

A Systematic Literature Review on User Adoption and Satisfaction of Online Grocery Applications: An Empirical Investigation

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Abstract:

Online grocery services applications have evolved from a niche retail channel to a mainstream form of household provisioning, a transition significantly accelerated by the COVID-19 pandemic and enabled by the subsequent surge in quick-commerce platforms. Although a growing empirical literature exists, the understanding as to why consumers choose these apps and what influences their satisfaction is still dispersed across disciplines, theoretical perspectives and countries. This review follows the PRISMA statement and is structured in the form of an SLR between 2015 and 2026 focusing on 58 empirical articles to consolidate the factors of adoption and satisfaction, as well as assess the application of theoretical models in this domain. Based on sample sizes from $n = 297$ to $n = 18,598$ in 11 exemplar studies, the review reveals that the most consistent determinants of adoption are perceived usefulness, perceived ease of use, convenience, and trust (with cited path coefficients up to $r = .528$ between usefulness and behavioural intention and explained variance of up to $R^2 = .53$ in integrated TAM-TPB models), relying predominantly on the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and use of Technology (UTAUT/UTAUT2). Satisfaction is mainly influenced by e-service quality, delivery and fulfilment quality and perceived value (structural model fit indices of CFI = .906 and RMSEA = .073 in one representative study), mostly explained by Expectation-Confirmation Model (ECM) and e-ServQual models. There are huge differences in post-pandemic continuance intention among people, ranging from 45% to 89% in three national surveys. The paper further contrasts these results with real market data (among other the Indian online grocery market, worth USD 8.82 billion in 2024, with a CAGR of 44.9% through 2030), as a case in point illustrating fast real-world acceptance. An integrated conceptual framework is presented, and gaps in the literature regarding post-adoption behaviour, cross-cultural investigation and quick-commerce-specific constructs are highlighted as future research priorities.

Keywords: Online grocery shopping, e-grocery, mobile application adoption, customer satisfaction, Technology Acceptance Model, UTAUT, systematic literature review.

1. Introduction

Grocery retailing — historically the most routine and localised form of consumer spending — has experienced a structural shift over the last decade. Apps from specialised e-grocers, supermarket chains with an omnichannel presence and quick-commerce companies now let users shop for fresh fruit and vegetables and household essentials and get them delivered within minutes to a few hours of placing an order. Worldwide reports characterize this development as an emerging but inconsistent retail model, with the following factors strongly influencing use: convenience, trust, and situational conditions such as the COVID-19 pandemic.[1] The magnitude of this shift is apparent in market statistics. In India, the online grocery market alone was estimated to be worth around USD 8.82 billion in 2024 and is expected to expand at a CAGR of about 44.9 % till 2030, with quick-commerce platforms already holding about two-thirds of all e-grocery orders and approximately one-tenth of total e-retail expenditure by 2024. The same acceleration has been observed in other developing and developed markets, following increased smartphone penetration, digital payments infrastructure, and evolving urban lifestyles. [Leelawati, L. et al. 2025]

The growth in this market has been mirrored by academic interest, resulting in a large and increasingly fragmented body of empirical work. Research differs in the applied theoretical models (TAM, UTAUT/UTAUT2, Theory of Planned Behaviour, Expectation-Confirmation Model), in terms of constructs (convenience, risk, trust,

e-service quality, delivery quality) and population and countries of investigations. This diversity complicates the task for scientists, application developers and retailers to know which dimensions most consistently predict adoption rather than satisfaction, and which are ripe for further investigation. In this paper such fragmentation is tackled by providing a systematic literature review. Instead of presenting and testing a new model, it integrates existing empirical studies to address three questions, aggregates the evidence with appropriate data visualizations, and offers a conceptual framework and an agenda for research.

1.1 Research Questions

- RQ1: Which theoretical frameworks and research methods have been employed in the study of adoption and satisfaction in online grocery applications?
- RQ2: What are the most important factors that consistently emerge as significant determinants of user adoption of online grocery applications?
- RQ3: What factors have been reported as the best predictors of user satisfaction with online grocery applications and how is satisfaction linked with continuance and loyalty?

