

Decoding India's Changing Palate: A Visual Analysis of Food Delivery and Consumption Patterns

Group Members :

202418007 - Ashish

202418012 - Yashraj

202418015 - Deepanshi

202418034 - Kshiti

Introduction

Project Goals:

- To visually explore the trend of increasing expenditure on processed and ready-to-eat food in India.
- To understand the role of food delivery platforms like Zomato in this trend, particularly in urban areas.
- To identify patterns in Zomato order data related to food preferences and location.
- To contextualize the rise of food delivery within broader economic and consumption trends in India.

Narrative:

The growing spending on processed and ready-to-eat food in India is primarily driven by rising disposable incomes and changing urban lifestyles, rather than solely by the emergence of food delivery platforms like Zomato. As economic growth expands financial flexibility for a larger segment of the population—particularly in urban areas—people are increasingly willing to spend on

convenience-oriented food options. Moreover, time constraints resulting from longer work hours, traffic congestion, and busy schedules have reduced the inclination and capacity for home-cooked meals. In this evolving landscape, Zomato acts as a powerful enabler, enhancing access to a wide variety of restaurant food at the tap of a button. It has reinforced and accelerated the shift toward convenient and time-saving meal solutions. However, while Zomato plays a crucial role in shaping consumption patterns, the underlying transformation is rooted in broader socioeconomic and lifestyle changes that were already underway.

Context and Problem Statement

→ **Background: Shifting Food Consumption Trends in an Urbanizing India**

India is undergoing rapid urbanization, with a significant portion of its population migrating to cities in search of economic opportunities and improved lifestyles. This increasing urbanization has profoundly impacted traditional food consumption patterns. Urban environments often present individuals with busier schedules, longer commutes, and a greater exposure to diverse culinary options. Consequently, there's a growing demand for convenience and readily available food choices that fit these evolving lifestyles. This shift is not limited to just ease of access but also encompasses a desire for variety and the experience of restaurant-quality food without the constraints of cooking at home. Furthermore, globalized food trends and increased exposure to different cuisines through media and travel have also contributed to a diversification of Indian palates.

→ **Personal Observation and Broader Context**

My own experience of increased reliance on Zomato for meals after relocating to a busy city initially sparked my curiosity about how such platforms influence our food choices. While this shift highlighted the ease and convenience they offer, it also made me wonder whether my experience was unique or part of a broader pattern. This curiosity led me to examine national-level food consumption data to better understand the larger impact of platforms like Zomato.

→ **National Trend: The Growing Preference for Processed Foods**

Data from the Household Consumption Expenditure Survey reveals a significant national trend: an increasing share of household expenditure is being directed

towards processed and ready-to-eat food items. This share rose from approximately 18% in 2011-12 to around 25% in 2022-23. This indicates a broader societal shift in food consumption habits, suggesting a growing acceptance and preference for convenient food options that require less preparation time. While this shift in food consumption was well underway even prior to the widespread use of food delivery platforms, their emergence has likely accelerated this trend.

→ **Problem Statement:**

The project aims to delve deeper into the relationship between the rise of food delivery platforms, exemplified by Zomato, and the increasing consumption of processed and ready-to-eat food in urban India. While convenience offered by these platforms is a clear factor, our analysis seeks to explore the underlying drivers and patterns associated with this shift.

Dataset Description:

→ **Dataset Overview:**

The primary dataset for the project originates from the "Zomato Dataset" available on Kaggle (<https://www.kaggle.com/datasets/rajeshrampure/zomato-dataset>). It provides a rich collection of information related to restaurants, their ratings, reviews, and other attributes, primarily focusing on the restaurant scene for the city of Bangalore .

The data is structured in a tabular format, with each row representing a specific restaurant and the columns containing various features describing that restaurant.

After preprocessing, the dataset used for this analysis contains 7995 records, with each row detailing a unique restaurant and its associated geographical distribution, user engagement metrics, and culinary offerings.

→ **Variable Description:**

The following are the key variables that were utilized for the visualization in the project:

- **name(Qualitative - Categorical, Nominal):** The name of the restaurant. Used for identification and potential grouping.

- **rate(Quantitative - Numerical, Ordinal):** The aggregate rating of the restaurant, typically on a scale (e.g., 0-5). This reflects overall user sentiment.
- **location(Qualitative - Categorical, Nominal):** A string describing the general locality or area within a city where the restaurant is situated. Used for geographical analysis and understanding restaurant distribution.
- **dish_liked(Qualitative - Categorical, Nominal):** A list of dishes that users have specifically mentioned liking at the restaurant. Provides insights into popular food items.
- **cuisines (Qualitative - Categorical, Nominal):** A list of the cuisines offered by the restaurant (e.g., North Indian, Chinese, Fast Food). This is crucial for analyzing food preferences and identifying the prevalence of different culinary categories, including fast food and potentially categorizing them as "processed" in a broader context.
- **city(Qualitative - Categorical, Nominal):** The city in which the restaurant is located. This is fundamental for analyzing urban trends and geographical patterns in restaurant density and food preferences.

→ Additional Datasets:

1. HCES Dataset

This dataset tracks food consumption percentages across years for rural and urban regions.

- **Year** (Qualitative - Categorical, Ordered): Time period in financial years (e.g., 2004-05).
- **Rural** (Quantitative - Numerical, Continuous): Percentage of food consumption in rural areas.
- **Urban** (Quantitative - Numerical, Continuous): Percentage of food consumption in urban areas.

2. Company Financials Dataset (Heads like Sales, Profit, EPS)

This dataset shows financial performance metrics for a company from 2015 to 2024.

- **Heads** (*Qualitative - Categorical, Unordered*): Financial metrics (e.g., Sales, Expenses, Net Profit).
- **Mar-15 to Mar-24** (*Quantitative - Numerical, Continuous*): Values of the respective financial metrics for each year.

Derived Variables:

- **OPM % (Operating Profit Margin)** (*Quantitative - Numerical, Continuous*)
- **EPS in Rs (Earnings Per Share)** (*Quantitative - Numerical, Continuous*)
- **Dividend Payout %** (*Quantitative - Numerical, Continuous*)

3. Inflation Dataset

This dataset compares inflation rates over the years.

- **Year** (*Qualitative - Categorical, Ordered*): Calendar year (2004 to 2023).
- **CPI (e.g., Left Column)** (*Quantitative - Numerical, Continuous*): Consumer price index-based inflation rate.
- **WPI (e.g., Right Column)** (*Quantitative - Numerical, Continuous*): Wholesale price index-based inflation rate.

