



# Preliminary Analysis of TCPD IAS Data

Review Presentation

February 2022



CENTRE FOR  
POLICY  
RESEARCH

# About the TCPD IAS dataset

- **IAS profile:** Cadre, Allotment year, Gender, Source of Recruitment and details of levels of last postings  
Sample: 13,570 observations and 31 variables
- **IAS experience:** Details of each posting throughout the course of an officer's career  
Sample: 1,51,568 observations and 16 variables
- **IAS education:** Details of education qualification- bachelors/masters, discipline of study  
Sample: 22,149 observations and 9 variables

# Other Studies using Data on IAS officers

- I. Bertrand, M., Burgess, R., Chawla, A., & Xu, G. (2019). The Glittering Prizes: Career Incentives and Bureaucrat Performance. *The Review of Economic Studies*.
  - Data used: Information on pay scales and postings of officers at every stage of their career + caste, educational background, family background, exam ranks (not available on public datasets)
  - Source: Administrative data obtained from LBSNAA
- II. Bhavnani, Rikhil & Lee, Alexander. (2019). Does Affirmative Action Worsen Bureaucratic Performance? Evidence from the Indian Administrative Service. *American Journal of Political Science*.
  - The paper has attempted to analyse the **impact of affirmative action in bureaucracy on bureaucratic output (BO)** in districts, where BO is a function of the proportion of affirmative action recruits that served in a district at a particular year (district-year).
  - Dataset: **district-wise data 2047 observations and 118 variables** like proportion of affirmative action bureaucrats, exam ranks of bureaucrats, proportion of women officers etc.
  - Source: Supremo, RTIs, Ministry of Personnel, Public Grievances & Pensions

# Research Objective and Questions

- I. How do factors like gender and source of recruitment influence representation, career progression (how high they go) and career trajectory (what roles/depts they are allotted)
- How do male and women officers differ in the highest position they reach?
  - How do directly recruited and state promote officers differ in the highest position they reach?
  - How do male and women officers differ in the departments they are assigned?
  - How do directly recruited and state promote officers differ in the departments they are assigned?
- II. How do states differ in the proportion of representation of state promotes within IAS cadres?

**Variables used : Source of Recruitment, Last Positions, Last Departments & Gender**

# Cleaning Process

- Problems in the dataset
  1. High number of NAs particularly in state promotee officer data
  2. High degree of spread in key variables such as levels and positions : last level, levels, last category of experience, category of experience, source of recruitment, cadre, retired
  3. Incorrect labelling
  4. False values
  5. Incorrect formatting
- Creating new variable to find tenure using start and end dates in each role

## Last Positions before data wrangling

Above Secretary Level	Additional Secretary
6	1141
Additional Secretary Equivalent	Apex Scale
145	1
Cabinet Secretary	Deputy Secretary
5	1805
Deputy Secretary Equivalent	Director
64	1379
Director Equivalent	Election Commissioner
76	1
HAG +	Higher Administrative Grade
1	4
Joint Secretary	Joint Secretary Equivalent
1927	151
Junior Administrative Grade (Ordinary Grade)	Junior Administrative Grade (Selection Grade)
4	5
Junior Scale	N.A.
992	310
Not Available	o Agriculture & Farmers Welfare
1834	1
o Commerce	o Corporate Affairs
1	1
o Economic Affairs	o Finance
1	1
o Food & Consumer Affairs	o Health & Family Welfare
1	1
o Home Affairs	o Personnel
1	2
o Personnel & Administrative Reforms, M	Other Scales
1	8
Secretary	Secretary Equivalent
1629	476
Secretary to the Government	Secretary to the Government, Department of Forest
2	1
Senior Administrative Grade	Senior Time Scale
2	6
Under Secretary	Under Secretary Equivalent
868	14
Zonal Commr.	
1	

## Last Positions after data wrangling

Above Secretary Level	Additional Secretary	Cabinet Secretary	Deputy Secretary	Director	Joint Secretary
7	1290	5	1869	1455	2080
Junior Scale	Secretary	Under Secretary			
992	2109	882			



## I. Incorrect labelling

```
> table(ias_profile$Retired)
```

```

0      1 False
4783 8462 325

```

```
table(ias_profile$Last_Category_of_Experience)
```

```

N.A.      N.Applicable      N.Available
325      1593      34

```

## II. False Values

Tenure
-35065
-28307
-20182
-4325
-3654
-3654
-3653
-3653

## III. Incorrectly formatted text

o Commerce	o Corporate Affairs
1	1
o Economic Affairs	o Finance
1	1
o Food & Consumer Affairs	o Health & Family Welfare
1	1
o Home Affairs	o Personnel
1	2
o Personnel & Administrative Reforms, M	Other Scales
1	8
Secretary	Secretary Equivalent
1629	476

# Assumptions/Decisions taken

- Cleaned up variables by clubbing together many different categories
  1. Source of Recruitment: reduced number of categories from 9 to just 2 (Direct Recruitment and Promotion)
  2. Positions: reduced from 39 to 7
  3. Departments: reduced from 50 to 33
- Temporarily clubbed departments together (as ‘Hard’/ ‘Soft’/ ‘Other’)
  1. Hard – Defence, External Affairs, Finance
  2. Soft – Health and Family Welfare, Rural Development, Education, Culture
  3. Others

# Analysis

- **Analysis of Last Positions (for all officers and former officers)**

- Aggregate (2 graphs)
- Disaggregated by Gender (2 graphs)
- Disaggregated by Source of Recruitment (2 graphs)

- **Analysis of Last Departments (for all officers and former officers)**

- Aggregate (2 graphs)
- Disaggregated by Gender (2 graphs)
- Disaggregated by Source of Recruitment (2 graphs)

- **Analysis of First Positions (for all officers and former officers)**

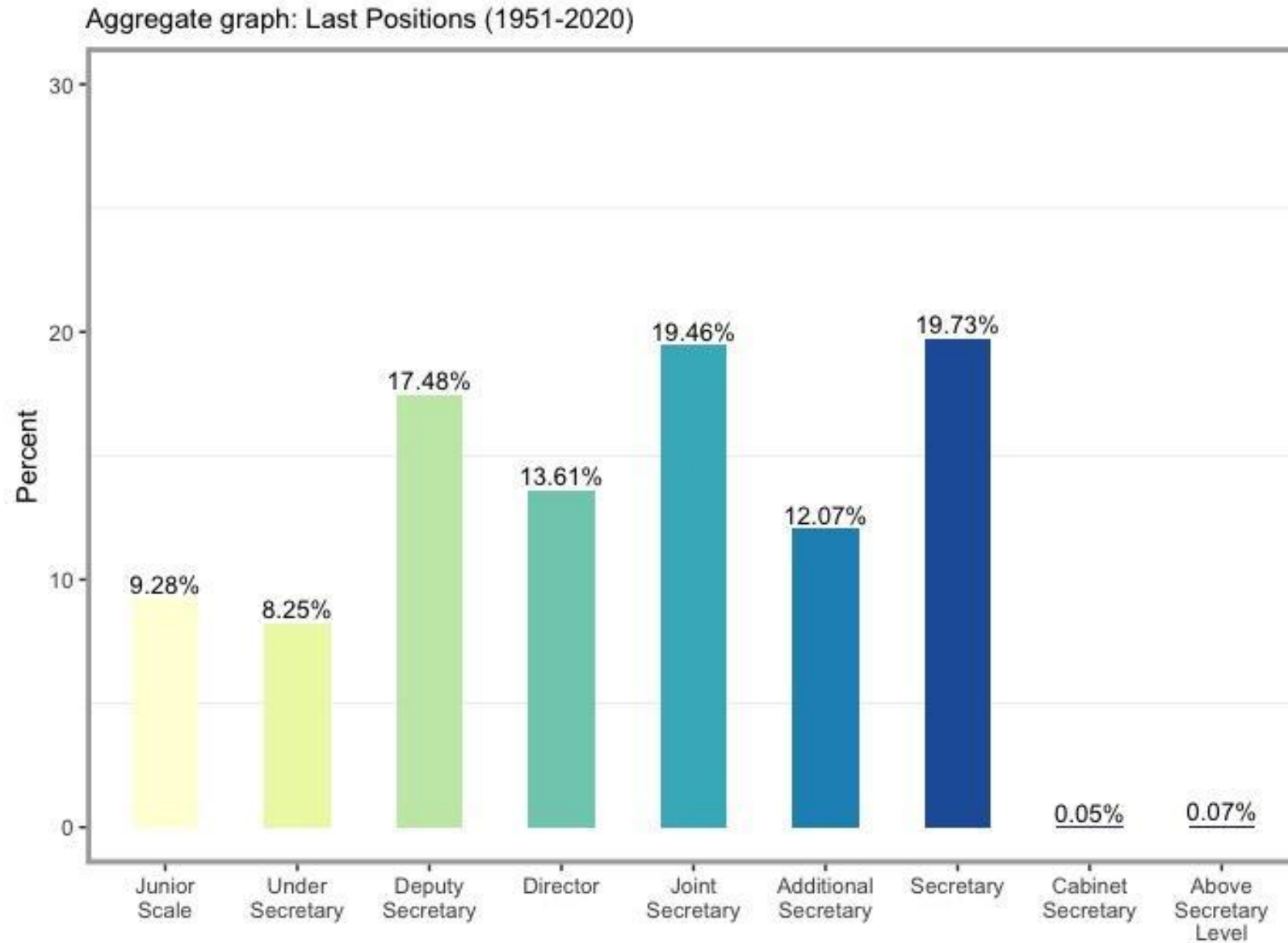
- Aggregate
- Disaggregated by Source of Recruitment (2 graphs)
- Age at the time of Allotment

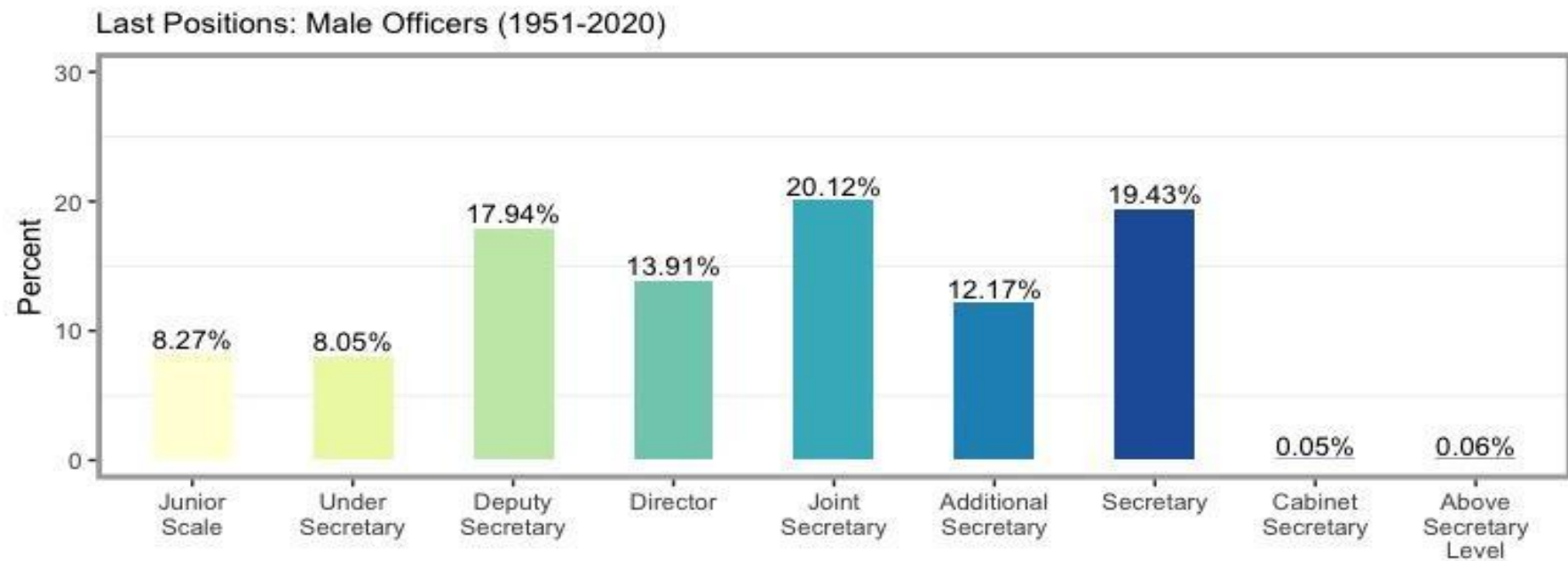
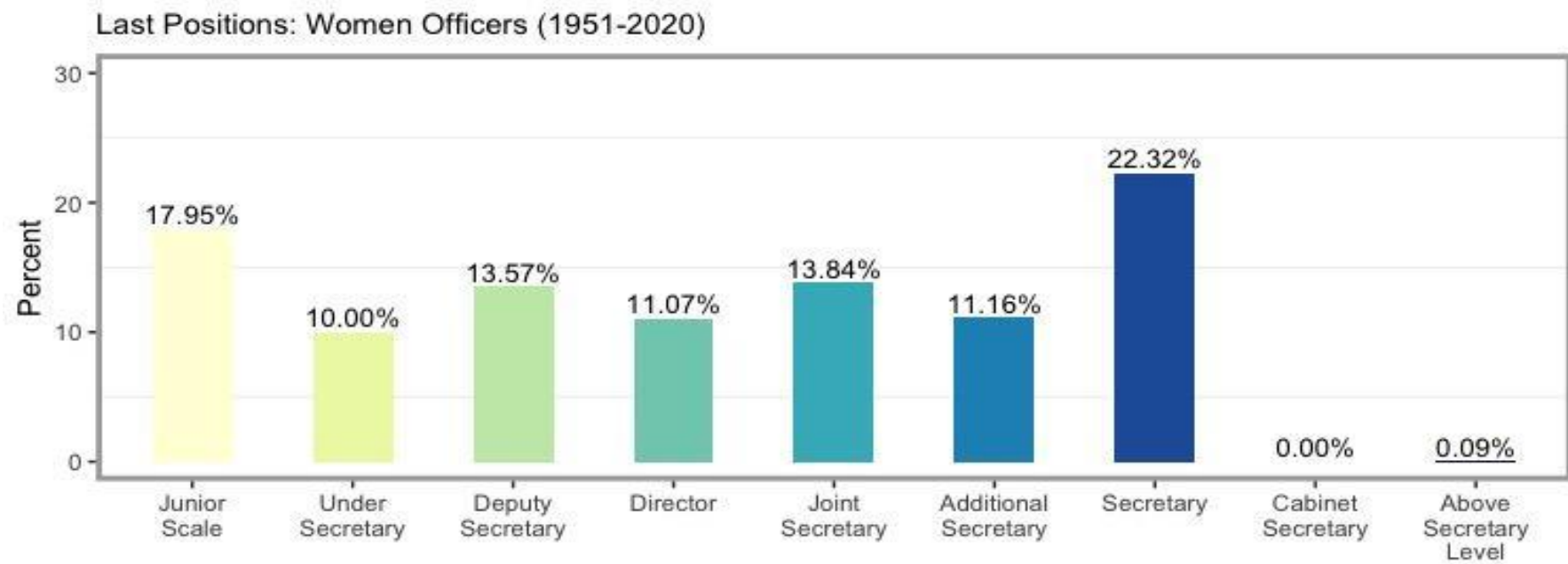
- **Distribution of all officers by Cadre and Source of Recruitment**

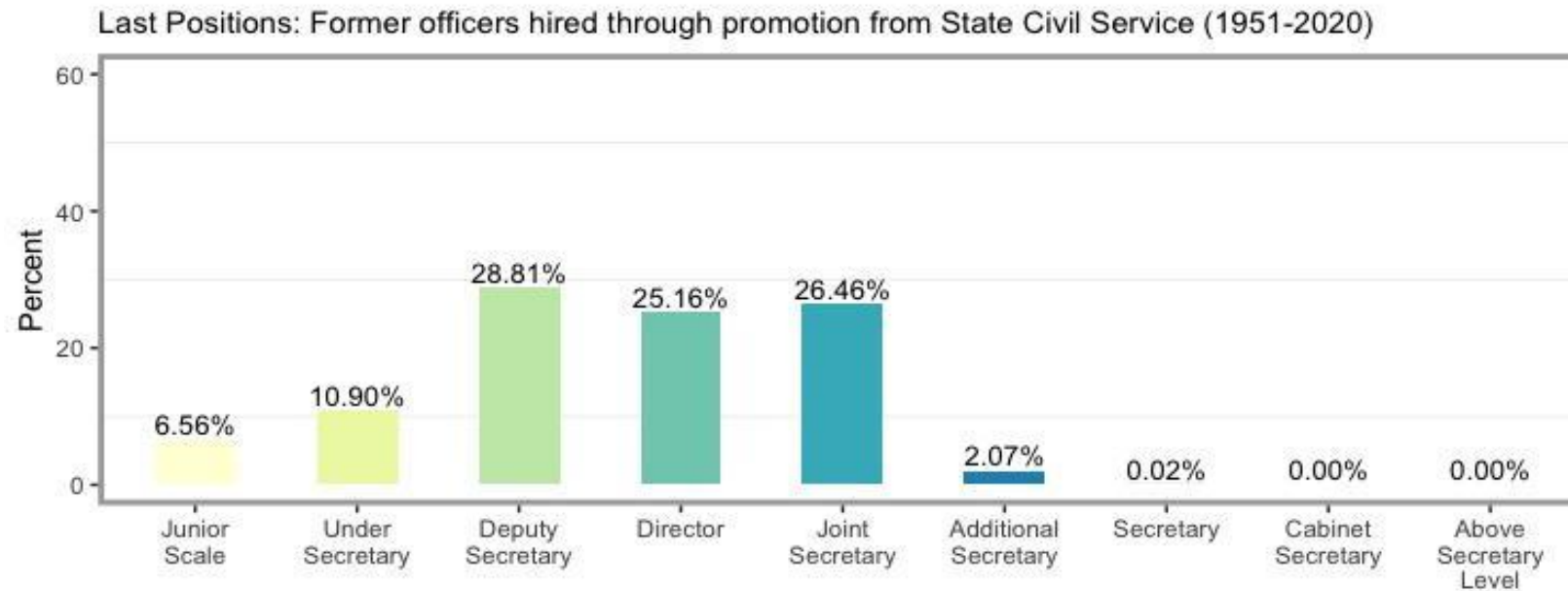
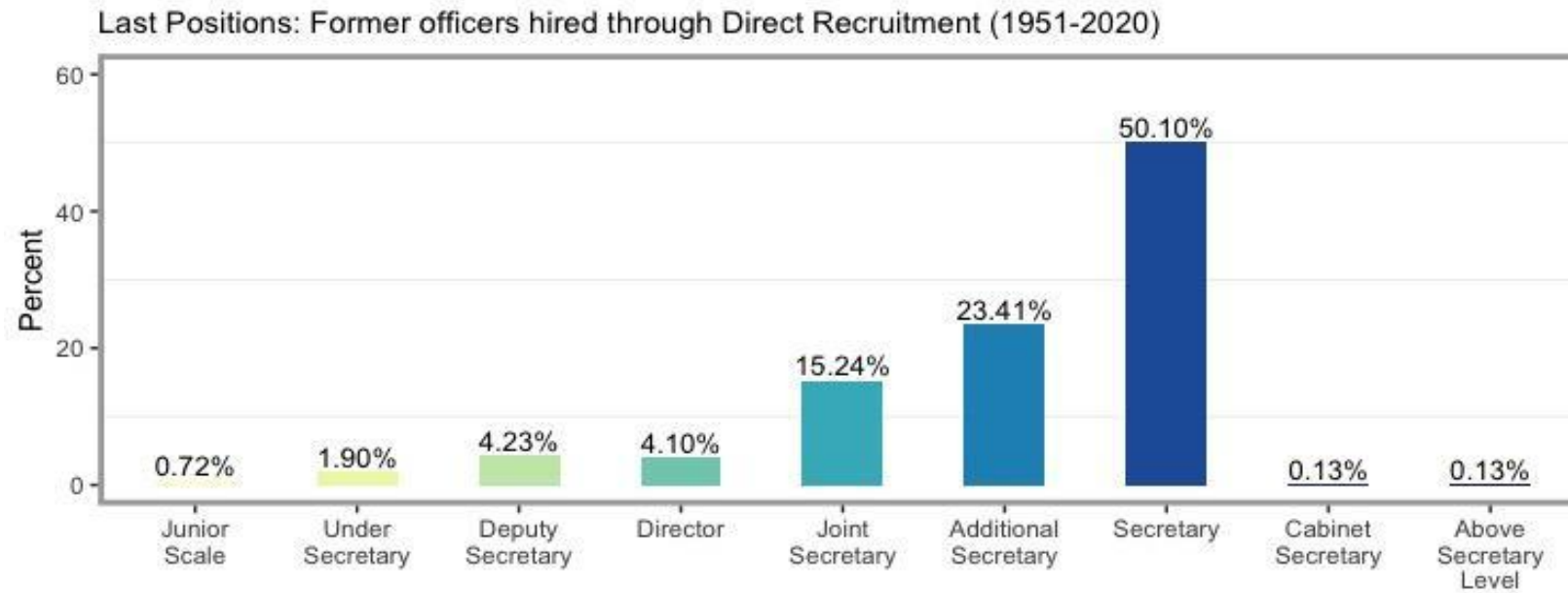
- Distribution by Cadre
- Distribution by Decade
- Distribution by Allotment Year

- **Tenure, Promotions & Age at the time of Promotion**

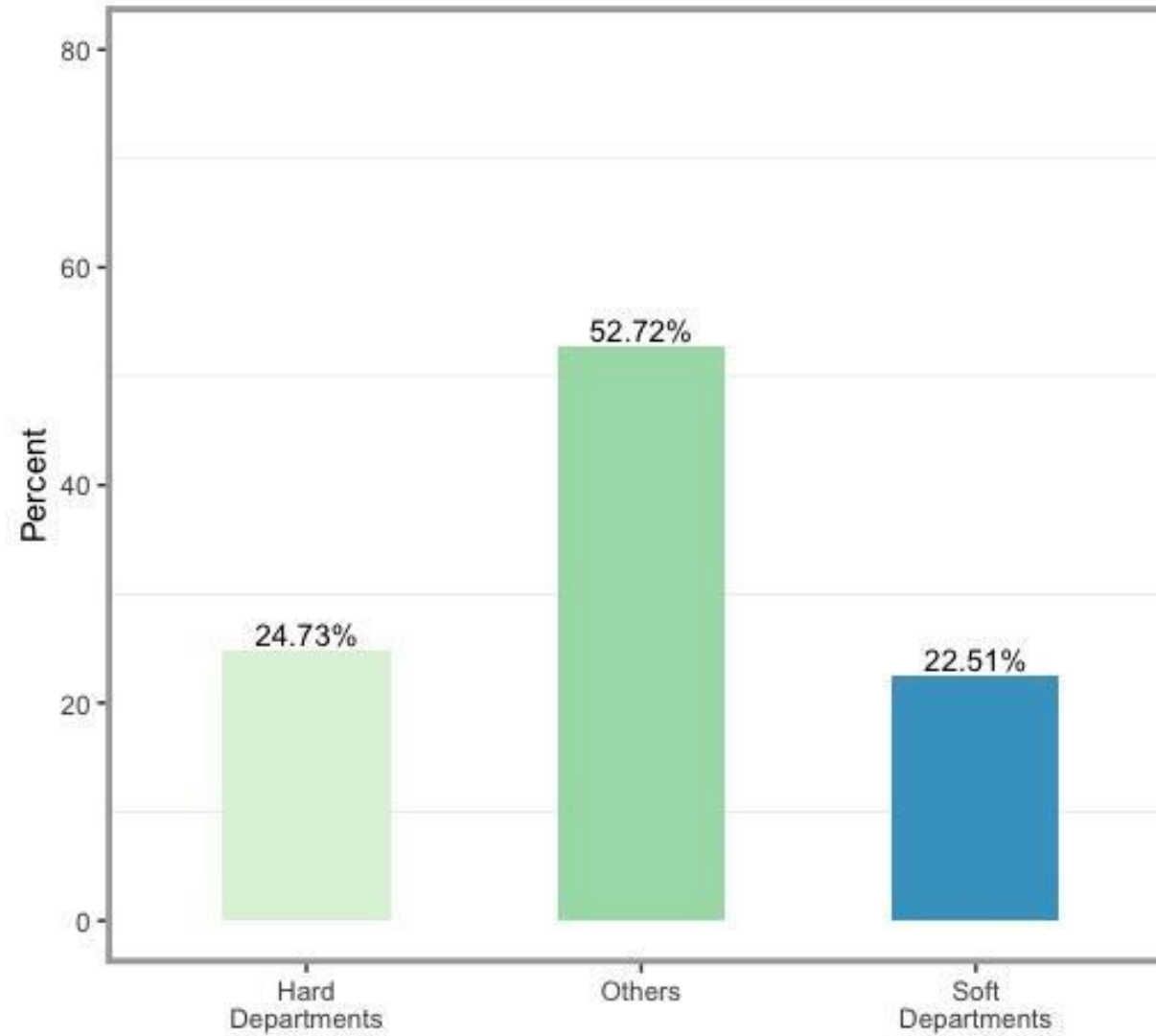
- Average Tenure by Allotment Year
- Promotion Intervals disaggregated by Source of Recruitment
- Promotion Intervals by Allotment Year
- 'Age at the time of Promotion' by Source of Recruitment
- 'Age at the time of Promotion' by Allotment Year



