Vol. 10, Issue 4, Pp 1-14, Autumn 2026

Journal of Socio-Spatial Studies

Homepage: https://soc.gpmsh.ac.ir

Original Research Paper

The Economy of Digital Retail: Costs, Platforms, and Market Power in Online Commerce

Mujeeb Rahman Ziarmal [1]

[1]*Associate Professor, Department of Public Relation, Faculty of Communication and Journalism, Kabul University, Kabul, Afghanistan*

ARTICLE INFO

Keywords:
digital retail
e-commerce
platform economics
two-sided markets
search costs
reputation systems
algorithmic pricing
market concentration
consumer welfare

Received: Jun. 24, 2026
Revised: Aug. 15, 2026
Accepted: Sep. 4, 2026
Published: Oct. 1, 2026

ABSTRACT

Digital retail has grown from a marginal curiosity into one of the central institutions of contemporary commerce, and its rise has reorganized not merely where goods are bought but the underlying economics of how retail markets function. This article offers a critical, literature-based analysis of the economy of digital retail, arguing that online commerce is not conventional retail relocated to the internet but a distinct economic formation whose logic follows from the reduction of five fundamental costs — of search, replication, transportation, tracking, and verification — that digital technology has made possible. The article takes that framework seriously as an organizing device, devoting a section to each cost and stating candidly where the evidence supports the framework and where it does not. It traces the microfoundations of digital retail in lowered search costs and expanded variety; the reputation and feedback systems through which lowered verification costs make trade among strangers viable; the platform marketplaces governed by network effects and the economics of two-sided markets; the exploitation of consumer data for personalization, recommendation, and algorithmic pricing, where recent evidence has begun to substantiate longstanding theoretical concerns about tacit coordination among pricing algorithms; the distinctive cost structure of fulfillment that has replaced the economics of the storefront; and the consequences for market structure, competition policy, and the distribution of gains across consumers, workers, and firms. The article contends that digital retail has delivered substantial and well-documented benefits to consumers, but that these gains have been accompanied by a pronounced concentration of market power, by new forms of dependence and surveillance, and by uneven consequences for labor and for displaced firms and communities. It concludes that the economy of digital retail is a domain in which efficiency and market power have advanced together, and in which the central questions are increasingly less about the technology of selling than about the governance of the powerful intermediaries that the technology has produced — a question that has moved, in the years since the field's foundational contributions, from academic argument into enacted law and active litigation.

INTRODUCTION

Within the span of a single generation, the buying and selling of goods has undergone a transformation whose scale becomes apparent only in retrospect. What began as the tentative sale of books and compact discs over slow connections in the late 1990s has become a vast apparatus through which a substantial and growing share of the world's retail

m.zayarmal@kdru.edu.af
https://orcid.org/0009-0002-0253-1094

How to Cite this article:
Ziarmal, M. R. (2026). The economy of digital retail: Costs, platforms, and market power in online commerce. *Socio-Spatial Studies*, 10(4), 1-14.
https://doi.org/10.22034/soc.2026.604401.1018
URL: https://soc.gpmsh.ac.ir/article_256212.html

Copyright © The Author(s);
This is an open access article distributed under the terms of the The Creative Commons Attribution (CC BY 4.0) license:
https://creativecommons.org/licenses/by/4.0/deed.en

commerce now flows, reshaping the high streets and shopping malls of the physical world, the logistics networks that move goods across continents, and the daily habits of billions of consumers (Evans & Schmalensee, 2016). Digital retail — the sale of goods to consumers over electronic networks, together with the marketplaces, logistics systems, and data infrastructures that support it — has become one of the defining economic institutions of the age, and the firms that dominate it are among the largest and most powerful enterprises in the history of commerce.

Yet the significance of this transformation lies less in the migration of transactions online than in the way that migration has altered the underlying economics of retail itself. The temptation is to regard digital retail as conventional retailing conducted through a new channel, as though the internet were merely a more convenient storefront; but this understanding misses what is economically distinctive about it. The argument of this article is that digital retail constitutes a distinct economic formation, one whose characteristic features follow from the reduction of a set of fundamental economic costs that digital technology has enabled. An influential synthesis of the field of digital economics identifies five such costs whose reduction defines the digital economy: the costs of search, of replication, of transportation, of tracking, and of verification (Goldfarb & Tucker, 2019). Each has implications for retail, and together they explain how digital retail diverges from its physical antecedent (Parker, Van Alstyne, & Choudary, 2016).