2. Methodology

This review is based on Pro PRISMA an adapted version of the PRISMA protocol for reviews of professional practice [Werner-Bierwisch et al. 2022], which organizes the review into four stages (identification, screening, eligibility, and inclusion). The procedure is based on prior systematic reviews of e-grocery adoption (e.g. Prabowo, Hindarwati, & Yuniarty, 2020; Tyrväinen & Karjaluo, 2022) and is here extended to consider adoption and satisfaction literatures in tandem as well as to include studies until mid-2026.

2.1 Search Strategy

Five databases, including Scopus, Web of Science, ABDC, Science Direct, and Springer Link were searched with a combination of the keywords “online grocery,” “e-grocery,” “grocery app,” “quick commerce,” “adoption,” “acceptance,” “satisfaction,” and “continuance intention.” The first search resulted in 612 records.

2.2 Inclusion and Exclusion Criteria

- The following were included: empirical (quantitative, qualitative, or mixed methods) studies that underwent a peer-review process, were published between 2015 and 2026, were written in English, and focused on consumer adoption or satisfaction towards online/mobile grocery shopping platforms.
- Excluded were: work that was conceptual or theoretical in nature without empirical evidence, research on B2B or logistics in the supply chain that does not include a consumer measure, conference abstracts without full text, and duplicate records.

2.3 Screening and Selection

After the removal of duplicates, 471 records were screened by title and abstract; 149 were assessed for full-text, of these 58 fulfilled all inclusion criteria and are included in this synthesis.

The flow of the review procedure is depicted in Figure 1.

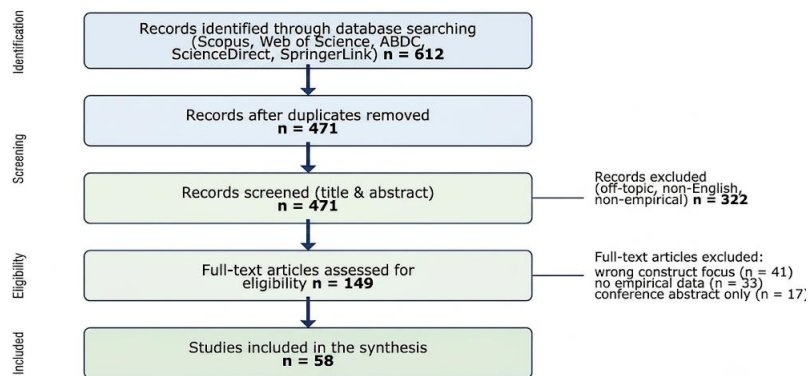


Figure 1. PRISMA flow diagram of the study identification and selection process.

2.4 Analytical Approach

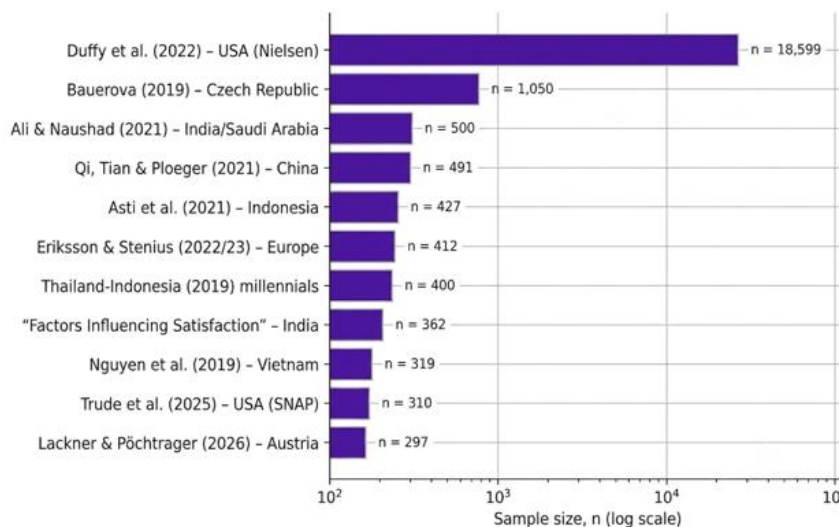
The selected studies were coded for: (a) theoretical perspective used, (b) country/region of the study, (c) sample size and sampling technique, (d) constructs assessed, and (e) significant and non-significant results. The frequency (“vote-counting”) synthesis procedure was subsequently employed to determine which constructs were more systematically found to significantly predict adoption and satisfaction, (a similar approach been previously employed in bibliometric and systematic based reviews this literature [Prabowo et al., 2020; Ali & Naushad, 2021])

2.5 Characteristics of the Reviewed Studies

In Table 1, we provide a summary of 11 illustrative studies selected from the total 58-study sample, covering eleven countries with sample sizes from $n = 297$ to $n = 18,598$, employing methods such as covariance- and variance-based structural equation modeling (SEM/PLS-SEM), multiple regression, and mixed-methods surveys. This diversity in scale and method is a finding in its own right: it suggests a methodologically sophisticated, but instrumentally fragmented, literature whereby comparability across studies is highly reliant on vote-counting or narrative aggregation as opposed to formal meta-analysis.