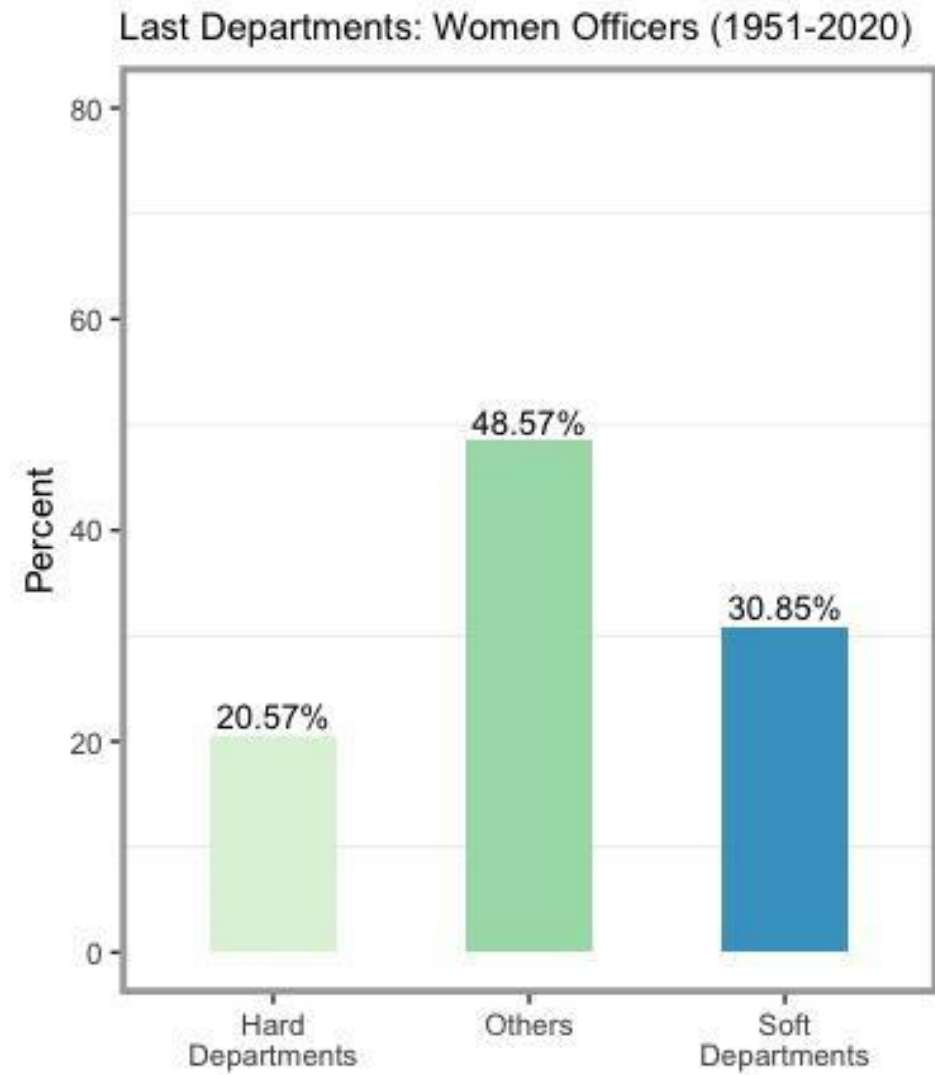
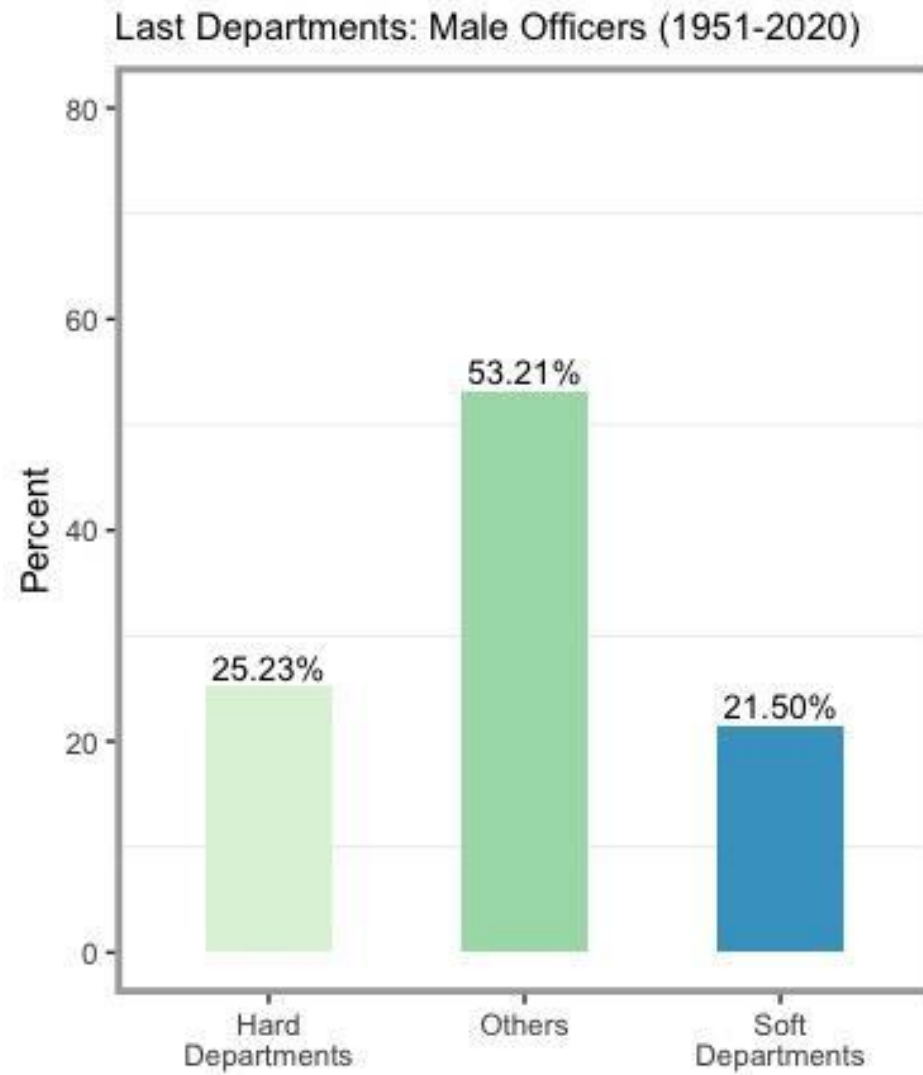




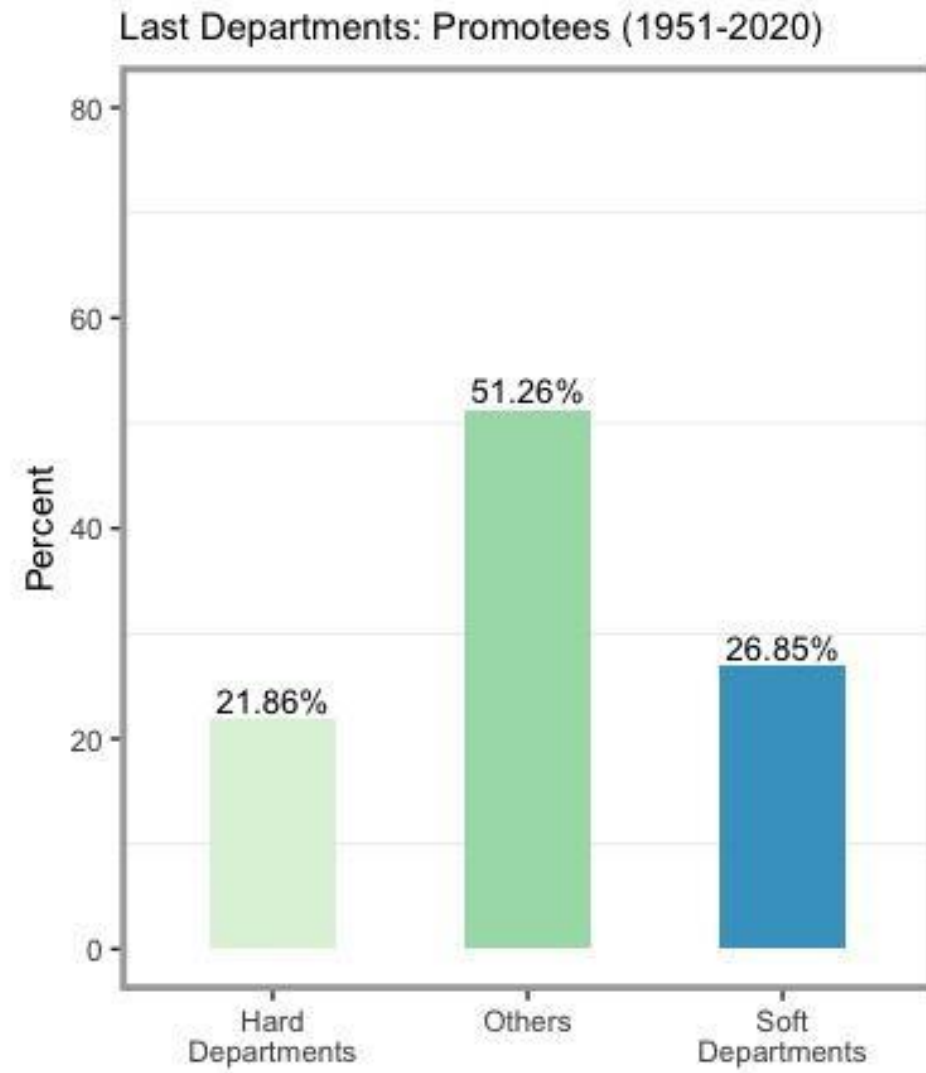
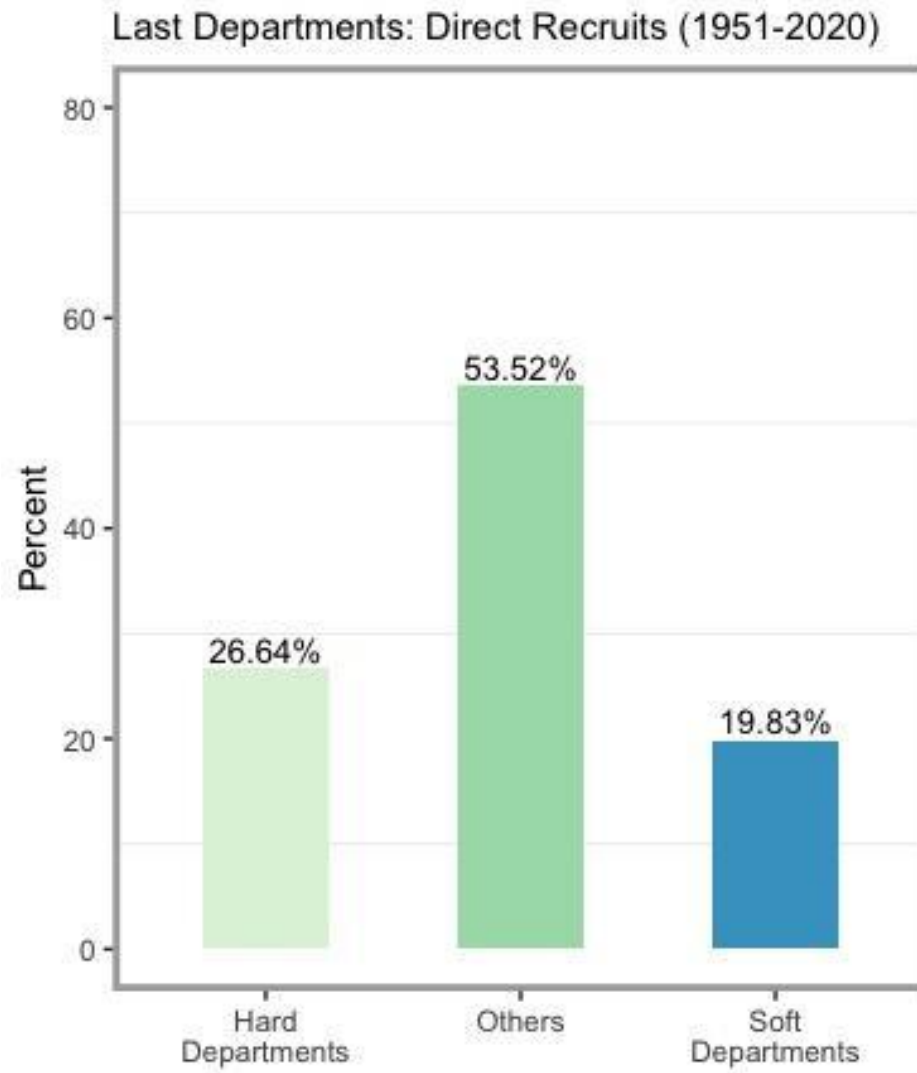
Aggregate graph: Last Departments (1951-2020)