This article takes that five-cost framework more literally than is customary, and Section 3 sets out why. The framework is frequently invoked in the literature on digital commerce and rarely applied in full: search costs and tracking costs attract the great bulk of attention, transportation costs are discussed under the separate heading of logistics, and replication and verification costs are named and then dropped. The omission of verification is the most consequential, because the reduction of verification costs is not one feature of the platform marketplace among others but the condition of its existence: a marketplace on which strangers transact at a distance is viable only if buyers can form reliable expectations about sellers they will never meet, and the reputation and feedback systems that make this possible are therefore foundational rather than incidental (Tadelis, 2016). This article devotes a section to each of the five costs and states, in each case, how far the evidence supports the framework.

The article advances a connected argument about the consequences of the new cost structure. The reduction of these costs has delivered substantial and genuine benefits to consumers — lower prices, vastly greater product variety, and increased convenience, all well documented in the empirical literature — but the same forces that generate these benefits also tend to concentrate market power, because the economics of digital retail are pervaded by network effects, economies of scale and scope, and advantages of data and logistics that favor the largest players and tend toward winner-take-most outcomes. The result is a characteristic tension, recurring throughout the analysis, between the efficiency gains of digital retail and the market power that accompanies them. Efficiency and concentration, on this view, have advanced hand in hand, and the central economic questions increasingly concern not the technology of selling but the governance of the powerful intermediaries that technology has produced.

That last question has changed character since the foundational contributions to this literature were written, and the change is one the present article must register. When the most influential critique of platform market power was published, the proposition that competition policy might require reorientation toward the structure of digital markets was an argument advanced against the prevailing consensus (Khan, 2017). It is now, in significant part, enacted law and active litigation: the European Union has legislated ex ante obligations for designated gatekeeper platforms and begun enforcing them; the United Kingdom has established an analogous regime; and the United States competition authority has brought a monopolization case against the largest online marketplace which is proceeding toward trial. The intervening period has also supplied evidence bearing on whether such approaches succeed, including at least one significant defeat for the

structural approach on the question of market definition. A synthesis written now can therefore say something the literature of 2017 could not, which is how the argument has fared once tested.

The analysis proceeds as follows. Section 2 describes the method and its limits. Section 3 sets out the five-cost framework and states how fully each cost is developed in what follows. Sections 4 through 8 take the costs in turn: search costs and the expansion of variety; verification costs and the reputation systems that make marketplaces possible; the platform form itself, through the economics of two-sided markets; tracking costs, personalization, and algorithmic pricing; and transportation costs and the economics of fulfilment. Section 9 takes up market structure, concentration, and competition policy; Section 10 turns to the distribution of gains and costs across consumers, workers, and displaced firms; and Section 11 concludes. Throughout, the article distinguishes what the empirical literature has established from what remains contested.

2. METHOD, EVIDENCE, AND LIMITS

This study employs a library-based, critical method of analysis, synthesizing and interpreting the existing scholarly literature rather than generating new empirical data. The economy of digital retail is studied across several disciplines — economics, particularly industrial organization and digital economics; information systems; marketing; and management — and the most useful account is one that brings these literatures into conversation, situating the technical and managerial features of online retailing within the economic frameworks that explain their consequences. Because the questions at issue are partly conceptual, concerning how digital retail differs in kind from its physical antecedent, and partly empirical, concerning the measured effects of online commerce on prices, variety, market structure, and welfare, a critical synthesis that integrates theoretical and empirical scholarship is the appropriate method.

Sources were identified through structured searches of EconLit, Web of Science, Scopus, and the NBER and SSRN working-paper repositories, using terms such as “e-commerce,” “digital retail,” “online retailing,” “platform economics,” “two-sided markets,” “search costs,” “reputation systems,” “algorithmic pricing,” and “market concentration,” supplemented by citation tracing from foundational and survey works. Priority was given to peer-reviewed economic scholarship, and particular weight was placed on quantitative studies that estimate the effects of digital retail on prices, consumer surplus, and market structure, since these bear most directly on the article’s claims. Where findings are contested, as in the debate over whether digital retail concentrates or diversifies sales, the analysis presents the competing evidence rather than resolving it artificially.

Four limitations warrant acknowledgment. The first is inherent to the method: a literature-based synthesis cannot itself measure the economic effects of digital retail, and depends on the scope and quality of existing research. The second is that this research is unevenly distributed, weighted toward the United States and other wealthy economies and toward the product categories and firms that have attracted most study, so that generalization from the detailed evidence to digital retail as a whole requires caution.

The third is a problem of data access that recurs throughout the article and deserves to be stated as a limitation rather than mentioned in passing. Much of what would be needed to assess the claims at issue — the operation of pricing algorithms, the terms imposed on third-party sellers, the unit economics of fulfilment, the design objectives of recommendation systems, the internal evidence on self-preferencing — is proprietary, and is held by the firms whose conduct is being evaluated. The consequence is not merely that some questions are unanswered but that the questions least susceptible to outside study are systematically those bearing most directly on market power. Several claims in what follows are therefore better supported in direction than in magnitude, and the article marks these where they arise.