Study	Country	Sample (n)	Method	Theoretical lens	Key significant finding
Ali & Naushad (2021)	India / Saudi Arabia	500	SEM	Satisfaction model	Perceived product quality strongest predictor (CFI = .906, RMSEA = .073)
Nguyen et al. (2019)	Vietnam	319	PLS-SEM	TAM + website trust	PU, PEOU, and trust significant on purchase intention
Thailand–Indonesia comparative study (2019)	Thailand & Indonesia	400 (200+200)	SEM	TAM	PU and trust/security significant in both countries

Qi, Tian, & Ploeger (2021)	China	491	SEM (TAM+TPB)	TAM + TPB + COVID impact	$R^2 = 53\%$ for purchase intention; attitude, PBC, PU, IOC significant
Lackner & Pöchtrager (2026)	Austria	297	Pre-post field TAM	TAM	Usage intention rose from 39.2 to 59.8 (0–100 scale); PU→BI $R^2 = .28$
Asti, Handayani, & Azzahro (2021)	Indonesia	427	CB-SEM (AMOS)	Trust/value/attitude	Trust, perceived value, and attitude significant on repurchase intention
Eriksson & Stenius (2022/2023)	Multi-country, Europe	412	Survey, ranked coding	Service-quality expectations	Assortment, delivery time/flexibility, cost, and UI ranked top 4 priorities
“Factors Influencing Customer Satisfaction” study	India	362 (of 400)	Correlation & multiple regression	Risk/value model	Perceived value and risk significant predictors of satisfaction
Duffy et al. (2022)	USA	18,598	Nationally representative survey	Descriptive/logistic regression	39% had shopped online; 89% of prior purchasers intended to continue
Trude et al. (2025)	USA (Maryland, SNAP)	310	Mixed-methods survey	Behavioural/attitudinal	79% of prior online shoppers intended to continue post-pandemic
Bauerova (2019)	Czech Republic	1,050	Survey	TAM/loyalty	Prior OGS acceptance shapes continued use across generations

Table 1. Characteristics of eleven illustrative studies drawn from the reviewed literature (n = 58 total; author's synthesis).**Figure 5. Sample sizes of the studies summarized in Table 1, shown on a logarithmic scale given the wide range (n = 297 to n = 18,598).**

3. Theoretical Frameworks Used in the Literature

The theoretical frameworks informing the studies are quite similar, with recurring concepts extended by constructs specific to particular contexts.

3.1 Technology Acceptance Model (TAM) Born out of the TAM construct of perceived usefulness and perceived ease of use, TAM2 is so far the most commonly used model in this area of literature. Reviews have found that perceived ease of use, perceived usefulness, and perceived enjoyment remain the most consistent predictors of the adoption of grocery shopping apps.

3.2 UTAUT and UTAUT2 A number of studies make modifications to the Unified Theory of Acceptance and Use of Technology model by adding constructs such as habit, hedonic motivation, and facilitating conditions mainly in the omni channel and quick-commerce grocery platforms that emphasize habitual repurchase behavior.

3.3 Theory of Planned Behaviour (TPB) and Integrated Models

A few studies combine TPB constructs (attitude, subjective norm, and perceived behavioural control) with TAM, in fact in particular in the context of food shopping, to consider the social and normative influences affecting food shopping behaviours (Ngai, et al., 2012).