4. Zomato Financials Dataset

This dataset shows quarterly food delivery business metrics—such as order value, customer base, and average order value—from FY 2015 to FY 2025.

- **Quarter** (*Qualitative - Categorical, Ordered*): Time periods in fiscal quarters from FY 2015 to FY 2025.
- **Food Delivery GOV (INR crore)** (*Quantitative - Numerical, Continuous*): Gross Order Value, representing the total value of food delivery orders.
- **Food Delivery Avg. Monthly Transacting Customers (million)** (*Quantitative - Numerical, Continuous*): Average number of unique customers placing orders per month.
- **AOV** (*Quantitative - Numerical, Continuous*): Average Order Value, calculated as GOV divided by number of orders/customers.

Derived Variables:

- **Normalized GOV** (Quantitative - Numerical, Continuous): Gross Order Value normalized to a scale (relative comparison across quarters).
- **Normalized MTC** (Quantitative - Numerical, Continuous): Monthly Transacting Customers normalized for standardization.
- **Normalized AOV** (Quantitative - Numerical, Continuous): Average Order Value normalized to enable comparison over time.

5. Swiggy Financials Dataset

This dataset shows annual food delivery business performance metrics from 2021 to 2023, including GOV, revenue, user activity, and order values.

- **GOV (₹ billion)** (Quantitative - Numerical, Continuous): Gross Order Value – total value of food delivery orders in billions of rupees.
- **Gross Revenue (₹ billion)** (Quantitative - Numerical, Continuous): Revenue earned by the company from food delivery services.
- **Avg Monthly Transacting Users (million)** (Quantitative - Numerical, Continuous): Average number of unique users placing food orders each month.
- **GOV per MTU (₹)** (Quantitative - Numerical, Continuous): Gross Order Value per Monthly Transacting User – average spend per user.
- **AOV (₹)** (Quantitative - Numerical, Continuous): Average Order Value – average value per food order placed.
- **Year** (Qualitative - Categorical, Ordered): Represents the calendar year (2021–2023).

Data Visualizations and Analysis

→ **Word Cloud For Bangalore and other Metropolitan Cities(Mumbai and Kolkata):**

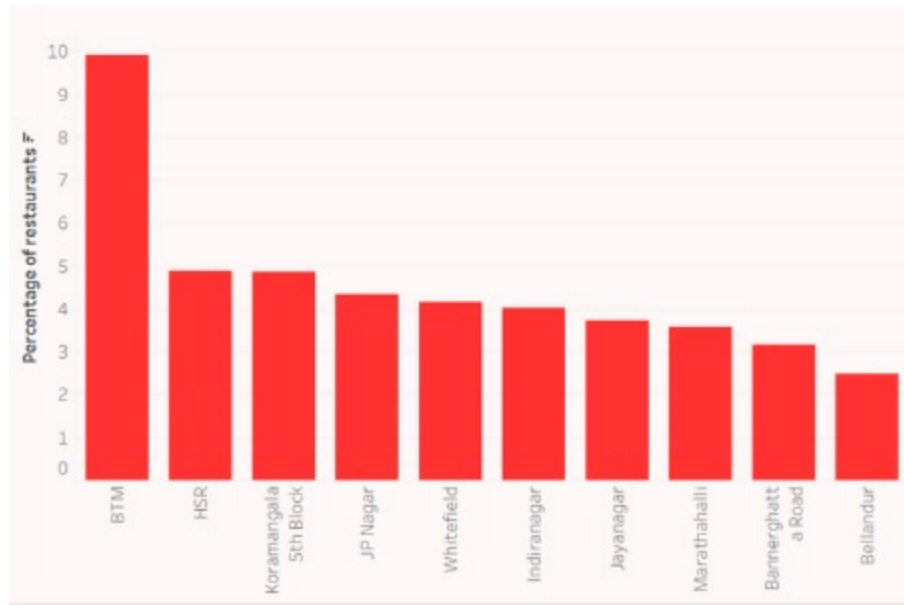
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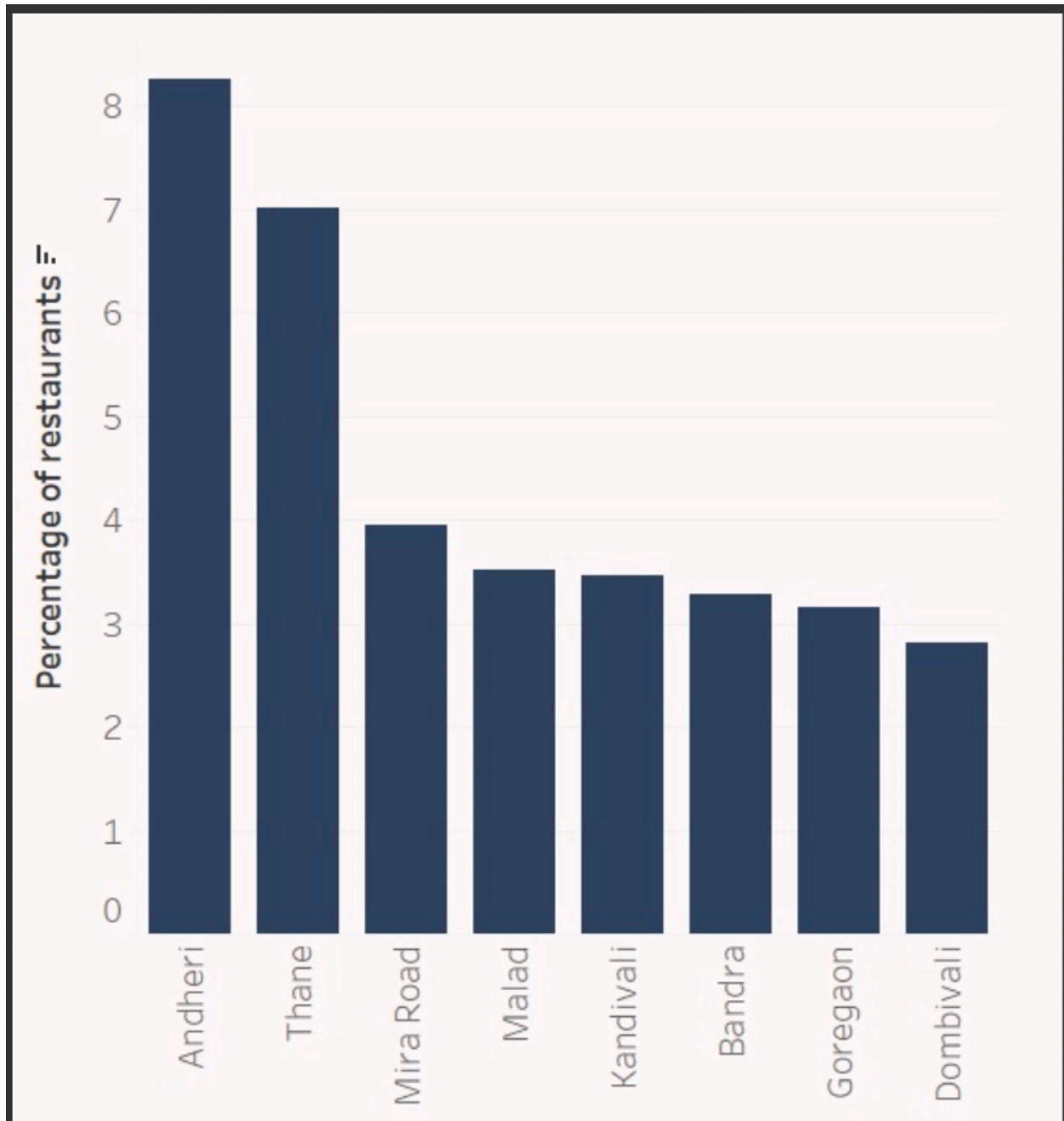
The word cloud trends for Mumbai mirrors Bangalore's preferences, with "North Indian" and "Chinese" cuisines dominating, akin to the city's popular biryani and noodle orders. The emphasis on "Fast Food," "Street Food," and "Pizza," along with "Beverages" and "Desserts," aligns with Bangalore's high demand for convenient, processed options and indulgent items, as seen in Swiggy's record orders. This indicates a consistent trend towards diverse, processed foods driven by urban lifestyles across both contexts as of April 2025.