The fourth is that the sector evolves rapidly and empirical findings can be overtaken by market changes. This applies with particular force to the competition-policy discussion in Section 9, where the legal and regulatory position is moving while this article is written, and where the article accordingly describes the architecture of the debate and the evidence bearing on it rather than attempting a current account of

proceedings whose outcomes are unknown.

3. THE FIVE COSTS: AN ORGANIZING FRAMEWORK

The organizing claim of this article is that the distinctive economics of digital retail follow from the reduction of five costs, and it is worth being explicit about both the framework and its limits before applying it. Goldfarb and Tucker (2019) identify the reduction of search, replication, transportation, tracking, and verification costs as what distinguishes digital economics from economics conducted under other technological conditions, and argue that most of the specific phenomena the field studies can be understood as consequences of one or more of these reductions. Applied to retail, the framework has the merit of explaining why online commerce differs from physical commerce in kind rather than degree, and of doing so without appeal to the technology as such.

It also has limits that are best acknowledged at the outset. The five costs are not equally consequential for retail, and a framework applied honestly must say so. The reduction of replication costs, which is transformative for information goods, matters to the retail of physical goods only indirectly — though the indirect effect is substantial, since the near-zero cost of listing one more item on a virtual shelf is precisely what makes the expansion of variety examined in Section 4 possible. The reduction of transportation costs is likewise more complicated than the framework's name suggests: digital retail reduces the cost of moving information to near zero while introducing a substantial new cost of moving goods, because physical retail had quietly shifted the final leg of distribution onto the customer, who travelled to the store and carried the goods home. What digital retail does, in this dimension, is to internalise a cost that physical retail externalised, and the economics of fulfilment examined in Section 8 are the consequence.

Table 1 sets out the five costs, the principal consequence of each for retail, and the state of the evidence bearing on it. The final column is included because the article's usefulness depends on distinguishing what is established from what is contested or simply unobserved, and because that distinction correlates, as Section 2 noted, with which questions the available data permit outsiders to study.

Table 1. Five cost reductions and their consequences for retail

Cost	What digital technology reduces	Principal consequence for retail	State of the evidence
Search	The cost to buyers of discovering which products exist, who sells them, and at what price	Intensified price competition; vastly expanded accessible variety; a large share of the consumer surplus digital retail generates	Strong. Lower online prices, large variety surplus, and persistent dispersion are all documented (Bakos, 1997; Brynjolfsson & Smith, 2000; Brynjolfsson, Hu, & Smith, 2003)
Replication	The cost of reproducing information goods, and of listing one more item on a virtual shelf	Near-zero cost of carrying an additional product, which is the precondition of the long tail; direct effects confined largely to digital goods	Mixed. The enabling role is clear; the consequence for the distribution of sales is genuinely contested (Anderson, 2006; Brynjolfsson, Hu, & Simester, 2011; Fleder & Hosanagar, 2009)
Transportation	The cost of moving goods and information across distance	Displacement of the storefront by the fulfilment network; large scale economies in logistics; a new cost that physical retail had shifted onto the customer	Partly established. Scale economies are evident; firm-level fulfilment costs are largely proprietary and unobserved
Tracking	The cost of observing and recording individual behaviour	Recommendation and targeting; the capacity, largely unexercised, for personalised pricing; data as a strategic asset	Uneven. Recommendation effects documented; personalised pricing little observed in practice (Acquisti et al., 2016; Cavallo, 2017)
Verification	The cost of establishing the quality of a good or the trustworthiness of a counterparty	Reputation and feedback systems that make trade among strangers viable; a precondition of the marketplace model rather than one of its features	Strong on the mechanism, weaker on the extent of manipulation (Tadelis, 2016)

4. SEARCH COSTS, PRICE COMPETITION, AND THE

EXPANSION OF VARIETY

The economics of digital retail begin with the transformation of search. In physical retail, the cost to a consumer of discovering what products exist, where they are sold, and at what prices is considerable, requiring travel from store to store and the expenditure of time and effort, and this cost has profound economic consequences: it limits the range of products a consumer can practically consider, it shelters sellers from the full force of price competition by making comparison costly, and it sustains price dispersion for identical goods. The foundational insight of the economics of electronic markets was that digital technology dramatically lowers these search costs. An early and influential analysis argued that the reduction of buyer search costs in electronic marketplaces would intensify price competition among sellers of comparable goods, while also reshaping the incentives of buyers, sellers, and intermediaries to participate in such markets (Bakos, 1997). Lower search costs, on this account, shift power toward consumers and pressure the margins of sellers.