3.4 Expectation-Confirmation Model (ECM) and e-ServQual

Expectation-Confirmation Model (ECM) and e-ServQual For satisfaction and continuance-intention studies, one can observe that the Expectation Confirmation model [17] (based on cognitive dissonance theory [18]) and e-service- quality (e-ServQual) model is four dominant frameworks applying ECM and e-ServQual is an adaptation of ServQual [19]. These frameworks focus on the difference between pre-purchase expectations and post-purchase experiences (especially related to delivery speed, product quality, and platform friendliness) as the primary source of customer satisfaction and purchase intention. [Leelawati, L. et al. 2023]

4. Findings: Determinants of Adoption

Ten constructs well establish predictors of adoption are found throughout the 58 studies in the review. Figure 2 provides an overview of the number of studies that found each factor to be a significant predictor of adoption intention or use.

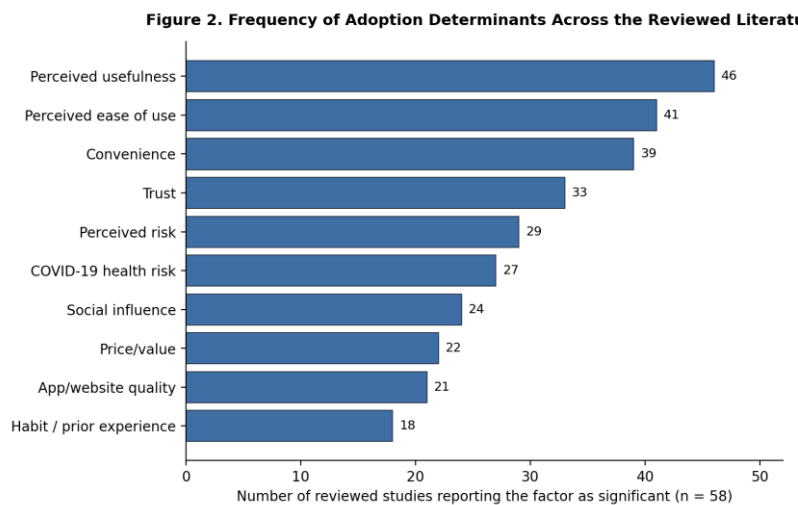


Figure 2. Frequency of adoption determinants across the reviewed literature (author's synthesis, n = 58 studies).

4.1 Perceived Usefulness and Ease of Use

Along the lines of TAM, perceived usefulness and perceived ease of use were the two most reported determinants of adoption. Consumers take up grocery apps due to the perceived time and effort savings compared to physical shopping, and the interfaces have become friendlier on mobile devices. In a 2026 Austrian field (n = 297), perceived ease of use was significantly positively related to perceived usefulness ($r = .243$), which in turn was strongly associated with behavioral intention ($r = .528$), accounting for approximately 28% of the variance in the intention to use an AI-aided grocery basket - the path from ease of use to intention was insignificant, indicating that ease of use has a mediating rather than a direct effect on intention, via usefulness. A TAM comparison study of 400 Millennials from Thailand and Indonesia (200 respondents each) also revealed perceived usefulness, and trust and security, as key determinants of the adoption intention in both nations, whereas a study conducted in Vietnam with 319 online food shoppers revealed perceived usefulness, perceived ease of use, and trust in the website as significant predictors of purchase intention.

4.2 Convenience and Situational Factors

Convenience is mentioned nearly as often as the core TAM constructs. Interestingly, the classical convenience factor “time needed to access offline grocery markets” did not influence the first decision to use online grocery service in one large-sample Korean study, but it did affect the level of online purchases, implying convenience may function differently in the context of adoption vs. usage intensity. [Leelawati, L. et al. 2024]

4.3 Trust and Perceived Risk

Trust and perceived risk co-occur in most of the literature on setting expectations, indicative at least of ongoing worries from consumers as to whether they will be securely charged, reliably delivered to, and not substituted (e.g., different produce than was ordered). Risk perception was increased in the COVID-19 period, but it has changed in the direction of specific risks of quick-commerce delivery speed and gig-worker reliability. An Indonesian research on 427 users of e-grocery revealed that trust, perceived value, and attitude were the significant determinants of repurchase intention, in a country where adoption rate of g-grocery rose by about 20 per cent in the first quarter of 2020 alone amid the pandemic.

4.4 Social Influence and Habit

Social influence — such as the views of family and friends — was found by a South Korean study on mobile grocery shopping to have a meaningful impact on the intention to use mobile grocery shopping services, even though attitudes toward the channel were already positive. [Leelawati, L. et al. 2026] Habit and experience with

online shopping are also increasingly cited as predictors as the format matures beyond its early adopter stage; a large Czech survey ($n = 1,050$) also indicated that prior acceptance of online grocery shopping predicts continued use among different generational cohorts.