Kolkata Food Cloud

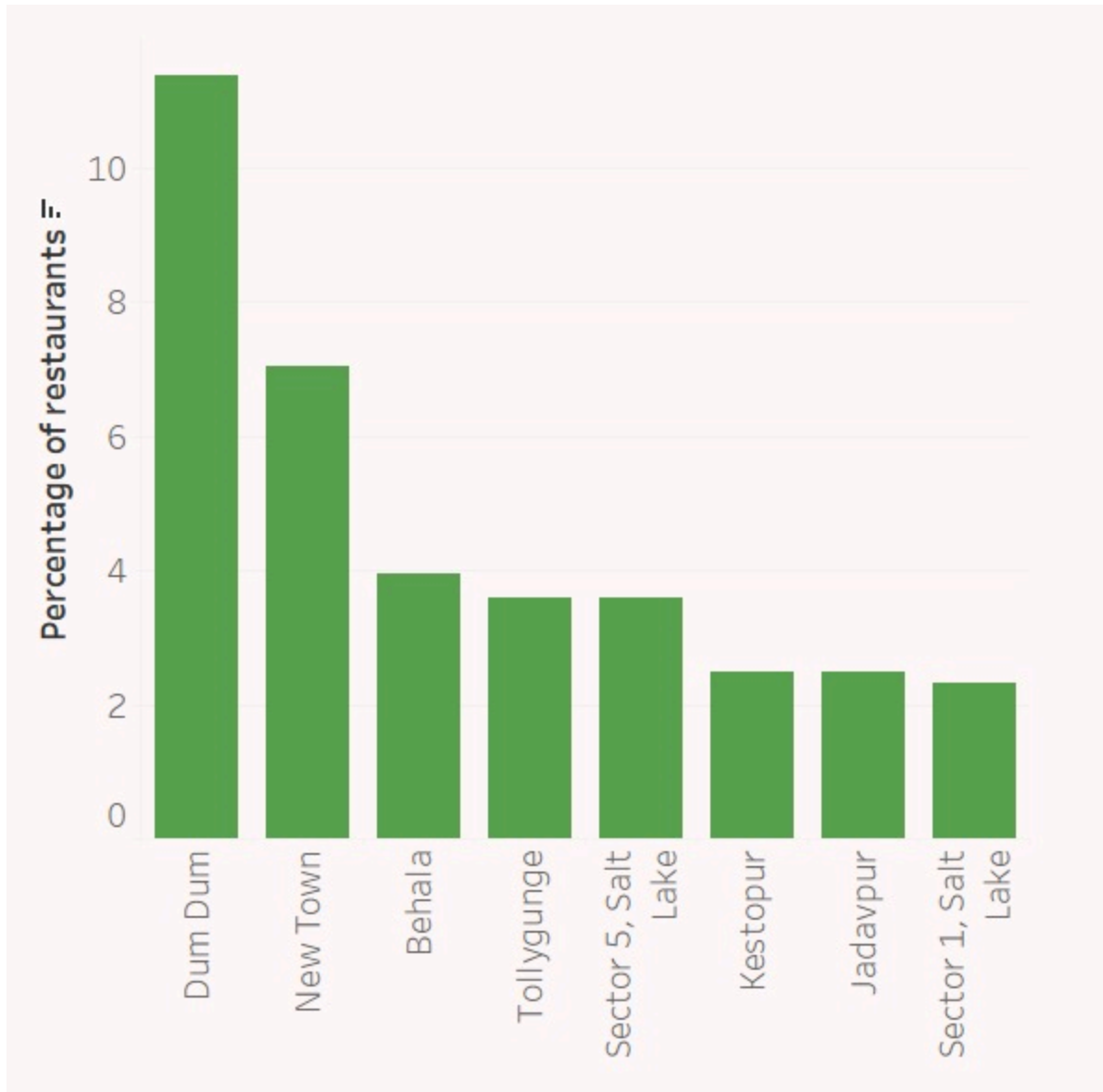
The word cloud for Kolkata, alongside those for Mumbai and Bangalore, exhibits a similar trend, with "North Indian," "Chinese," and "Fast Food" prominently featured, mirroring the cities' shared preference for processed options like biryani, noodles, and pizza. The consistent emphasis on "Street Food," "Beverages," and "Desserts" across these regions reflects an increased demand for convenient, indulgent, and processed foods, driven by urban lifestyles as of April 2025.



