

HEATMAPS

MAY 2024

- Tracking movement on Indian roads can provide insights into underlying demand and supply patterns since road traffic typically precedes the expected demand. As published by Indian Highway Management Company Limited (IHMCL), we tabulate data on **946 toll plazas** which collected **~INR 49 billion** in tolls in **March 2024**. In **March 2022**, data was available for **765 plazas** with total toll collection of **INR 36 billion**. In this analysis, we map 90%+ of toll plazas for which we have consistent data over last two years

1. Average tolls and inflation

- Value growth higher than volume growth**
 - In FY2024, average value growth was 11.9% year-on-year (yoy) and volume growth was 6.8%
 - The difference approximately equals the **inflation-linked formula** of tolls: [3% + 40% of WPI increase as on Dec 31]
 - That is, in FY2024, tolls in India rose by: 3% + 40% of 5.02% (Dec '22 WPI) = ~5%
- Average **“swipe”** at a toll, i.e., toll paid per vehicle, has grown to INR 181.1 in March 2024 from INR 154.7 in March 2022

2. Seasonality

- There are **two peaks**: one in **May** before the monsoon dip; another in **September/October** before the festival season
- Seasonally-adjusted growth can be calculated once there is a longer-time series

3. Top-10 toll plazas

- Account for **~7% of total value** (toll collected) **and volume** (traffic) in any given month
- A top-10 toll plaza collects, on average, ~INR 300 million over ~1.8 million transactions in a month
- Busiest toll plaza**: maximum traffic (volume) consistently recorded at Devanahalli (Karnataka)
- Highest tolls**: top two plazas consistently collecting the most tolls were Bharthana (Gujarat) and Shahjahanpur (Rajasthan)

4. State-wise

- **Volume:** Five states (**UP, TN, KA, MH, and RJ**) account for nearly **half of India's toll traffic**; share stable over last year
 - **Karnataka and Haryana** consistently host **8 of the top 10 busiest toll** plazas by volume
- **Value:** Five states (**UP, RJ, MH, TN, KA**) account for close to **half of total toll revenue**; UP and RJ account for one-fourth
 - **8 of top-10 toll revenue** generating plazas in India are in **four states** - Gujarat, Rajasthan, Uttar Pradesh, and Haryana

5. Freight and trade

- Freight and goods movement account for a large part of the value of tolling roads
 - However, break-up between passenger vehicles (PV) and commercial vehicles (CV) is available only till August 2023
- **PVs account for ~60% of the traffic** on Indian tolled roads generating **~30% of tolls**; **CVs ~40% volume** generated **~70% tolls**.
 - Average toll collected from a PV was INR 80 and from a CV was INR 308 in August 2023
- We pick up the example of data from June 2023. Toll plazas near and around ports started to turn yellow (lower yoy growth) and, in some cases, red (reflecting a drop over last year), indicating an overall slowdown in traffic movements. This was a leading indicator for India's slowing export, import in goods trade
- Overall **volume growth** on roads tracks reasonably closely (with a one-month lag) with **growth in e-way bills** generated on the GST network



HEATMAPS

MAY 2024

Section I

04 All-India toll

- Total road toll: value (traffic) and volume (collection)
- Top ten plazas: value and volume
- State-wise toll: total and average toll per vehicle

14 Freight and trade

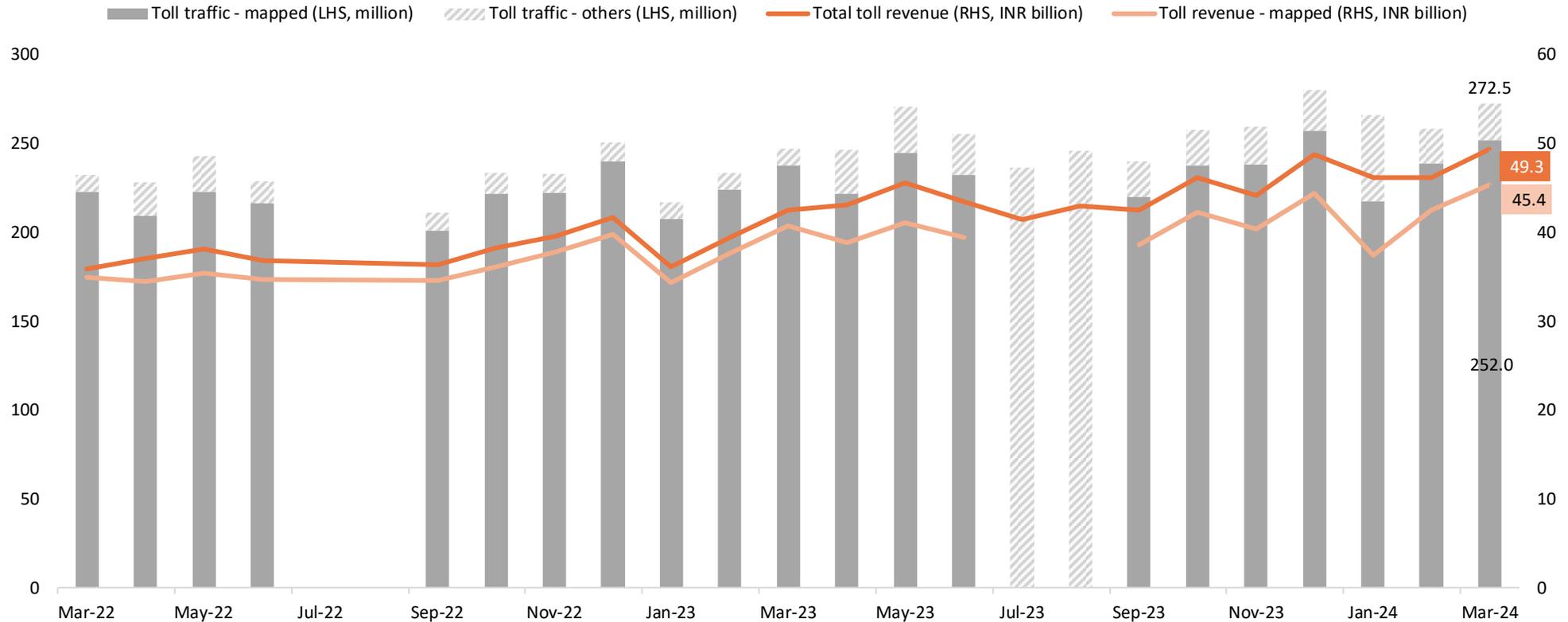
- Passenger and commercial vehicle toll
- E-way bills and toll traffic

19 HeatMaps: March 2023 to March 2024

Total toll collection: value and volume

Overall toll collection picks up to INR 49 billion, ~273 million swipes in March '24

Monthly road toll collection at NHAH tolls, March 2022 to March 2024



Source: Thurro, IHMCL, NIIF Research

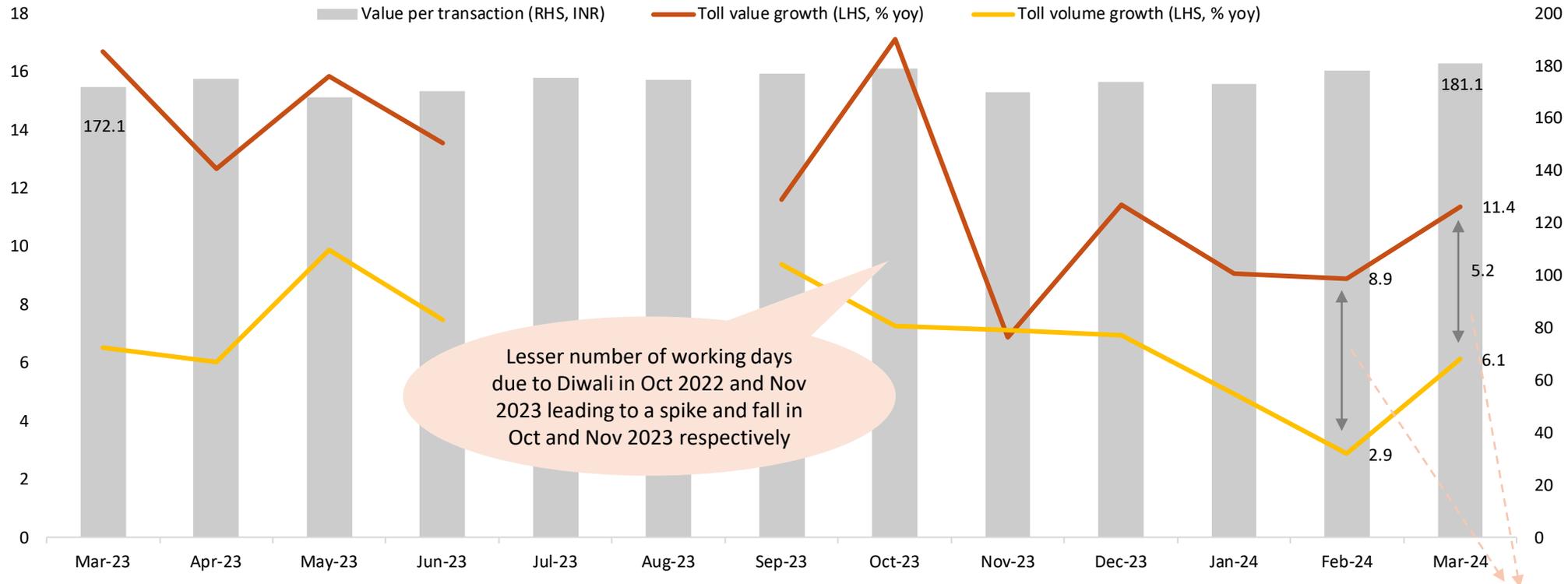
Note:

1. Data for July 2022 and August 2022 not available
2. Data for March 2022 is based on 765 toll plazas and on 946 plazas in March 2024. Similarly, data for every month is based on different number of toll plazas

Average toll per vehicle

Value growth higher than volume growth by ~5% on average, approximately equals inflation-linked toll price increase

Average toll paid per vehicle or value per transaction (INR), FY2022-FY2024 (Mar '24)



Lesser number of working days due to Diwali in Oct 2022 and Nov 2023 leading to a spike and fall in Oct and Nov 2023 respectively

This difference can be explained by the ~5% increase in toll in FY2024. This is calculated using the formula: $[3\% + 40\% * 5.02\% \text{ (Dec '22 WPI)}]$

Source: Thurro, IHMCL, NIIF Research

Note:

- 1. Data for July 2022 and August 2022 not available. Hence, growth not shown for those months in 2023

State-wise top 10 plazas: number of vehicles

Devanahalli toll in KA is consistently the busiest toll plaza (by volume); Karnataka and Haryana host 8 of the top 10 busiest toll plazas by volume

State-wise top 10 toll plazas by volume, Mar 2023 to Mar 2024

Toll plaza	State	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Mar-24 (million)
Devanahalli	KA	1	1	1	1	1	1	1	1	1	1	1	1	1	2.4
Bhagan	HR	2	2	3	2	4	3	3	2	2	4	4	5	4	1.9
Kherki Daula	HR	3	3	5	4	2	4	4	4	7	5	5	4	5	1.7
Banglore Nelamangala	KA	4	4	2	3	5	5	5	5	4	2	3	3	3	2.0
Badarpur Faridabad	HR	5	5	4	5	3	2	2	3	3	3	2	2	2	2.1
L T Panipat	PB	6	6	7	6	9	7	6	6	6	7	7		6	1.6
Bharthana	GJ	7	7	6	9	10	8	7	7	5	6	6	6		
Gharonda	HR	8	9		7			10	8	9	9				
Chhajarsi	UP	9			8					10			9	8	1.5
Mandva Narmada Bridge	GJ	10								8	8	8	7	10	1.5
Attibele	KA		8	8	10	6	6	9	9						
Electronic City Phase 1	KA		10			8	9					10	10	9	1.5
Khedshivapur	MH			9											
Paranur	TN			10											
Hoskote	KA					7	10	8	10		10	9	8	7	1.5
Traffic in top 10 plazas															
million		16.7	16.7	17.8	17.2	16.5	17.1	16.5	17.8	18.4	19.4	18.3	17.5	17.7	
% share of total		6.7	6.8	6.6	6.8	7.0	6.9	6.9	6.9	7.1	6.9	6.9	6.8	6.5	17.7

Source: Thurro, IHMCL, NIIF Research

Note:

1. Conditional formatting for each toll plaza based on the relative rank – the higher the rank in the month, the greener will be the shading

State-wise top 10 plazas: value of tolls

Bharthana in GJ and Shahjahanpur in RJ broadly remain the top 2 plazas by value; 8 of the top 10 are in four states - GJ, RJ, UP, and HR

State-wise top 10 toll plazas by value, Mar 2023 to Mar 2024

Toll plaza	State	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Mar-24 (INR million)
Bharthana	GJ	1	1	1	1	1	1	1	1	1	1	1	1	2	359.3
Shahjahanpur	RJ	2	2	2	2	2	2	2	2	3	3	3	2	1	366.9
Barajore	UP	3	3	3	3	5	7	5	6	7	7	7	3	5	318.8
Gharonda	HR	4	4	5	4	3	4	3	3	2	2	2	6	3	357.1
Jaladhulagori	WB	5	5	4	6	4	3	4	7	5	6	4	5	4	331.2
Choryasi	GJ	6	6	6	7	7	5	7	5	6	4	5	4	6	311.9
Bhagan	HR	7	8	7	5	6	6	6	4	4	5	6	10	8	280.6
Chhajarsi	UP	8	7	8	8			9	9	9	9	10	7	9	272.7
Jaipur	RJ	9	9		10	9	9								
Ladowal	PB	10						10	8	8	8	8		7	284.5
Devanahalli	KA		10	10	9	8	8	8	10	10	10	9	8	10	259.6
Khedshivapur	MH			9											
L T Krishnagiri Thopur	TN					10									
Khandi Obri	RJ						10						9		
Toll collected in top 10 plazas															
INR billion		2.9	2.9	3.0	2.9	2.8	2.9	2.9	3.2	3.1	3.4	3.1	3.0	3.1	3,142.7
% share of total		6.9	6.7	6.7	6.7	6.7	6.7	6.9	6.9	7.0	6.9	6.7	6.5	6.4	

Source: Thurro, IHMCL, NIIF Research

Note:

1. Conditional formatting for each toll plaza based on the relative rank – the higher the rank in the month, the greener will be the shading

State-wise toll collection: volume (number of vehicles)