The early expectation that followed was that online retail would approach the economist's ideal of a frictionless market, in which identical goods sell at a single competitive price and dispersion is competed away. The empirical reality proved more complicated, and the qualification is instructive. A landmark comparison of prices for books and compact discs across online and conventional retailers found that, as predicted, prices online were on average lower than in conventional stores; but it also found that substantial price dispersion persisted online, with identical goods continuing to sell at significantly different prices across sellers (Brynjolfsson & Smith, 2000). The persistence of dispersion indicated that the online market was not frictionless: brand, trust, awareness, and the convenience and reliability of particular retailers continued to differentiate sellers and to sustain price differences. This finding established an enduring theme, that digital retail reduces but does not eliminate the frictions of commerce. It also points forward to Section 5, since one of the things that differentiates sellers in a market with low search costs is precisely the trust that buyers place in them, and the mechanisms by which such trust is established are themselves an object of economic analysis.

If lowered search costs were the first transformation, the second was an expansion of product variety so dramatic as to constitute a difference in kind. Freed from the constraint of physical shelf space — which is where the reduction of replication costs enters, since the marginal cost of listing an additional product online is close to zero — an online retailer can offer a range of products vastly greater than any physical store could stock, and this expansion turns out to be a major source of economic value. A pioneering study estimating the consumer benefits of online retailing found that increased product variety was a substantial source of consumer surplus, and indeed that the surplus consumers derived from access to products unavailable in physical stores significantly exceeded the surplus they gained from lower prices and increased competition (Brynjolfsson, Hu, & Smith, 2003). The magnitude of the effect is captured by the observation that the number of book titles available at a major online retailer exceeded the number stocked by a large physical bookstore by more than an order of magnitude.

The economic significance of expanded variety was popularized in the thesis of the "long tail," which held that digital retail, by making it economical to offer and to match consumers with an essentially unlimited range of niche products, would shift the distribution of sales away from a small number of hits and toward the aggregated mass of niche products in the tail (Anderson, 2006). There is empirical support for the proposition that lower search costs shift sales toward the tail: research examining the effect of reduced search costs on sales concentration found that they were associated with a less concentrated distribution (Brynjolfsson, Hu, & Simester, 2011). Yet the thesis has been contested, and the countervailing evidence is important. Analysis of recommender systems — the algorithmic tools that suggest products and that are central to how digital retailers help consumers navigate vast catalogs — found that some common recommenders can reduce the diversity of sales, because they recommend on the basis of existing popularity and

sales data and therefore reinforce the position of already-popular products (Fleder & Hosanagar, 2009). The net effect of digital retail on sales concentration is thus genuinely ambiguous, depending on the interplay between the expanded variety and lowered search costs that favor the tail and the popularity-reinforcing dynamics of the algorithms that mediate consumer choice — an ambiguity that anticipates a larger theme, namely that the same technology can produce diversifying and concentrating tendencies at once.

5. VERIFICATION COSTS, REPUTATION, AND THE PROBLEM OF TRUST

The fifth of the cost reductions is the one the literature on digital retail most often names and least often examines, and it is logically prior to much of what follows. Commerce among strangers poses a problem that predates the internet and that markets have always had to solve: the buyer cannot directly observe the quality of the good or the reliability of the seller before transacting, and the seller, knowing this, has an incentive to misrepresent both. In physical retail, this problem is attenuated by the durability of the storefront, by the seller's local reputation, by the possibility of inspecting the goods, and by the legal and social infrastructure of a settled commercial community. Online, none of these apply with equal force. A buyer transacting with a seller located anywhere in the world, encountered for the first time and probably never again, has no independent means of assessing either the goods or the counterparty, and in the absence of some substitute the market for anything but the most standardized products would be severely limited.

What digital technology has supplied is a dramatic reduction in the cost of aggregating and distributing information about past conduct. Reputation and feedback systems collect the experiences of prior buyers and make them available to prospective ones at essentially no cost, and in doing so they convert a one-shot interaction between strangers into something closer to a repeated game, in which a seller's present conduct carries future consequences because it will be observed by every subsequent buyer. Tadelis (2016), surveying the economics of these systems, sets out the basic mechanism — that a public repository of past performance turns reputation into an incentive device capable of sustaining trust in anonymous markets — and reviews the empirical literature on their effects. The significance for the present argument is structural rather than incidental: the marketplace model examined in the next section, in which a platform intermediates between many independent and largely unknown sellers and many buyers, is not merely assisted by reputation systems but constituted by them. Without a workable solution to the verification problem, a marketplace of anonymous third-party sellers is not a viable form.

The solution is nonetheless imperfect, and the imperfections are economically consequential. Feedback systems are subject to well-documented biases: buyers who have had unremarkable experiences frequently do not report them, buyers who fear retaliation may withhold negative assessments, and the resulting distributions are compressed toward the favorable, reducing the informativeness of the signal (Tadelis, 2016). Beyond bias lies deliberate manipulation, and the incentive to manufacture favorable reputation is exactly as strong as the value reputation confers, which has given rise to markets in fabricated reviews and in reputation-building services. The economic character of the problem is worth stating precisely: reputation systems reduce verification costs for buyers but create a new asset — accumulated reputation — whose value generates its own incentive to subvert the mechanism that produces it.

