**Supplementary Material: Appendices**

**Appendix A: Court Productivity and Judge Working Strength**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***LMD courts*** |  |  |  |  |  |
| ***State Name*** | ***District Name*** | ***Court Name*** | ***Total Number of Judge Days*** | ***Number of Judges*** | ***Work Load (total\_cases/avg\_judge\_count)*** |
| Rajasthan | Banswara | DJ ADJ Banswara District HQ | 2747 | 11 | 1726.3 |
| Tamil Nadu | Kanniyakumari | Principal District and Sessions Court | 1975 | 6 | 17086.43 |
| Tamil Nadu | Thoothukudi | Principal District court complex, Thoothukudi | 2975 | 7 | 14553.94 |
| Uttar Pradesh | Bareilly | ACJM Bareilly | 1795 | 5 | 673.14 |
| Gujarat | SURAT | Addl DJ Court, Bardoli | 3542 | 35 | 4584.81 |
| Tamil Nadu | Tiruchirappalli | Principal District and Session Court Establishment | 3141 | 9 | 19237.36 |
| Tamil Nadu | Tirunelveli | PDJ, I ADJ, Mahila, III ADJ, IV ADJ Tirunelveli | 622 | 4 | 70986.26 |
| Gujarat | Valsad | District Court, Valsad | 11026 | 21 | 4099.03 |
| Gujarat | Porbandar | District and Sessions Court, Porbandar | 5826 | 11 | 2960.85 |
| Rajasthan | Kota | DJ ADJ, Kota HQ | 1640 | 2 | 17032.72 |
| Tamil Nadu | Madurai | Principal District Judge | 1959 | 2 | 36890.04 |
| Rajasthan | Dungarpur | DJ ADJ Dungarpur District HQ | 2674 | 10 | 3627.63 |
| Rajasthan | Bundi | DJ ADJ, Bundi HQ | 4032 | 16 | 4946.69 |
| Rajasthan | Jaipur Metro | ACMM Railway, Jaipur Metro | 1935 | 8 | 12622.93 |
| Tamil Nadu | Thanjavur | Principal District Court, Thanjavur | 7664 | 20 | 6756.65 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| ***HMD courts*** |  |  |  |  |  |
| ***State Name*** | ***District Name*** | ***Court Name*** | ***Total number of judge days*** | ***Number of judges*** | ***Work Load (total\_cases/avg\_judge\_count)*** |
| Bihar | Muzaffarpur | CJM Division (West) | 1543 | 10 | 1082.19 |
| Kerala | Thiruvananthapuram | Addl CJM,Trivandrum | 5617 | 17 | 941.57 |
| Bihar | Aurangabad | CJM Division | 2694 | 4 | 2257 |
| Rajasthan | Jhalawar | ACJM GN, Jhalarapatan Jhalawar District | 6716 | 18 | 81.3 |
| Bihar | Bhojpur | CJM Division | 1611 | 12 | 789.31 |
| Bihar | Madhubani | CJM Division, Benipatti | 2605 | 5 | 1120.05 |
| Bihar | Muzaffarpur | CJM Division | 1209 | 9 | 1734.35 |
| Bihar | Madhepura | CJM Division, Uda-Kishunganj | 2028 | 3 | 951.12 |
| Bihar | Sitamarhi | CJM Division, Pupri | 1357 | 3 | 505.67 |
| Bihar | Jehanabad | CJM Division, Arwal | 1474 | 3 | 226 |
| Bihar | Sheohar | CJM Division, Sheohar | 444 | 7 | 255.15 |
| Rajasthan | Jodhpur District | CJM ACJM JM, Jodhpur District HQ | 4932 | 19 | 157.04 |
| Chhattisgarh | Surajpur | CJM, Surajpur | 3259 | 4 | 3401.08 |
| Orissa | Anugul | CJM, Anugul | 8084 | 10 | 2976.62 |
| Bihar | Darbhanga | CJM Division, Biraul | 2960 | 10 | 315.3 |