Overall volume growth in India picked up in May and September 2023

Growth in toll traffic (volume) across top 10 states, Mar 2023 to Mar 2024

	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Toll traffic													
Uttar Pradesh	6.0	5.7	8.7	7.8			8.7	8.5	8.1	9.0	0.7	3.9	8.1
Rajasthan	1.1	4.7	7.5	6.4			9.3	5.4	1.0	4.8	1.9	1.7	5.1
Maharashtra	4.8	6.7	10.8	10.3			8.2	(1.2)	7.3	6.7	5.6	3.3	4.1
Tamil Nadu	2.2	8.7	14.2	1.7			7.2	5.9	10.0	(0.7)	5.2	4.3	4.9
Karnataka	8.7	11.3	12.8	10.3			15.9	7.1	11.6	10.8	7.2	8.4	10.0
Andhra Pradesh	1.0	(0.2)	7.6	2.5			7.2	11.5	6.0	3.6	6.8	5.7	8.6
Madhya Pradesh	5.0	3.2	10.7	10.0			8.6	12.8	0.8	6.7	2.4	2.9	7.9
Gujarat	1.3	9.0	9.0	(2.4)			15.4	7.5	13.5	11.0	6.3	9.0	11.8
West Bengal	(2.1)	(2.0)	3.4	(1.1)			(0.1)	4.0	(0.8)	3.0	4.2	3.0	4.7
Telangana	3.7	0.8	8.0	3.0			9.9	10.1	6.4	6.6	6.3	9.0	8.3
India	6.5	6.0	9.9	7.5			9.4	7.3	7.1	7.0	4.9	2.9	6.1

Source: Thurro, IHMCL, NIIF Research

Note:

1. Growth calculated using daily average numbers to account for differences in the number of days in a month. Also, growth not shown for July and August 2023 as data is not available for base months
2. Growth calculations are based on toll plazas common to both the current and base month to eliminate fluctuations caused by newly added or removed plazas in the database. For instance, March 2023 growth uses data from 720 plazas present in both March 2023 and March 2022, out of the 838 and 765 total plazas available in these months, respectively. Therefore, growth may be different when calculated using data for all toll plazas without these adjustments
3. Monthly growth comparisons may be on a different base (number of toll plazas). For example, growth for May 2023 is calculated using 725 plazas, while June 2023 uses 734 plazas. Despite these variations, the data consistently represents over 90% of transactions, providing a reliable indication of overall growth trends
4. Top 10 states based on their gross state domestic product in FY2022. States are sorted in descending order based on their share in total toll revenue as of March 2024
5. This is a first-cut analysis and expected to evolve, refine, and stabilize over time

State-wise toll collection: volume (number of vehicles)

Five states - UP, KA, TN, MH, and RJ - account for nearly half of the total toll traffic; top ten account for more than three-fourths

Toll traffic (volume) across top ten states (million), Mar 2023 to Mar 2024

	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	% share
Toll traffic														
Uttar Pradesh	26.9	24.9	27.8	28.4	25.0	25.3	24.3	26.4	28.8	28.8	22.7	29.6	29.2	11.6
Rajasthan	20.5	19.2	20.4	20.2	27.4	28.7	19.7	19.9	20.5	21.7	18.8	22.5	21.5	8.5
Maharashtra	20.0	18.0	20.8	19.3	25.2	26.2	18.0	18.3	20.9	21.5	17.4	20.7	19.9	7.9
Tamil Nadu	25.4	26.0	29.1	27.5	20.2	20.8	27.6	28.0	27.0	28.1	20.6	28.7	27.6	11.0
Karnataka	23.3	24.3	27.0	25.1	18.6	19.6	24.6	25.7	26.2	28.2	25.2	27.0	26.7	10.6
Andhra Pradesh	15.3	14.9	17.3	16.9	17.9	19.4	15.9	16.9	16.2	17.1	14.9	17.3	17.3	6.9
Madhya Pradesh	10.9	10.3	11.4	11.1	16.4	17.2	10.3	11.6	10.5	11.3	9.4	12.1	11.8	4.7
Gujarat	16.9	13.5	14.8	12.9	12.1	12.6	13.5	14.2	16.3	16.3	12.3	16.4	15.2	6.0
West Bengal	9.8	9.1	9.8	9.6	8.9	9.0	8.7	8.7	9.4	10.0	9.6	10.2	10.5	4.2
Telangana	8.6	8.3	9.7	9.2	8.7	9.4	8.5	9.3	8.9	9.9	9.7	10.4	10.0	4.0
Sub-total (top 10 states)	177.4	168.4	188.0	180.3	180.4	188.2	171.3	179.1	184.7	193.0	160.6	194.9	189.7	
	74.7	75.8	76.8	77.5	76.2	76.4	77.8	75.3	77.5	75.1	73.8	81.6	75.3	
India	237.5	222.0	244.9	232.5	236.6	246.2	220.2	237.8	238.5	257.0	217.6	239.0	252.0	100.0

Source: Thurro, IHMCL, NIIF Research

Note:

1. Top 10 states based on their gross state domestic product in FY2022.
2. States are sorted in descending order based on their share in total toll revenue in March 2024

State-wise toll collection: value of tolls

Strong yoy growth in value of tolls across Indian tolled roads between March 2023 and March 2024

Toll collections (value) across top 10 states, Mar 2023 to Mar 2024

	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Toll revenue													
Uttar Pradesh	13.8	11.0	14.6	10.8			10.7	15.5	5.0	10.1	1.1	7.5	9.9
Rajasthan	13.9	13.9	16.4	12.4			8.4	16.0	(1.5)	5.9	2.8	6.2	10.0
Maharashtra	14.7	13.7	15.3	13.9			6.9	7.5	2.3	6.7	6.8	7.1	7.5
Tamil Nadu	15.3	15.4	19.8	11.4			9.4	13.1	7.0	3.5	8.7	7.0	9.1
Karnataka	22.0	19.2	20.0	18.1			17.0	17.2	13.6	17.4	14.0	12.1	13.7
Andhra Pradesh	14.5	10.3	15.5	12.1			13.7	21.4	11.7	10.9	12.7	11.9	14.1
Madhya Pradesh	17.4	10.9	16.5	13.8			13.4	32.7	6.0	14.2	10.5	11.9	15.6
Gujarat	8.4	12.9	13.4	2.1			18.1	19.8	5.3	11.2	7.5	10.6	13.0
West Bengal	5.7	3.5	9.5	3.8			5.9	10.6	3.5	8.4	10.5	10.2	11.9
Telangana	16.4	9.0	12.4	8.6			10.6	17.0	7.7	11.3	11.2	13.4	14.0
India	16.7	12.7	15.9	13.5			11.6	17.1	6.9	11.4	9.1	8.9	11.4

Source: Thurro, IHMCL, NIIF Research

Note:

1. Growth calculated using daily average numbers to account for differences in the number of days a month. Also, growth not shown for July and August 2023 as data is not available for base months
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4. Top 10 states based on their gross state domestic product in FY2022. States are sorted in descending order based on their share in total toll revenue as of March 2024
5. This is a first-cut analysis and expected to evolve, refine, and stabilize over time

State-wise toll collection: value of tolls

Four states - UP, RJ, MH, GJ, and TN - account for ~50% of the total toll (value) collected; top ten account for more than three-fourths

Toll collection (value) across top ten states (INR billion), Mar 2023 to Mar 2024

	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	% share
Toll traffic														
Uttar Pradesh	5.4	5.1	5.4	5.5	5.1	5.1	5.0	5.5	5.6	5.7	4.5	5.8	5.9	12.9
Rajasthan	4.3	4.1	4.2	4.2	4.3	4.4	4.2	4.4	4.1	4.5	3.9	4.8	4.7	10.3
Maharashtra	4.0	3.6	3.9	3.8	3.7	3.9	3.6	3.7	3.8	4.0	3.5	4.1	4.0	8.9
Tamil Nadu	3.2	3.2	3.5	3.4	3.8	4.0	3.5	3.5	3.3	3.5	2.6	3.6	3.6	7.8
Karnataka	2.7	2.9	3.1	3.0	3.4	3.5	2.9	3.0	3.0	3.3	2.9	3.2	3.3	7.3
Andhra Pradesh	2.8	2.8	3.1	3.1	3.1	3.2	3.0	3.2	3.0	3.1	2.5	3.2	3.2	7.1
Madhya Pradesh	2.5	2.5	2.5	2.5	3.0	3.1	2.5	2.9	2.4	2.6	2.3	2.9	2.9	6.4
Gujarat	3.5	2.8	3.0	2.7	2.9	3.0	2.8	3.1	3.1	3.3	2.4	3.3	3.2	6.9
West Bengal	2.1	2.0	2.1	2.1	1.9	2.0	2.0	1.9	2.1	2.2	2.1	2.4	2.4	5.3
Telangana	1.5	1.4	1.6	1.6	1.5	1.6	1.5	1.6	1.5	1.7	1.6	1.8	1.8	3.9
Sub-total (top 10 states)	31.9	30.5	32.5	31.8	32.7	33.8	31.0	32.8	31.9	34.0	28.3	35.2	34.9	
	78.3	78.7	79.0	80.5	78.7	78.6	80.3	77.5	78.9	76.7	75.5	82.8	77.0	
India	40.8	38.8	41.1	39.4	41.5	43.0	38.6	42.3	40.4	44.4	37.5	42.5	45.4	100.0

Source: Thurro, IHMCL, NIIF Research

Note:

1. Top 10 states based on their gross state domestic product in FY2022.
2. States are sorted in descending order based on their share in total toll revenue in March 2024

Average toll per vehicle: state-wise

Average swipe at a toll grows to INR 180 in March 2024 from INR 172 in March 2023

Average toll paid per vehicle across top ten states (INR), Mar 2023 to Mar 2024

	Units	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24
Uttar Pradesh	INR	201	206	196	194	204	202	206	207	193	199	198	197	201
Rajasthan	INR	208	214	208	206	157	153	211	221	199	207	209	214	218
Maharashtra	INR	199	201	187	195	147	149	202	204	182	188	199	198	202
Tamil Nadu	INR	126	125	121	124	188	192	125	124	122	124	125	125	129
Karnataka	INR	117	118	113	118	183	179	119	117	114	116	114	120	124
Andhra Pradesh	INR	182	189	177	183	173	165	192	188	187	183	166	187	187
Madhya Pradesh	INR	231	239	223	223	183	180	246	252	232	231	247	238	245
Gujarat	INR	206	211	203	209	237	237	209	216	188	204	195	204	207
West Bengal	INR	216	222	216	217	213	222	224	217	222	223	224	231	231
Telangana	INR	171	176	164	170	172	170	175	176	173	170	170	174	180
Average (top 10 states)	INR	180	181	173	176	181	180	181	183	172	176	176	181	184
India	INR	172	175	168	170	175	175	175	178	169	173	172	178	180

Source: Thurro, IHMCL, NIIF Research

Note:

1. Top 10 states identified as per gross state domestic product in FY2022
2. Toll revenue per vehicle calculated for those toll plazas that are common in the current and base month. For example, data for 946 toll plazas are available for March 2024 and for 838 plazas in March 2023. We map (in the previous slides) and calculate average toll paid in March 2024 using data for 814 plazas which are common across both periods.



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Section II

04 All-India toll

- Total road toll: value (traffic) and volume (collection)
- Top ten plazas: value and volume
- State-wise toll: total and average toll per vehicle

14 Freight and trade

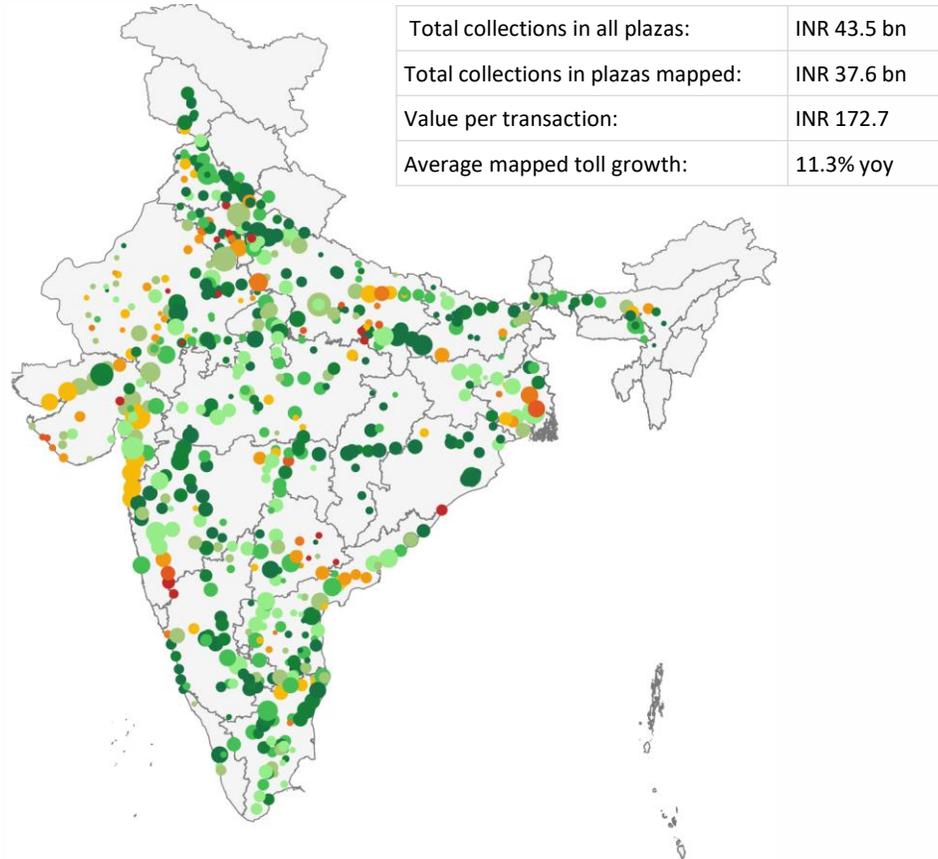
- Passenger and commercial vehicle toll
- E-way bills and toll traffic