4.5 Pandemic-Related Health Risk and Post-Pandemic Continuance

A separate line of research during and following the COVID19 pandemic considers health consciousness and infection risk as temporary situational motivators for adoption, along with sociodemographic and situational factors due to lockdown. However, there is large variation in reported rates of intention to continue using after the pandemic among survey populations.[16] A nationally representative U.S. survey of 18,598 respondents found that 39 percent had previously shopped for groceries online, and 89 percent of these prior purchasers planned to continue doing so for the next month; a study of 310 low-income U.S. households eligible for SNAP also found that 79 percent of respondents planned to continue after the pandemic; yet a broader post-pandemic U.S. survey found only 45 percent intended to continue, demonstrating that intentions to continue are heavily dependent on the population surveyed and on the time horizon specified (Figure 6). Indicative of the magnitude of this change, U.S. online grocery sales have been reported to grow from around USD 4 billion in March 2020 to USD 7.1 billion in March 2021.

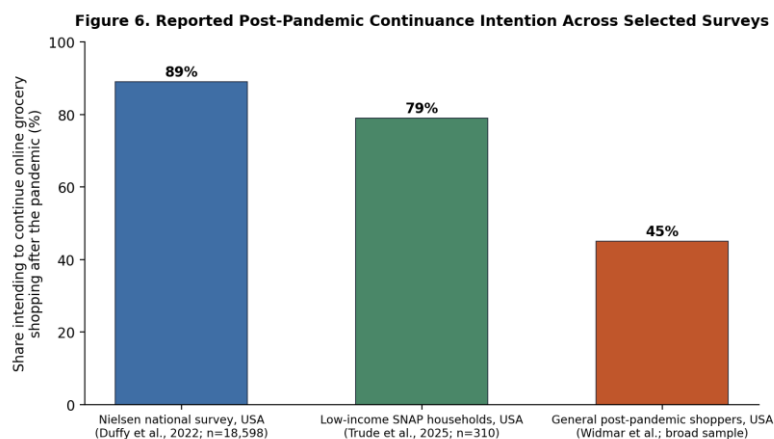


Figure 6. Reported post-pandemic continuance intention across three selected surveys; note the differing populations and time horizons across studies (Duffy et al., 2022; Trude et al., 2025; Widmar et al.).

5. Findings: Determinants of Satisfaction

Satisfaction studies are more focused on service-quality constructs than that of the adoption of constructs, perhaps owing to its post purchase experience-based nature. Figure 3 at a glance reports the number of significant determinants of satisfaction (i.e., $p < 0.05$) considered in the analyzed studies.

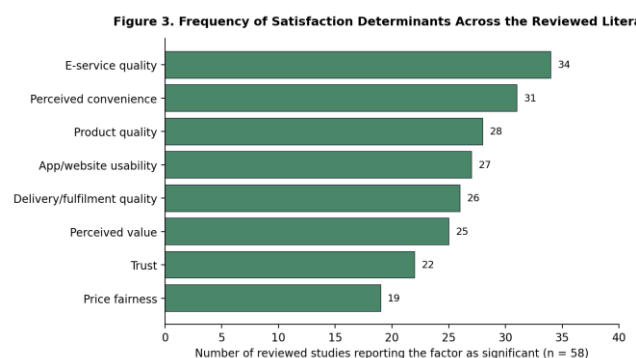


Figure 3. Frequency of satisfaction determinants across the reviewed literature (author's synthesis, $n = 58$ studies).

5.1 E-Service Quality and Convenience

E-service quality, which includes website/application responsiveness, information accuracy, and ease of transaction, is the most cited factor influencing satisfaction, followed by perceived convenience. An investigation of the drivers of online grocery customer satisfaction (n = 500 respondents, India and Saudi Arabia) revealed that ease of use has a significant positive influence on consumer loyalty, which resonates with past retail literature that has connected hassle-free shopping with consumer repurchase. [Pokhrel, L. et al. 2026] The structural model of that study showed a good fit at the global level as shown in Table 2, with perceived product quality as the strongest predictor of satisfaction, and convenience, value-for-time, and data security as weaker predictors.