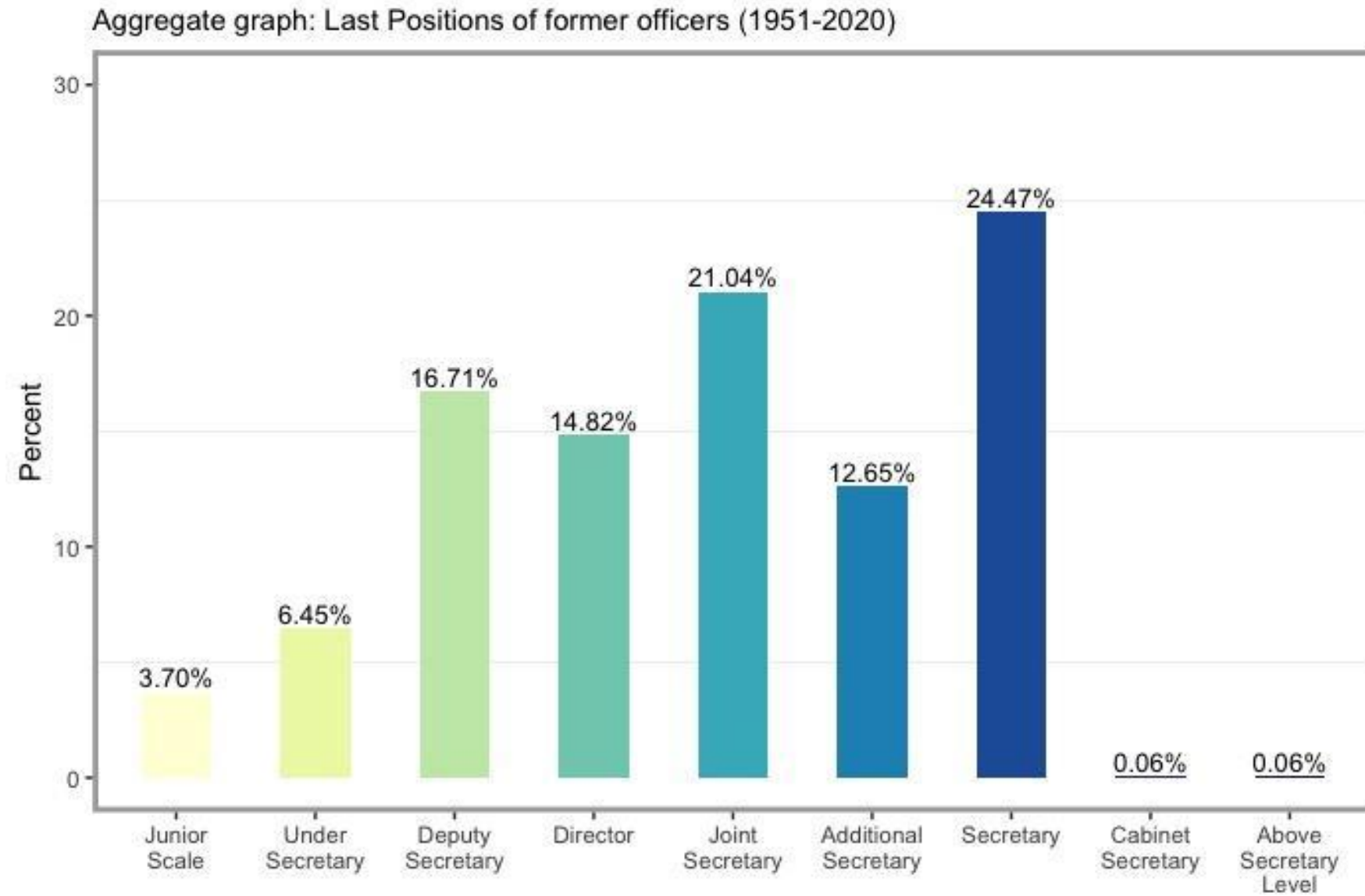


Derived from the 'TCPD-Bureaucrats of India' dataset



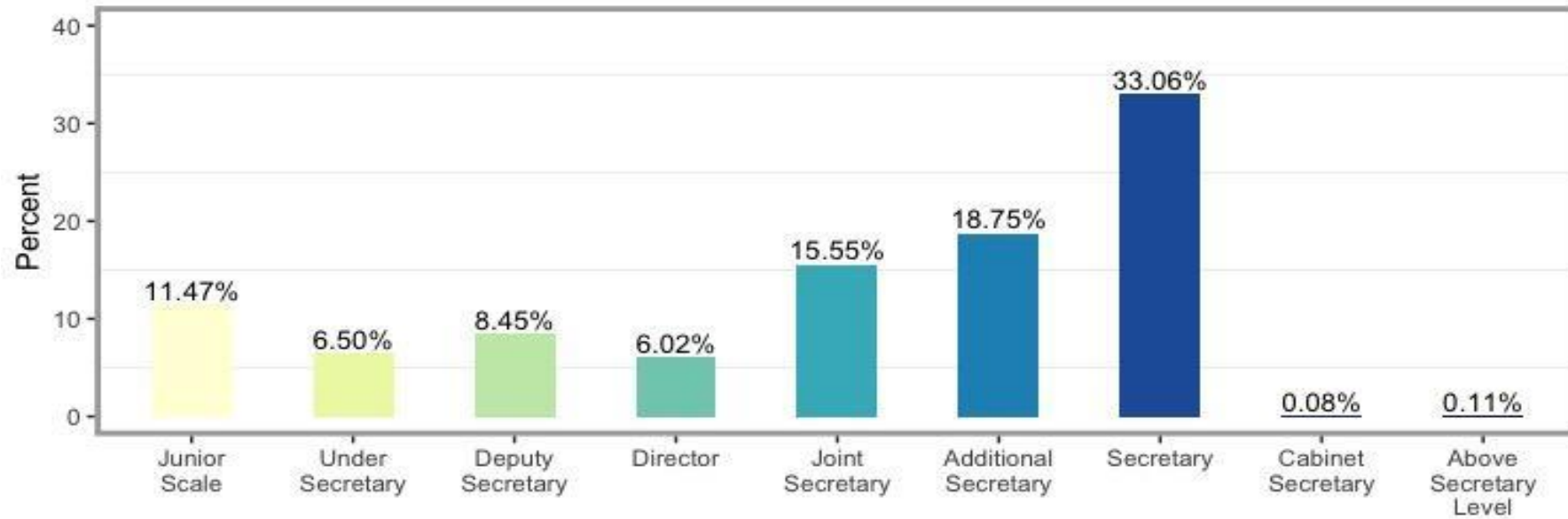




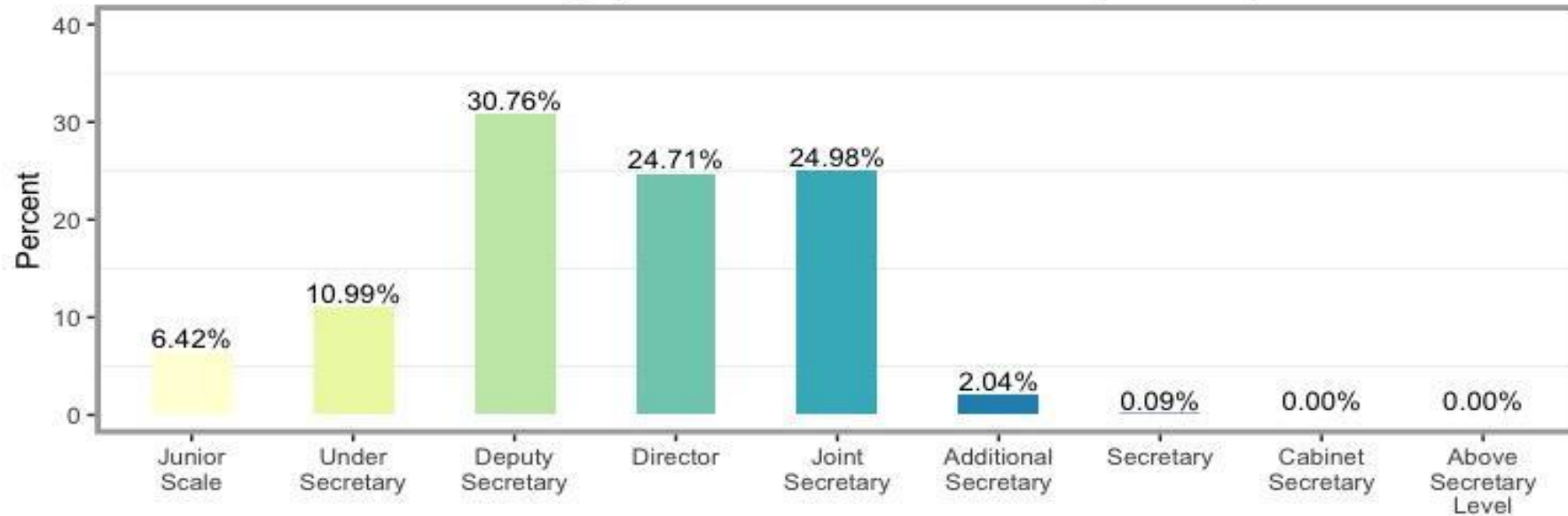


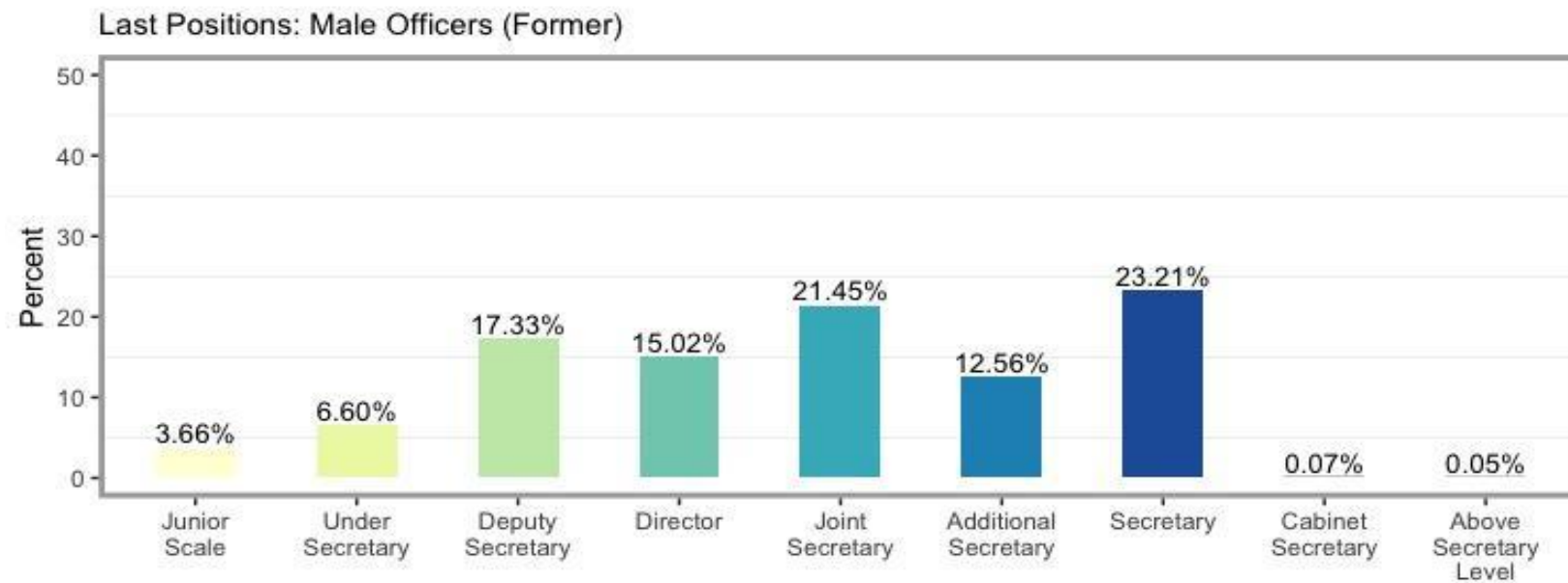
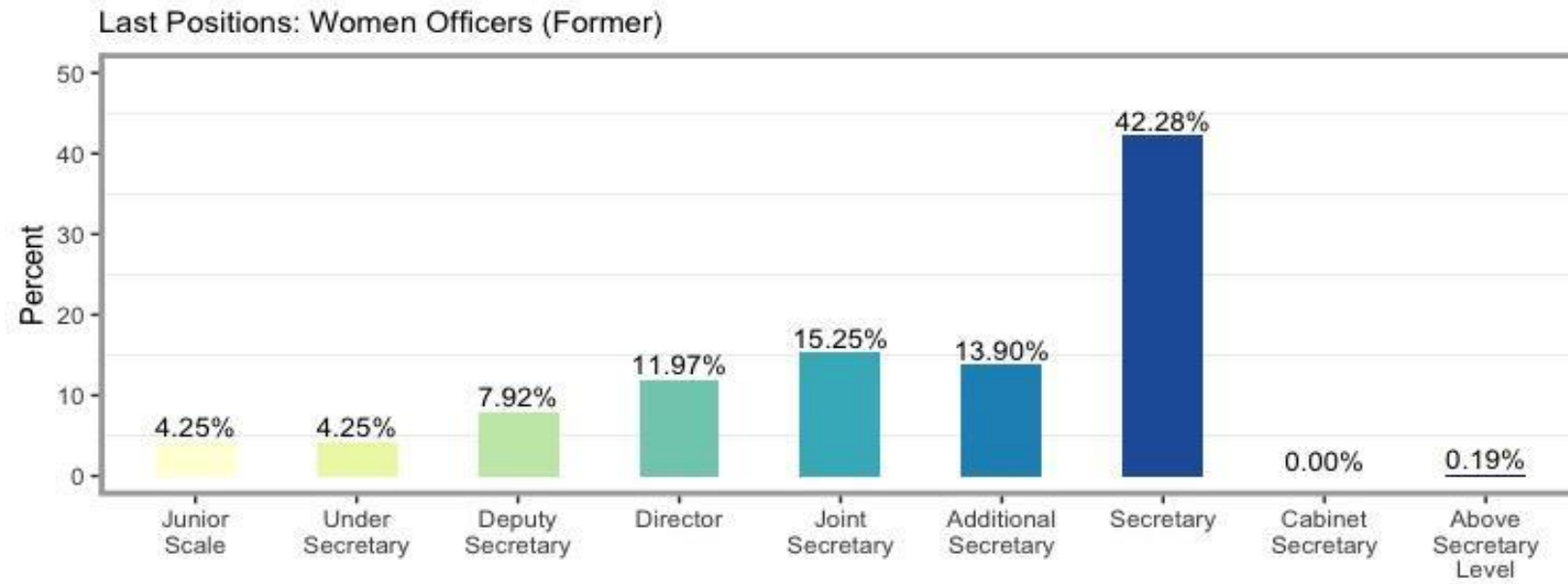
Derived from the 'TCPD-Bureaucrats of India' dataset

Last Positions: Officers hired through Direct Recruitment (1951-2020)

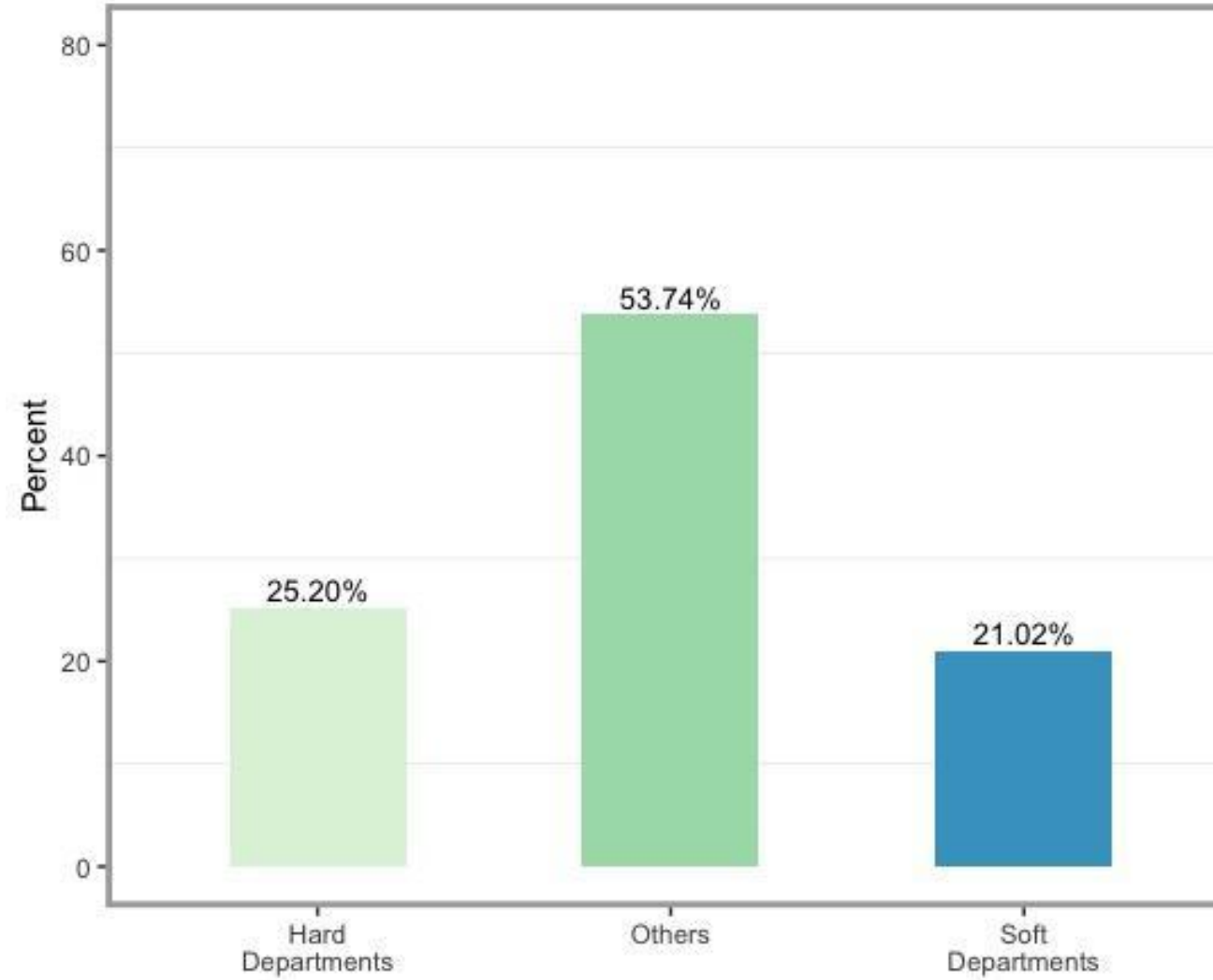


Last Positions: Officers hired through promotion from State Civil Service (1951-2020)

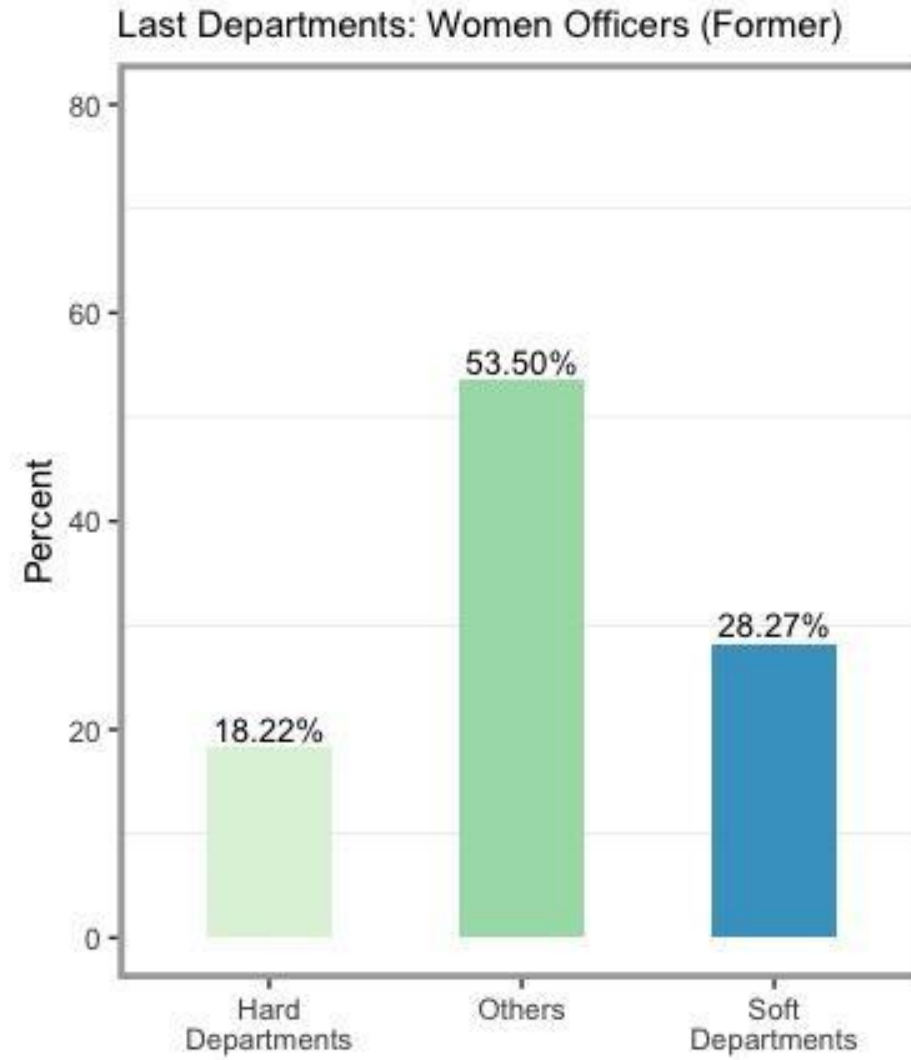
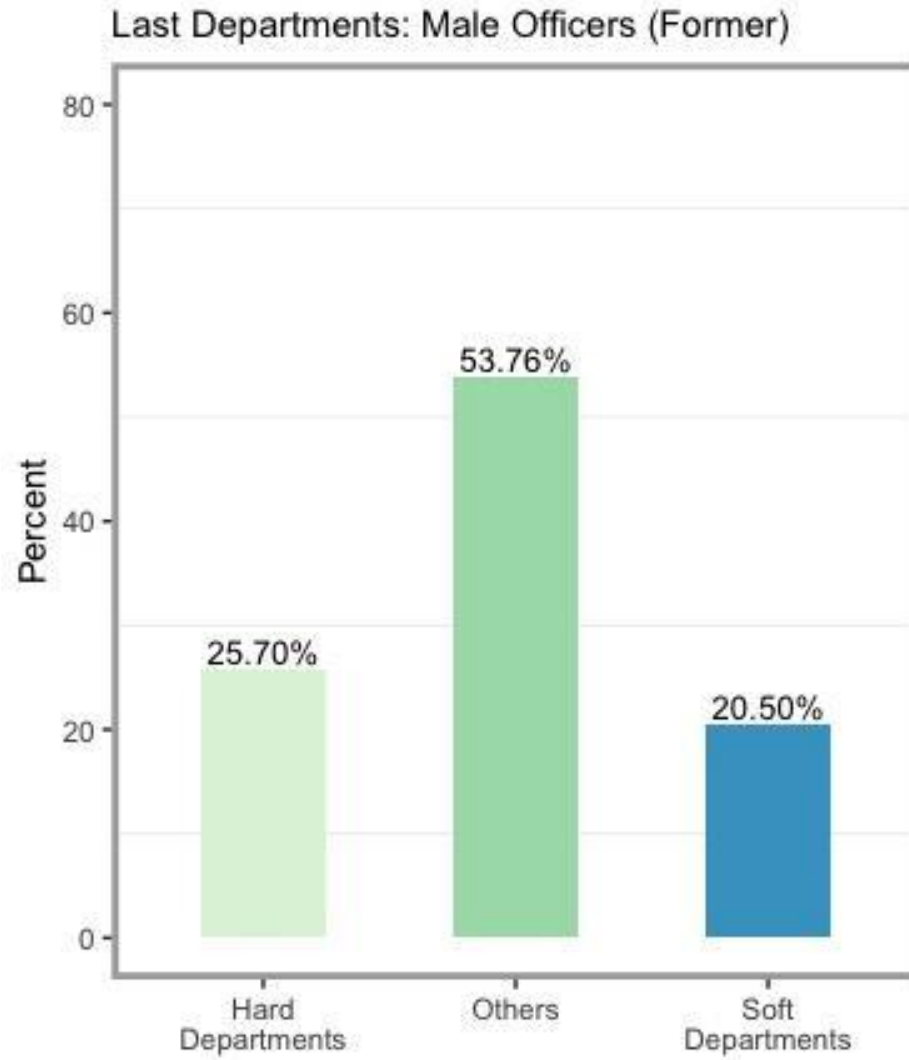


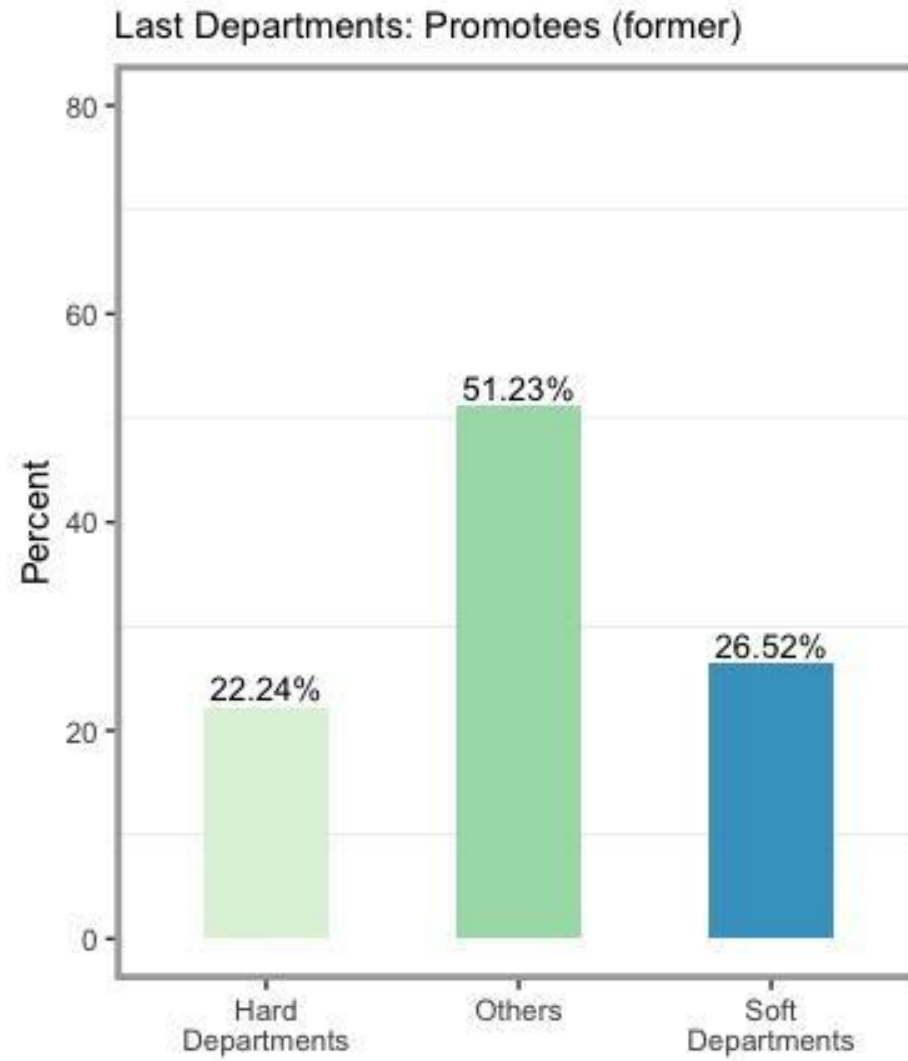
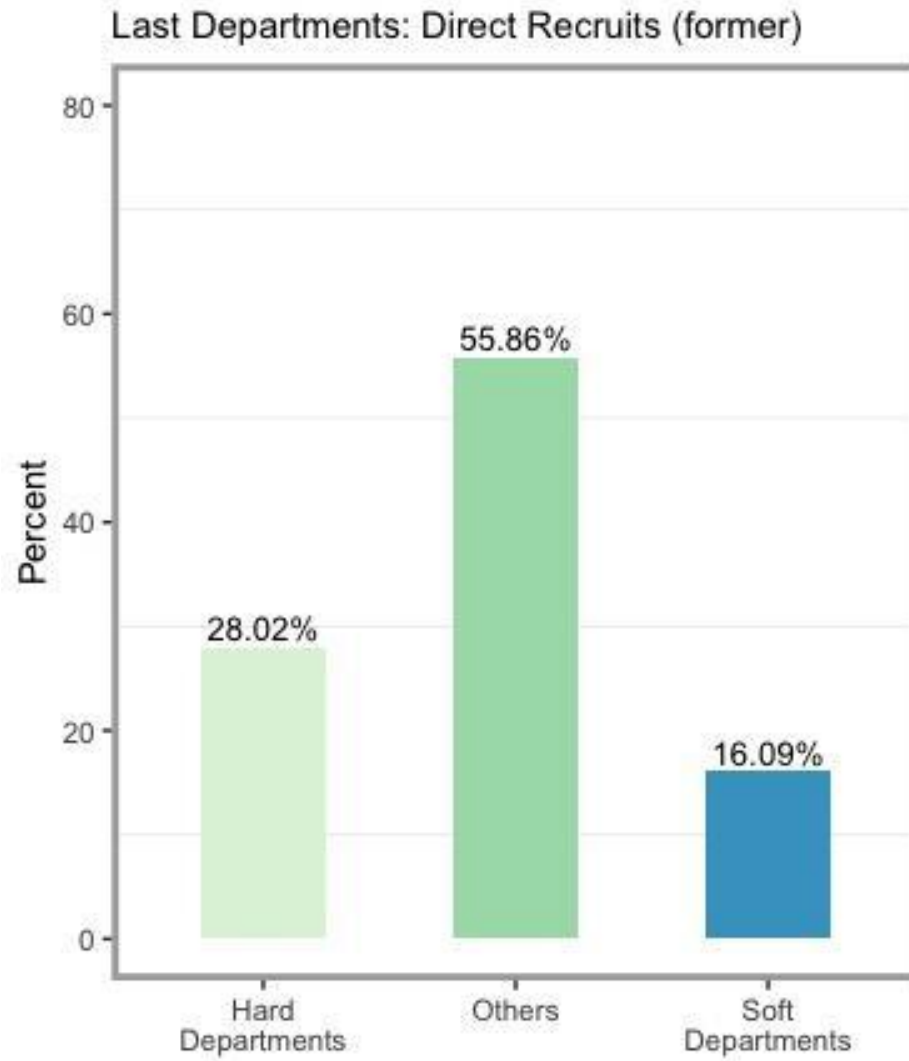