**Appendix B: Court’s Productivity and Term of Judges**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***LMD courts*** |  |  |  |  |
| ***State Name*** | ***District Name*** | ***Court Name*** | ***Mean Tenure Days*** | ***Median Tenure Days*** |
| Rajasthan | Banswara | DJ ADJ Banswara District HQ | 382.63 | 250 |
| Tamil Nadu | Kanniyakumari | Principal District and Sessions Court | 451 | 473.5 |
| Tamil Nadu | Thoothukudi | Principal District court complex, Thoothukudi | 633.85 | 729 |
| Uttar Pradesh | Bareilly | ACJM Bareilly | 505.2 | 678 |
| Gujarat | SURAT | Addl DJ Court, Bardoli | 159.37 | 107 |
| Tamil Nadu | Tiruchirappalli | Principal District and Session Court Establishment | 430.22 | 179 |
| Tamil Nadu | Tirunelveli | PDJ, I ADJ, Mahila, III ADJ, IV ADJ Tirunelveli | 155.5 | 82.5 |
| Gujarat | Valsad | District Court, Valsad | 629.47 | 523 |
| Gujarat | Porbandar | District and Sessions Court, Porbandar | 861.54 | 784 |
| Rajasthan | Kota | DJ ADJ, Kota HQ | 1185.5 | 1185.5 |
| Tamil Nadu | Madurai | Principal District Judge | 1345 | 1345 |
| Rajasthan | Dungarpur | DJ ADJ Dungarpur District HQ | 413.6 | 243 |
| Rajasthan | Bundi | DJ ADJ, Bundi HQ | 343.37 | 235.5 |
| Rajasthan | Jaipur Metro | ACMM Railway, Jaipur Metro  | 424.62 | 389.5 |
| Tamil Nadu | Thanjavur | Principal District Court, Thanjavur | 602.5 | 317.5 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***HMD courts*** |  |  |  |  |
| ***State Name*** | ***District Name*** | ***Court Name*** | ***Mean Tenure Days*** | ***Median Tenure Days*** |
| Bihar | Muzaffarpur | CJM Division (West) | 300.5 | 81 |
| Kerala | Thiruvananthapuram | Addl CJM, Trivandrum | 416.41 | 212 |
| Bihar | Aurangabad | CJM Division | 856.25 | 1023 |
| Rajasthan | Jhalawar | ACJM GN, Jhalarapatan Jhalawar District | 535.55 | 549 |
| Bihar | Bhojpur | CJM Division | 215.41 | 101.5 |
| Bihar | Madhubani | CJM Division, Benipatti | 598.6 | 317 |
| Bihar | Muzaffarpur | CJM Division | 274.77 | 79 |
| Bihar | Madhepura | CJM Division, Uda-Kishunganj | 886 | 769 |
| ***Bihar*** | Sitamarhi | CJM Division, Pupri | 696 | 629 |
| ***Bihar*** | Jehanabad | CJM Division, Arwal | 962 | 1079 |
| ***Bihar*** | Sheohar | CJM Division, Sheohar | 230.14 | 241 |
| ***Rajasthan*** | Jodhpur District | CJM ACJM JM, Jodhpur District HQ | 413.47 | 383 |
| ***Chhattisgarh*** | Surajpur | CJM, Surajpur | 1180.25 | 1156.5 |
| ***Orissa*** | Anugul | CJM, Anugul | 1027.7 | 1024 |
| ***Bihar*** | Darbhanga | CJM Division, Biraul | 369.1 | 262 |