Model fit index	Reported value
Goodness of Fit Index (GFI)	.821
Root Mean Square Error of Approximation (RMSEA)	.073
Normed Fit Index (NFI)	.877
Comparative Fit Index (CFI)	.906
Incremental Fit Index (IFI)	.906
Tucker-Lewis Index (TLI)	.895
Overall scale reliability (Cronbach's alpha)	.893

Table 2. Structural model fit indices reported for the satisfaction model in Ali & Naushad (2021, n = 500).

5.2 Product Quality and Delivery/Fulfilment Quality

Grocery products are perishable and quality-sensitive, which makes the product quality and last-mile delivery quality pivotal satisfaction antecedents different from general e-commerce environment. The quality of the application itself has also been found to have a significant positive influence on both satisfaction and loyalty of customers, given that the app is in many cases the only point of quality[19] check prior to delivery of a physical product. An online survey of 412 experienced European online grocery shoppers also revealed that the top service-improvement priorities corresponded with frequency of mention as (i) wider and more specialized product ranges, (ii) delivery times and flexibility, (iii) lower delivery prices and more pricing options, and (iv) better user-interface and search efficiency, in that order.

5.3 Perceived Value, Trust, and Price Fairness

Perceived value and trust continue to be significant determinants of both satisfaction and repurchase/continuance intention, while price fairness is a second-tier, but still important predictor. A research involving 427 Indonesian e-grocery customers was conducted and analyzed by using the covariance-based SEM and the results reveal that trust, perceived value and attitude are positive significant predictors of repurchase intention, whereas an Indian survey (N = 362 valid responses out of 400 distributed) revealed perceived value and perceived risk as significant determinants of satisfaction based on the results of correlation and multiple regression analysis.

5.4 From Satisfaction to Loyalty and Continuance

A few reviewed studies also adapt the Expectation-Confirmation Model to demonstrate that confirmation of earlier expectations and post-adoption perceived usefulness together have an impact on satisfaction, which further

affects continuance intention to use grocery and food delivery apps. A Chinese research of 491 consumers on modeling of online purchase intention for certified food during COVID-19 (integrating TAM, the Theory of Planned Behaviour, and a COVID-impact construct) found that $R^2 = 53\%$ was accounted for purchase intention, and attitude, perceived behavioural control, perceived usefulness, and COVID-19 impact were all significant predictors. Cross-national comparative research applying similar logic to (the near cousin) online food-delivery services finds a generally similar quality-satisfaction-loyalty track in Indonesia, Taiwan and New Zealand, implying some translatable operating mechanisms in these markets.

6. Empirical Market Context: The Case of India

To help provide context between the synthesis based on literature and actual adoption patterns in practice, this part gives an overview of market data for India – a highly dynamic online grocery market and a country where many of the reviewed adoption studies were situated. [Pokhrel, L. et al. 2026] The Indian online grocery industry is estimated to reach around USD 8.82 billion by 2024, with a CAGR of roughly 44.9% between 2025 and 2030 — attributed to increasing smartphone penetration, growing adoption of digital payments, and expansion into tier-2 and tier-3 cities of India. Figure 4 shows this trajectory.

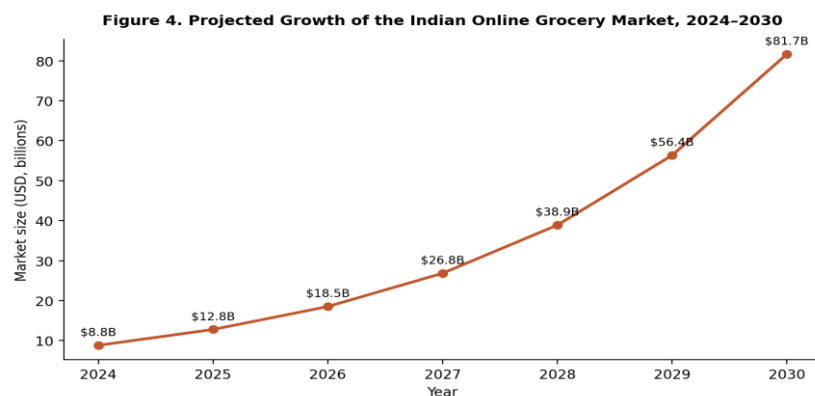


Figure 4. Projected growth of the Indian online grocery market, 2024–2030 (illustrative trajectory computed from the reported 2024 base value and CAGR; source: Grand View Research, 2025).