The bar chart for Bangalore highlights a high restaurant density in residential areas, with Andheri leading at 8% and Thane close behind at 7%, indicating a significant concentration of dining options. This suggests that residents in these areas prefer the convenience of ordering in, likely relying on platforms like Zomato and Swiggy for processed foods such as biryani, pizza, and noodles, rather than dining out, aligning with urban lifestyle trends as of April 2025. Similarly, the charts for Mumbai and Kolkata show comparable patterns, with Andheri (8%) and Dum Dum (10%) respectively topping the lists, reflecting a parallel preference for convenience and increased demand for processed, home-delivered food over traditional outings in these cities.



Similar to Bangalore, this bar chart for Mumbai reveals that certain areas exhibit a higher percentage of restaurants compared to others. Andheri and Thane show a significantly larger concentration of eateries, suggesting a greater availability of food options within these residential areas. This abundance likely caters to the convenience preferences of the local population, potentially indicating a stronger inclination towards ordering in or having easily accessible dining choices.



The bar chart illustrating restaurant distribution in Kolkata shows similar trend to Bangalore indicates that certain localities have a higher concentration of food establishments. Dum Dum stands out with the highest percentage of restaurants, followed by New Town. This suggests that residents in these areas likely benefit from greater convenience and a wider array of readily available dining options, potentially influencing their preference for ordering in or eating out locally.

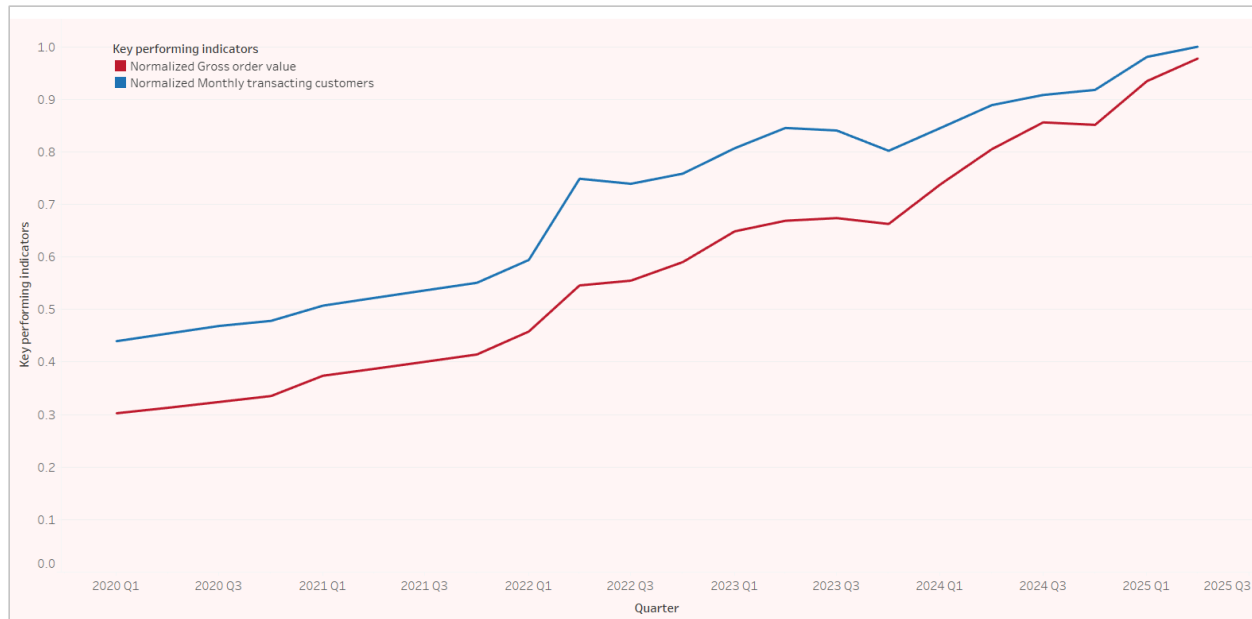
→ **Marks used:**

- Lines

→ **Channels used:**

- Length to express quant value
- spatial regions: one per mark
 - separated horizontally, aligned vertically
 - ordered by quant attribute