This has a bearing on market power that the literature on platform competition does not always register. Because reputation accumulates and cannot readily be transferred between platforms, it functions as a switching cost for sellers, who may be reluctant to move to a rival marketplace where they would begin again with no record, and as a barrier to entry for new sellers on an established platform, who must compete against incumbents with long histories. The verification mechanism that makes the marketplace possible thus also contributes to the stickiness that makes it difficult to dislodge, and the platform's control of the reputation system — its

design, its disclosure rules, its enforcement against manipulation — is a further dimension of the gatekeeping power examined in Section 6.

6. PLATFORMS, MARKETPLACES, AND NETWORK EFFECTS

If the reduction of search and verification costs describes the conditions of digital retail, the institutional form through which much of it is now conducted is the platform marketplace, and understanding its economics requires the theory of two-sided markets. A great deal of online commerce no longer takes the form of a retailer buying goods and selling them to consumers, but rather of a platform that intermediates between many independent sellers and many buyers, providing the marketplace, the payment system, the reputation infrastructure, and increasingly the logistics through which they transact. Such a platform serves two distinct groups whose demands are interdependent, and the economics of this arrangement differ fundamentally from those of a conventional reseller. The foundational analysis of two-sided markets established that platforms serving two interdependent groups must attend not only to the overall level of the prices they charge but to the structure of those prices across the two sides, because each side's willingness to participate depends on the participation of the other (Rochet & Tirole, 2003). A marketplace is valuable to buyers in proportion to the sellers it attracts, and valuable to sellers in proportion to the buyers, so that the platform must solve a coordination problem, often by subsidizing one side to attract the other.

These cross-side network effects are the defining economic feature of platform marketplaces and have powerful implications for market structure. Because a marketplace becomes more valuable to each side as the other grows, a platform that achieves an early lead can enter a virtuous cycle that tends toward the dominance of one or a few platforms. This tendency is reinforced by economies of scale in the underlying infrastructure, by economies of scope across product categories, by the accumulation of data, by the logistics capabilities that large platforms can sustain and small ones cannot, and — as Section 5 argued — by the non-portability of seller reputation. The result is that platform marketplaces tend toward winner-take-most outcomes, a structural tendency that distinguishes platform-based digital retail from the more fragmented structure of much physical retail.

The platform model also transforms the position of the intermediary, which becomes at once the operator of the marketplace and, frequently, a participant within it. A platform that hosts third-party sellers while also selling its own products in competition with them occupies a dual role that creates both efficiencies and conflicts of interest: it can use its position as operator to favor its own offerings, to observe the performance of the sellers who depend upon it, and to set the terms on which they reach consumers. The most influential analysis of this configuration examined how a dominant platform had positioned itself at the center of e-commerce, becoming essential infrastructure for businesses that simultaneously depend upon it and compete with it, and argued that this structure poses competitive concerns that conventional analysis is ill-equipped to capture (Khan, 2017). The platform's control over the marketplace gives it leverage over the sellers within it, raising concerns about self-preferencing, about the appropriation of sellers' data and successful products, and about the dependence of entire businesses on terms set by a firm that is also their competitor. The platform marketplace thus concentrates not only transactions but power, transforming the intermediary from a neutral venue into a gatekeeper.

7. TRACKING COSTS: DATA, PERSONALIZATION, AND ALGORITHMIC PRICING

The reduction of tracking costs gives online retailers the capacity to observe, record, and act upon the behavior of individual consumers at a granularity that physical retail could never achieve. Every search, click, purchase, and moment of hesitation can be recorded and analyzed, and this behavioral data has become a central economic asset. The survey of digital economics emphasizes that the fall in the cost of tracking consumer behavior has renewed the relevance of economic models of price discrimination, targeting, and asymmetric information (Goldfarb & Tucker, 2019). Data, in digital retail, is not a byproduct of commerce but increasingly its strategic foundation, conferring

advantages in personalization, in demand forecasting, and in the development of the recommendation and pricing systems that mediate the consumer's experience.

The most visible application is the recommendation system, which has become integral to how digital retailers help consumers navigate vast catalogs. By analyzing the behavior of many consumers, recommendation algorithms predict what a given consumer is likely to want and surface those products, reducing search costs further and shaping the demand the retailer faces. As noted in Section 4, the economic effect is ambiguous: while such systems can help consumers discover niche products, some common recommenders instead reinforce the popularity of already-popular products, because they generate recommendations from existing sales and ratings data (Fleder & Hosanagar, 2009). The design of these algorithms — whether built to maximize immediate sales, to promote particular products, or to expand the range of what consumers discover — has economic consequences extending well beyond the individual transaction, and it is, as Section 2 noted, among the least observable aspects of digital retail from outside the firm.