19 HeatMaps: March 2023 to March 2024

Total toll collection: value of tolls and number of vehicles

Continued growth in toll collection across most plazas in June

Growth in total IHMCL toll collections (% yoy), Jun '23



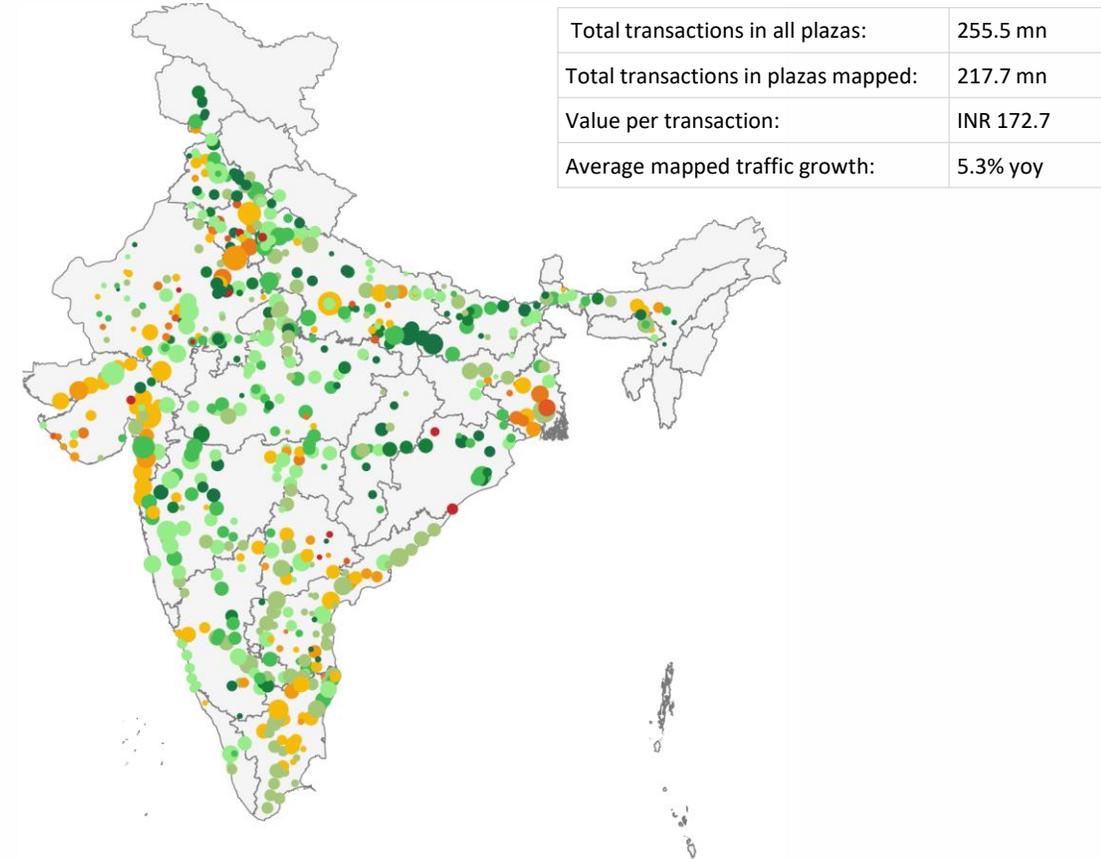
Source: IHMCL, NIIF Research

Note:

- 663 toll plazas mapped out of 857 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Slower growth in toll traffic volume across most tolls

Growth in total IHMCL toll traffic (% yoy), Jun '23



Source: IHMCL, NIIF Research

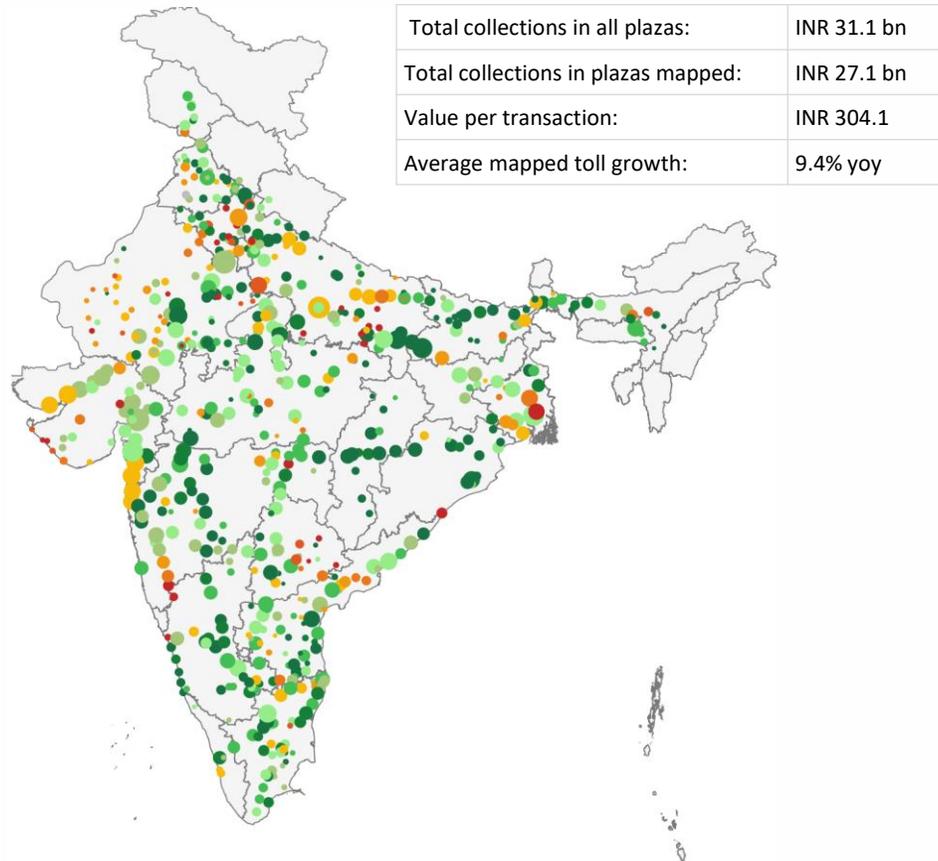
Note:

- 663 toll plazas mapped above out of 857 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Commercial vehicle toll collection: value of tolls and number of vehicles

Lower growth in commercial vehicle tolls than total collection

Growth in IHMCL commercial vehicle toll collections (% yoy), Jun '23



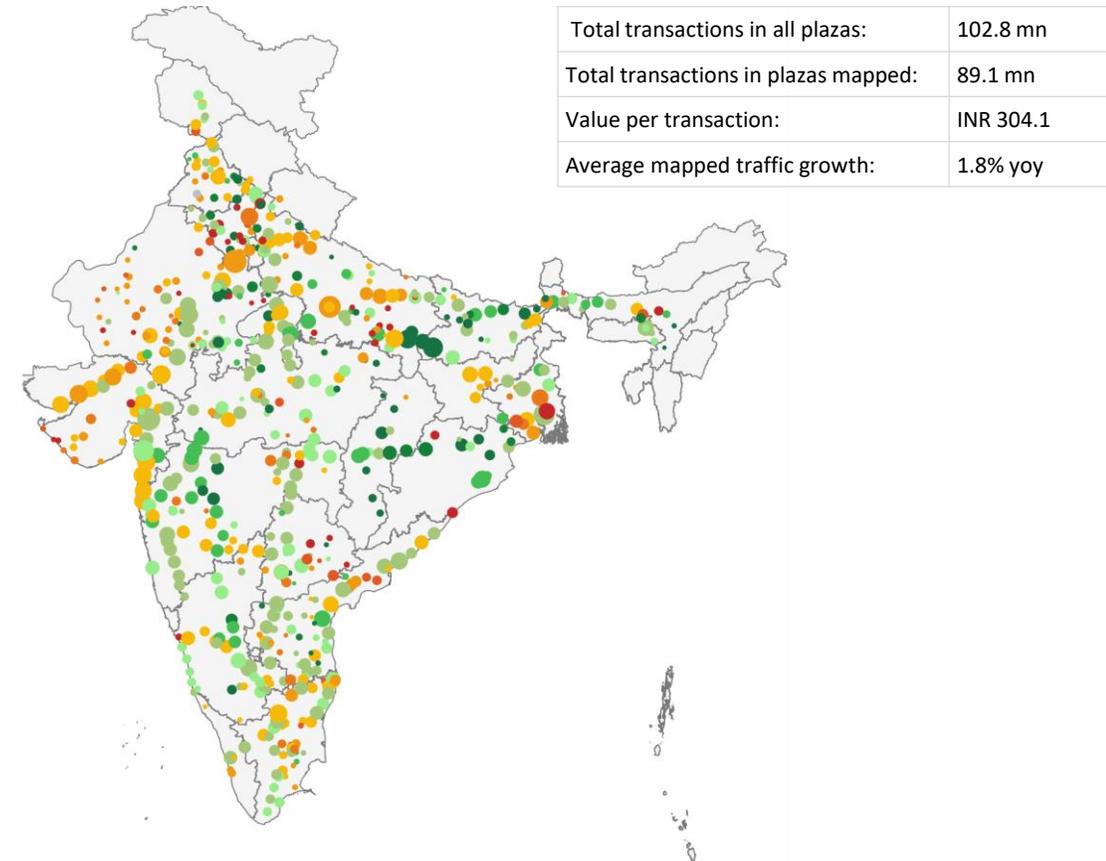
Source: IHMCL, NIIF Research

Note:

- 663 toll plazas mapped above from a data set of 857 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Weak growth in commercial vehicle traffic in June

Growth in IHMCL commercial vehicle traffic (% yoy), Jun '23



Source: IHMCL, NIIF Research

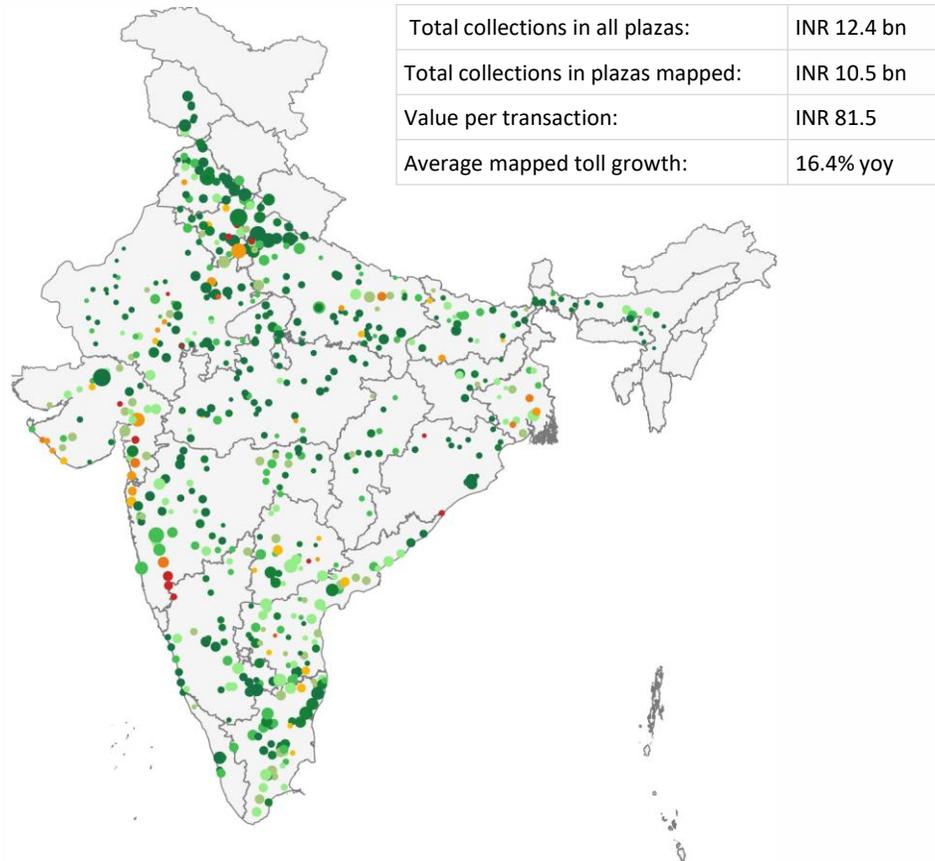
Note:

- 663 toll plazas mapped above from a data set of 857 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Passenger vehicle toll collection: value of tolls and number of vehicles

Passenger vehicles growth driving total toll collection growth

Growth in IHMCL passenger vehicle toll collections (% yoy), Jun '23



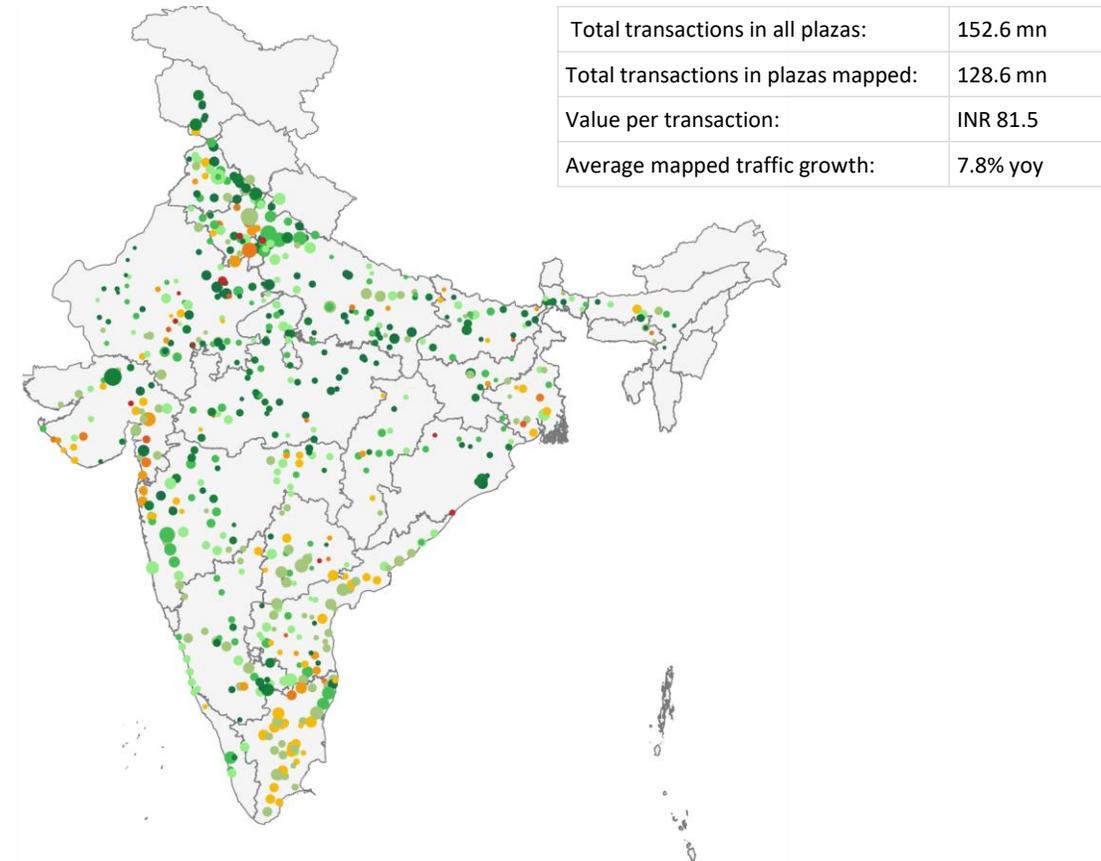
Source: IHMCL, NIIF Research

Note:

- 663 toll plazas mapped above from a data set of 857 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Stronger than total growth in passenger vehicle traffic in June

Growth in IHMCL passenger vehicle traffic (% yoy), Jun '23



Source: IHMCL, NIIF Research

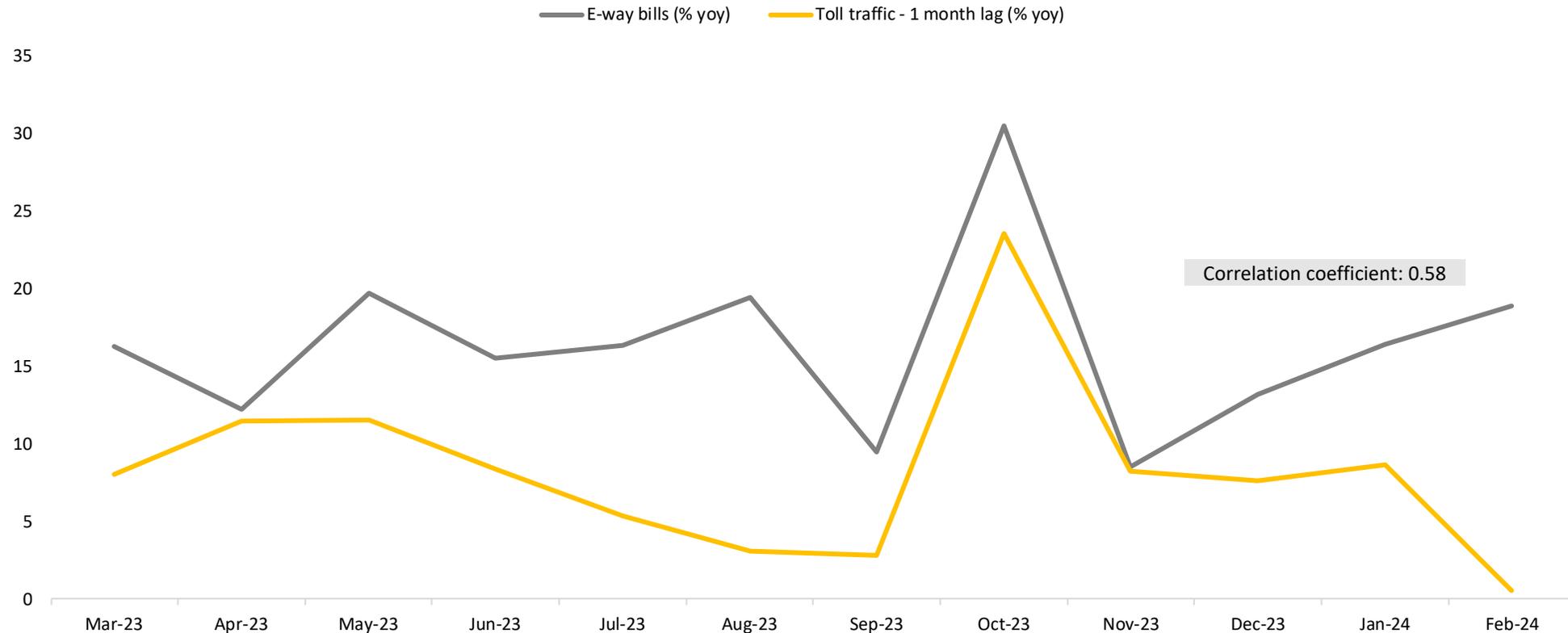
Note:

- 663 toll plazas mapped above from a data set of 857 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Toll traffic

Toll traffic positively correlated with e-way bill growth with a one-month lag

Growth in toll traffic and e-way bills, March 2023 to March 2024



Source: Thurro, IHMCL, NIIF Research

Note:

Toll traffic growth shown above for a given month pertains to the next month. For example, the peak in October 2023 is the growth in toll volumes in November 2023. Hence, a peak in e-way bill growth in October 2023 likely shows up as a peak in volume growth in November 2023



HEATMAPS

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Section III

04 All-India toll

- Total road toll: value (traffic) and volume (collection)
- Top ten plazas: value and volume
- State-wise toll: total and average toll per vehicle

14 Freight and trade

- Passenger and commercial vehicle toll
- E-way bills and toll traffic

19 HeatMaps: March 2023 to March 2024

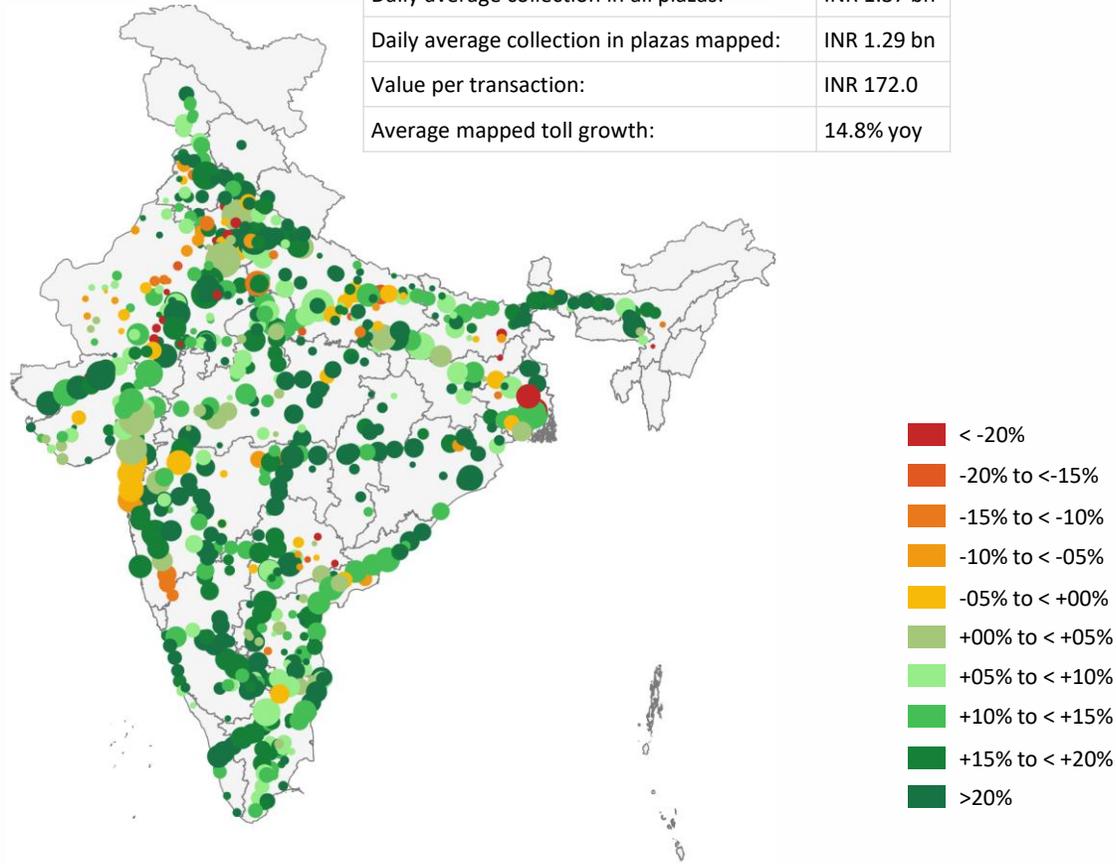
- **Indian Highway Management Company Limited (IHMCL)** has been publishing data on traffic volumes and collection since March 2022 at its various toll plazas
 - IHMCL report has data on 946 toll plazas of NHAI (as of March '24). This has steadily increased from the 765 tolls IHMCL covered in March '22. July '22 and August '22 data are not available
 - Until June '23, data on the number of transactions and amounts collected across type of vehicles (car, LCV, bus, truck), and type of toll plaza (publicly funded or concession) were available. This data is not published anymore
- **Our analysis** is based on (a) extracting and cleaning of data, (b) analyzing it, and (c) visualizing it on a map. Visualization has been done by geotagging each plaza to its respective latitude and longitude
 - We tag only those toll plazas which are common across the current and base months. For example, 814 toll plazas are common in March 2024 (current) and March 2023 (base)
 - The other 132 (946 minus 814) toll plazas are due to either the unavailability of the latitude-longitude data or because data on new plazas were now captured by IHMCL
- The analysis shows year-on-year (price and volume) daily average growth from March '23 to March '24 for all tolls
 - **Location:** Each dot represents a **toll plaza geo-tagged** to the respective latitude and longitude
 - **Size of the dot** reflects the relative value/volume of transaction in a month in that plaza to the total
 - **Legend:** We use a **cascading 3-colour scale** to represent year-on-year (yoy) changes
 - **State-level:** We aggregate all toll plazas to its respective state to arrive at growth and absolute values for a given month
- There may be some **cash collections for tolls** which, according to our estimates, represent approximately 2% of total revenue, and hence, have **negligible impact on our conclusions**

Total toll collection: value of tolls and number of vehicles

Strong growth in toll collection across most plazas in March

Growth in total IHMCL toll transactions (% yoy), Mar '23

Daily average collection in all plazas:	INR 1.37 bn
Daily average collection in plazas mapped:	INR 1.29 bn
Value per transaction:	INR 172.0
Average mapped toll growth:	14.8% yoy



Source: Thurro, IHMCL, NIIF Research

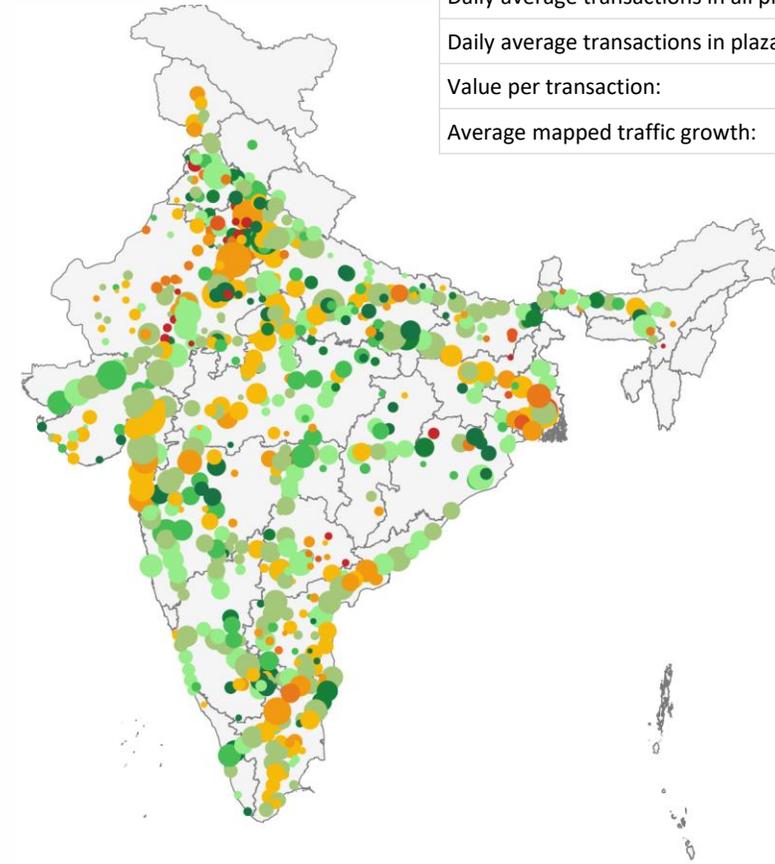
Note:

- 720 toll plazas mapped out of 838 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Slower growth in toll traffic volume across most toll plazas

Growth in total IHMCL toll traffic (% yoy), Mar '23

Daily average transactions in all plazas:	7.98 mn
Daily average transactions in plazas mapped:	7.47 mn
Value per transaction:	INR 172.0
Average mapped traffic growth:	3.9% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

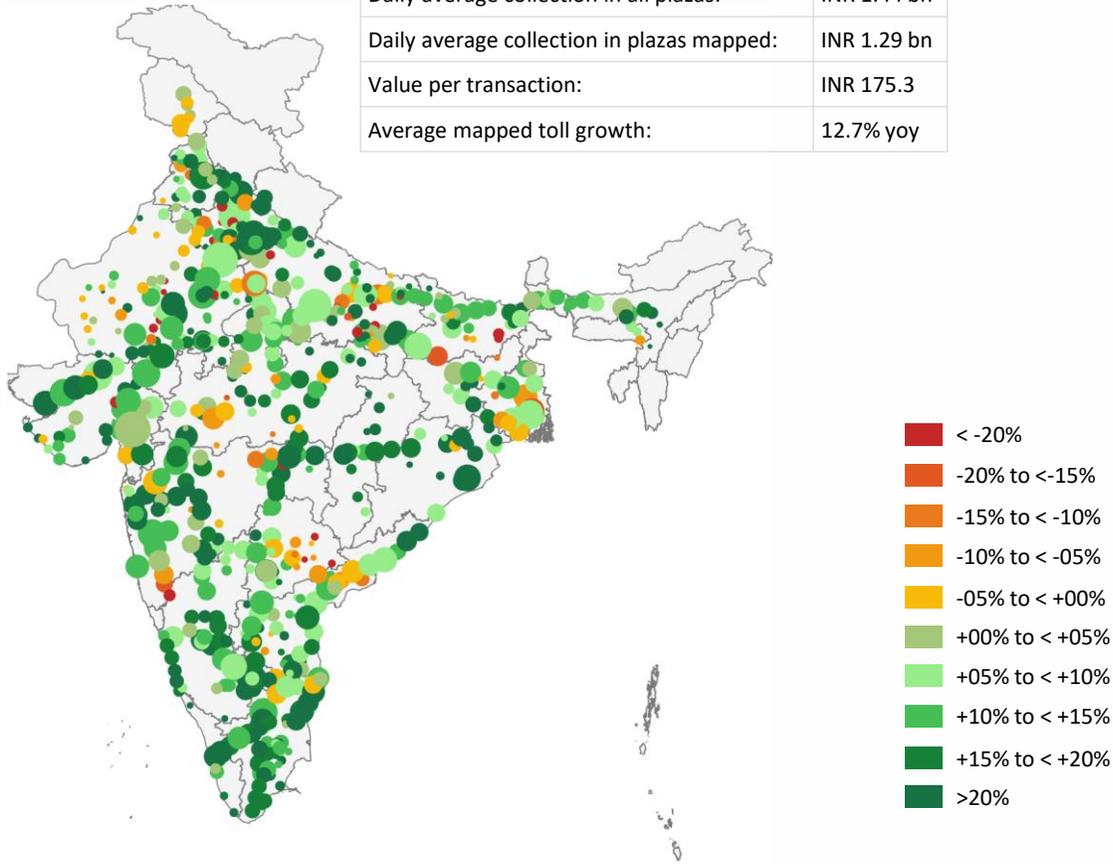
- 720 toll plazas mapped above out of 838 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Toll collection growth remains strong across most tolls