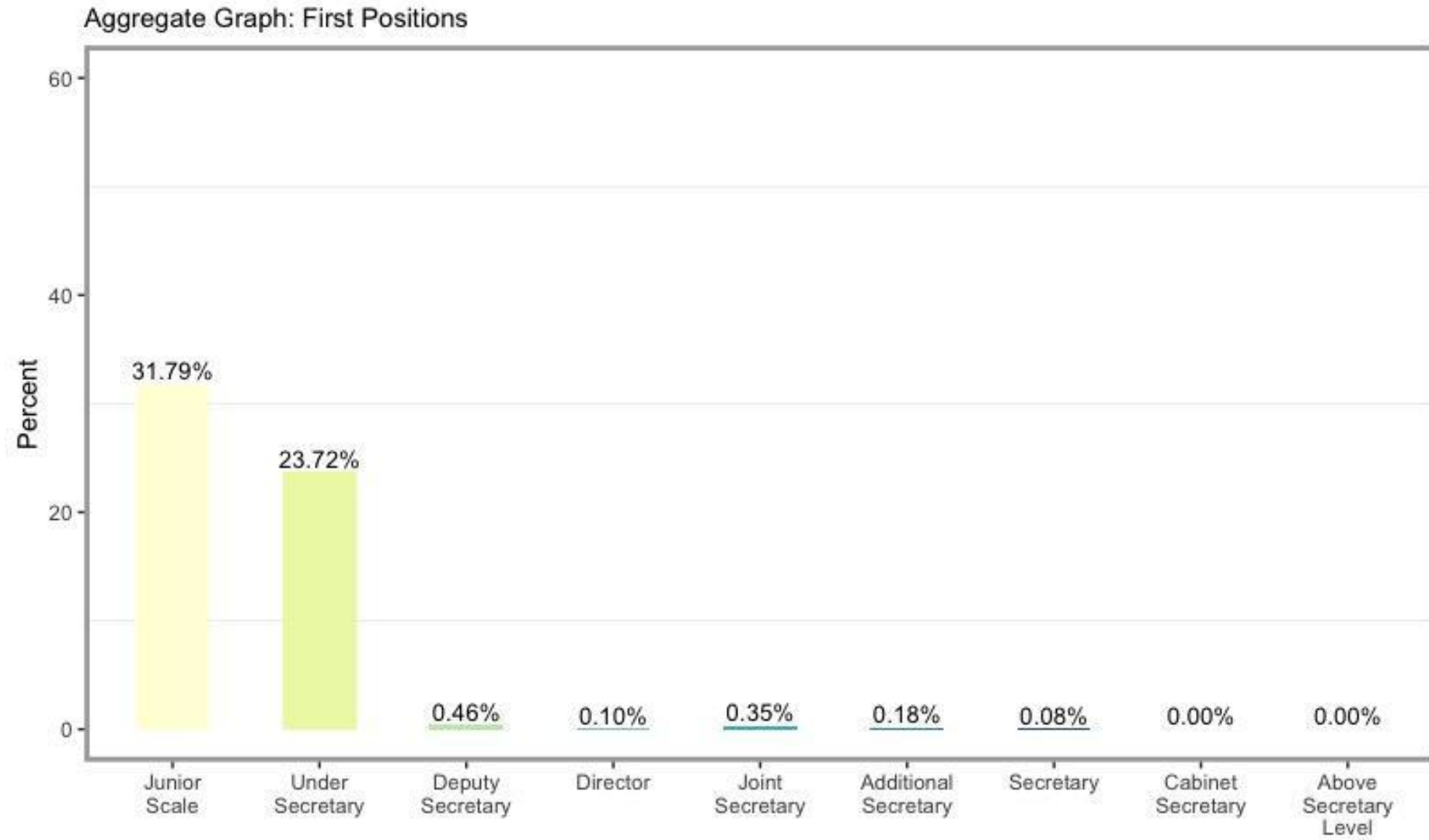
Aggregate graph: Last Departments of former officers (1951-2020)



Derived from the 'TCPD-Bureaucrats of India' dataset

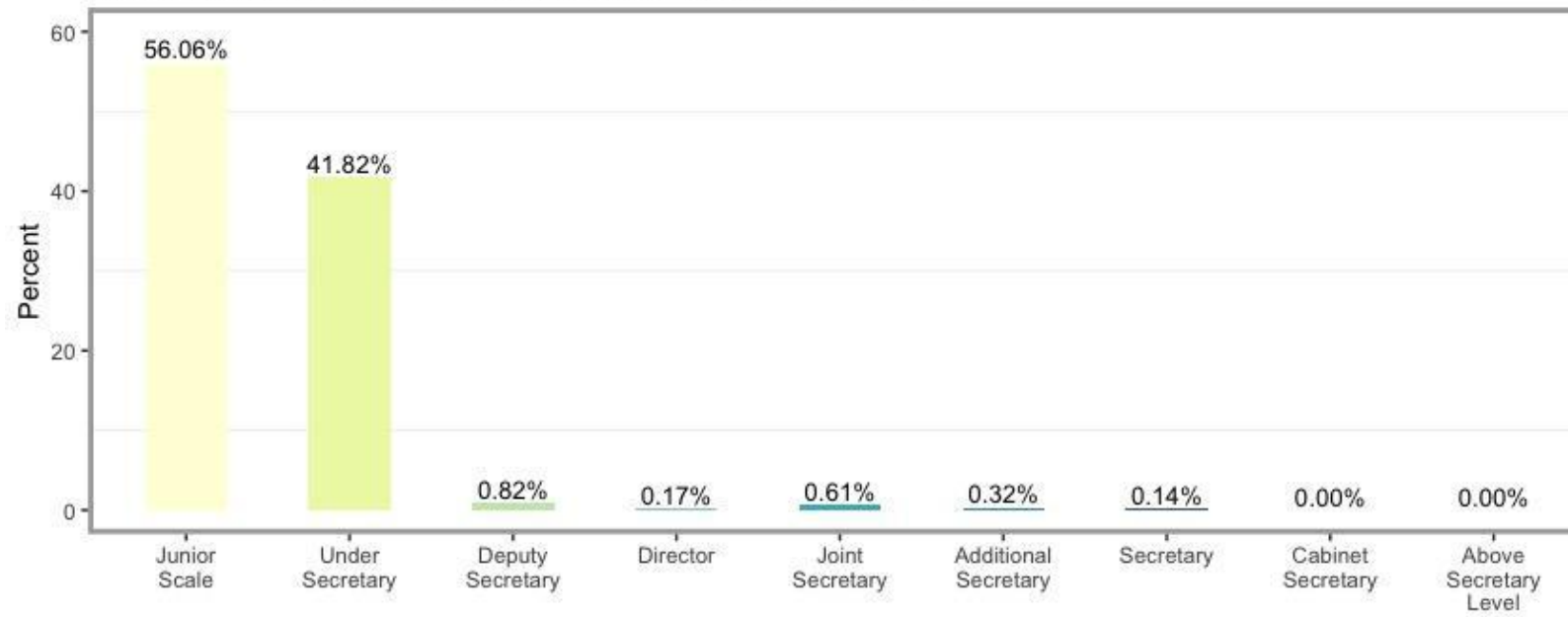




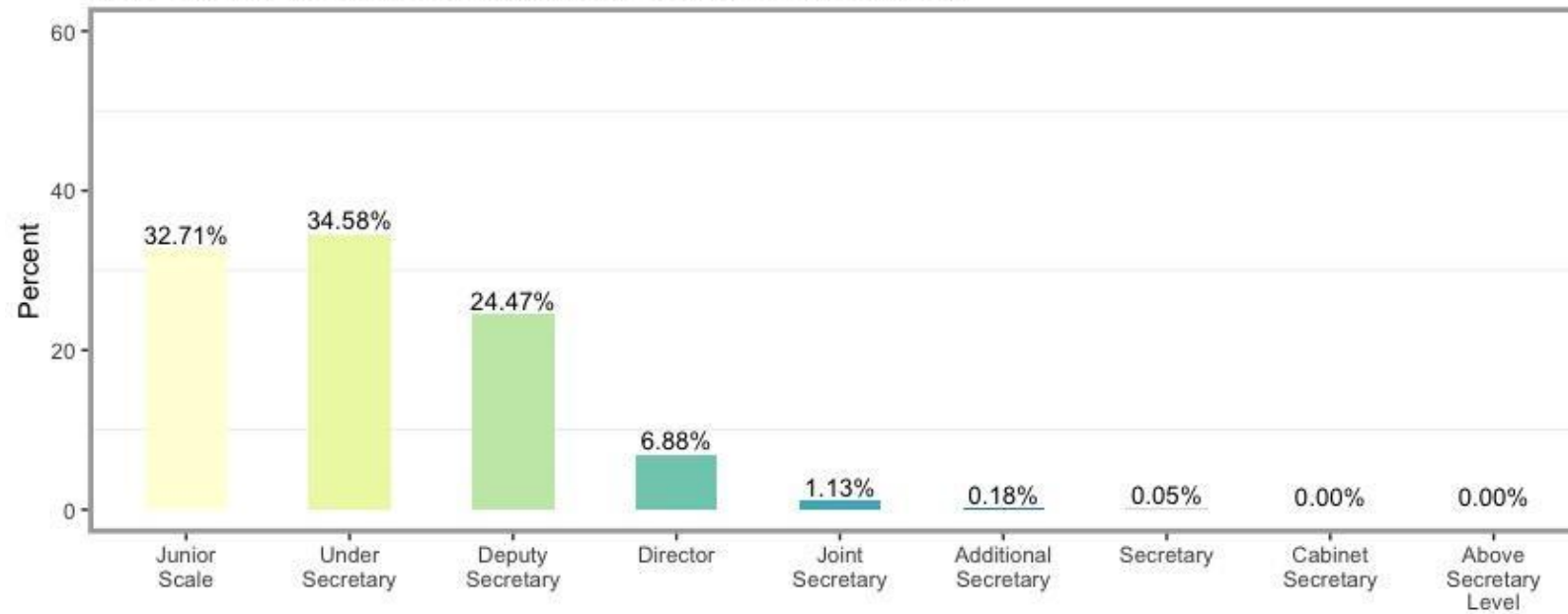




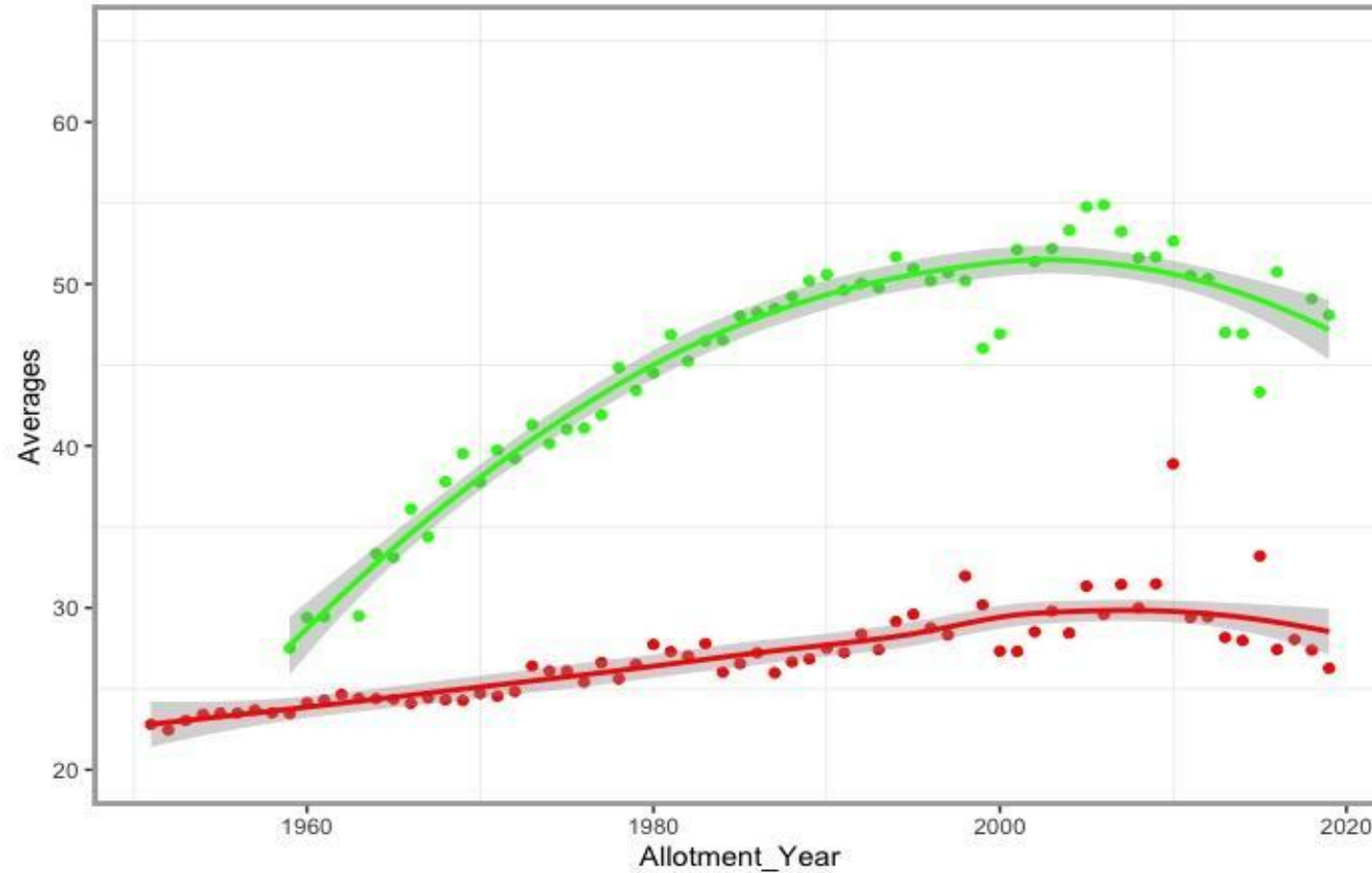
First Positions: Officers hired through Direct Recruitment (1951-2020)



First Positions: Officers hired through promotion from SCS (1951-2020)



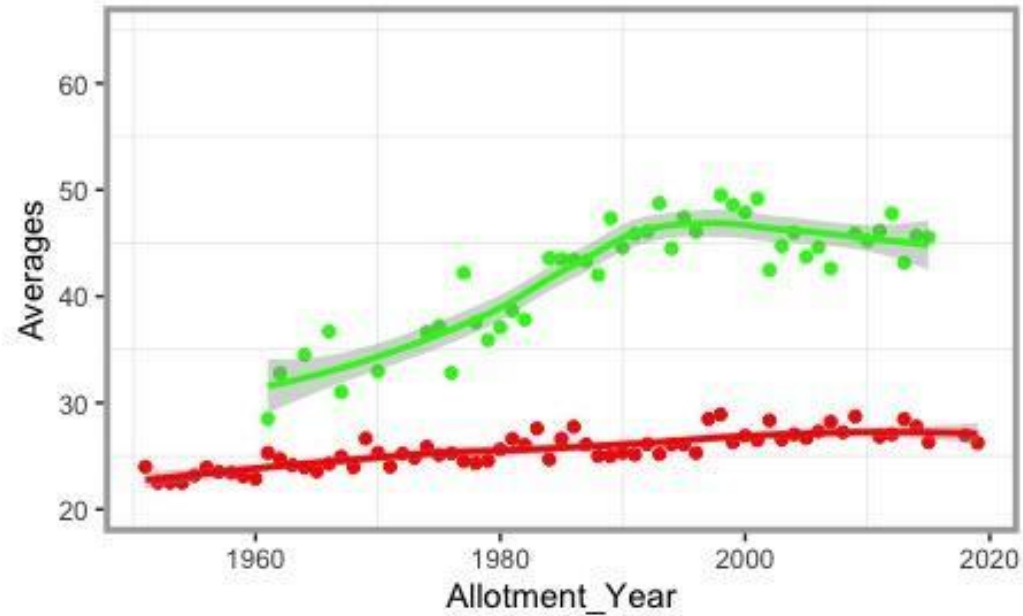
Age at the time of Allotment: Direct Recruits and Promotees



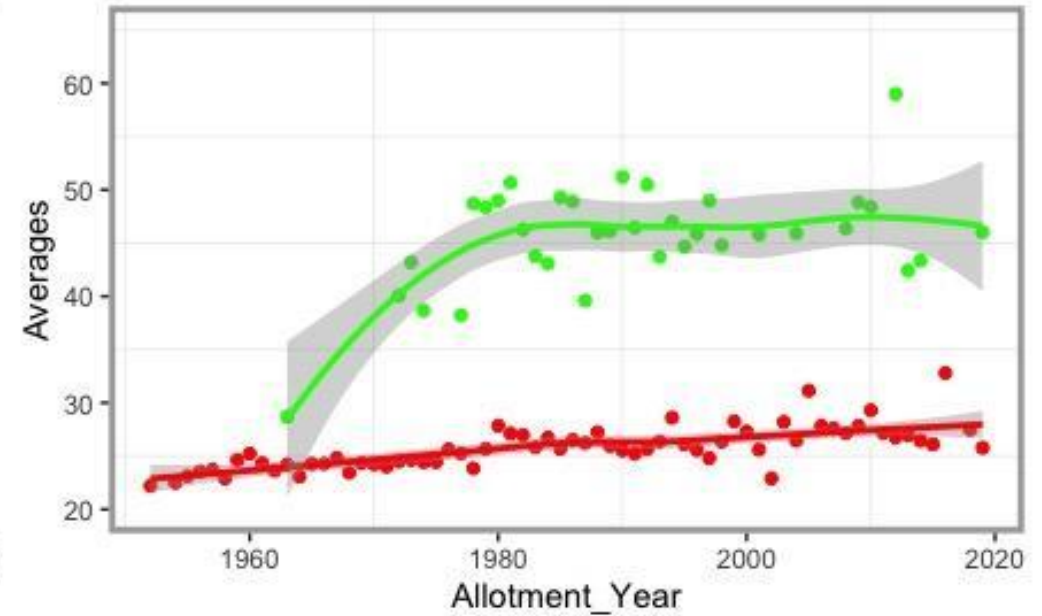
Note:

- **Averages:** Age of allotment averaged by year
- Officers allotted by Direct Recruitment are indicated by Red while promotees are indicated by Green.
- The trend line and the confidence bands are indicated with a default CI (Confidence Interval) of 95% using LOESS method (locally estimated scatterplot smoothing)

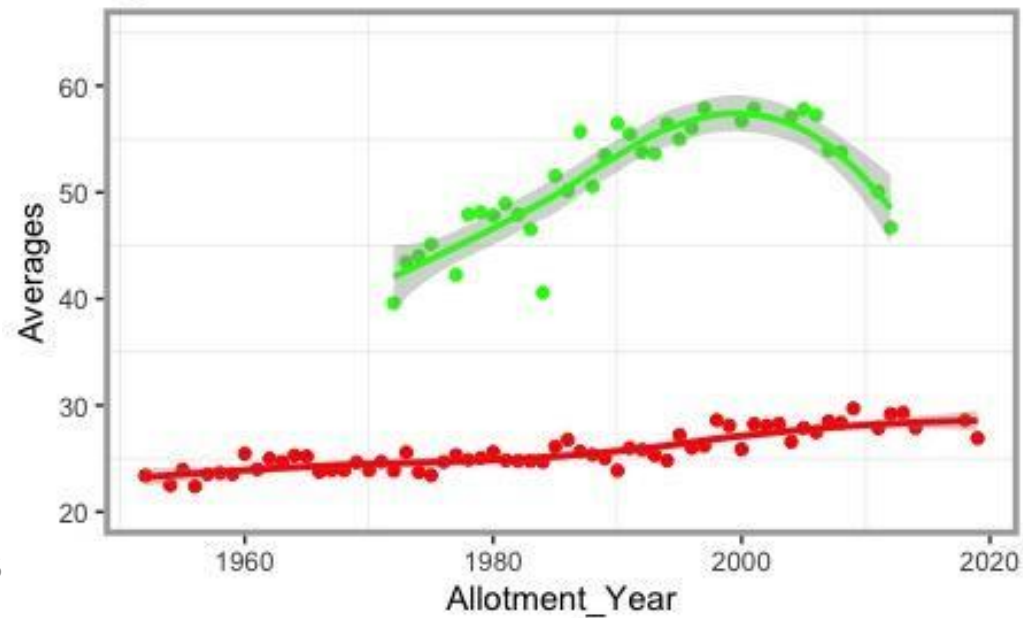
Age at the time of Allotment: Tamil Nadu



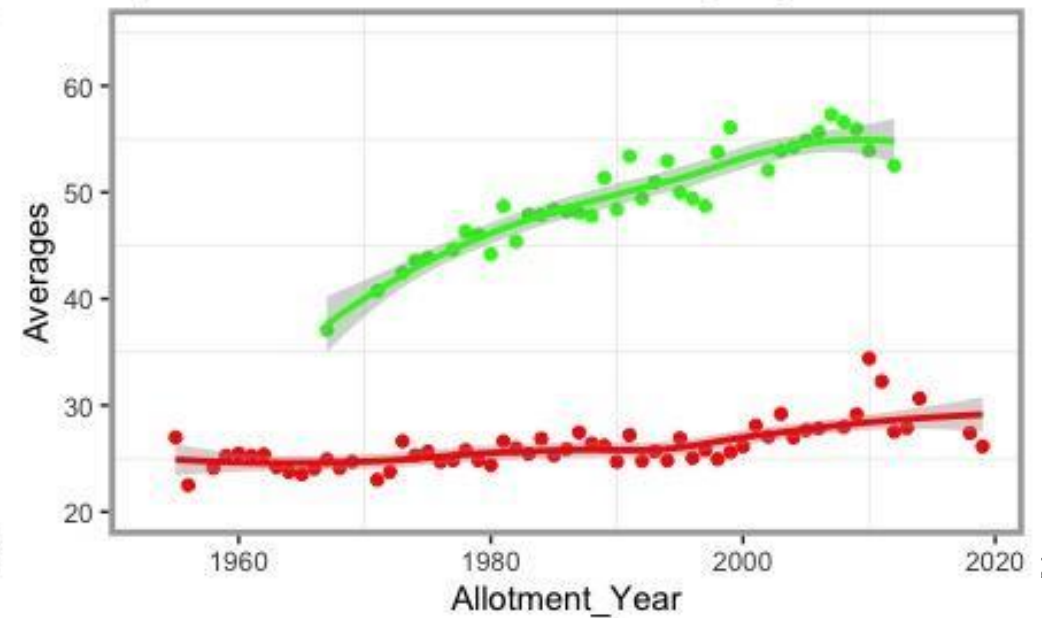
Age at the time of Allotment: Andhra Pradesh



Age at the time of Allotment: Bihar



Age at the time of Allotment: Assam Meghalaya



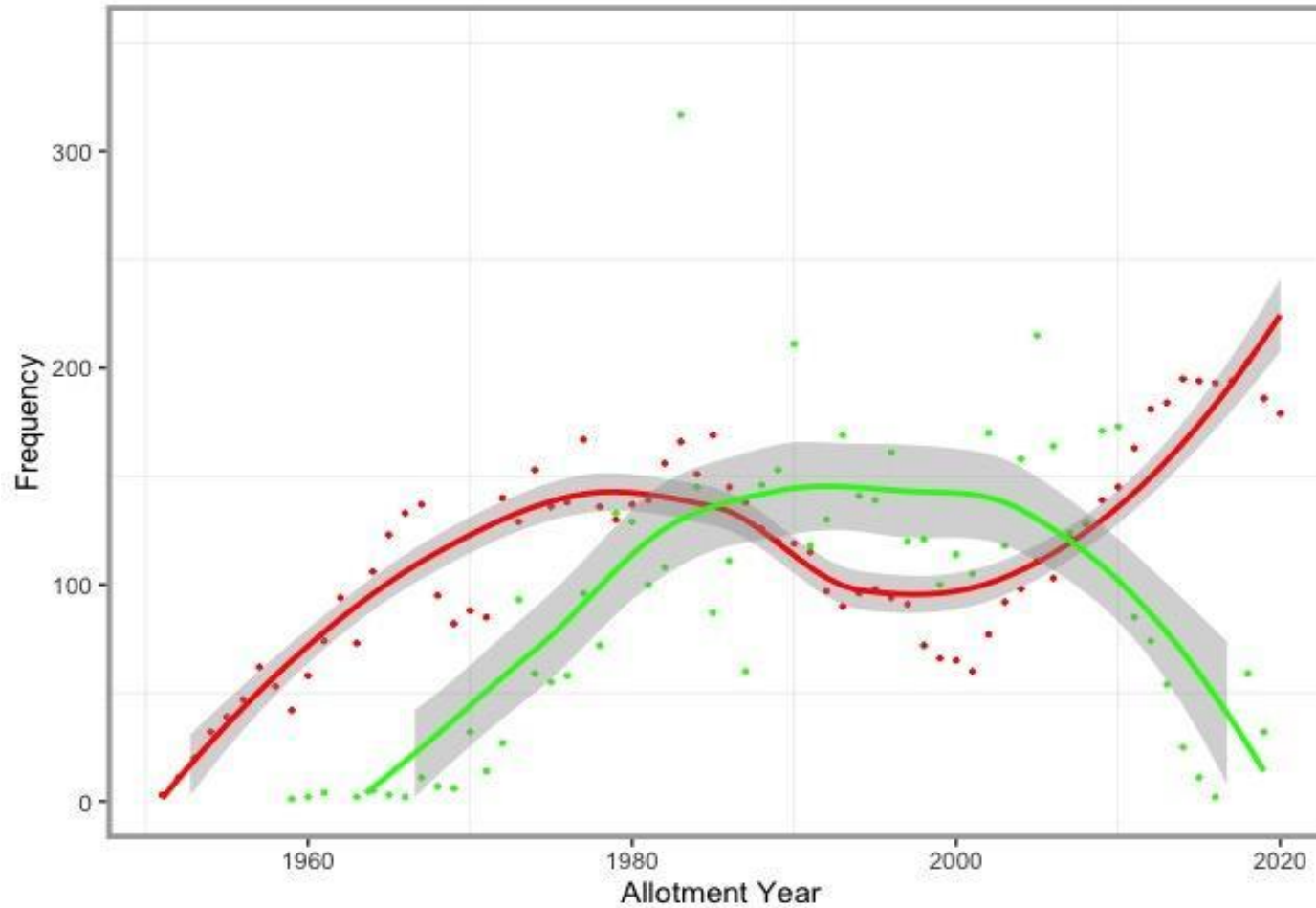
Distribution of all officers by Cadre and Source of Recruitment