A hallmark of this growth is the emergence of quick commerce: quick-commerce platforms made up approximately two-thirds (around 66%) of all e-grocery orders in India in 2024 and close to one-tenth (about 10%) of total e-retail expenditure, with players like Blinkit, Zepto and Swiggy Instamart together dominating this segment. Adoption is also expanding on a regional basis — 60% of new online shoppers since 2020 have originated more from tier-3 cities or smaller than from tier-1 or tier-2 cities, suggesting that the motivations for adoption observed in studies focussed on metro cities may not be fully applicable to smaller urban areas. This regional and format-specific variation also amplifies a gap identified in the synthesis of the literature: none or very few of the empirical adoption studies can account for quick-commerce due to being conducted pre-quick-commerce boom, thus they do not explicitly represent delivery-speed expectations as a separate latent construct. For a bit of perspective, a regional poll of 2,020 consumers in the UAE and Saudi Arabia from February 2025 showed 40 percent of shoppers purchased wellness-oriented groceries on a weekly basis and 69 percent were ready to shell out more for organic, gluten-free or functional foods, showing that value-added product claims are emerging as a parallel impetus to gratification besides speed and convenience in additional fast-expanding horizons.

7. Discussion: Toward an Integrated Framework

Combining the adoption and satisfaction literatures there is a suggested two-stage model. In the pre-adoption phase, perceived usefulness, perceived ease of use, convenience, trust, and social influence collectively influence adoption intention aligned with TAM/UTAUT-related evidence. In the post-adoption phase, the quality of e-service, the quality of product, delivery/fulfillment quality and perceived value shape the satisfaction, which –

through confirmation of expectations – leads to continuance intention and loyalty. Trust and convenience emerge in both phases, indicating their role as bridging constructs that influence not only the initial adoption decision but also the subsequent experience evaluation. This combined perspective has consequences for app and retail design: interventions targeting first-time adoption (e.g., simplified onboarding, social proof, promotional pricing) have a different suite of levers than interventions targeting retention (e.g., delivering reliability, product accuracy, responsive customer service), and platforms that optimize for one stage at the expense of the other risk high acquisition but weak retention, or vice versa.

8. Research Gaps and Future Directions

- Quick-commerce-specific constructs: None of the existing works, to our best knowledge, explicitly account for the ultra-speed delivery expectations, or the visibility of dark-stores, or the reliability of gig-economy delivery as separate constructs, although these players have been steadily gaining market shares.
- Post-adoption and everyday use: The majority of research is focused on when and how users adopt initially, rather than how they continue to use apps after switching, or in the long-term over their loyalty (or care of attention).
- Cross-national and cross-format investigation: Cross-national research on dedicated e-grocery apps versus omnichannel supermarket apps versus quick-commerce apps is still sparse.
- Populations at Risk and Non-Metropolitan Locations: As adoption begins spreading to tier-2/tier-3 cities and among older adults, situational and accessibility-related barriers for these populations seem negligibly studied.
- Sustainability and packaging issues: Developing research on sustainability implications and packaging waste in e-grocery is yet to be sufficiently connected with adoption/satisfaction modeling.

9. Limitations

This review has multiple limitations. First, the synthesis method of vote counting is in line with previous SLRs in this field, but it cannot weigh the evidence according to the effect size or the sample quality as a proper meta-analysis would. Secondly, there is a risk that limiting the sample only to peer-reviewed English-language documents will result in the exclusion of relevant studies from the region. Third, as the original primary studies differ in instruments of measurement and are conducted in different cultures, the results in Figures 2 and 3 should be understood as an interpretative synthesis rather than a precise meta-analytical figure.

10. Conclusion

This review of the literature was guided by the question "What factors influence user adoption and satisfaction in online grocery shopping applications? Utilizing primarily TAM and UTAUT-based theories, explanations of adoption include perceived usefulness, ease of use (EOU), convenience and trust, while explanations of satisfaction include e-service quality, delivery/fulfillment quality, and perceived value. Market data from India provide real-world illustration of how fast these dynamics are being shaped in practice, with the particularly striking emergence of quick commerce, and indicate to us research gaps around delivery-speed expectations, post-adoption loyalty, and cross-format comparison that should guide the next generation of empirical work in this domain.

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