Growth in IHMCL overall transactions (% yoy), Apr '23

Daily average collection in all plazas:	INR 1.44 bn
Daily average collection in plazas mapped:	INR 1.29 bn
Value per transaction:	INR 175.3
Average mapped toll growth:	12.7% yoy



Source: Thurro, IHMCL, NIIF Research

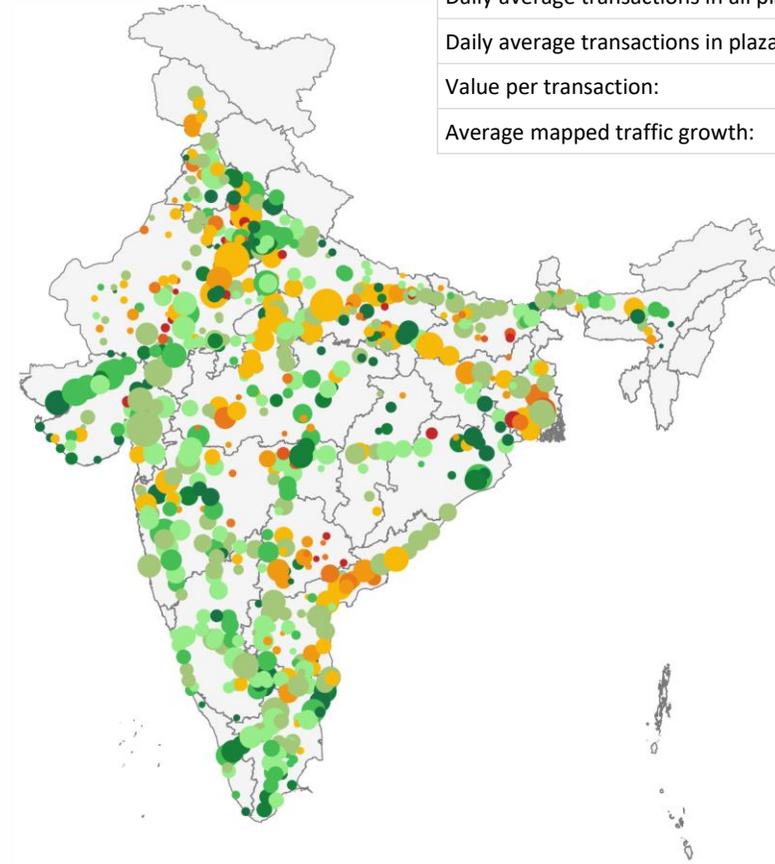
Note:

- 715 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Traffic growth moderates across most tolls in April

Growth in IHMCL overall traffic (% yoy), Apr '23

Daily average transactions in all plazas:	8.21 mn
Daily average transactions in plazas mapped:	7.40 mn
Value per transaction:	INR 175.3
Average mapped traffic growth:	6.0% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

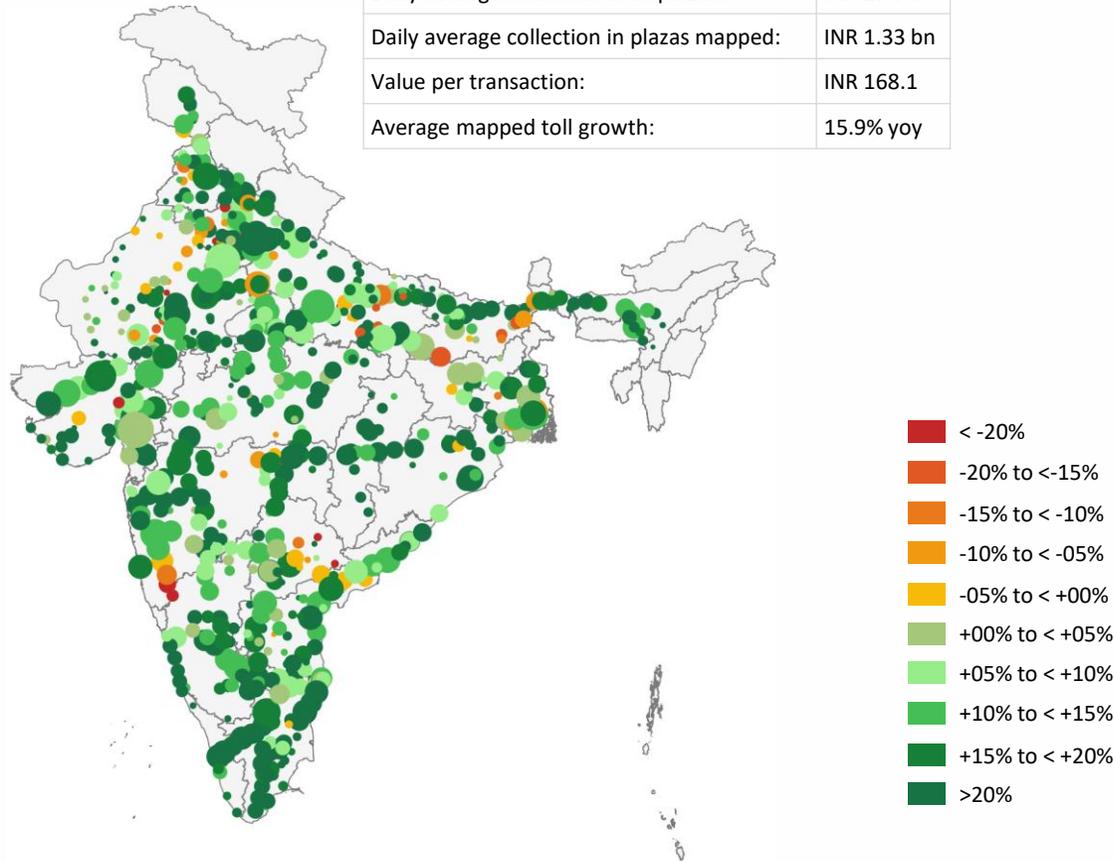
- 715 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Strong growth in toll collection across most plazas in May

Growth in IHMCL overall transactions (% yoy), May '23

Daily average collection in all plazas:	INR 1.47 bn
Daily average collection in plazas mapped:	INR 1.33 bn
Value per transaction:	INR 168.1
Average mapped toll growth:	15.9% yoy



Source: Thurro, IHMCL, NIIF Research

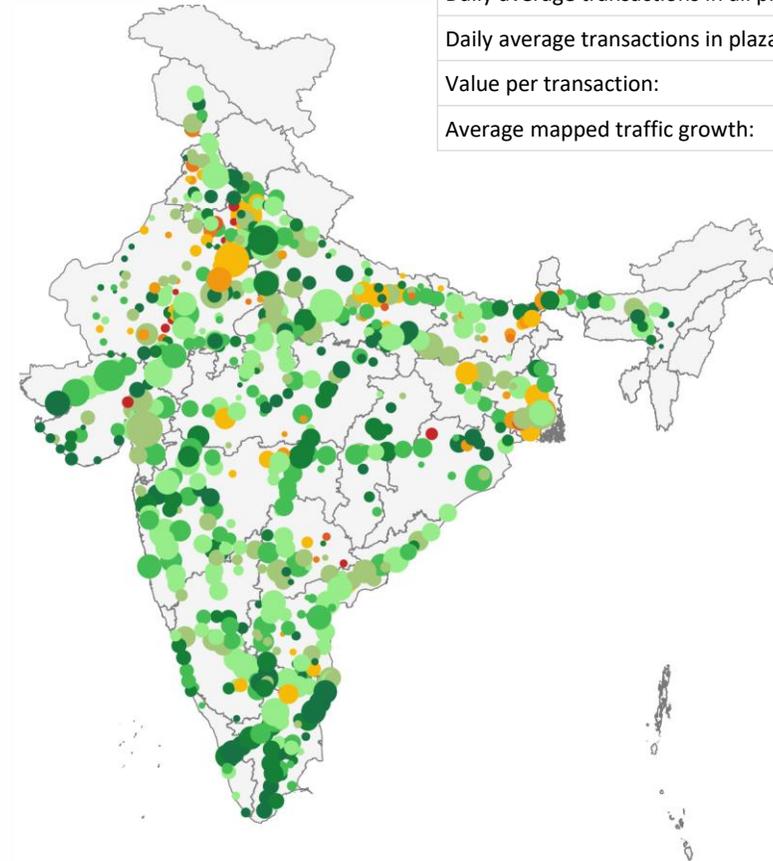
Note:

- 726 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Higher growth in toll traffic volume seen across most tolls

Growth in IHMCL overall traffic (% yoy), May '23

Daily average transactions in all plazas:	8.74 mn
Daily average transactions in plazas mapped:	7.90 mn
Value per transaction:	INR 168.1
Average mapped traffic growth:	9.8% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

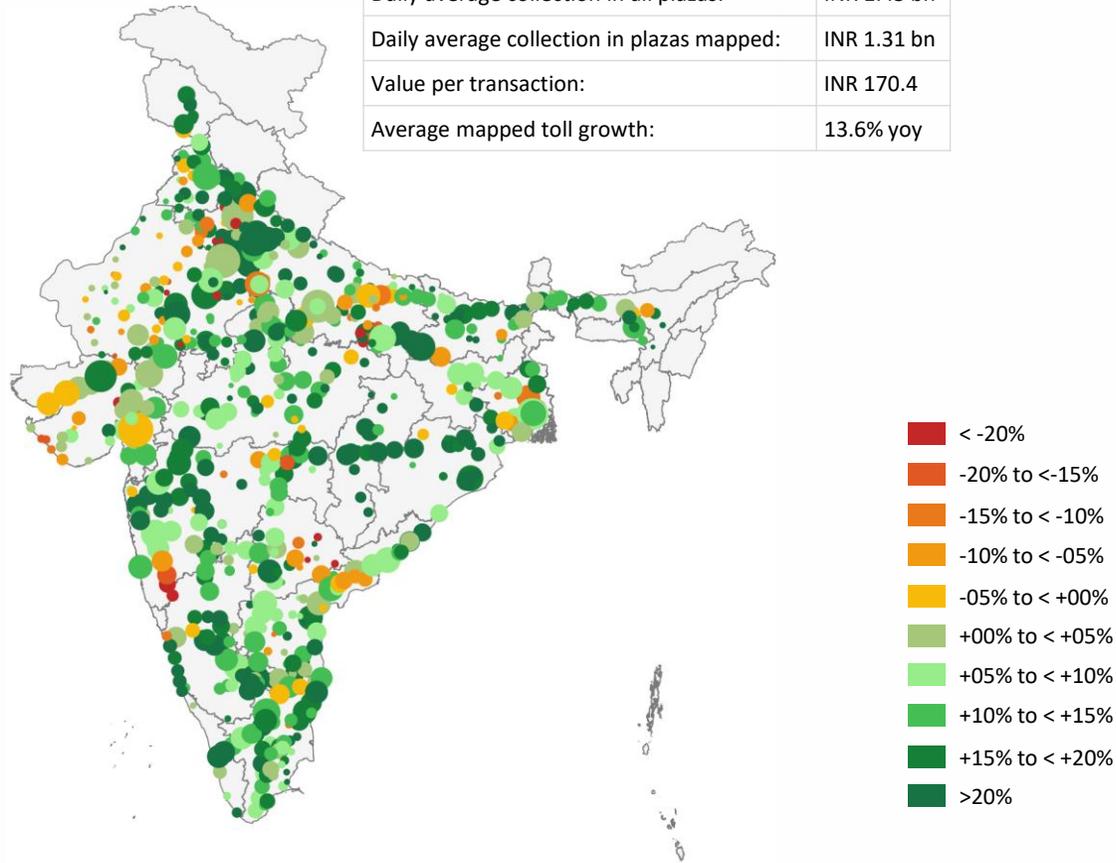
- 726 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Continued growth in toll collection across most plazas in June

Growth in IHMCL overall transactions (% yoy), Jun '23

Daily average collection in all plazas:	INR 1.45 bn
Daily average collection in plazas mapped:	INR 1.31 bn
Value per transaction:	INR 170.4
Average mapped toll growth:	13.6% yoy



Source: Thurro, IHMCL, NIIF Research

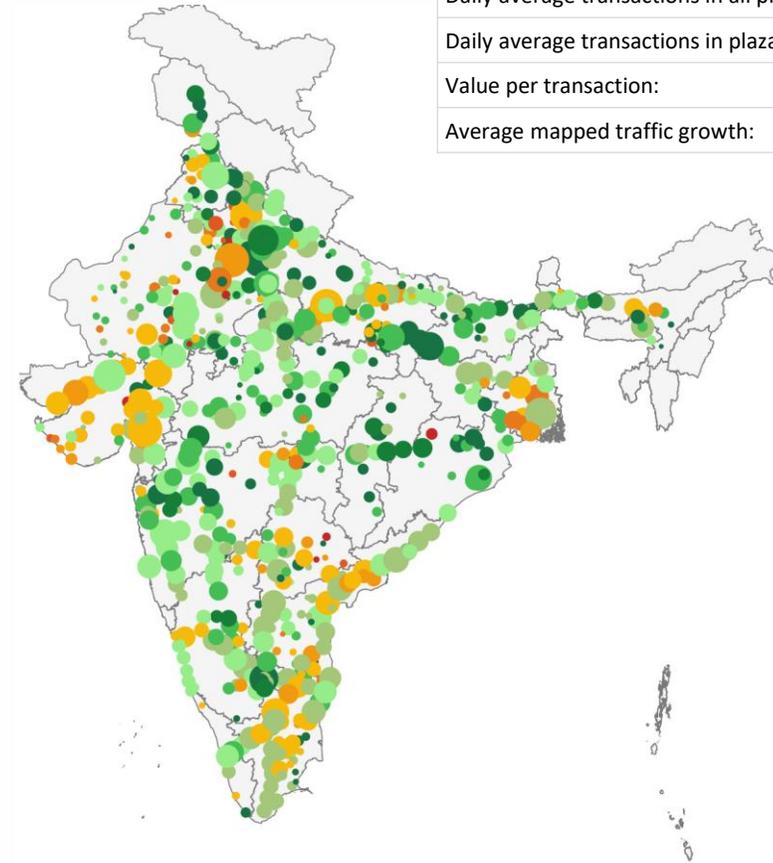
Note:

- 735 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Slower growth in toll traffic volume across most tolls

Growth in IHMCL overall traffic (% yoy), Jun '23

Daily average transactions in all plazas:	8.51 mn
Daily average transactions in plazas mapped:	7.75 mn
Value per transaction:	INR 170.4
Average mapped traffic growth:	7.5% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

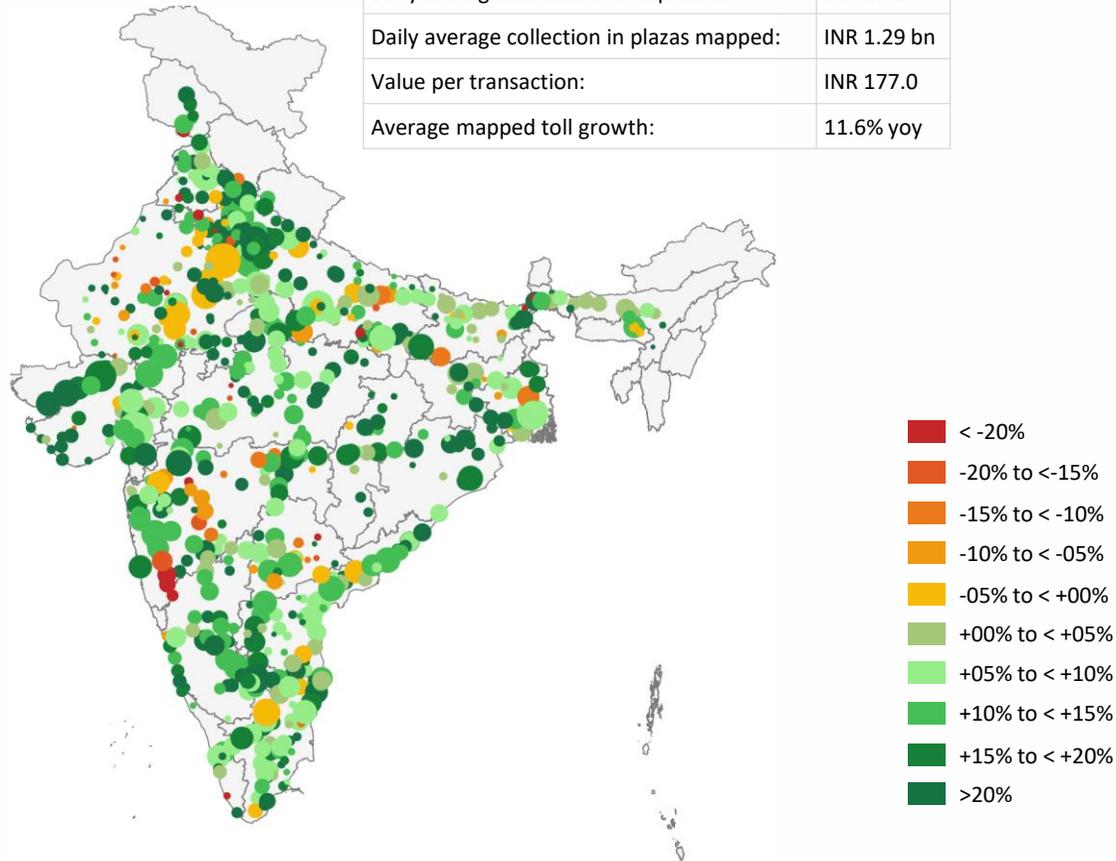
- 735 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Continued toll value growth across most tolls in Sep

Growth in IHMCL overall transactions (% yoy), Sep '23

Daily average collection in all plazas:	INR 1.42 bn
Daily average collection in plazas mapped:	INR 1.29 bn
Value per transaction:	INR 177.0
Average mapped toll growth:	11.6% yoy



Source: Thurro, IHMCL, NIIF Research

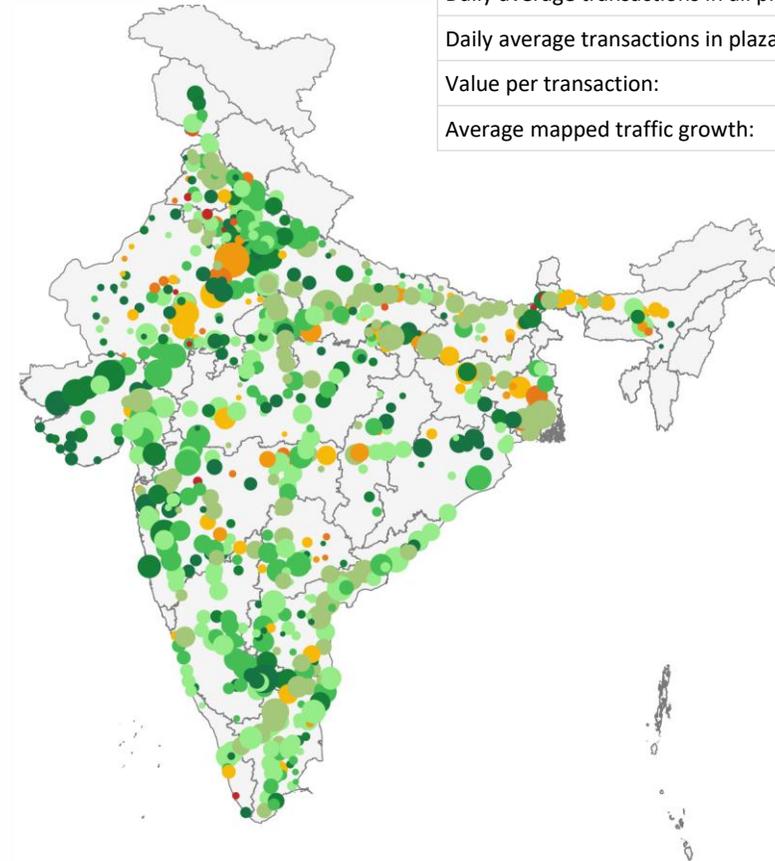
Note:

1. 762 toll plazas mapped out of 921 published by IHMCL
2. Size of the dot reflects the relative amount of transaction as a proportion to the total
3. July and August 2022 data unavailable

Volume growth picks up in Sep after a slower June

Growth in IHMCL overall traffic (% yoy), Sep '23

Daily average transactions in all plazas:	8.00 mn
Daily average transactions in plazas mapped:	7.34 mn
Value per transaction:	INR 177.0
Average mapped traffic growth:	9.4% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

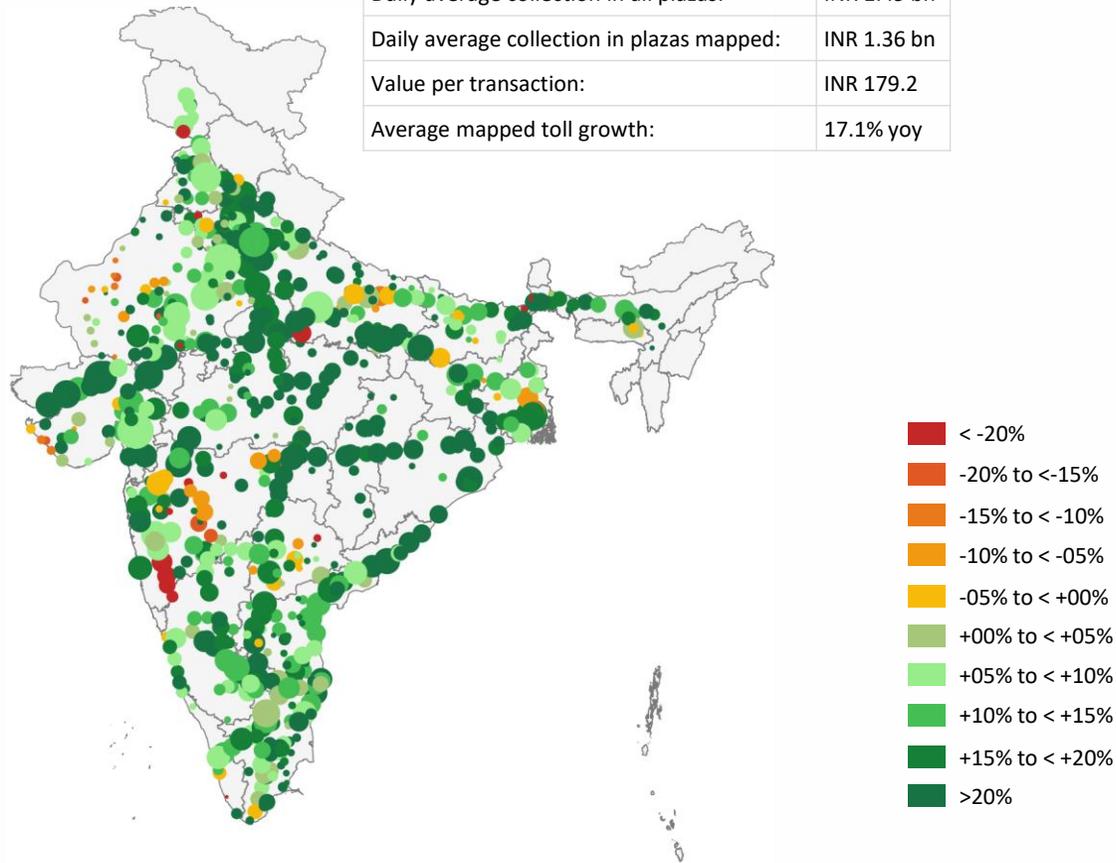
1. 762 toll plazas mapped out of 921 published by IHMCL
2. Size of the dot reflects the relative amount of transaction as a proportion to the total
3. July and August 2022 data unavailable

Total toll collection: value of tolls and number of vehicles

Uniform and robust growth in overall toll value in October

Growth in IHMCL overall transactions (% yoy), Oct '23

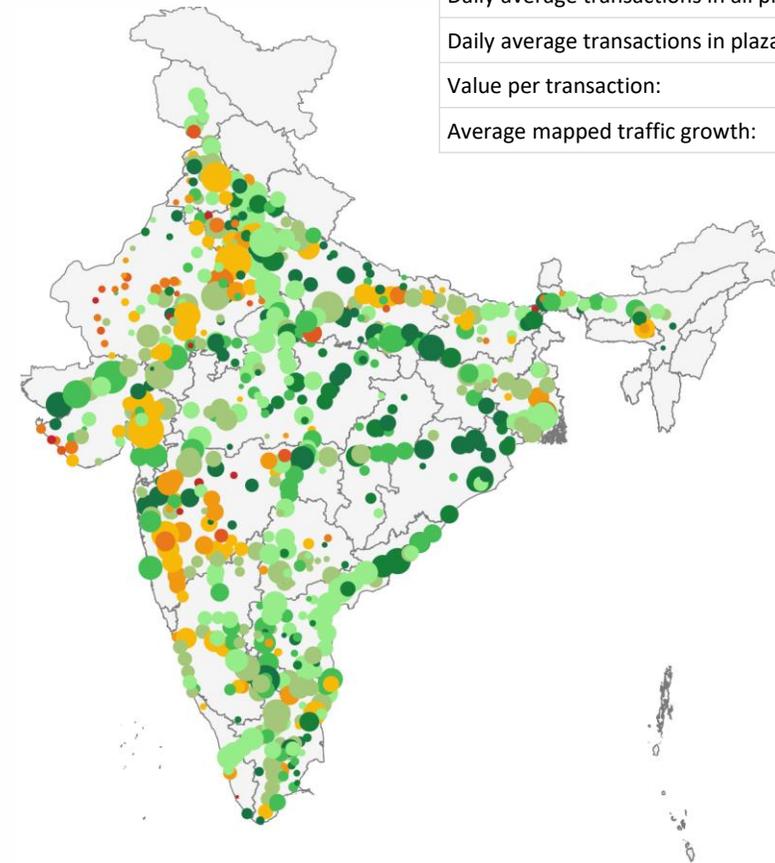
Daily average collection in all plazas:	INR 1.49 bn
Daily average collection in plazas mapped:	INR 1.36 bn
Value per transaction:	INR 179.2
Average mapped toll growth:	17.1% yoy



Slower volume growth across some tolls in October

Growth in IHMCL overall traffic (% yoy), Oct '23

Daily average transactions in all plazas:	8.32 mn
Daily average transactions in plazas mapped:	7.67 mn
Value per transaction:	INR 179.2
Average mapped traffic growth:	7.3% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

- 784 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Source: Thurro, IHMCL, NIIF Research

Note:

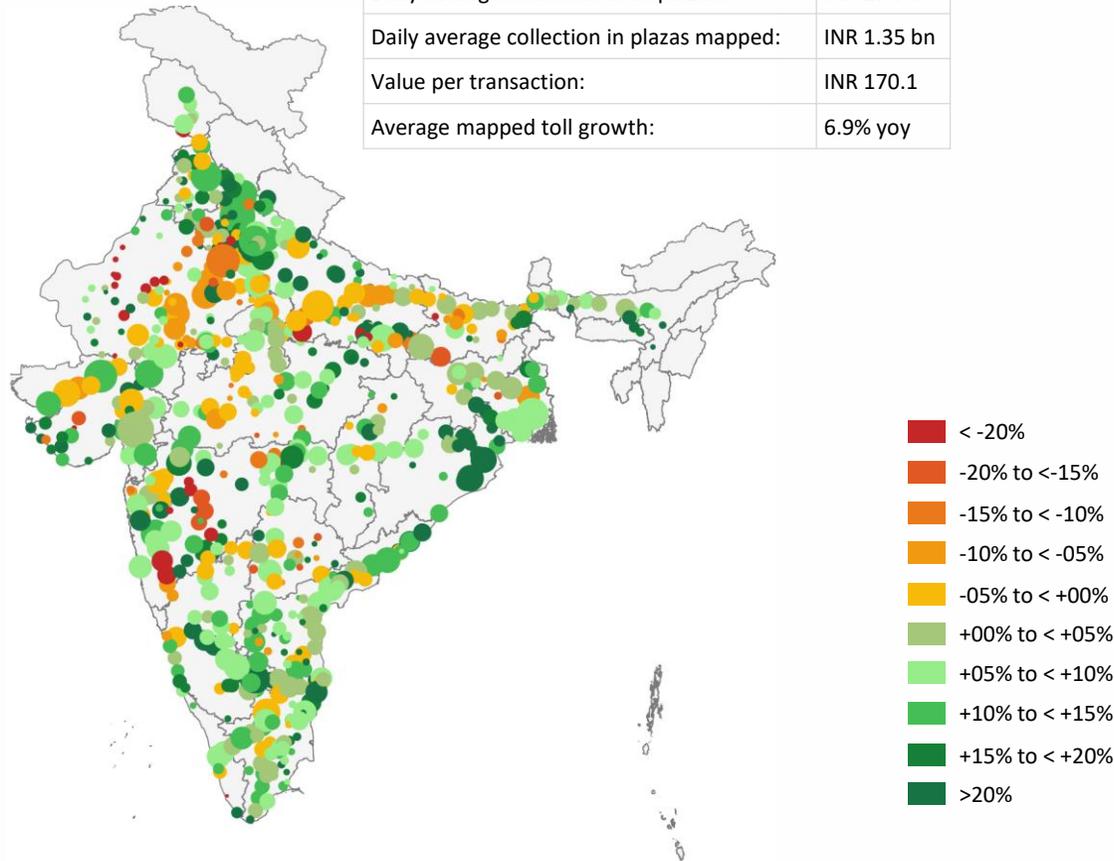
- 784 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Moderation in value growth in November

Growth in IHMCL overall transactions (% yoy), Nov '23

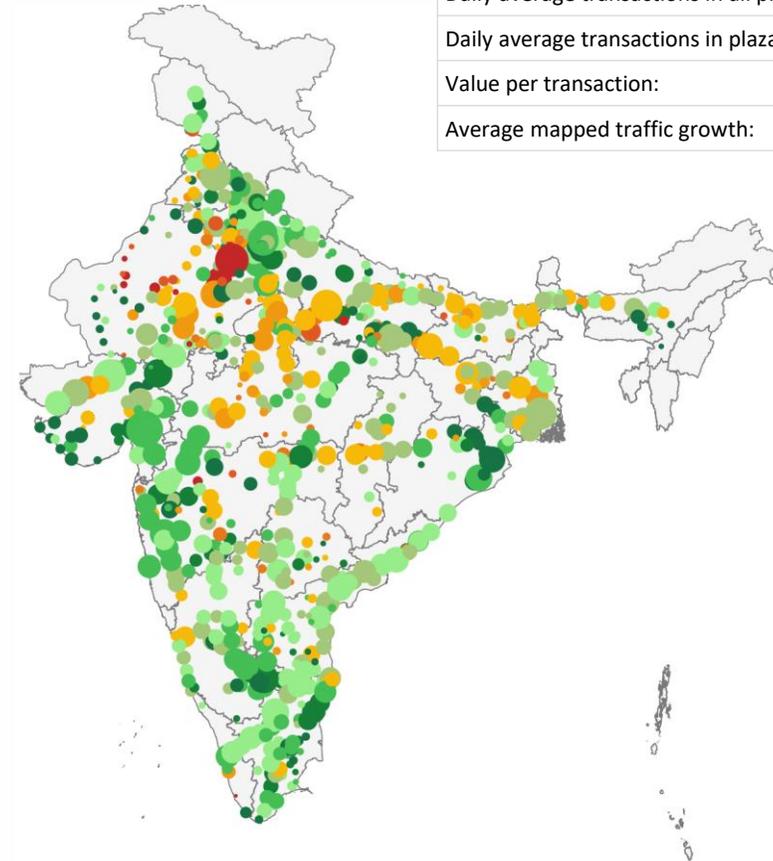
Daily average collection in all plazas:	INR 1.47 bn
Daily average collection in plazas mapped:	INR 1.35 bn
Value per transaction:	INR 170.1
Average mapped toll growth:	6.9% yoy



Volume growth remains moderate across a few tolls

Growth in IHMCL overall traffic (% yoy), Nov '23

Daily average transactions in all plazas:	8.66 mn
Daily average transactions in plazas mapped:	7.95 mn
Value per transaction:	INR 170.1
Average mapped traffic growth:	7.2% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

- 780 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Source: Thurro, IHMCL, NIIF Research

Note:

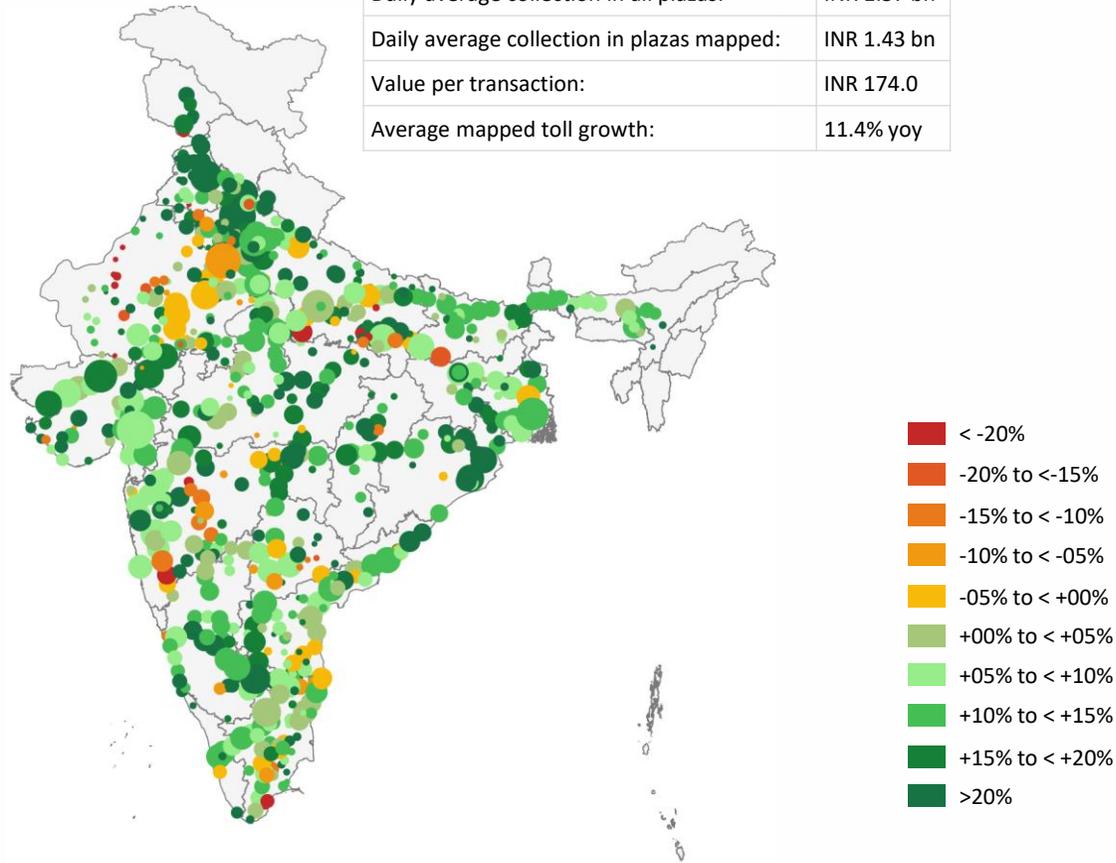
- 780 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Double-digit growth in toll value in December

Growth in IHMCL overall transactions (% yoy), Dec '23

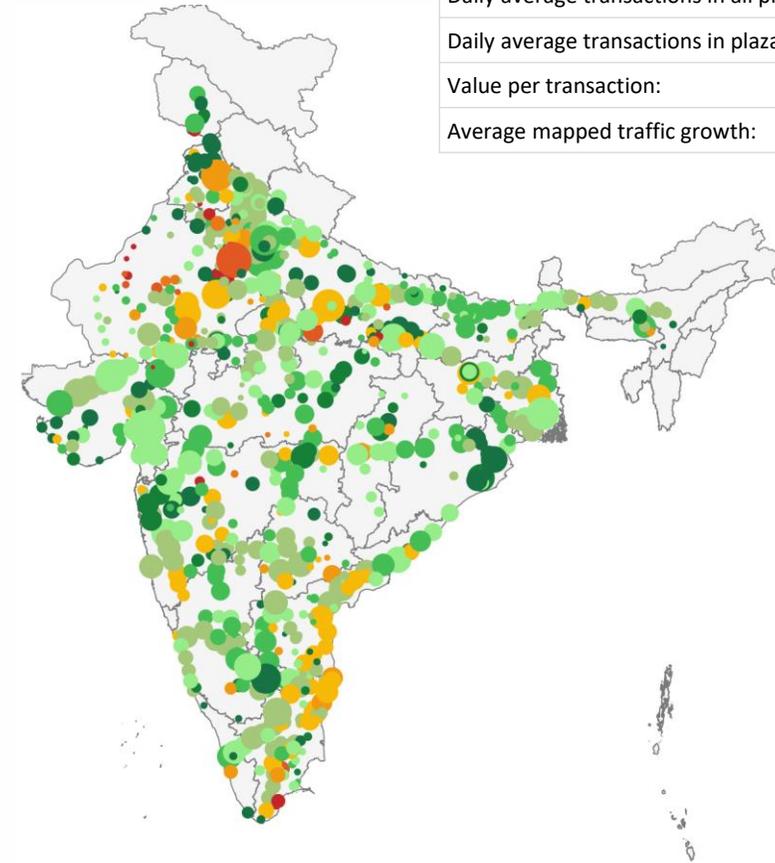
Daily average collection in all plazas:	INR 1.57 bn
Daily average collection in plazas mapped:	INR 1.43 bn
Value per transaction:	INR 174.0
Average mapped toll growth:	11.4% yoy



Overall volume growth a stable ~7% in December

Growth in IHMCL overall traffic (% yoy), Dec '23

Daily average transactions in all plazas:	9.04 mn
Daily average transactions in plazas mapped:	8.29 mn
Value per transaction:	INR 174.0
Average mapped traffic growth:	6.9% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

1. 783 toll plazas mapped out of 921 published by IHMCL
2. Size of the dot reflects the relative amount of transaction as a proportion to the total

Source: Thurro, IHMCL, NIIF Research

Note:

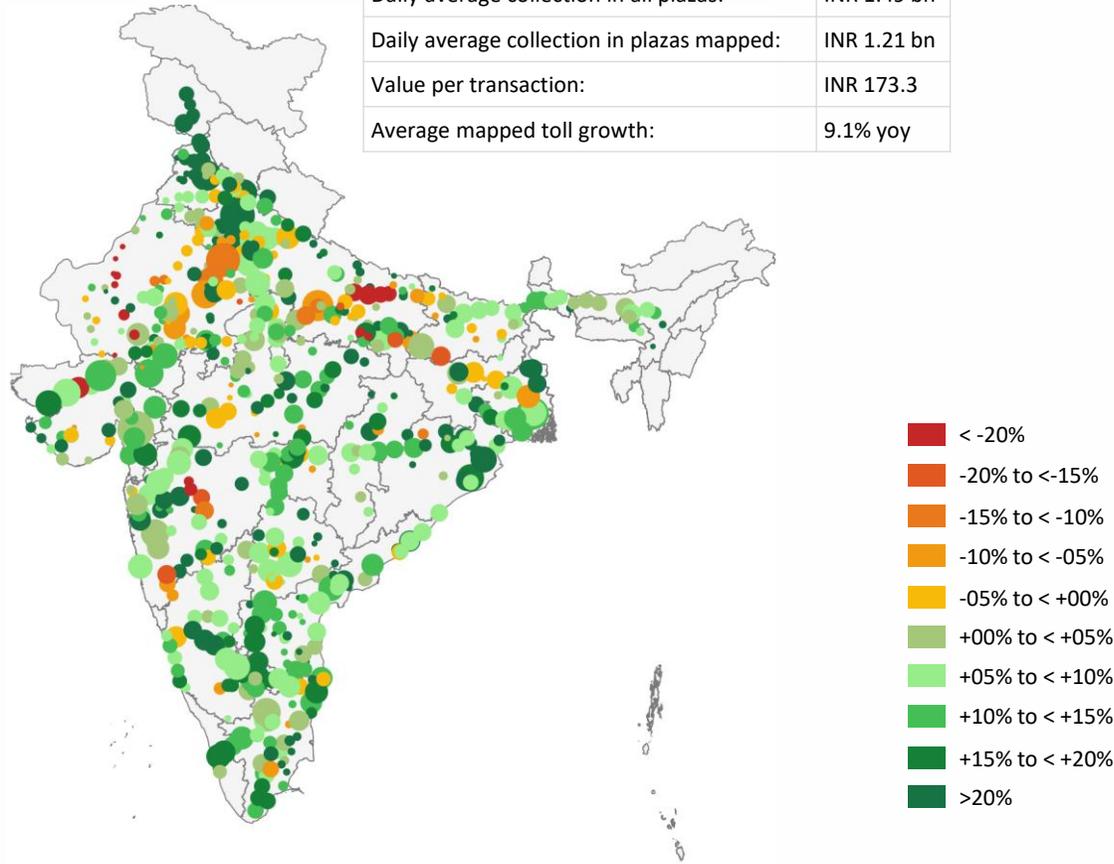
1. 783 toll plazas mapped out of 921 published by IHMCL
2. Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Value growth slows in Jan 2024 to 9.1% yoy