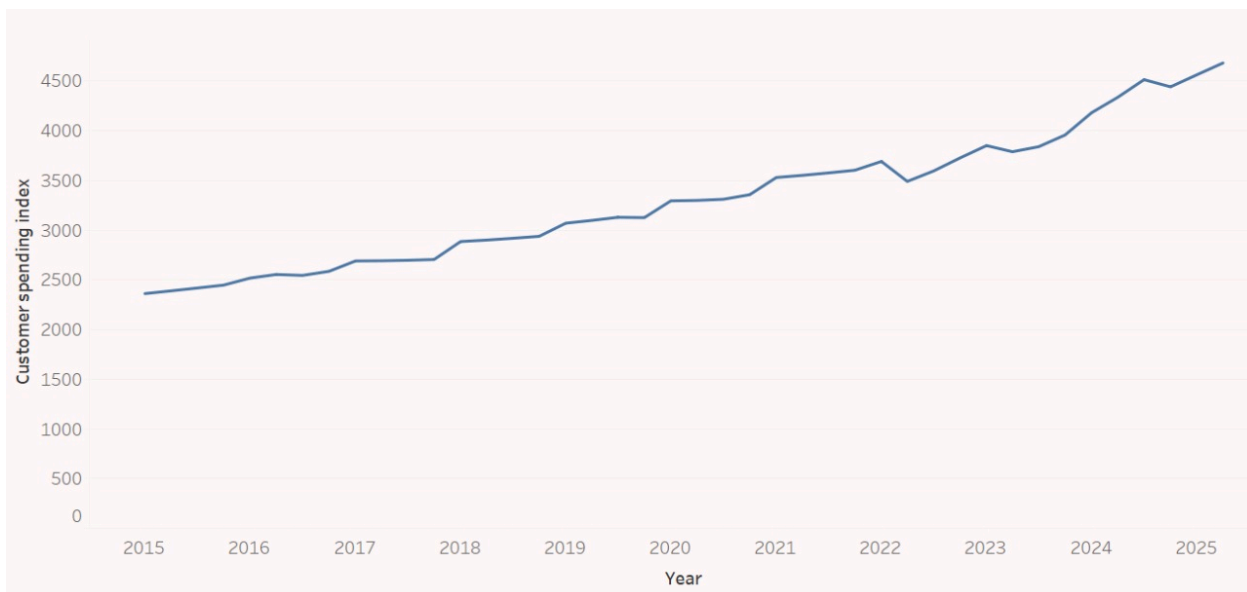
→ **Zomato Financials:**



GOV and MTU for Zomato over the years

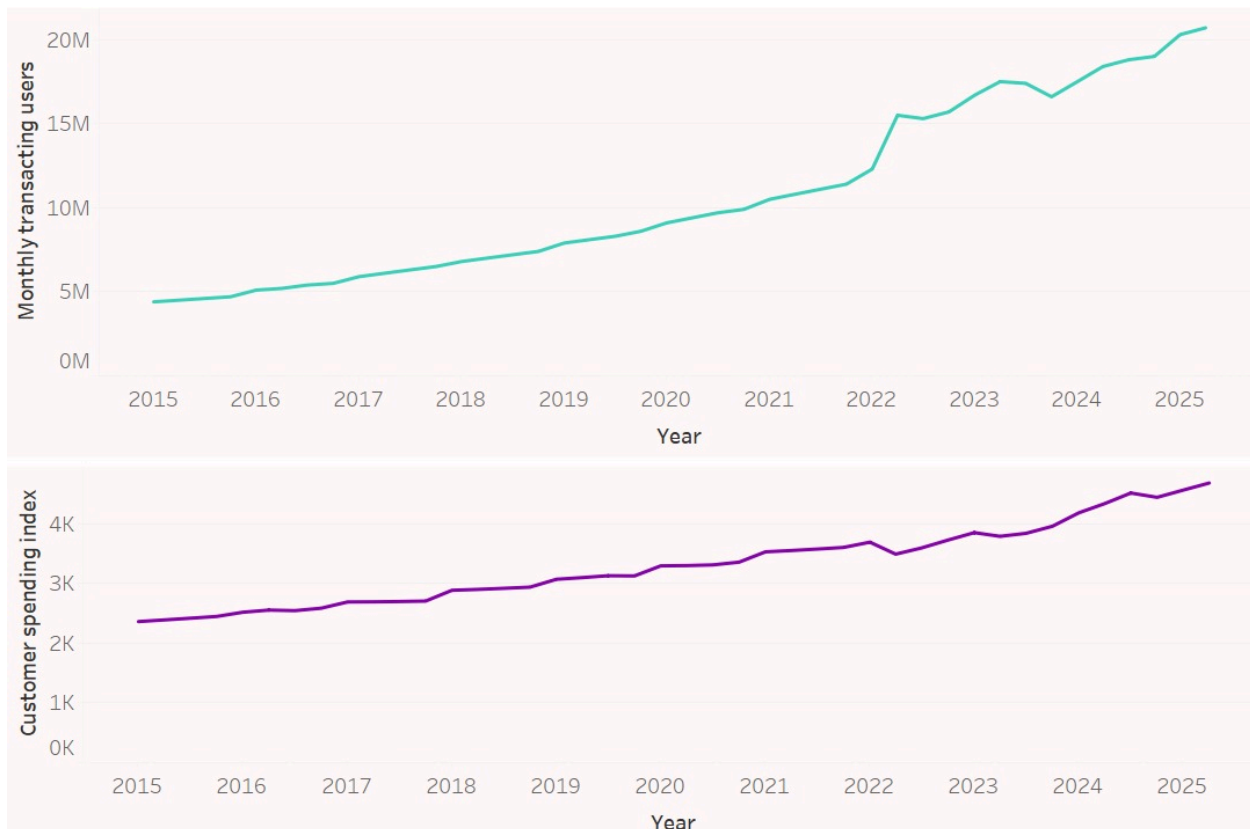
Both **monthly transacting customers** and **gross order value** have shown consistent growth from **2020 Q1 to 2025 Q3**, with a particularly sharp rise post **2022 Q1**. The gap between the two indicators narrows over time, indicating that:

- Initially, growth in user base (blue line) outpaced the increase in order value (red line).
- But from **2022 Q1 onward**, gross order value began accelerating faster, suggesting not just more users but **increased order frequency or higher-value orders per customer**.
- This points to a **maturing customer base** with growing dependency on food delivery platforms, possibly influenced by urban lifestyle changes and greater comfort with online ordering.



CSI over the years for Zomato

- **Steady Growth:** The index shows a consistent upward trend, rising from around **2400 in 2015 to over 4500 by 2025**, indicating a continuous increase in consumer spending power.
- **COVID-19 Dip:** There's a slight dip visible around **2021–2022**, likely reflecting the impact of the pandemic on spending habits, followed by a strong recovery.
- **Post-Pandemic Surge:** From **2022 to 2025**, there's a sharper rise, suggesting a shift towards more aggressive spending, possibly due to revenge buying, increased online purchases, or growing incomes.
- **Overall Increase:** The index nearly **doubles over the decade**, showing how rising disposable income is reshaping consumer behavior—aligning with the trend of increased spending on processed food and food delivery platforms.



Increasing CSI and MTU over the years

This multi-metric trend analysis compares **Monthly Transacting Customers**, **Gross Order Value**, and the **Customer Spending Index** from **2020 Q1 to 2025 Q3**:

1. Customer Spending Index (purple line):

- Started relatively high and remained steady till around **2022 Q2**.
- Post **2022 Q2**, it gradually increased, aligning closely with other metrics by **2025 Q3**.
- Implies that **per-customer spending** remained stable initially but started rising significantly only after the user base surged.

2. Monthly Transacting Customers (blue line):

- Shows a steep upward trajectory starting from **2022 Q1**, reflecting strong adoption of delivery services.

Conclusion:

- The **initial growth** was driven by more customers rather than higher individual spending.
- But from **mid-2022 onward**, there's a synchronized rise in all three indicators —implying that not only are **more people ordering**, but they are also **spending more per order**.
- This reinforces the idea that **changing urban lifestyles** and **rising disposable incomes** have not only expanded the customer base but also influenced **consumer behavior towards higher spend**.

