growth for future periods may be applicable as:
  - Projected basic pay = Estimated CPI growth + 5.5%
  - Projected basic pay + DA= Estimated CPI growth + 6%


Thank You