Cadre	Direct Recruits (freq)	Promotees (freq)	Total no. of Officers	Direct Recruits %	Promotees %
Tripura	69	25	94	73.40	26.60
Kerala	287	107	394	72.84	27.16
Telangana	153	59	212	72.17	27.83
Tamil Nadu	490	223	713	68.72	31.28
Karnataka	404	209	613	65.91	34.09
Andhra Pradesh	393	204	597	65.83	34.17
Uttarakhand	125	66	191	65.45	34.55
Maharashtra	524	295	819	63.98	36.02
Rajasthan	413	234	647	63.83	36.17
Gujarat	394	241	635	62.05	37.95
Manipur	73	46	119	61.34	38.66
Chhattisgarh	158	100	258	61.24	38.76
Haryana	279	192	471	59.24	40.76
Jharkhand	197	136	333	59.16	40.84
Madhya Pradesh	535	375	910	58.79	41.21
Punjab	295	209	504	58.53	41.47
Himachal Pradesh	173	129	302	57.28	42.72
Uttar Pradesh	742	567	1309	56.68	43.32
West Bengal	475	364	839	56.62	43.38
A G M U T	379	306	685	55.33	44.67
Assam Meghalya	302	244	546	55.31	44.69
Odisha	331	270	601	55.07	44.93
Nagaland	92	79	171	53.80	46.20
Sikkim	53	48	101	52.48	47.52
Bihar	440	431	871	50.52	49.48
Jammu & Kashmir	145	158	303	47.85	52.15
Manipur-Tripura	62	114	176	35.23	64.77

<sup>1</sup> Derived from the 'TCPD-Bureaucrats of India' Dataset

<sup>2</sup> Sample: Total no. of officers hired between 1951 and 2020

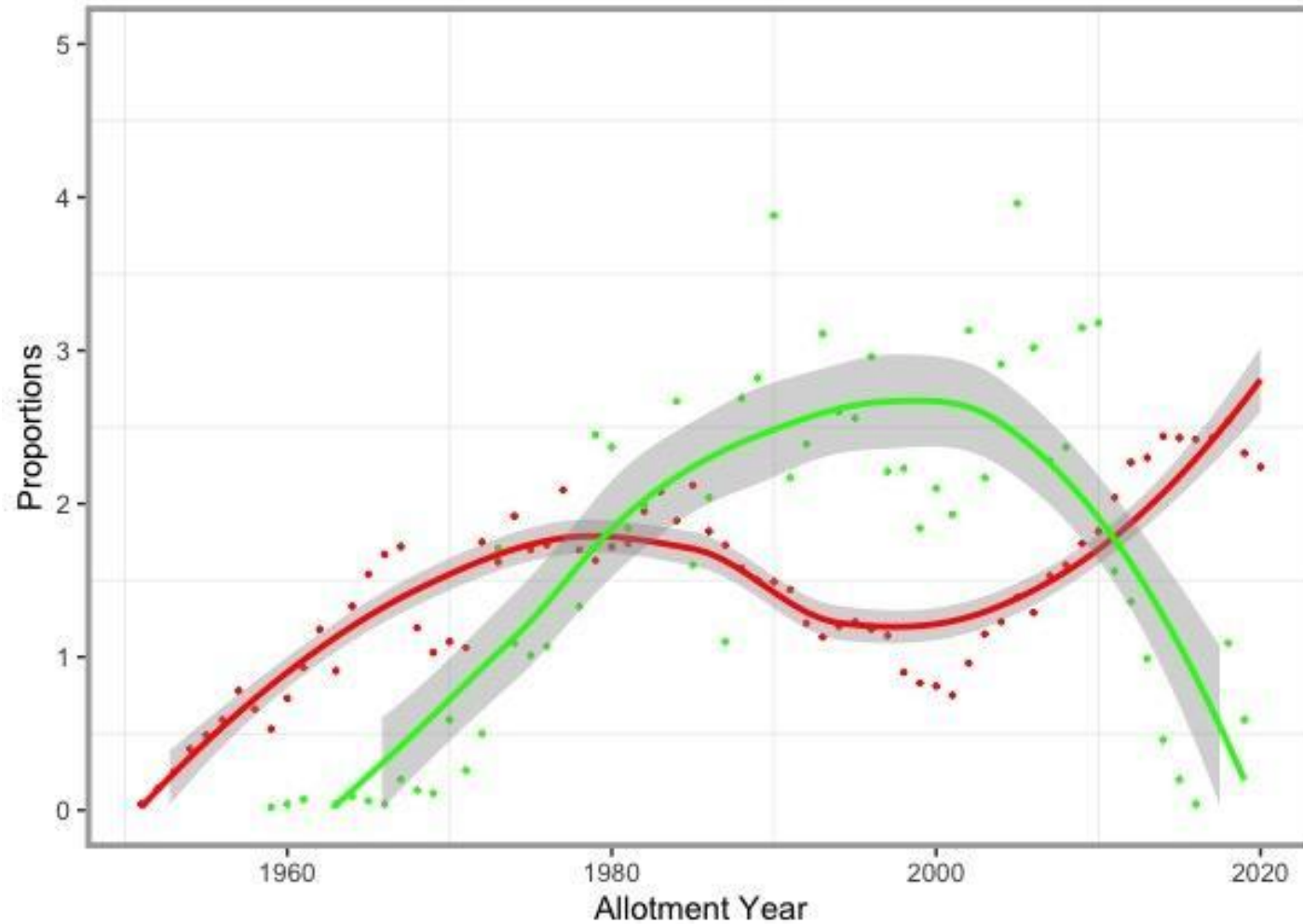
Trend Analysis: Recruitment by DR vs Promotion from SCS



Note:

- **Frequency:** No of officers allotted into the IAS
- Officers allotted by Direct Recruitment are indicated by Red while promotees are indicated by Green.
- The trend line and the confidence bands are indicated with a default CI (Confidence Interval) of 95% using LOESS method (locally estimated scatterplot smoothing)

Trend Analysis: Recruitment by DR vs Promotion from SCS



Note:

- **Proportions:** Percentage of officers (DR or promotees) allotted into the IAS in each year against total no. of officers.
- Officers allotted by Direct Recruitment are indicated by Red while promotees are indicated by Green.
- The trend line and the confidence bands are indicated with a default CI (Confidence Interval) of 95% using LOESS method (locally estimated scatterplot smoothing)

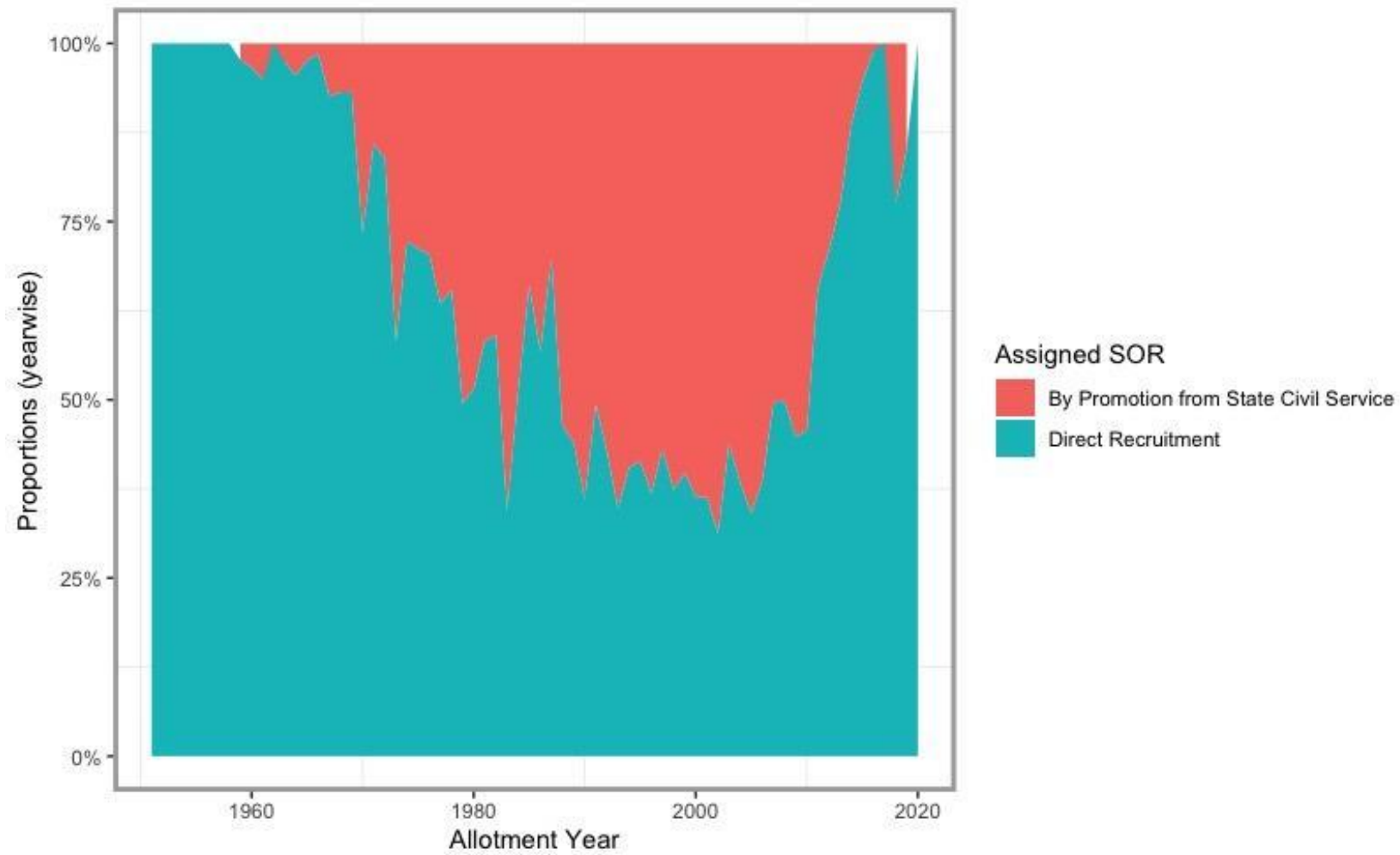
Distribution of all officers by Source of Recruitment  
and Allotment Year

Interval	Total no. of Officers	prop_DR	prop_SCS
1950-1960	370	99.19	0.81
1960-1970	1077	92.39	7.61
1970-1980	2087	60.85	39.15
1980-1990	2867	46.29	53.71
1990-2000	2197	35.18	64.82
2000-2010	2602	35.40	64.60
2010-2020	2214	83.06	16.94

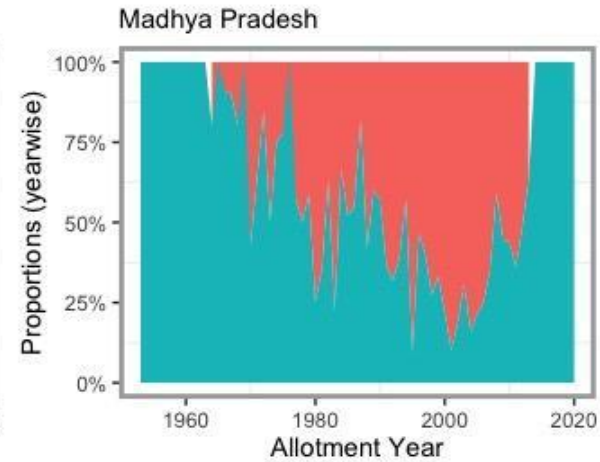
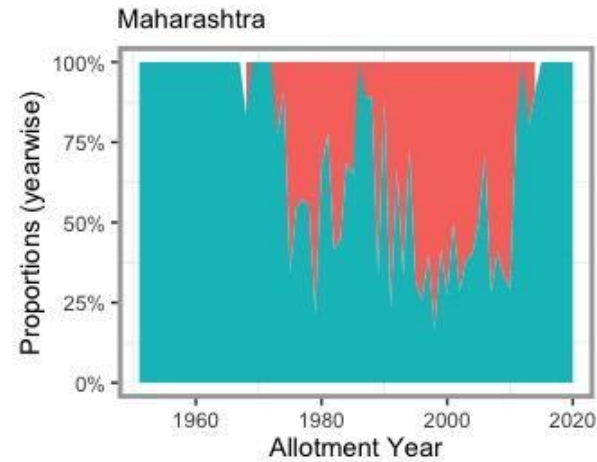
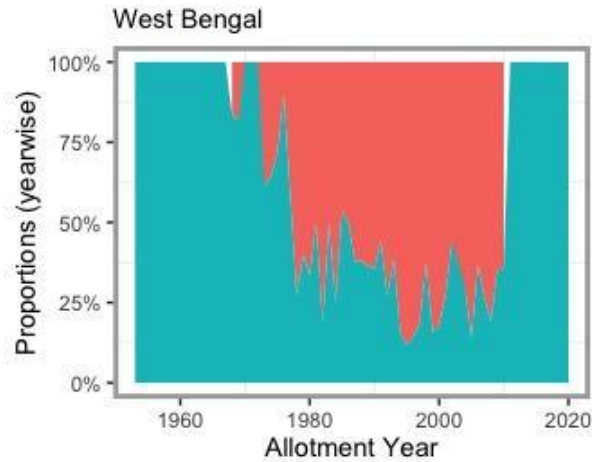
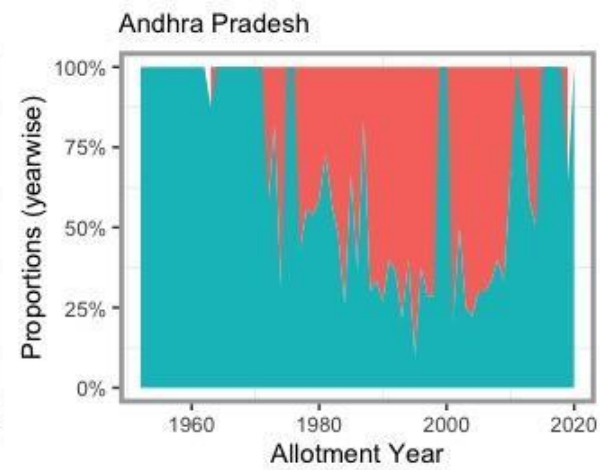
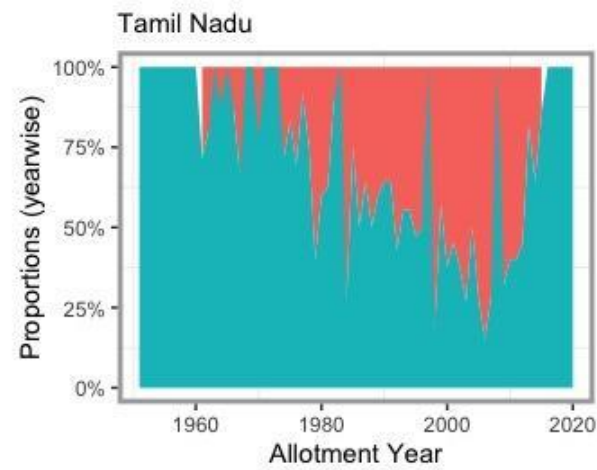
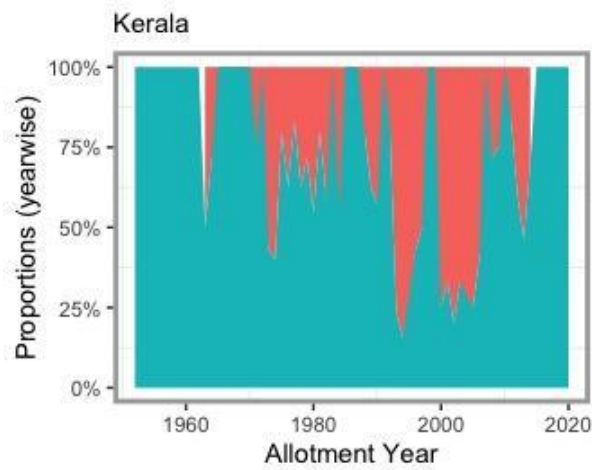
<sup>1</sup> Derived from the 'TCPD-Bureaucrats of India' Dataset

<sup>2</sup> Sample: Total no. of officers hired between 1951 and 2020

Allotment by year and Source of Recruitment

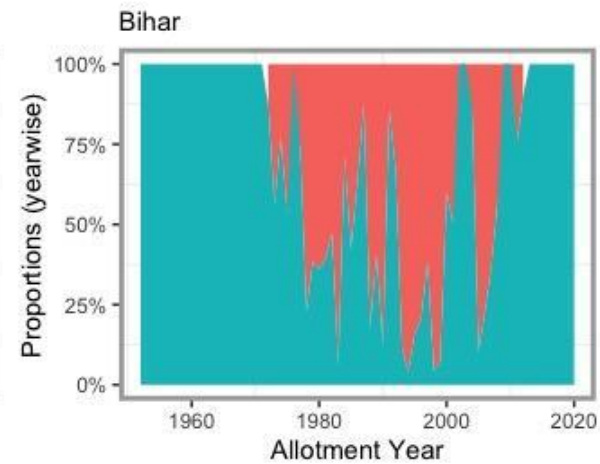
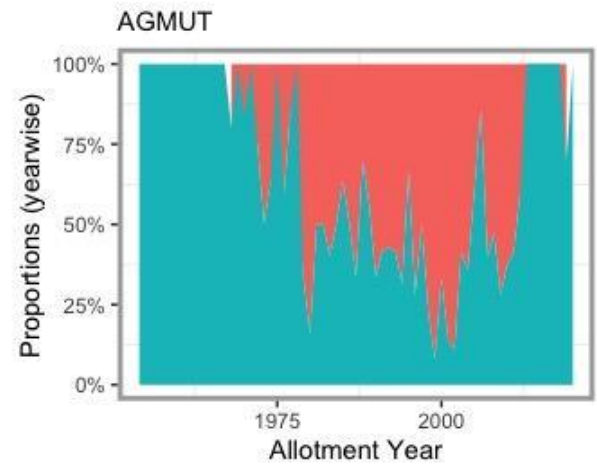
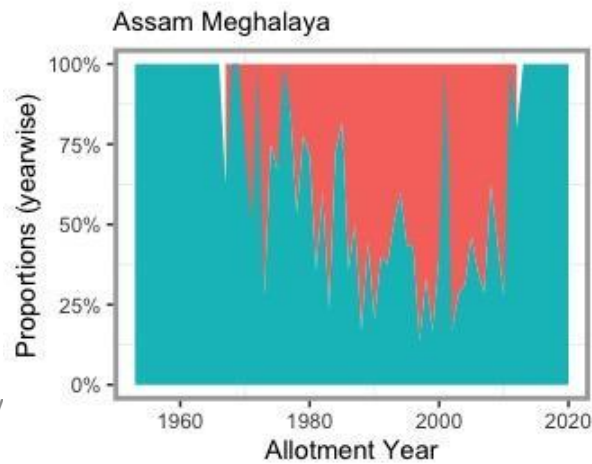