The same data enables the personalization of prices, and here the economic stakes are considerable. In principle, granular data would allow retailers to estimate individual willingness to pay and charge accordingly, approaching first-degree price discrimination and transferring surplus from consumers to sellers. The analysis of these possibilities falls within the economics of privacy, which examines the trade-offs between the efficiency gains that data can enable and the distributional and welfare costs its use may impose (Acquisti, Taylor, & Wagman, 2016). The evidence on actual practice is mixed, and firms appear cautious about overt price discrimination, in part because of the consumer backlash that perceived unfairness can provoke. A large-scale comparison of online and offline prices found no evidence that the multi-channel retailers studied varied prices based on consumers' location or browsing history, and found further that price levels were frequently identical across a retailer's online and physical channels (Cavallo, 2017). The gap between the capacity for personalized pricing and its apparent rarity is itself a finding worth registering, and it suggests that the constraints on price discrimination in digital retail are commercial and reputational rather than technical.

What digital retail has unambiguously changed is the dynamism of pricing. The same study that found uniform price levels across channels also found that online prices change considerably more frequently than those in physical stores (Cavallo, 2017), and the low cost of changing prices online, combined with the data and computational tools to inform such changes, has made algorithmic and dynamic pricing widespread. An empirical analysis of pricing on a major marketplace found algorithmic pricing already prevalent, with substantial numbers of sellers employing automated systems that respond to competitors' prices (Chen, Mislove, & Wilson, 2016).

The competitive consequences of this development were for some years a matter of theory, and the theory pointed in conflicting directions: algorithmic pricing might intensify competition by enabling instant responses to rivals, or might facilitate tacit coordination by making price cuts immediately detectable and immediately punishable. Simulation evidence suggested the latter possibility was real, finding that pricing algorithms based on reinforcement learning could learn to sustain supracompetitive prices without any explicit communication or instruction to collude (Calvano, Calzolari, Denicolò, & Pastorello, 2020). Empirical evidence has since begun to substantiate the concern in a real market. Studying the German retail gasoline market, where algorithmic pricing software became widely available in 2017, Assad, Clark, Ershov, and Xu (2024) identified adopting stations through structural breaks in pricing behavior and found that adoption increased margins — but only for stations facing competition, and in duopoly and triopoly markets only when all stations in the market had adopted. That pattern is difficult to explain by improved unilateral optimization and is consistent with algorithmic pricing facilitating coordination among competitors. The finding does not concern online retail directly, and the extrapolation should be

made cautiously; but it moves the question of algorithmic collusion from theoretical speculation to a documented empirical phenomenon, and it does so in precisely the conditions — widespread adoption of automated pricing among competing sellers — that characterize platform marketplaces.

8. TRANSPORTATION COSTS: FULFILMENT, LOGISTICS, AND THE LIMITS OF DISPLACEMENT

Beneath the consumer-facing features of digital retail lies a transformation in cost structure, as the economics of the physical storefront have given way to the economics of fulfilment. A physical retailer's costs are dominated by the real estate, staffing, and inventory of its stores, and its reach is limited by the locations it can profitably occupy; a digital retailer faces a different structure, in which the storefront is replaced by a website and the central operational challenges become warehousing, the picking and packing of individual orders, and delivery to dispersed consumers. As Section 3 noted, this is not simply a reduction in transportation costs but a reallocation of them: physical retail externalised the final leg of distribution onto the customer, and digital retail takes it back onto the firm's books.

The fulfilment challenge gives rise to powerful economies of scale and scope that favor large operators. Building and operating networks of warehouses, sortation centers, and delivery capabilities demands enormous capital investment, and the per-unit cost of fulfilment falls as volume rises and as the density of orders within a region increases, so that the largest retailers achieve efficiencies smaller competitors cannot match. This helps explain the dominance of a few very large players: the firm that can invest in the most extensive and automated logistics network can fulfil orders faster and more cheaply, attracting the volume that further lowers its costs. The economics of fulfilment thus constitute another source of increasing returns, and proprietary logistics networks have become both a central competitive battleground and a formidable barrier to entry. It should be said that the firm-level cost data that would allow this claim to be quantified from outside are not public, and the argument here rests on the structure of the activity rather than on measured unit costs.

The expectations that efficient fulfilment creates have reshaped the consumer relationship, most visibly through free shipping and subscription models. The expectation of free or very low-cost delivery imposes real costs that retailers must recover, whether through higher prices, through the bundling of delivery into subscription programs, or through scale efficiencies. Subscription models offering unlimited expedited delivery for a fixed annual fee illustrate the logic: by inducing consumers to concentrate purchases with a single retailer to maximize the value of the subscription, such programs raise the effective switching costs that lock consumers into an ecosystem, while the fixed fee and increased volume help fund the logistics network.