Growth in IHMCL overall transactions (% yoy), Jan '24

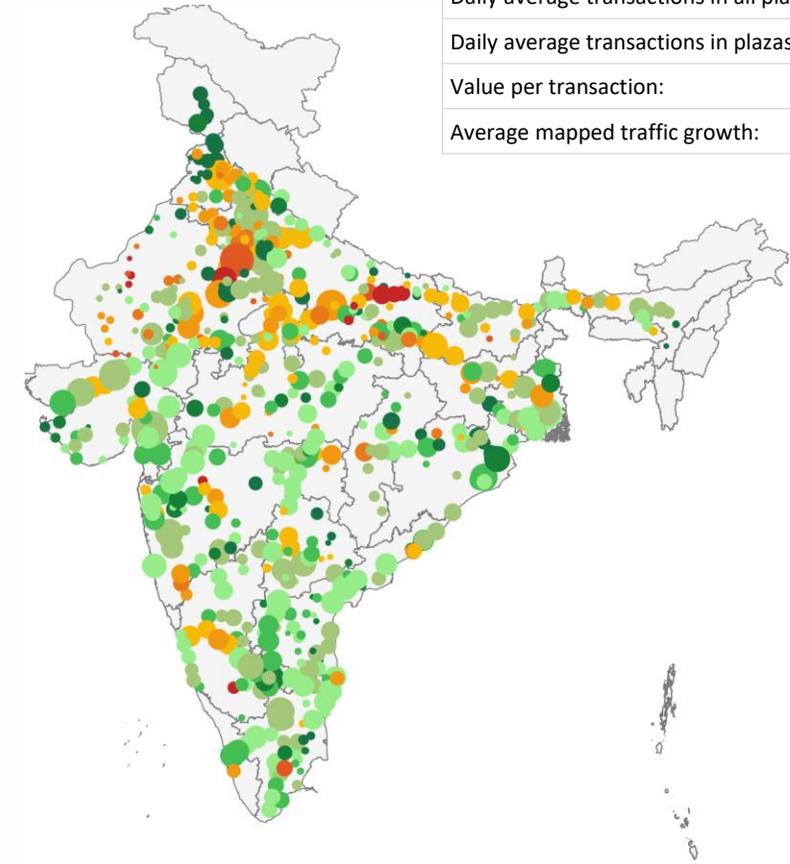
Daily average collection in all plazas:	INR 1.49 bn
Daily average collection in plazas mapped:	INR 1.21 bn
Value per transaction:	INR 173.3
Average mapped toll growth:	9.1% yoy



Slower volume growth across most tolls

Growth in IHMCL overall traffic (% yoy), Jan '24

Daily average transactions in all plazas:	8.59 mn
Daily average transactions in plazas mapped:	7.02 mn
Value per transaction:	INR 173.3
Average mapped traffic growth:	4.9% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

- 707 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Source: Thurro, IHMCL, NIIF Research

Note:

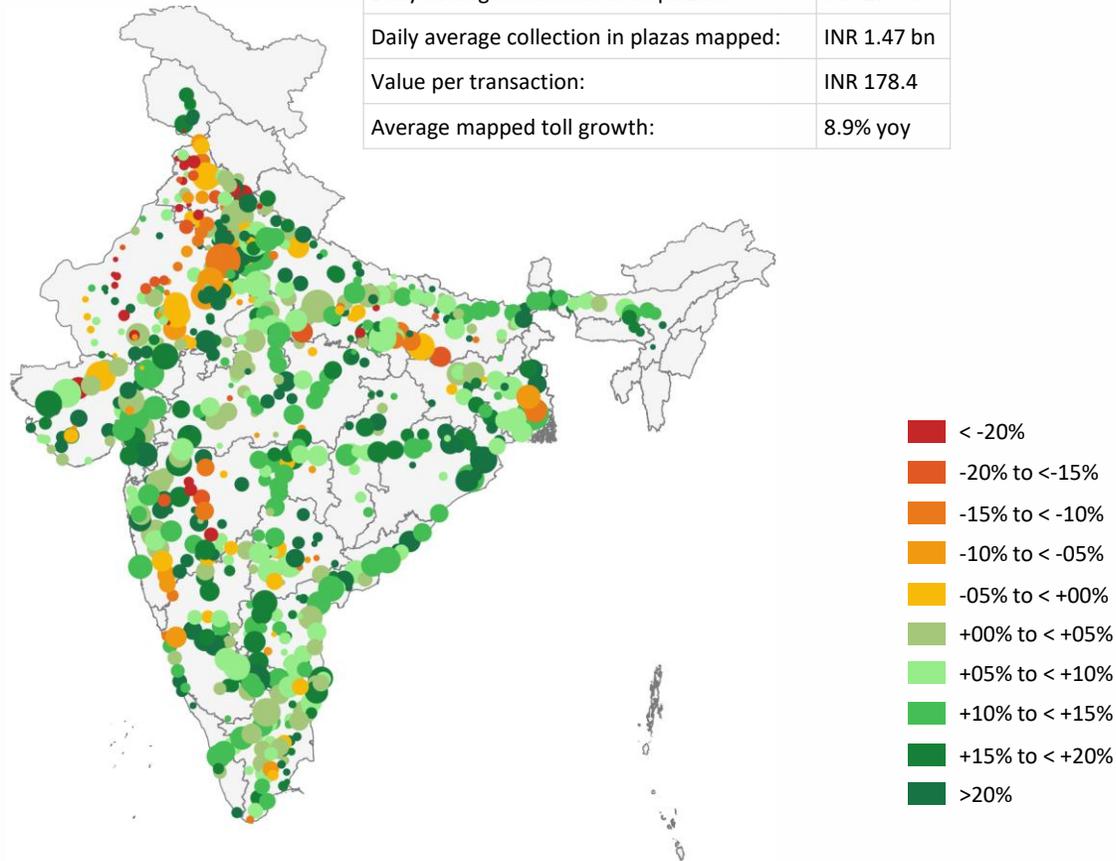
- 707 toll plazas mapped out of 921 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Moderation in toll collection in Feb

Growth in IHMCL overall transactions (% yoy), Feb '24

Daily average collection in all plazas:	INR 1.59 bn
Daily average collection in plazas mapped:	INR 1.47 bn
Value per transaction:	INR 178.4
Average mapped toll growth:	8.9% yoy



Source: Thurro, IHMCL, NIIF Research

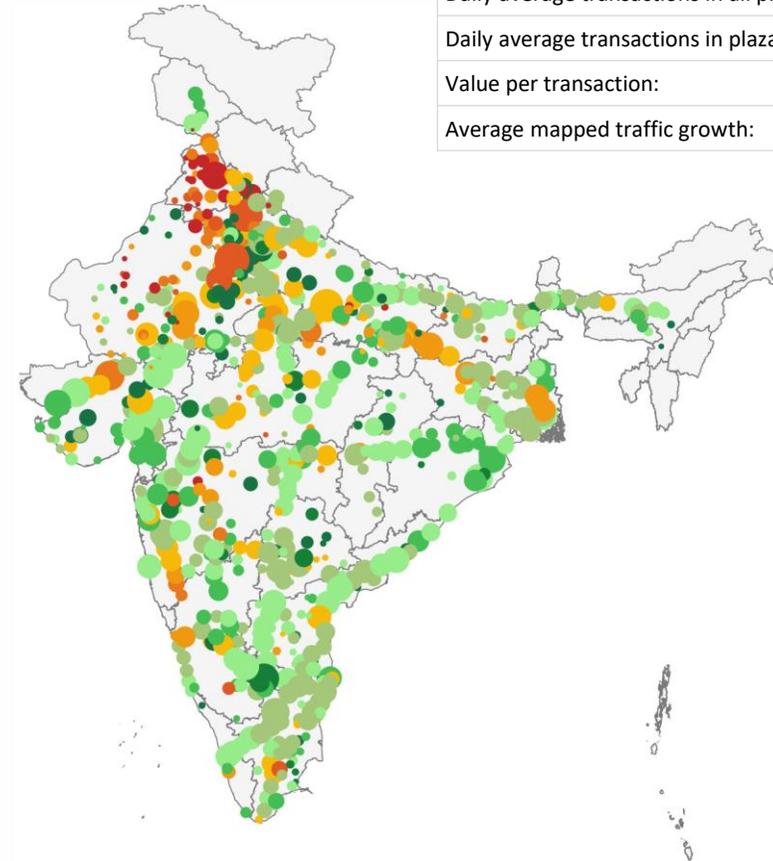
Note:

- 807 toll plazas mapped out of 929 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Volume growth slows to less than 3% yoy in Feb

Growth in IHMCL overall traffic (% yoy), Feb '24

Daily average transactions in all plazas:	8.92 mn
Daily average transactions in plazas mapped:	8.24 mn
Value per transaction:	INR 178.4
Average mapped traffic growth:	2.9% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

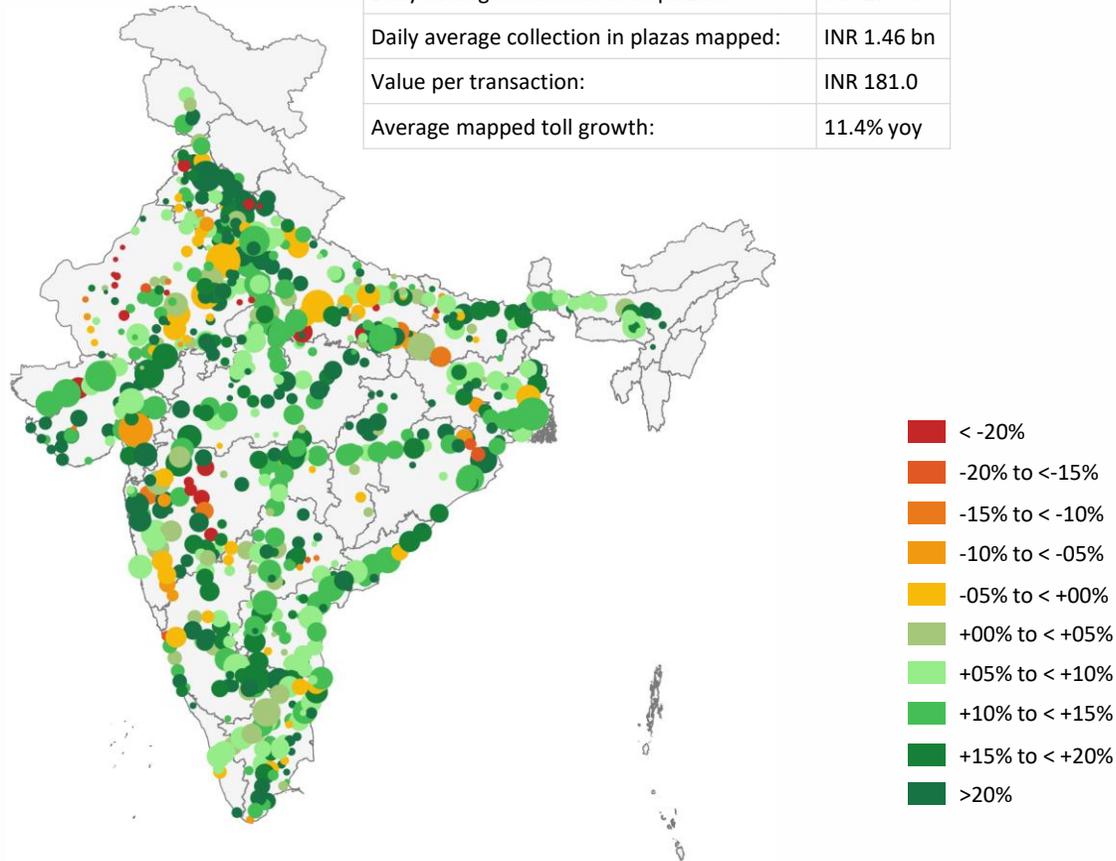
- 807 toll plazas mapped out of 929 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Total toll collection: value of tolls and number of vehicles

Stable value growth across tolls in March 2024

Growth in IHMCL overall transactions (% yoy), Mar '24

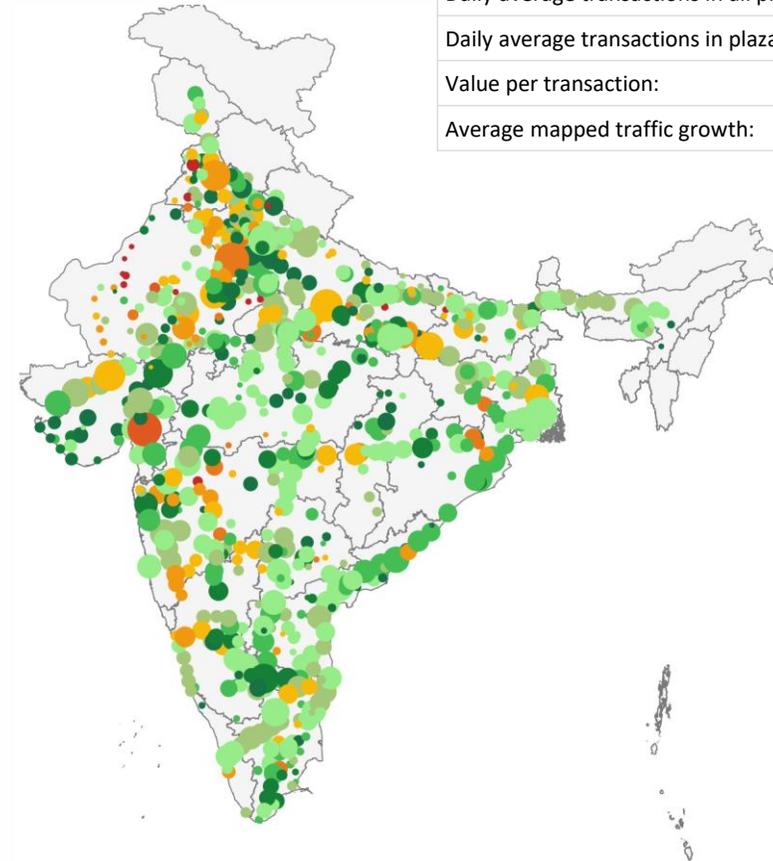
Daily average collection in all plazas:	INR 1.59 bn
Daily average collection in plazas mapped:	INR 1.46 bn
Value per transaction:	INR 181.0
Average mapped toll growth:	11.4% yoy



Recovery in volume growth in March 2024

Growth in IHMCL overall traffic (% yoy), Mar '24

Daily average transactions in all plazas:	8.79 mn
Daily average transactions in plazas mapped:	8.13 mn
Value per transaction:	INR 181.0
Average mapped traffic growth:	6.1% yoy



Source: Thurro, IHMCL, NIIF Research

Note:

- 814 toll plazas mapped out of 946 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

Source: Thurro, IHMCL, NIIF Research

Note:

- 814 toll plazas mapped out of 946 published by IHMCL
- Size of the dot reflects the relative amount of transaction as a proportion to the total

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HEATMAPS
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