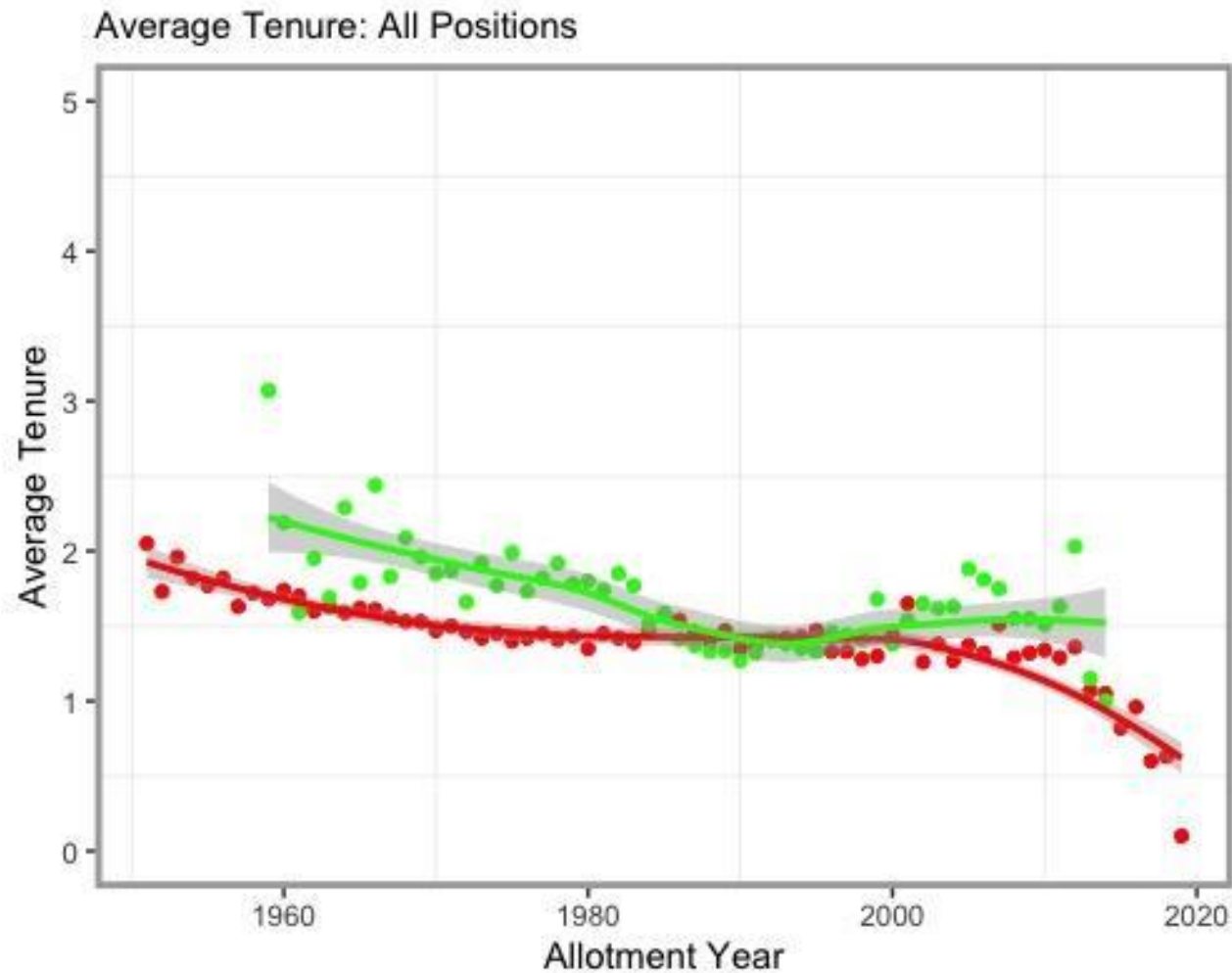




Assigned SOR

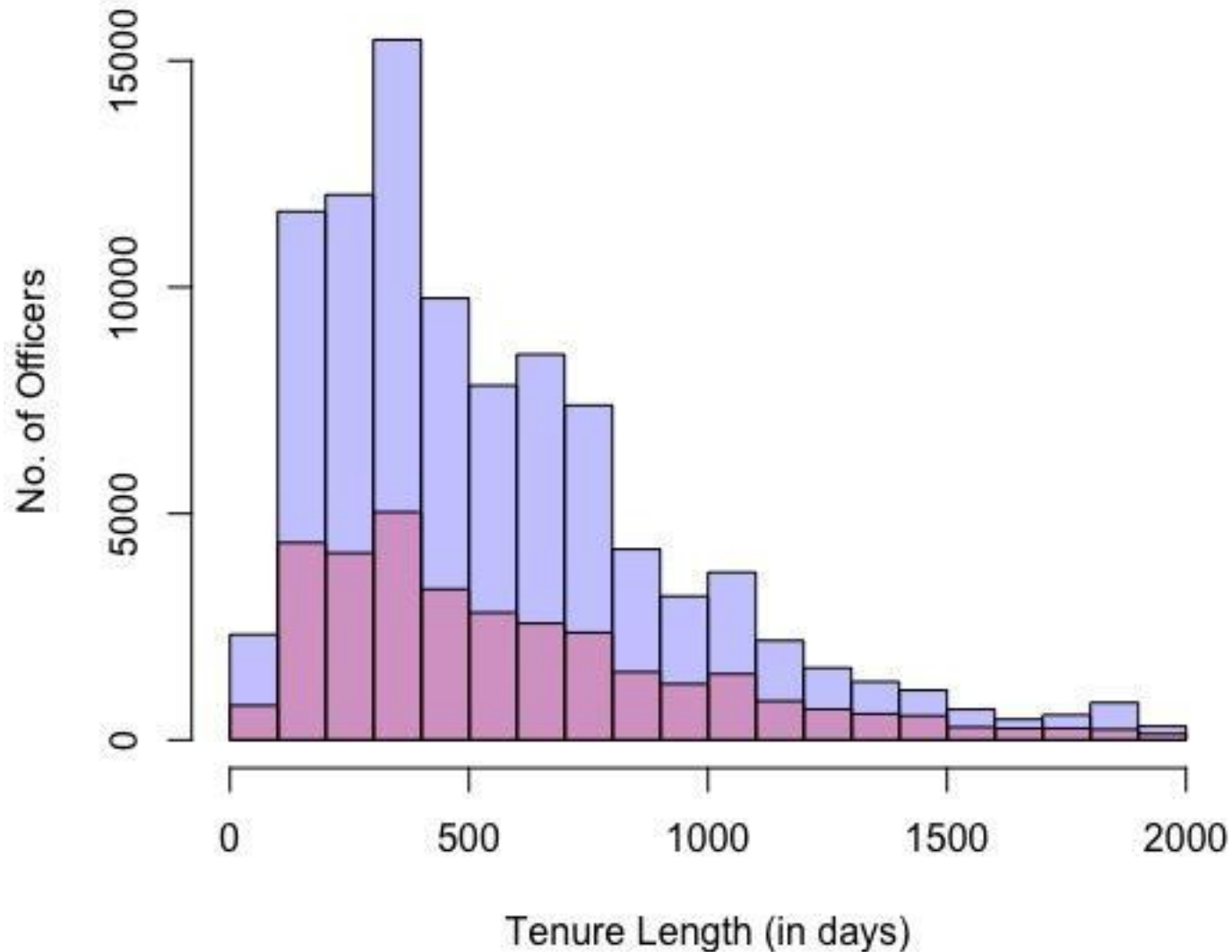
- By Promotion from State Civil Service
- Direct Recruitment





- The tenure length is indicated between a pre-identified interval of 180 days and 6 years (Red for Direct Recruits and Green for Promotees)
- Direct Recruits spend an average of 561 days in a single posting
- Promotees spend an average of 581 days in a single posting

## Tenure Length: Direct Recruits and Promotees



- The tenure length is indicated between a pre-identified interval of 180 days and 6 years (Blue for Direct Recruits and Violet for Promotees)
- Direct Recruits spend an average of 561 days in a single posting
- Promotees spend an average of 581 days in a single posting

### Promotion Interval & Age at the time of promotion

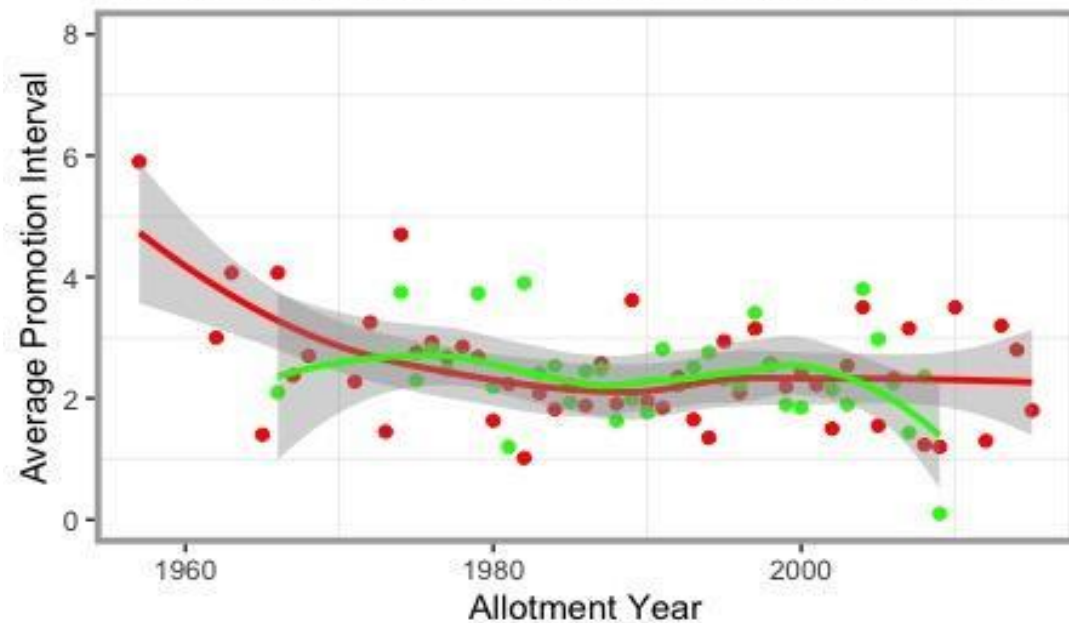
Categories of Promotion	Average Promotion Interval (in years)	Average age at the time of promotion (in years)
District Magistrate to Deputy Secretary	2.41	44.91
Deputy Secretary to Director	4.33	44.05
Director to Additional Secretary	13.17	52.18
Additional Secretary to Secretary	4.97	56.61

<sup>1</sup> Derived from the 'TCPD-Bureaucrats of India' Dataset

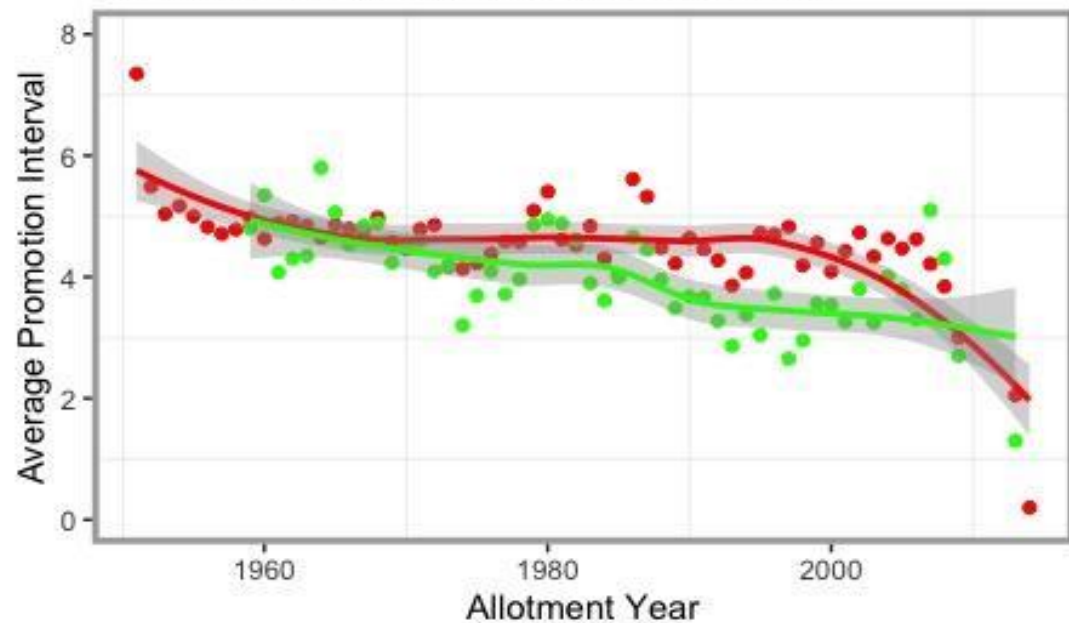
<sup>2</sup> Sample: Total no. of officers hired between 1951 and 2020

<b>Category of Promotions</b>	<b>Direct Recruitment</b>		<b>By Promotion from State Civil Service</b>	
	<b>Promotion Interval</b>	<b>Age at the time of Promotion</b>	<b>Promotion Interval</b>	<b>Age at the time of Promotion</b>
District Magistrate to Deputy Secretary	2.48	36.79	2.34	53.62
Deputy Secretary to Director	4.64	39.09	3.71	54.15
Director to Additional Secretary	13.23	52.03	10.59	57.52
Additional Secretary to Secretary	4.90	56.61	0.00	0.00

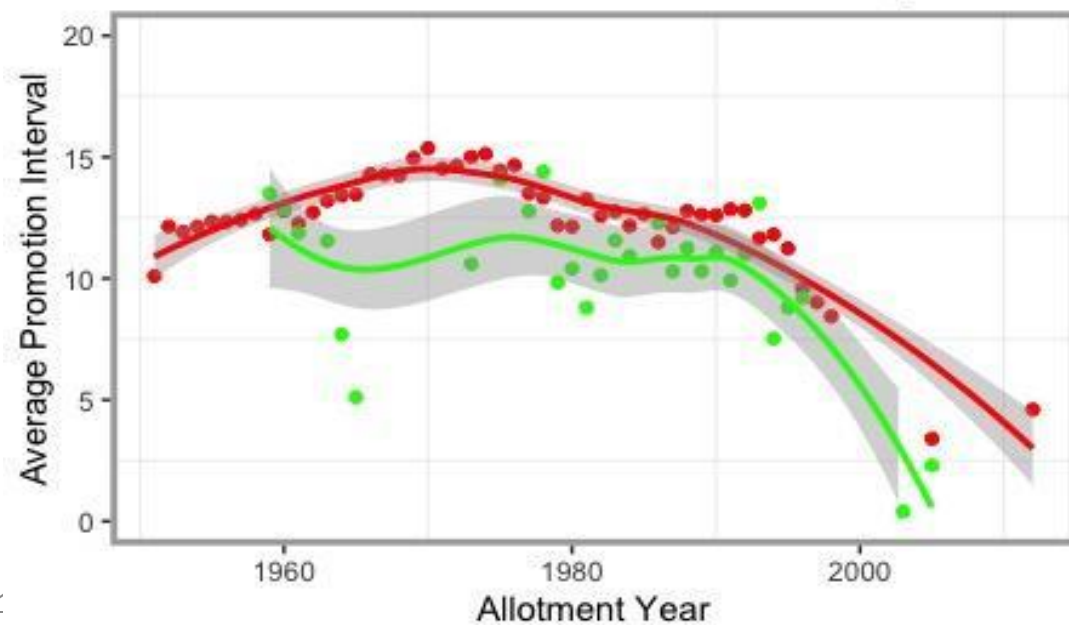
Promotion Interval: District Magistrate to Deputy Secretary



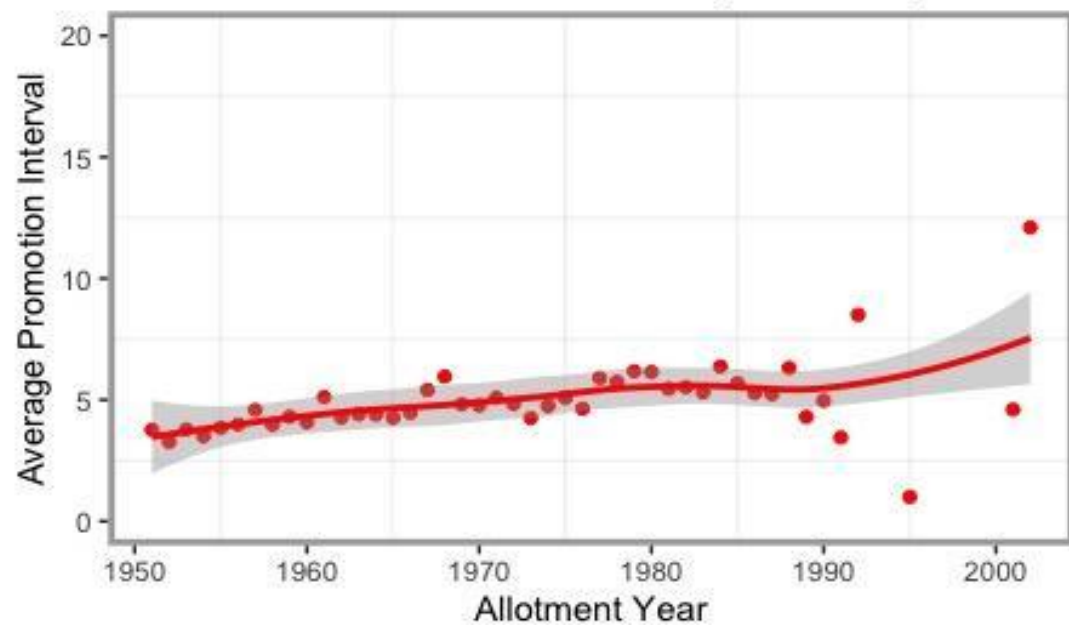
Promotion Interval: Deputy Secretary to Director



Promotion Interval: Director to Additional Secretary

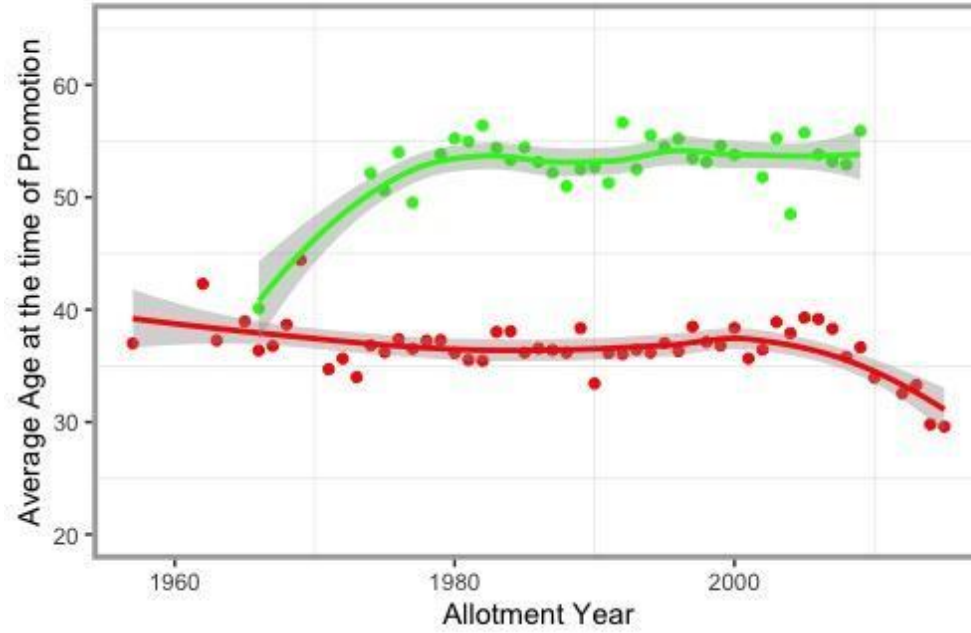


Promotion Interval: Additional Secretary to Secretary

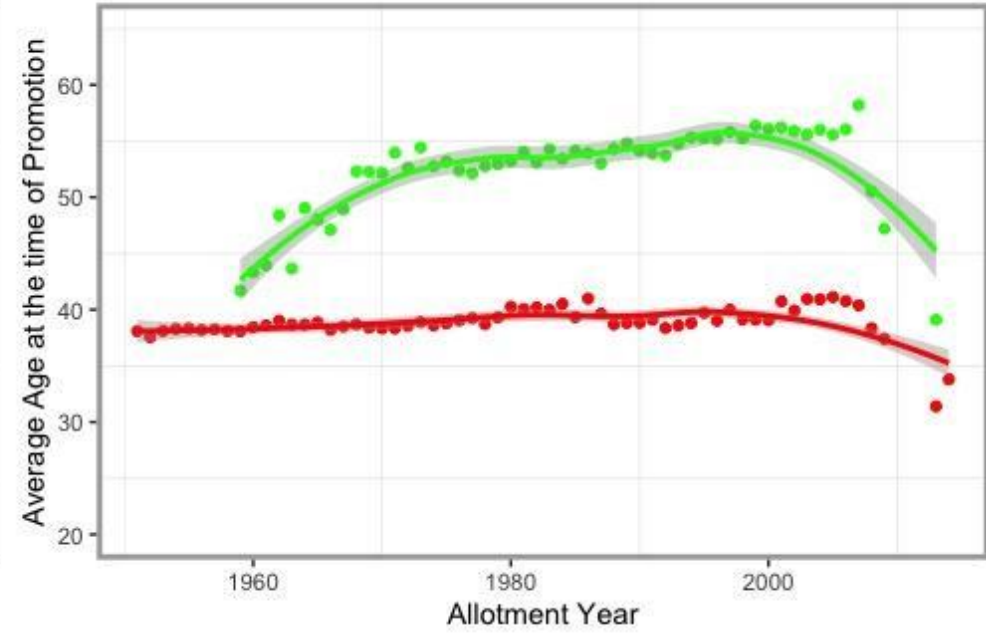




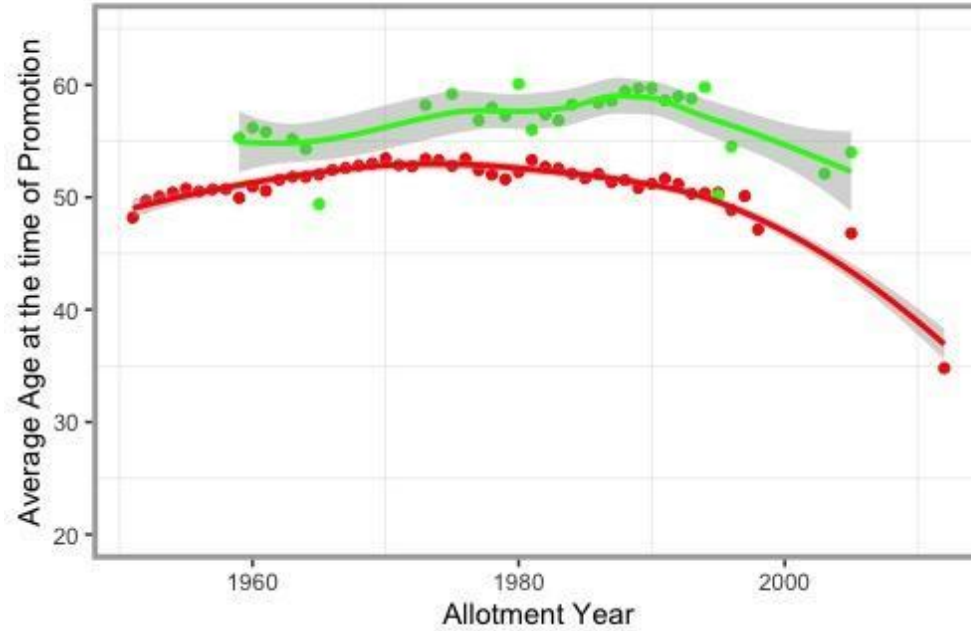
Average Age: Deputy Secretary



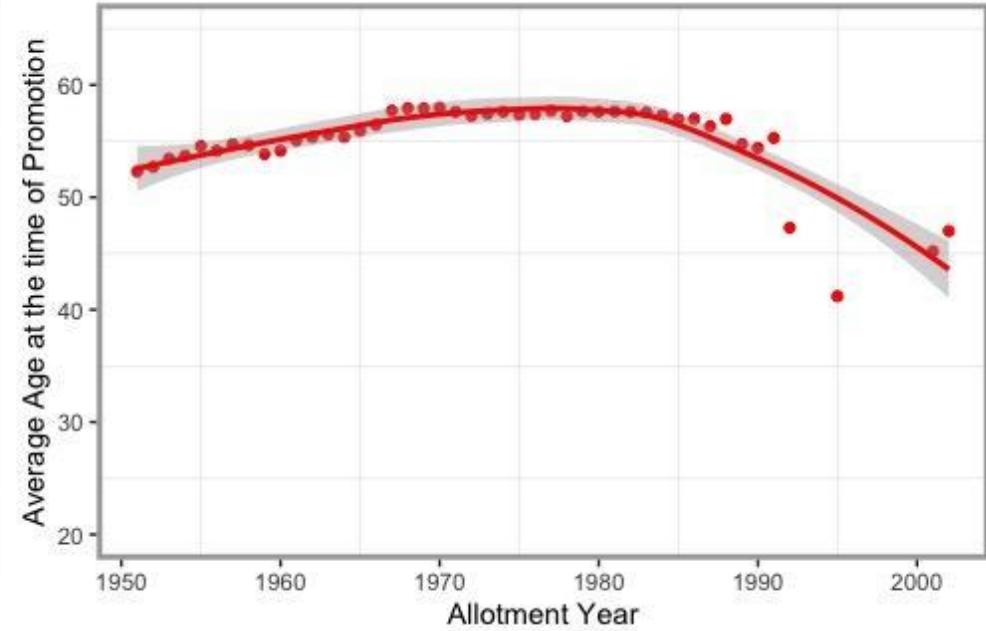
Average Age: Director



Average Age: Additional Secretary



Average Age: Secretary



## **A. Distance from election plot: Promotees Allotment**

- Selected States: Andhra Pradesh (1962-2019), Bihar (1962-2020), Kerala (1965-2021), West Bengal (1962-2021), Uttar Pradesh (1962-2017)
- Visualization: Histogram, Loess Curve