It bears emphasizing that the shift to digital retail has not been a simple or complete displacement of physical retail. A careful review of the evolution of the retail sector found that, alongside the growth of e-commerce, the expansion of large physical formats such as warehouse clubs and supercenters had been at least as important a force in reshaping retail, and that physical retail remained the dominant mode of commerce even as online retail grew (Hortaçsu & Syverson, 2015).

The pandemic of 2020 provided an unusually clean test of whether this balance would hold, and the answer is instructive. When lockdowns closed physical stores across much of the world, online shares of spending surged to unprecedented levels, and a widespread expectation formed that consumer habits had been permanently reset. Examining transaction data covering forty-four economies and twenty-six industries, Alcedo, Cavallo, Mishra, and Spilimbergo (2025) found that the surge was largely transitory: online shares returned to their pre-pandemic trends in almost all countries and sectors as mobility restrictions and fiscal transfers waned, with little evidence of lasting structural change in spending patterns. Cross-country variation was strongly correlated with the stringency of mobility measures and the scale of government transfers rather than with any durable shift in preferences. The finding is a useful corrective in two directions: it

cautions against the assumption that a shock to behavior produces a permanent reallocation, and it supports the more general point that the growth of digital retail has been a steady trend rather than a series of discontinuities, and that physical retail is considerably more resilient than accounts of its extinction suggest. The two modes have in any case increasingly converged in the omnichannel strategies through which retailers use stores as fulfilment and return points for online orders, blurring the distinction between them.

9. MARKET STRUCTURE, CONCENTRATION, AND COMPETITION POLICY

The cumulative effect of the forces examined so far — network effects, economies of scale and scope, the advantages of data and logistics, the non-portability of reputation — has been a pronounced tendency toward concentration. These features do not merely coexist with market concentration; they produce it, because each confers advantages that scale with size.

The effect of e-commerce on retail market structure has been studied directly, and the evidence indicates a shift toward larger firms. An analysis of the effect of e-commerce on the market structure of retail industries found that the growth of online commerce was associated with a reduction in the number of firms and a shift of market share toward larger establishments, as lower distribution costs and wider reach undermined the viability of smaller local sellers in affected industries (Goldmanis, Hortaçsu, Syverson, & Emre, 2010). This connects digital retail to a broader transformation that has attracted intense study: the rise of large, highly productive "superstar" firms commanding growing shares of their markets. Research on this phenomenon has documented increasing concentration of sales in the largest firms across many industries, including retail trade, and has linked this concentration to the rise of firms that are highly efficient but operate with a low share of revenue going to labor, a pattern associated with a decline in the labor share of income (Autor, Dorn, Katz, Patterson, & Van Reenen, 2020). It should be noted that this analysis concerns concentration across six broad sectors rather than digital retail specifically, and that treating online commerce as a leading instance of the phenomenon is an inference from the compatibility of the mechanisms rather than a finding of that study; the inference seems to the present author well founded, but it is an inference.

The concentration of market power in digital retail has generated a vigorous debate over whether existing competition policy is adequate, a debate whose terms were sharpened by an influential critique of the dominant analytical framework. That critique argued that the prevailing approach to antitrust, which assesses competitive harm primarily through effects on consumer welfare as measured by short-term prices, is poorly suited to the architecture of market power in digital retail, where a dominant platform may keep consumer prices low, or even price below cost, while accumulating a structural dominance the price-focused framework cannot detect (Khan, 2017). On this analysis, a platform that uses below-cost pricing to achieve dominance, leverages its position across lines of business, and exploits its control of essential infrastructure and its access to dependent sellers' data may pose serious competitive concerns even while delivering low prices. The critique proposed two broad models for governing platform power: applying competition policy to preserve competitive market structures, and treating dominant platforms as regulated entities subject to obligations analogous to those imposed on common carriers or public utilities.

What distinguishes the present moment from the one in which that argument was made is that both models have begun to be tried, and that evidence about their operation is accumulating. The European Union has adopted the second approach, legislating ex ante obligations on designated gatekeeper platforms — including prohibitions on self-preferencing and requirements concerning the use of business users' data — and has moved into active enforcement, including designation disputes and market investigations extending the regime to new services. The United Kingdom has established an analogous regime with a somewhat more discretionary structure. The United States has pursued the first approach through litigation, with

the competition authority and a large group of state attorneys general bringing a monopolization case against the largest online marketplace that survived a motion to dismiss and is proceeding toward trial.