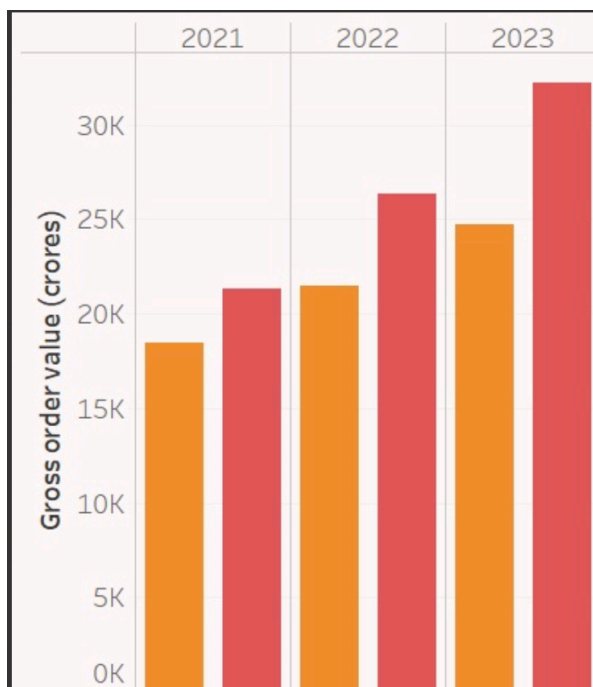
→ **Marks used:**

- Points and line connection marks between them.

→ **Channels used:**

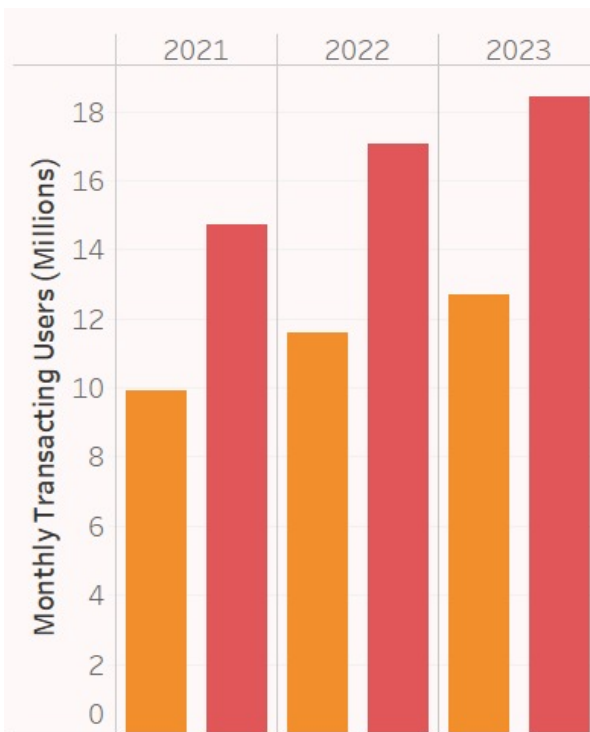
- Aligned lengths to express quant value.
- Separated and ordered by key attributes into horizontal regions.

→ **Zomato and Swiggy Market Size Growth:**



Gross Order Value (GOV) Growth:

- The red bars (Zomato) show a consistent increase in gross order value, rising from around 20K crores in 2021 to over 30K crores in 2023. This reflects a strong upward trend, with the most significant growth occurring between 2022 and 2023.
- The orange bars (Swiggy) also indicate growth, starting at a lower base (around 15K crores in 2021) and reaching approximately 25K crores in 2023. While Swiggy shows improvement, its growth trajectory lags behind Zomato's,



suggesting Zomato maintains a lead in order value.

Monthly Transacting Users (MTUs):

- Zomato's red bars for MTUs show a rise from about 10 million in 2021 to a peak of 18 million in 2022, followed by a slight decline to 12 million in 2023. This indicates a robust user base with some fluctuation.
- Swiggy's orange bars follow a similar pattern, starting at a lower base (around 8 million in 2021), peaking at 16 million in 2022, and dropping to 10 million in 2023. Swiggy's user growth is notable but consistently trails Zomato's figures.

→ **Marks used:**

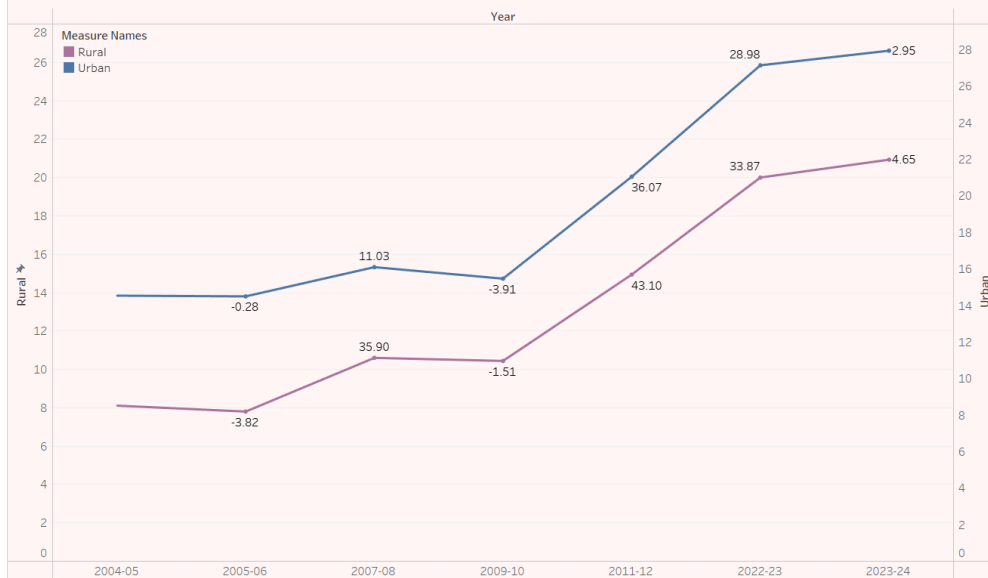
- Lines

→ **Channels used:**

- Length to express quant value
 - spatial regions: one per mark separated horizontally, aligned vertically
 - ordered by quant attribute

→ **Urban and Rural Distribution for HCES:**

Sheet 1



Sheet 2

| Year | Rural | Urban |
|---------|-------|-------|
| 2004-05 | 8.11 | 14.54 |
| 2005-06 | 7.80 | 14.50 |
| 2007-08 | 10.60 | 16.10 |
| 2009-10 | 10.44 | 15.47 |
| 2011-12 | 14.94 | 21.05 |
| 2022-23 | 20.00 | 27.15 |
| 2023-24 | 20.93 | 27.95 |

Urban vs. Rural Processed Food Expenditure

- **Steady Growth in Urban Areas:**

Urban processed food expenditure rose significantly from **11.03% (2004-05)** to **28.98% (2023-24)**, showing a strong shift toward convenience-based eating habits.