## **B. Distance from election plot: Bureaucratic Turnover (Change in Position)**

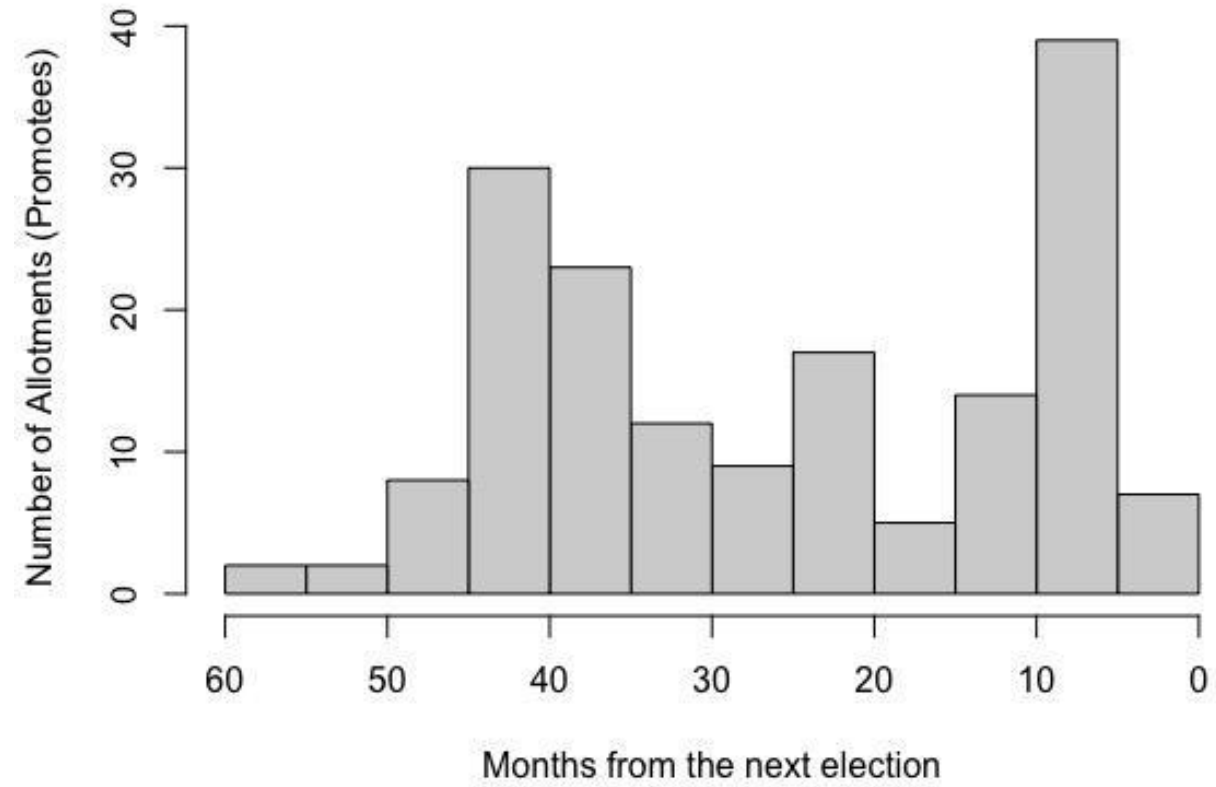
- Selected States: Uttar Pradesh (1962-2019), Bihar (1962-2020)
- Visualization: Histogram

## **C. Promotee Allotment and CM change**

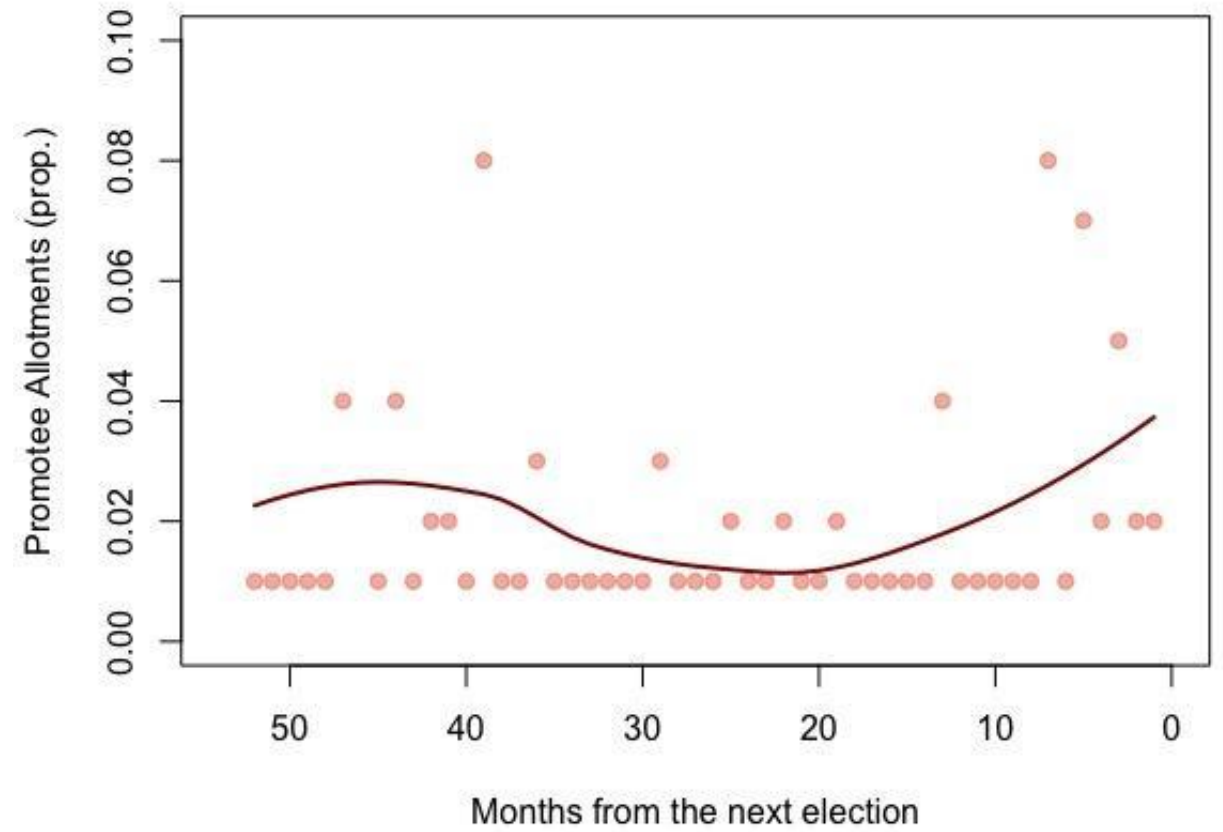
- Selected States: Uttar Pradesh (1970-2012), Bihar (1970-2012)
- Visualization: Trend Line/Loess Curve