**Appendix C: Court’s Productivity and Age of Cases**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***LMD courts*** |  |  |  |  |  |  |  |
| ***State Name*** | ***District Name*** | ***Court Name*** | ***0-1 years*** | ***1-3 years*** | ***3-5 years*** | ***5-10 years*** | ***10-20 years*** |
| Rajasthan | Banswara | DJ ADJ, Banswara District HQ | 2250 | 407 | 102 | 12 | 0 |
| Tamil Nadu | Kanniyakumari | Principal District and Sessions Court | 14376 | 1062 | 385 | 228 | 0 |
| Tamil Nadu | Thoothukudi | Principal District court complex, Thoothukudi | 18364 | 1251 | 151 | 23 | 0 |
| Uttar Pradesh | Bareilly | ACJM Bareilly | 456 | 28 | 25 | 30 | 0 |
| Gujarat | Surat | Addl DJ Court, Bardoli | 4404 | 321 | 135 | 22 | 0 |
| Tamil Nadu | Tiruchirappalli | Principal District and Session Court Establishment | 16689 | 1940 | 238 | 36 | 0 |
| Tamil Nadu | Tirunelveli | PDJ, I ADJ, Mahila, III ADJ, IV ADJ Tirunelveli | 37666 | 2235 | 267 | 66 | 0 |
| Gujarat | Valsad | District Court, Valsad | 14692 | 1858 | 684 | 455 | 0 |
| Gujarat | Porbandar | District and Sessions Court, Porbandar  | 8416 | 1025 | 360 | 236 | 0 |
| Rajasthan | Kota | DJ ADJ, Kota HQ | 11428 | 1907 | 368 | 161 | 1 |
| Tamil Nadu | Madurai | Principal District Judge | 27447 | 3336 | 465 | 139 | 0 |
| Rajasthan | Dungarpur | DJ ADJ Dungarpur District HQ | 4361 | 899 | 134 | 10 | 0 |
| Rajasthan | Bundi | DJ ADJ, Bundi HQ | 6918 | 871 | 148 | 117 | 0 |
| Rajasthan | Jaipur Metro | ACMM Railway Jaipur Metro | 2791 | 248 | 47 | 12 | 0 |
| Tamil Nadu | Thanjavur | Principal District Court, Thanjavur | 19925 | 1836 | 207 | 42 | 0 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| ***HMD courts*** |  |  |  |  |  |  |  |
| ***State Name*** | ***District Name*** | ***Court Name*** | ***0-1 years*** | ***1-3 years*** | ***3-5 years*** | ***5-10 years*** | ***10-20 years*** |
| Bihar | Muzaffarpur | CJM Division (West) | 202 | 461 | 348 | 326 | 0 |
| Kerala | Thiruvananthapuram | Addl CJM, Trivandrum | 390 | 444 | 293 | 552 | 0 |
| Bihar | Aurangabad | CJM, Division | 460 | 651 | 527 | 617 | 0 |
| Rajasthan | Jhalawar | ACJM GN, Jhalarapatan Jhalawar District | 12 | 126 | 103 | 80 | 0 |
| Bihar | Bhojpur | CJM Division | 207 | 258 | 150 | 389 | 0 |
| Bihar | Madhubani | CJM Division, Benipatti  | 126 | 355 | 210 | 370 | 0 |
| Bihar | Muzaffarpur | CJM Division | 404 | 724 | 426 | 1000 | 0 |
| Bihar | Madhepura | CJM Division, Uda Kishunganj | 54 | 207 | 129 | 197 | 0 |
| Bihar | Sitamarhi | CJM Division, Pupri  | 40 | 118 | 161 | 46 | 0 |
| Bihar | Jehanabad | CJM Division, Arwal  | 59 | 124 | 70 | 173 | 0 |
| Bihar | Sheohar | CJM Division, Sheohar  | 53 | 159 | 88 | 175 | 1 |
| Rajasthan | Jodhpur  | CJM ACJM JM, Jodhpur District HQ | 26 | 138 | 165 | 124 | 0 |
| Chhattisgarh | Surajpur | CJM, Surajpur | 681 | 1254 | 968 | 2202 | 0 |
| Orissa | Anugul | CJM, Anugul | 569 | 934 | 4281 | 2823 | 0 |
| Bihar | Darbhanga | Biraul CJM Division | 34 | 73 | 69 | 135 | 0 |

**Appendix D: Two-sided randomization (permutation) test for HMD and LMD courts**

Setup

We compare the distribution of various measures for the top-k and bottom-k courts for different values of k (15, 30, 45) which form approximately 1%, 2% and 3% of the courts in our dataset.

Type of test

Permutation tests are nonparametric test procedures to test the null hypothesis that two different groups come from the same distribution. A permutation test can be used for significance or hypothesis testing without requiring to make any assumptions about the sampling distribution. For our study, since conducting an exact permutation test is computationally intractable as k grows, we have used approximate two-sided randomization test with 10^7 different group allocations for each value of k (i.e. how many top and bottom courts are considered in hypothesis testing)

Null hypothesis

We have a similar null hypothesis for each of the 4 measures{workload, number of judges, judge days, median tenure days}, which is of the form : LMD and HMD <measure> follow the same distribution.

Chosen threshold is alpha = 0.01 : Null hypothesis cannot be rejected if the p-Value is greater than alpha

Results

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **k** | **workload\_p\_value** | **numjudges\_p\_value** | **judgedays\_p\_value** | **mediantenuredays\_p\_value** |
| 15 | 3.10E-06 | 0.4505586549 | 0.6181919382 | 0.8566538143 |
| 30 | 0.001086299891 | 0.01937809806 | 0.1461014854 | 0.3349102665 |
| 45 | 1.70E-05 | 0.0079952992 | 0.1023266898 | 0.190264281 |

Conclusions

* Workload for LMD courts is significantly different from that for HMD courts.
* Distribution of number of judges, judge days, and median tenure days is similar for both LMD and HMD courts.