- **Slower Growth in Rural Areas:**

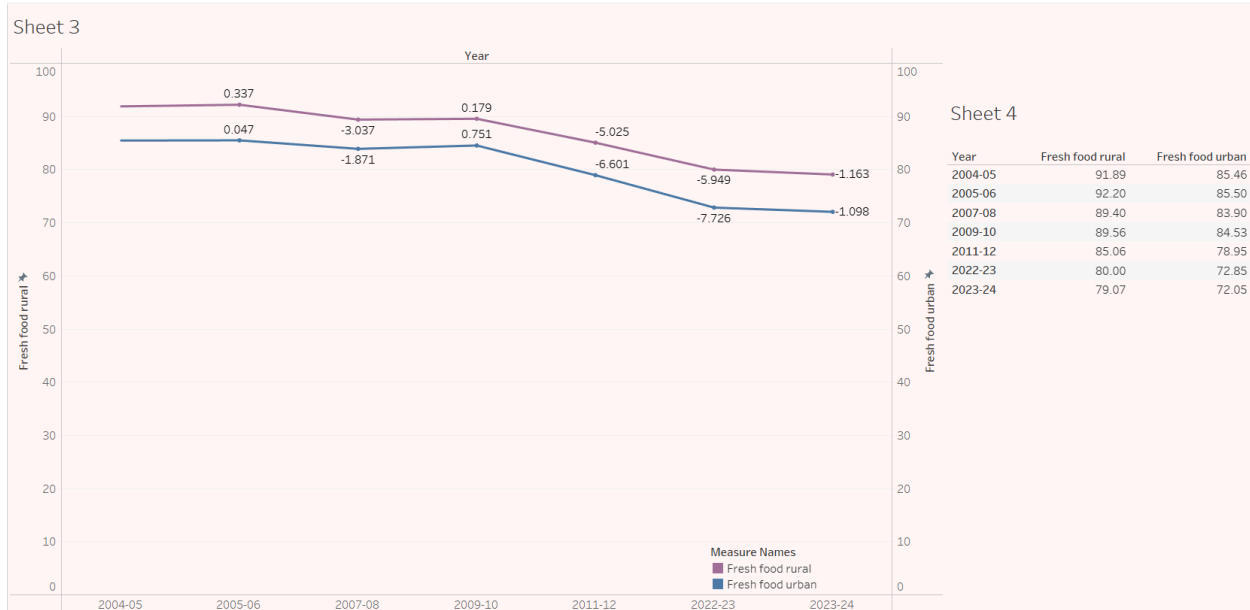
Rural spending increased from **8.82% to 14.65%**, indicating slower but consistent adoption of processed foods.

- **Widening Urban-Rural Gap:**

The spending gap grew over time (e.g., **28.98% urban vs. 14.65% rural** in 2023-24), showing that **urban areas depend more on processed food**.

- **Economic Impact on Spending:**

- A dip around **2009-10** (urban: -3.91%, rural: -1.51%) likely reflects the **2007-08 financial crisis**.
- Post-2011-12, both saw a sharp rise, reflecting **economic recovery**.
- Peaks in recent years (urban: **21.05% in 2022-23**, rural: **20.93% in 2023-24**) suggest **pandemic-driven behavior shifts**.



Urban vs. Rural Fresh Food Expenditure

- **Decline in Urban Fresh Food Consumption:**

Urban fresh food spending dropped from **91.89% to 71.02%**, indicating a clear **shift to processed options**.

- **Rural Still Prefers Fresh Food:**

Rural expenditure declined from **99.63% to 88.07%**, a **less dramatic shift**, but still notable.

- **Urban Decline More Pronounced:**

Urban areas saw sharper drops (e.g., **-6.6% in 2009–10**), while rural areas declined slower and even saw **some recovery by 2023-24**.

- **Narrowing but Still Significant Gap:**

Although the **urban-rural gap** narrowed slightly (e.g., 7.31% to 6.22%), **urban areas are moving away from fresh food faster**.

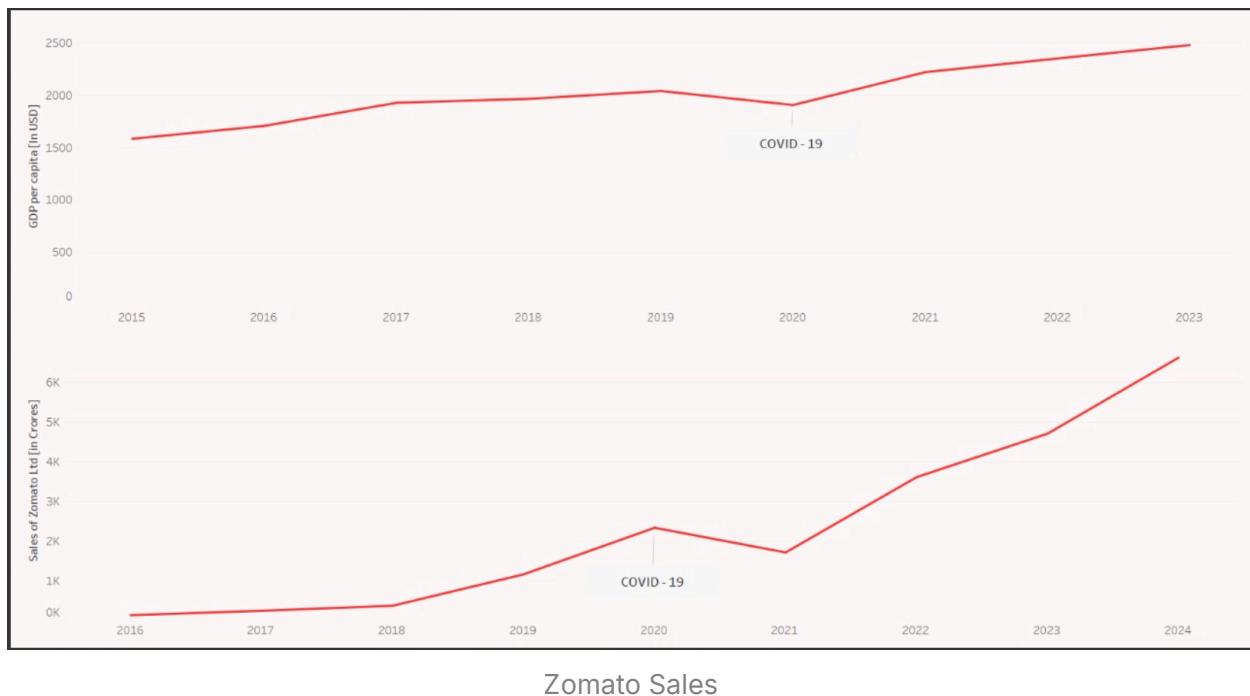
→ **Marks used:**

- Points and line connection marks between them.