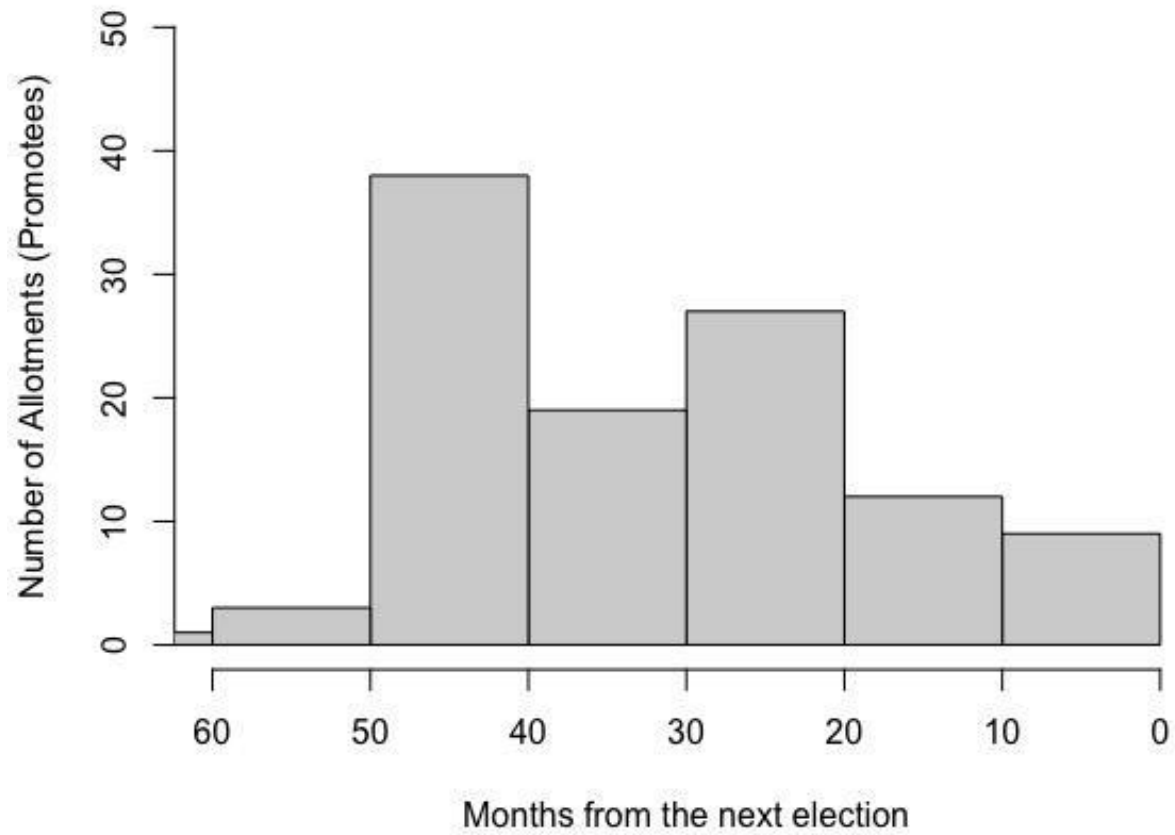
**Andhra Pradesh**



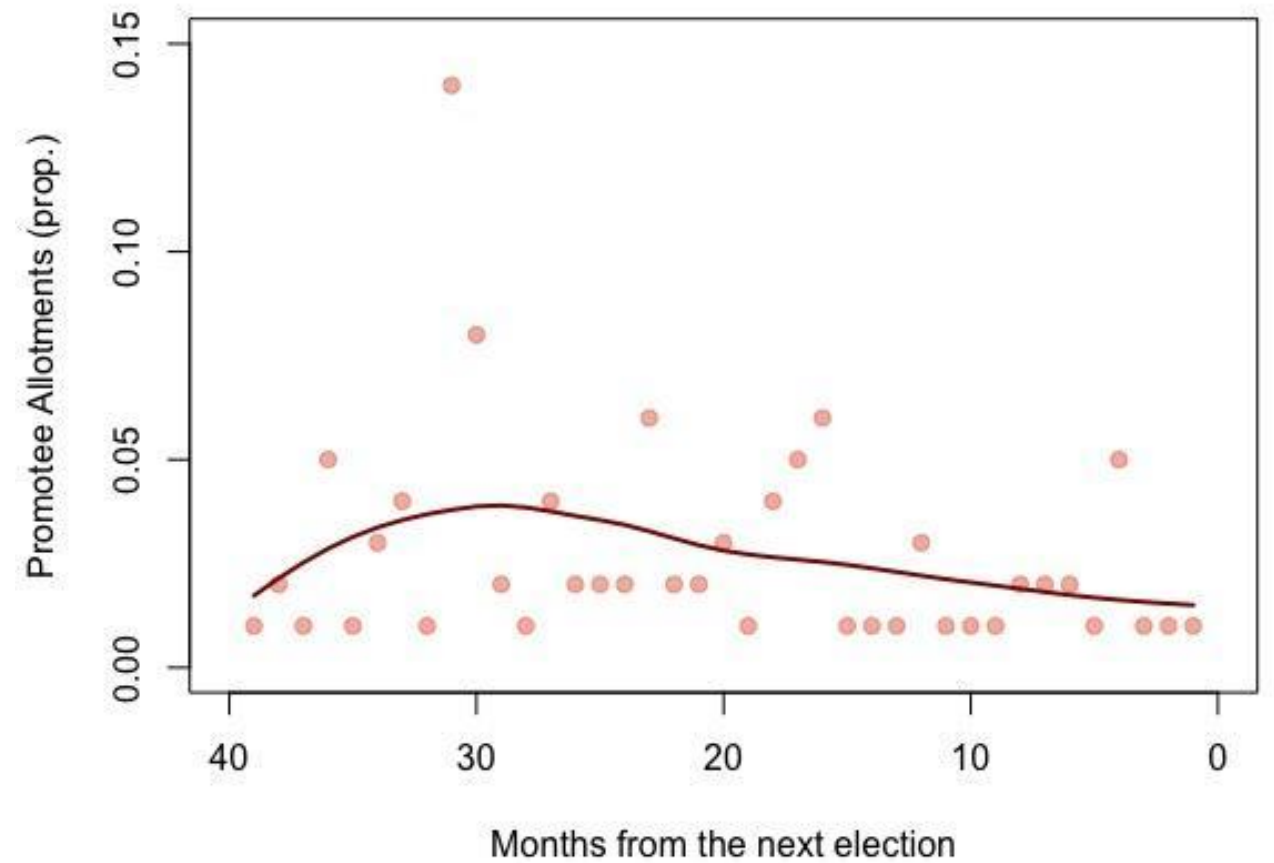
**Andhra Pradesh**



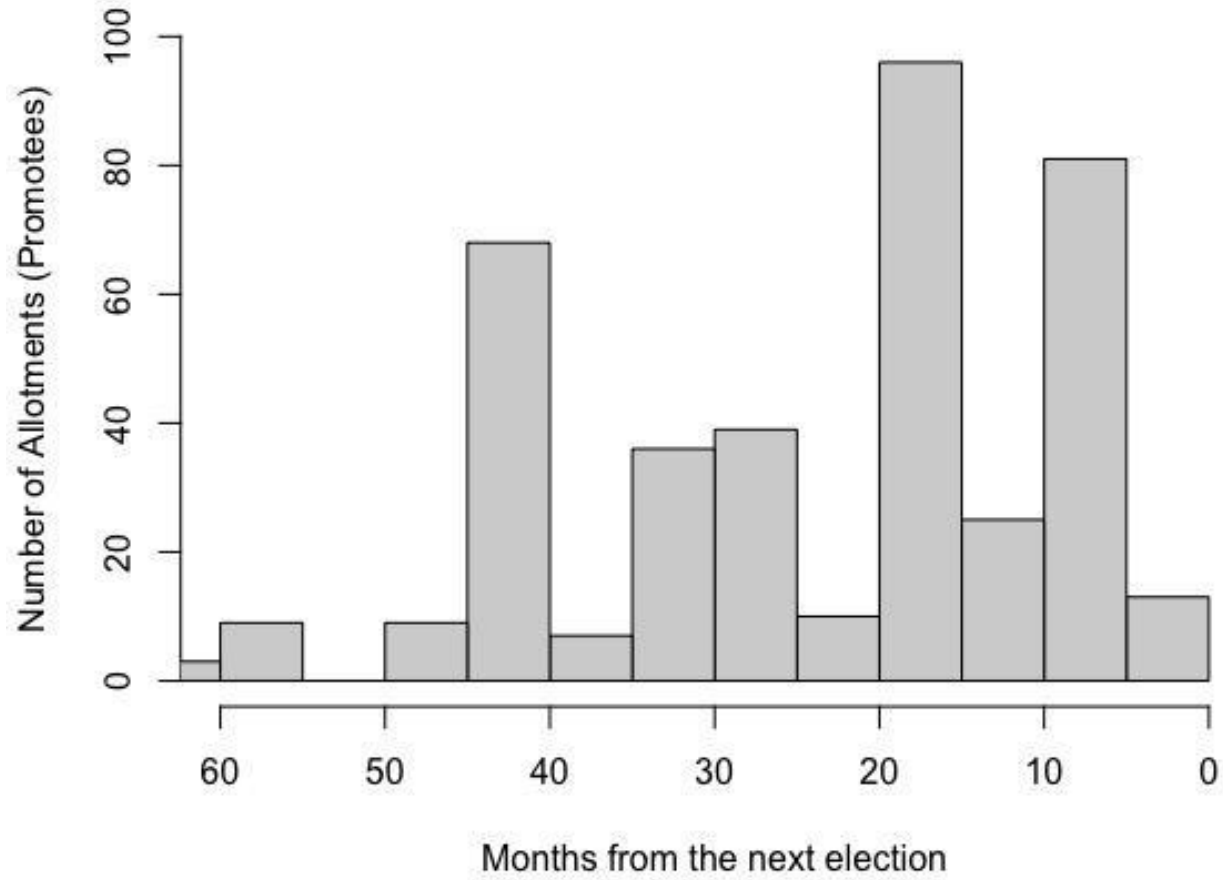
**Kerala**



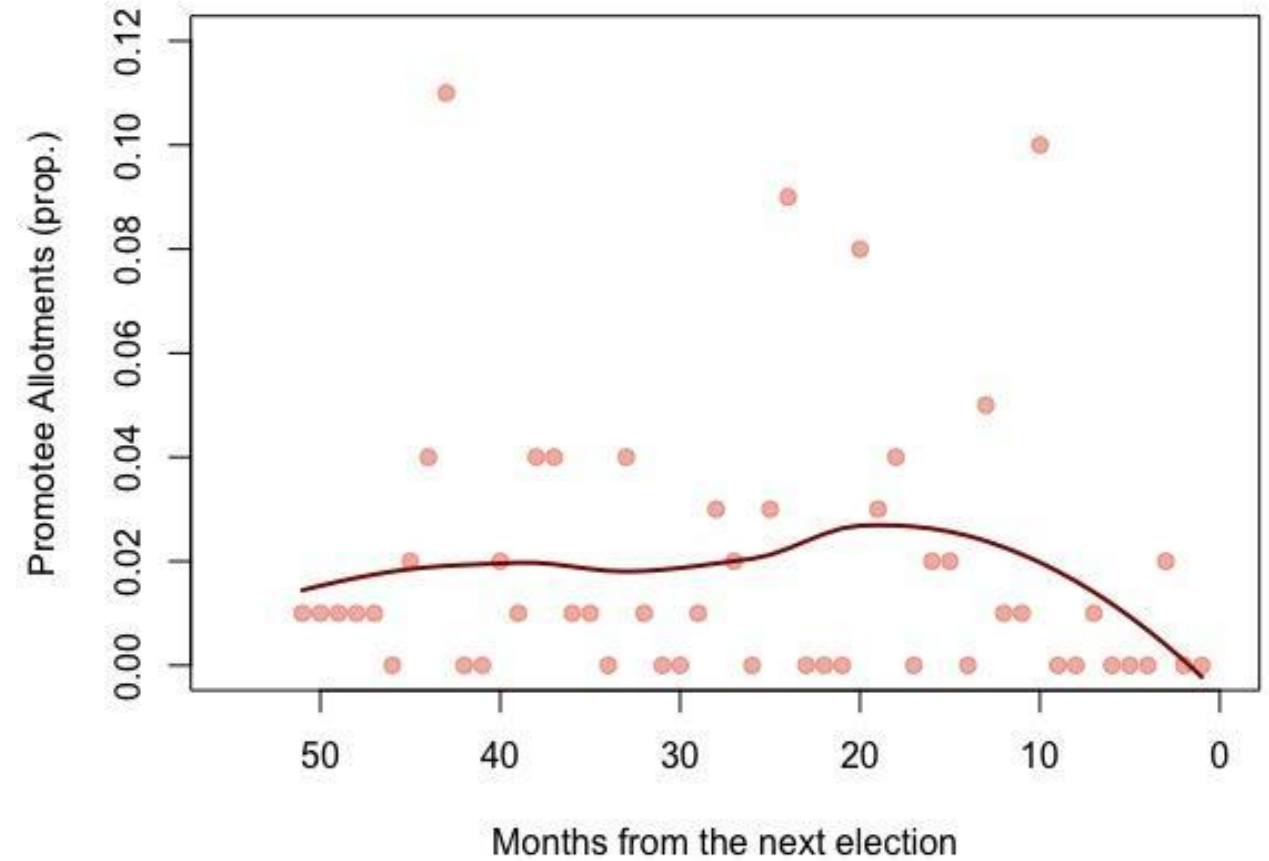
**Kerala**



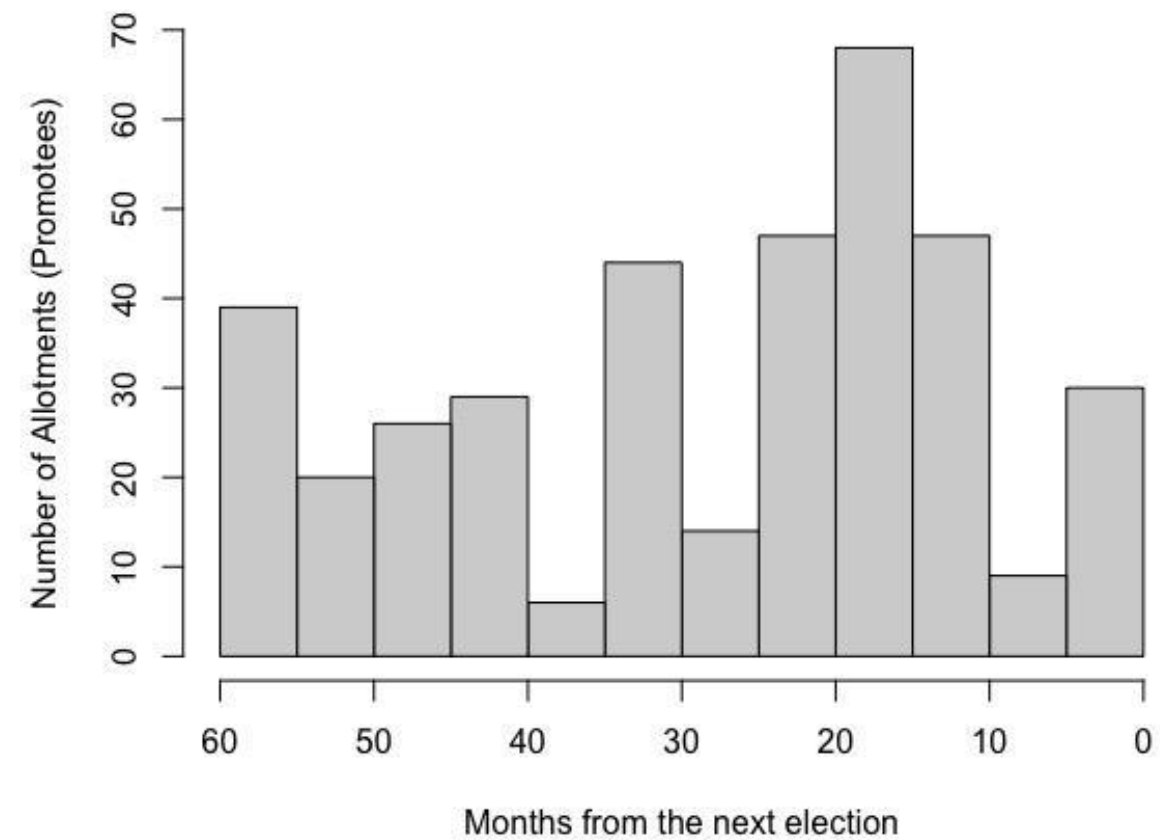
**Uttar Pradesh**



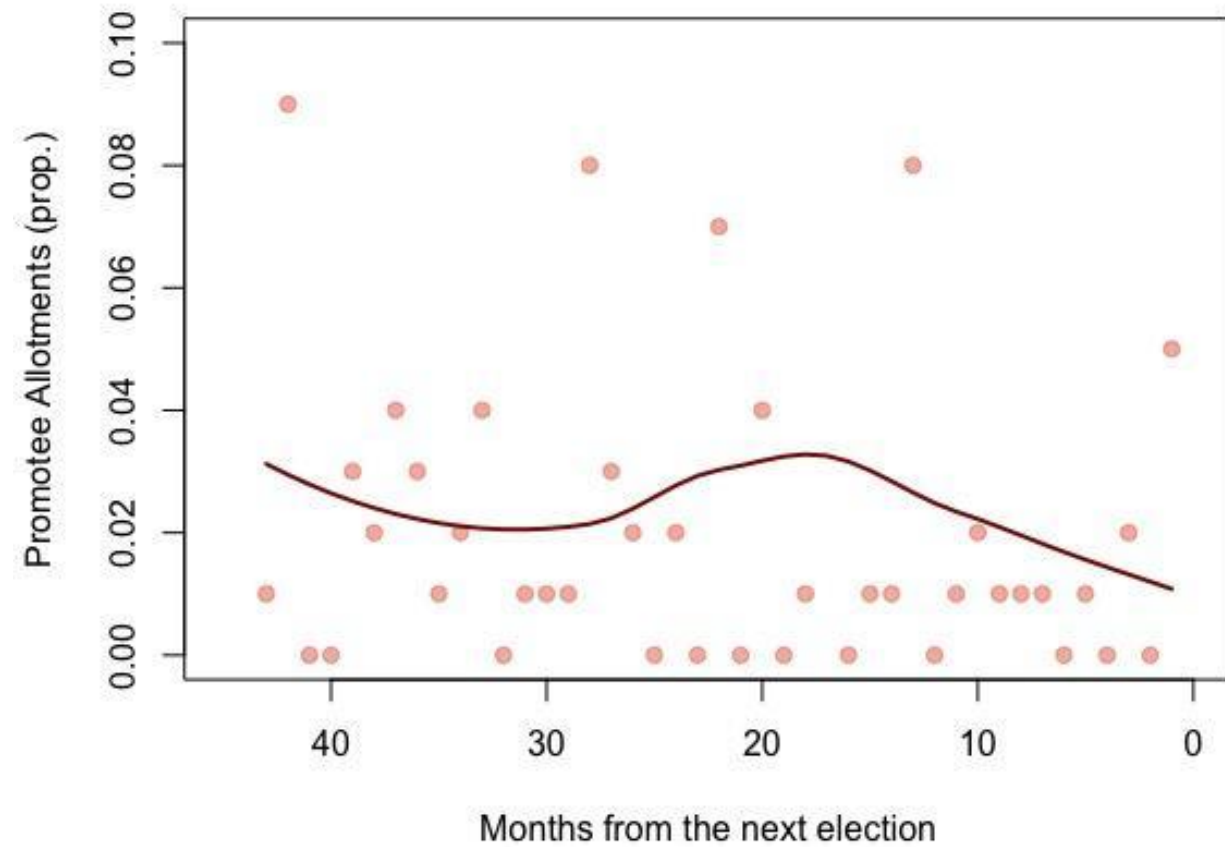
**Uttar Pradesh**



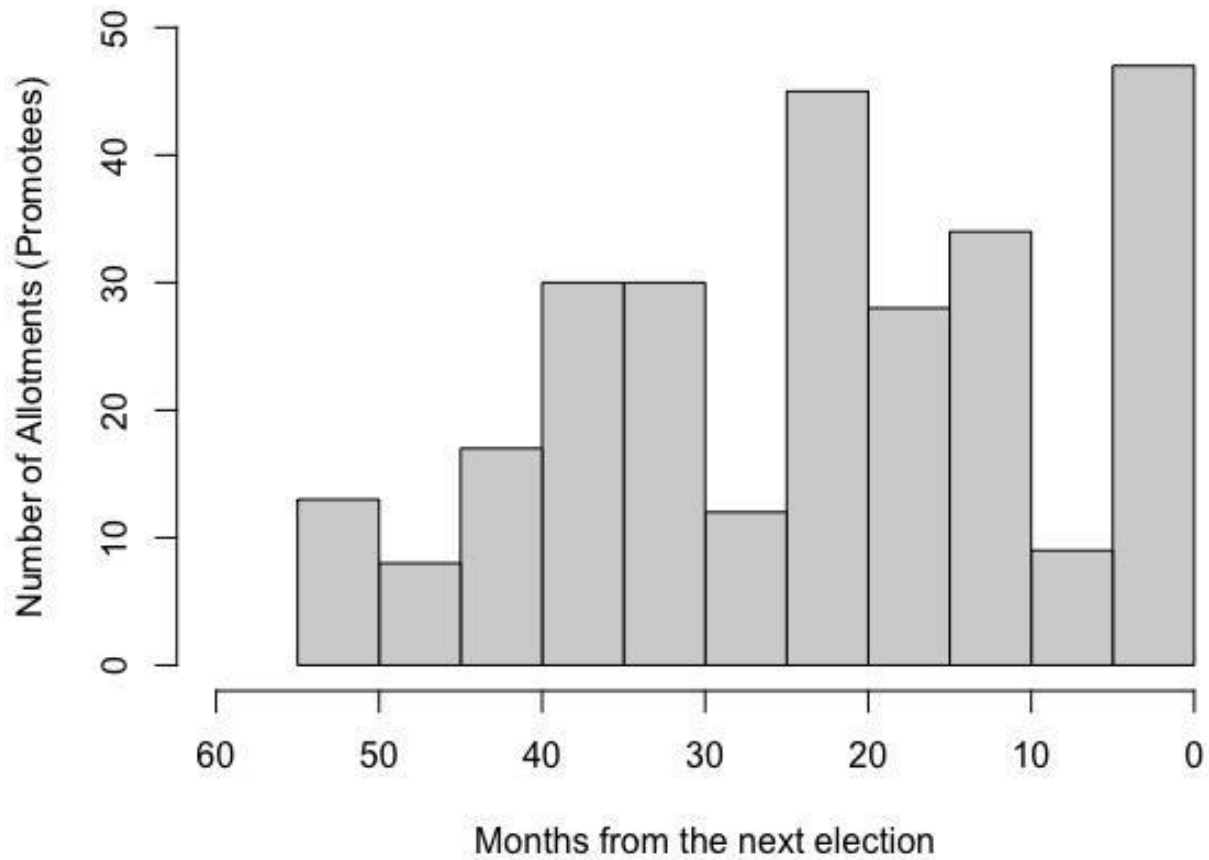
**Bihar**



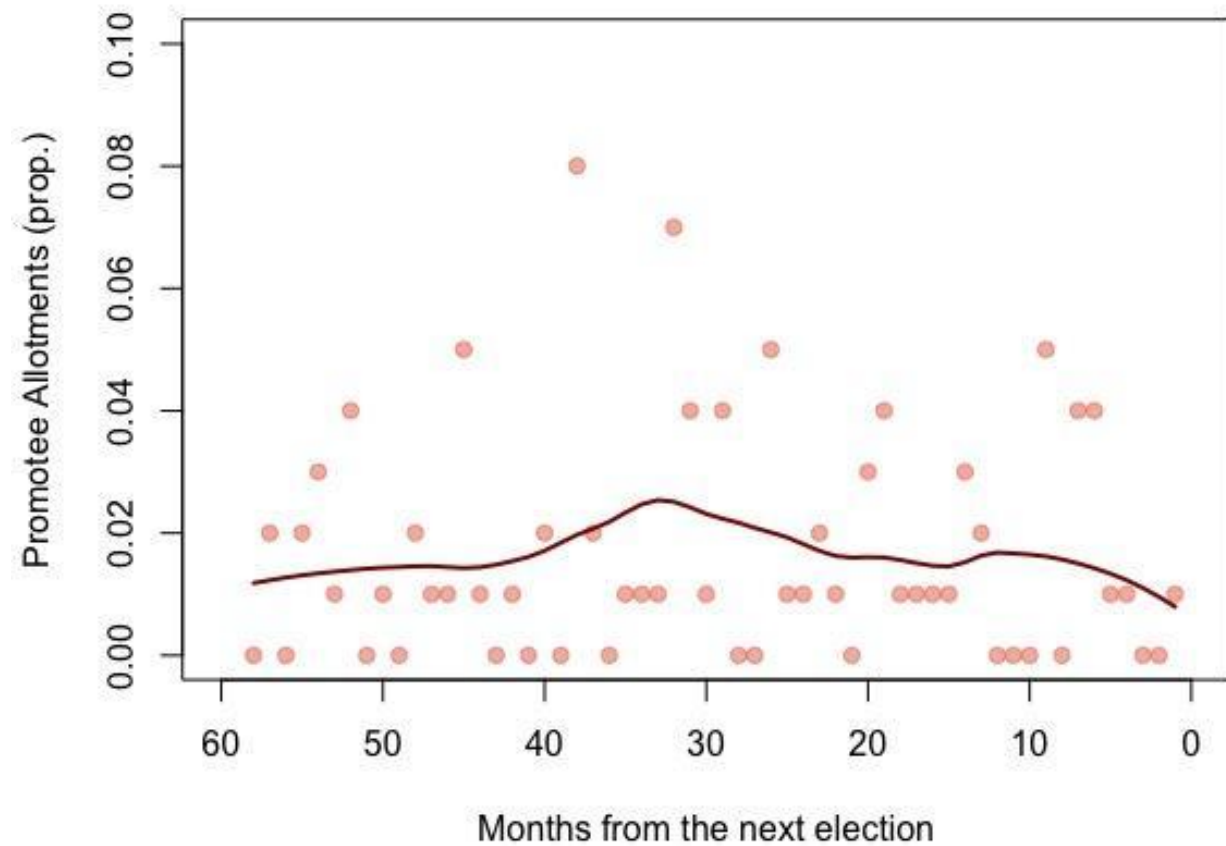
**Bihar**



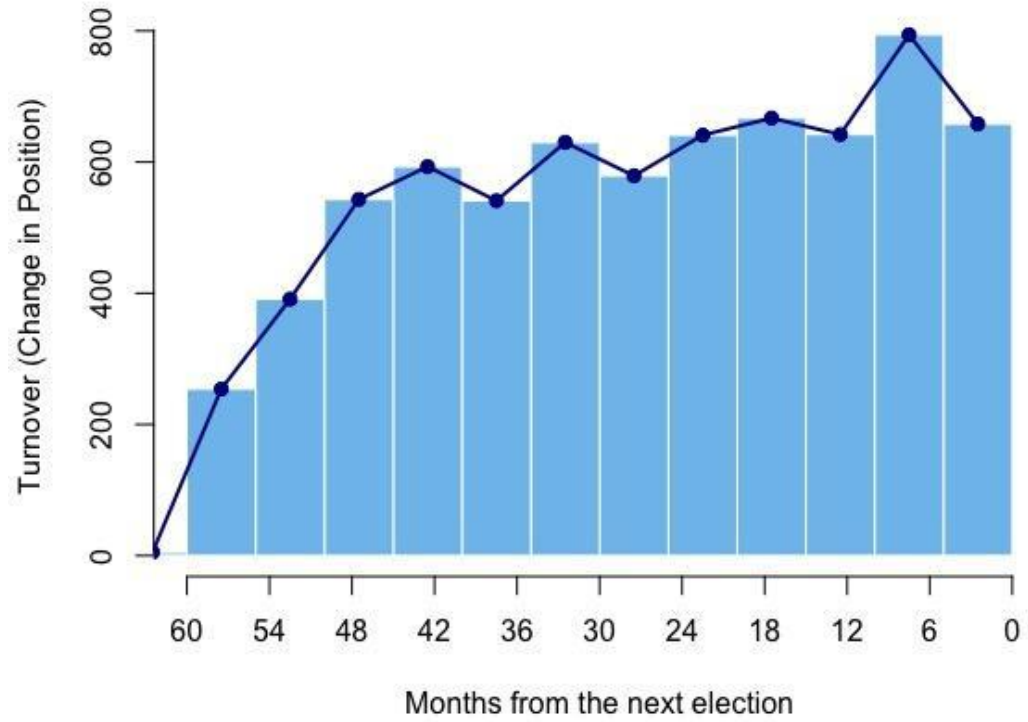
**West Bengal**



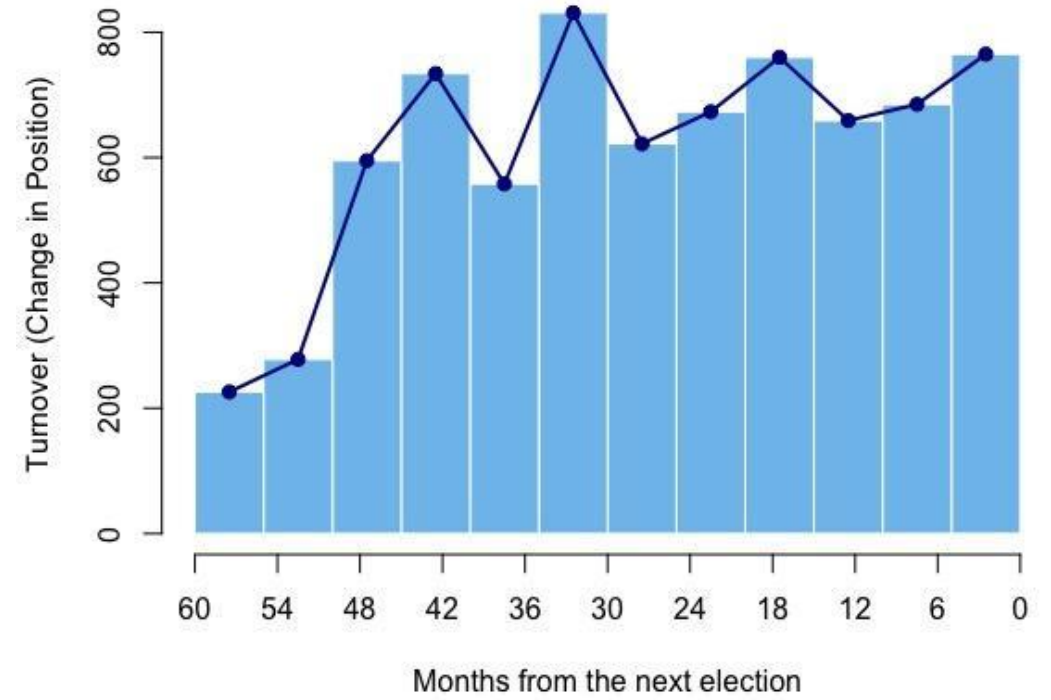
**West Bengal**



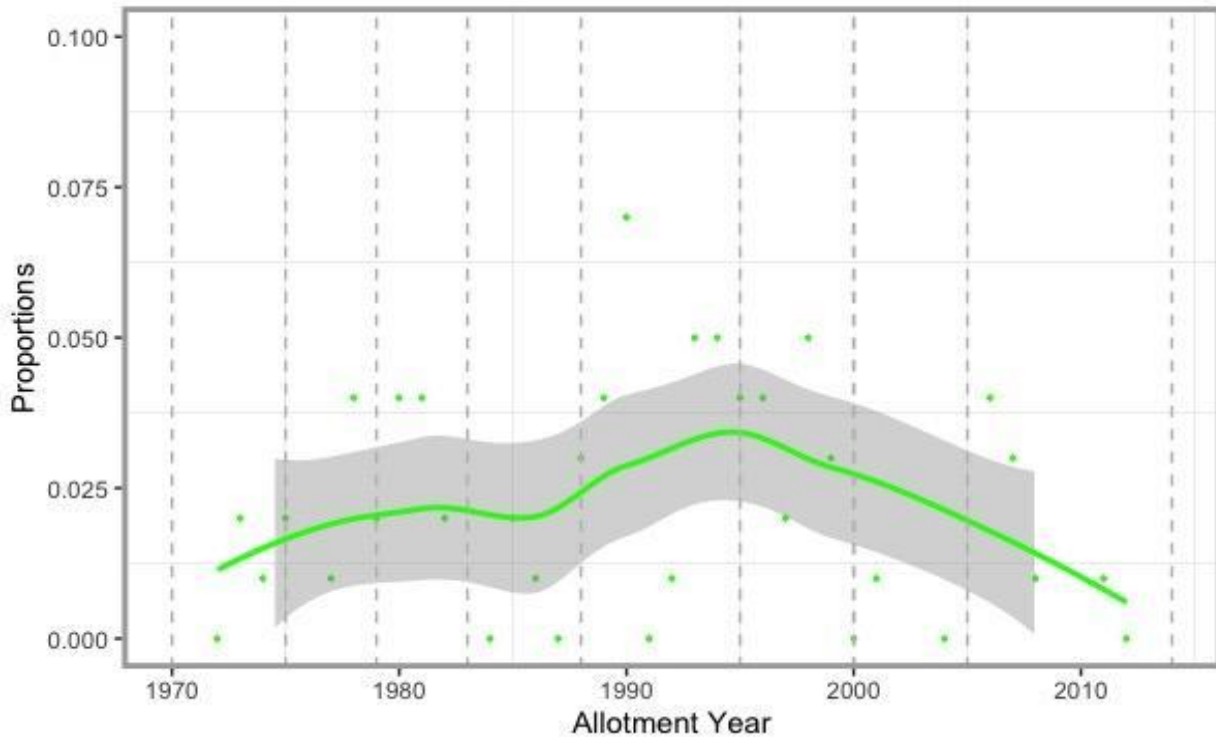
**Andhra Pradesh**



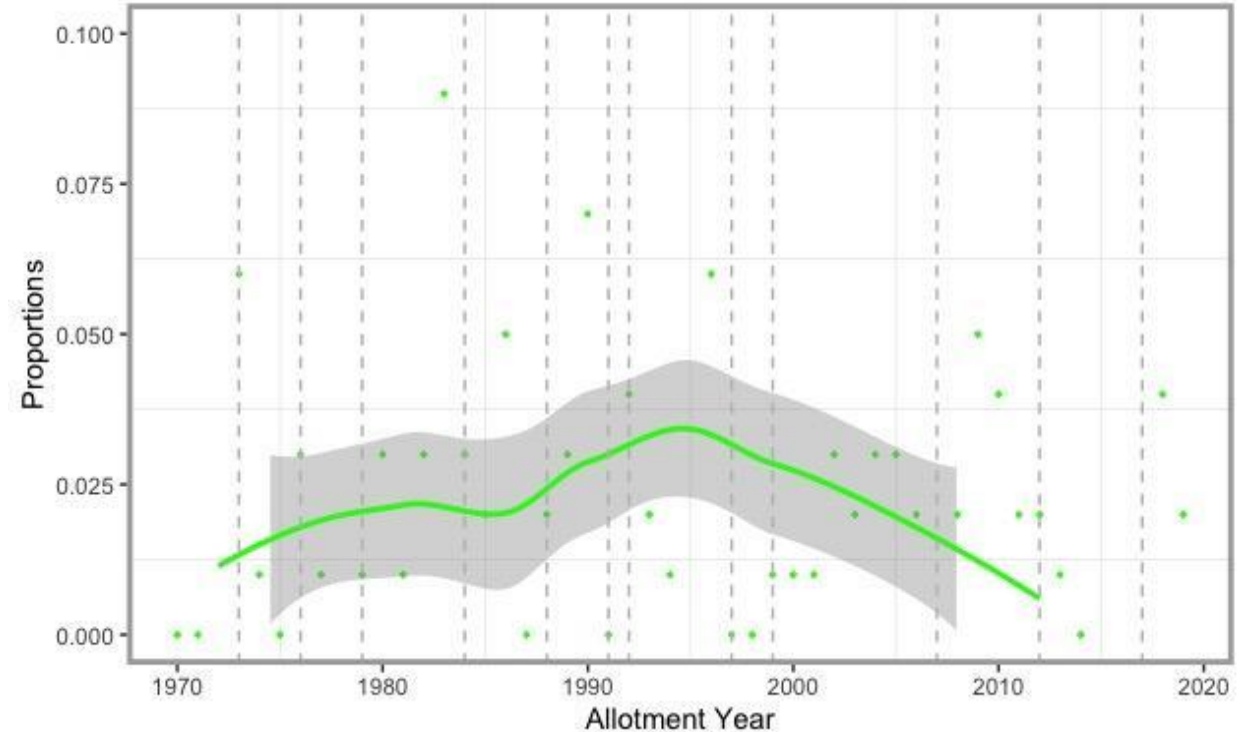
**Bihar**



Bihar: Promotions to the IAS and change in Chief Minister (1970-2012)



Uttar Pradesh: Promotions to the IAS and change in Chief Minister (1970-2012)



**Note:**

- Intercepts are marked to signify a change of the **longest-serving chief minister of a particular assembly** (with some exceptions).
- The data covers a period between **1970 and 2012**.
- Proportions (y): Proportion of allotments made to officers from the **State Civil Service**.

## **Last positions disaggregated by gender**

- More than **22 percentage of all women officers (and 42 percentage of retired women officers)** end up at secretary positions as against **19 percentage (and 23.21 percentage of retired male officers)** of all male officers (recruited between 1951 and 2020).

Sample of all Women Officers considered: 1120

Sample of all Male Officers considered: 9569

## **Last positions disaggregated by source of recruitment**

- More than **33 percentage of all officers hired through direct recruitment (and 50 percentage of retired DRs)** end up at secretary positions as against **0.06 percentage (and 0.02 percentage of retired promotees)** of all officers hired through promotion from State Civil Service (recruited between 1951 and 2020).

Sample of all officers hired through DR: 6198

Sample of all officers hired through promotion from SCS: 4359



## Last Departments disaggregated by gender

- More women officers find themselves in departments characterised as "Soft Departments" as against male officers. **30.85 % of all women officers (and 28.27 % of all retired women officers)** are based out of soft departments as against **21.5 % (and 20.50 % of all retired male officers)** of all male officers.

Sample of all Women Officers: 915

Sample of all Male Officers: 7594

## Last Departments disaggregated by source of recruitment

- More officers recruited through DR find themselves working in departments characterised as "Hard Departments" as against officers from the State Civil Service. **26.64 % of all direct recruits (and 28.02 % of all retired DRs)** of are based out of soft departments as against **21.86 % (22.24 % of all retired promotees)** of all promotees.

Sample of all Women Officers: 5022

Sample of all Male Officers: 3366

## First Positions disaggregated by Source of Recruitment

- More women officers find themselves in departments characterised as "Soft Departments" as against male officers. **30.85 % of all women officers (and 28.27 % of all retired women officers)** are based out of soft departments as against **21.5 % (and 20.50 % of all retired male officers)** of all male officers.

Sample of all Women Officers: 915

Sample of all Male Officers: 7594

## Age at the time of Allotment

- More officers recruited through DR find themselves working in departments characterised as "Hard Departments" as against officers from the State Civil Service. **26.64 % of all direct recruits (and 28.02 % of all retired DRs)** of are based out of soft departments as against **21.86 % (22.24 % of all retired promotees)** of all promotees.

Sample of all Women Officers: 5022

Sample of all Male Officers: 3366

## Distribution of all Officers by Cadre

- Some specific **cadres particularly from the north-east have a high representation of officers recruited through promotion from State Civil Service** as against DR (more than 40%). This includes AGMUT, Sikkim, Nagaland, Assam-Meghalaya and Manipur-Tripura.
- On the contrary, some **cadres from the Southern India have a relatively higher representation of officers recruited through Direct Recruitment** as against promotion from SCS (more than 60%). This includes Kerala, Telangana, Tamil Nadu and Andhra Pradesh.

## Decade-wise distribution of all officers

# Observations

## Promotions, Tenures & Age at the time of Promotions

More women officers find themselves in departments characterised as "Soft Departments" as against male officers. **30.85 % of all women officers (and 28.27 % of all retired women officers)** are based out of soft departments as against **21.5 % (and 20.50 % of all retired male officers)** of all male officers.

Sample of all Women Officers: 915

Sample of all Male Officers: 7594

## Ongoing/current research questions

- Do women officers in higher positions only end up working in departments characterised as “Soft”? Analysis of departments (categorised by hard, soft and others) filtered by gender for **some selective positions like Secretary and Additional Secretary.**
- Doing a quick perception analysis of selected IAS officers to verify our categorisation of “Hard” and “Soft” departments
- Build on observations through some secondary research
  - Inspecting what has been written about different state policies for promoting State Civil Service officers.  
Example: Why do cadres from the north-east have a higher representation of officers promoted from the State Civil Service?
- Review decisions made during cleaning with Deepak Sanan

## New research areas

- Investigating tenure periods and increase in transfers following assembly elections and comparing different states/cadres on the same metric
- Consider what (if any) supplementary data sources we need to use