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→ Impact of GDP on Zomato Sales and Processed Food Expenditure:



GDP Per Capita vs. Zomato Sales (2015–2024)

- **Both GDP & Zomato Grew:**

GDP per capita rose from **\$1500 to \$2500**, and Zomato's sales soared from near **0 to 4,000+ crores**, showing a **strong link between income and food delivery use**.

- **COVID-19 Caused a Dip, Then a Boom:**

Sales dropped in **2020** but quickly **bounced back**, as lockdowns increased reliance on food apps.

- **Urban Lifestyles Accelerate Sales:**

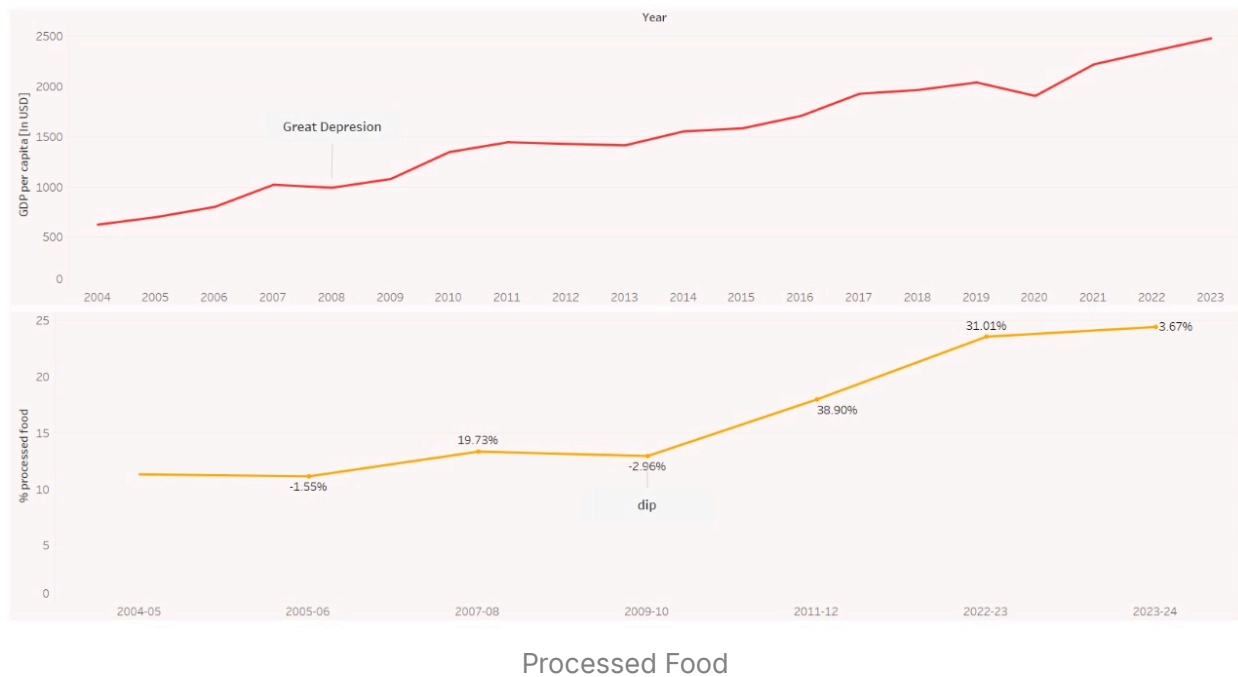
Zomato's growth mirrors your Gandhinagar experience and wider urban habits — **more income, easier access, and tech-savvy consumers**.

- **Industry-Wide Growth:**

Alongside Zomato, Swiggy's **33% GOV rise** confirms **nationwide shifts** toward online food ordering.

- **Processed Food on the Rise:**

The sales boom supports the trend of **urban food habits shifting to processed options**, especially in metro cities.



GDP Per Capita vs. Processed Food Expenditure (2004–05 to 2023–24)

- **More Income, More Processed Food:**

As **GDP per capita grew** from ~\$500 to ~\$2000+, **processed food spending rose** from **11.55% to 36.67%**, showing that rising income boosts convenience food consumption.

- **Economic Events Left a Mark:**

A **dip in 2009–10** reflects the impact of the **2007–08 financial crisis**, while the sharp rise after 2020 signals **post-pandemic recovery**.

- **Urban Areas Lead the Shift:**

Cities like **Gandhinagar** saw household food spending double, showing **urban income drives processed food demand**.

- **Role of Zomato & Swiggy:**

The jump from **31.01% to 36.67%** in just a year coincides with Zomato's **Customer Spending Index rising 42%**, confirming **delivery apps amplify the trend**.

- **Health Concerns Emerge:**

The rise in processed food mirrors urban cravings (e.g., fried rice, chicken tikka), pointing to **less healthy diets**.

- **Not Just Tech, It's Income:**

While delivery apps play a role, the **main driver is higher disposable income**, as highlighted in your script.

→ **Marks used:**

- Points and line connection marks between them.

→ **Channels used:**

- Aligned lengths to express quant value.
- Separated and ordered by key attributes into horizontal regions.

Conclusion

The charts highlight a clear shift in India's food habits, especially in urban areas, with a rise in processed food consumption. While Zomato's sales (0K crores in 2016 to 4K crores in 2024) and the Customer Spending Index (0.68 to 0.97) suggest platform influence, the real driver is rising disposable income—evidenced by GDP per capita growth (500 USD in 2004-05 to over 2000 USD in 2023-24) and processed food spending (11.55% to 36.67%). Economic booms (e.g., 38.9% in 2022-23) and recoveries after downturns (e.g., 2009-10, 2020) reinforce this trend. Platforms like Zomato enhance access, but economic prosperity is the root cause.