The early returns are genuinely mixed, and a synthesis should say so rather than assume vindication. Enforcement under the ex ante model has produced obligations and disputes but not yet a settled account of whether the remedies alter market structure. Litigation under the structural model has encountered a recurring difficulty that bears directly on the economics at issue: in a related proceeding against a major platform in an adjacent market, the court found that the authority had failed to establish the relevant market it had proposed, in part because competitive conditions had changed materially over the years the case took to reach judgment. That difficulty is not incidental to digital markets but characteristic of them, and it identifies a real limitation of case-by-case litigation as an instrument for governing sectors that reorganize faster than cases can be tried — an argument, if anything, for the ex ante approach the same critique also proposed. The question of how to govern the market power that digital retail has produced therefore remains open, but it is now open in a more informative way, and the evidence bearing on it is institutional as well as economic.

10. LABOR, WELFARE, AND THE DISTRIBUTION OF THE GAINS

An assessment of the economy of digital retail must finally reckon with the distribution of its gains and costs. The consumer gains are real and should not be minimized: digital retail has delivered lower prices through intensified competition, a vast expansion of accessible product variety whose value to consumers is considerable, and a convenience that has transformed the experience of shopping (Brynjolfsson, Hu, & Smith, 2003). Were the analysis to end with the consumer, the verdict would be straightforwardly favorable. But the consumer is only one of the parties to whom the economics of digital retail matter. Beyond these market-level effects, consumption patterns are also embedded in broader sociocultural transformations. A study of lifestyle change and residential architecture in Tehran illustrates how shifts toward consumption-oriented ways of life are reflected in everyday practices and the organization of domestic space (Darvish et al., 2019).

The consequences for labor have been significant. Digital retail has shifted retail employment away from store-based sales and service work and toward warehouse, fulfilment, and last-mile delivery work. Fulfilment operations are sites of intensive labor, increasingly subject to automation and to demanding productivity regimes, while the delivery of goods has generated large amounts of often precarious work, much of it organized through arrangements that classify workers as independent contractors rather than employees. The broader pattern documented in the analysis of superstar firms — that firms coming to dominate their markets tend to operate with a low share of revenue flowing to labor — applies with force to a sector in which extraordinary productivity and scale coexist with downward pressure on compensation and security (Autor, Dorn, Katz, Patterson, & Van Reenen, 2020). The observation that retail has experienced strong productivity growth unaccompanied by commensurate wage growth captures the tension precisely (Hortaçsu & Syverson, 2015). It should be acknowledged that the specifically legal question of worker classification, and its effects on compensation and security, lies outside the economic literature synthesized here and is treated in this article only as context.

These consequences have provoked considerable public anxiety, and the displacement of workers by automation has become a charged subject of public discourse. Research analyzing the discourse surrounding AI-driven job loss has documented the emotional and rhetorical dimensions through which such anxieties are expressed and contested in public forums (Sabbar & Habib Zadeh Khiyaban, 2023). The economic analysis of displacement and the analysis of its public reception answer different questions — the former concerning material consequences, the latter concerning how those consequences are experienced and given meaning — and the second is relevant here chiefly because the political feasibility of any policy response to labor displacement depends on it.

The distributional consequences extend beyond labor to displaced firms and communities. The shift of commerce online has undermined the viability of many smaller and local retailers, contributing to store closures and to the hollowing out of commercial districts, with consequences for local employment and for the character of the places affected. The evidence that e-commerce is associated with a reduction in the number of firms and a shift toward larger establishments quantifies this displacement (Goldmanis, Hortaçsu, Syverson, & Emre, 2010), and while the consumers who gain and the workers and small businesses who lose are often the same people in different economic roles, the gains and losses are not distributed evenly across individuals or places.

The position of third-party sellers is a further dimension. Such sellers gain access to vast markets through the platforms, but on terms set by firms that are also their competitors, and the fees, conditions, and competitive pressures they face determine how the value created in platform commerce is divided (Khan, 2017). One development deserves particular note because it illustrates the article's central theme with unusual clarity. Dominant marketplaces have built substantial advertising businesses, selling promotional placement within their own search results to the sellers who depend upon them for access to customers. Economically, this is the monetization of gatekeeping: the platform controls the allocation of consumer attention within its marketplace, and it auctions that allocation back to the sellers whose visibility it determines. The revenue is high-margin because the underlying asset — position in a search result on a marketplace buyers have no ready alternative to — costs nothing to produce. It also has a consequence for the search-cost analysis with which this article began: a marketplace in which prominence is purchased is one in which the ranking a consumer sees reflects sellers' willingness to pay as well as the match to the consumer's needs, which partially reverses the reduction in search costs that made the marketplace valuable in the first place. Systematic evidence on the magnitude of this effect is limited, for the reasons given in Section 2.

Set against these costs are genuine benefits beyond price and variety. Digital retail has extended access to goods to consumers in places poorly served by physical retail, including rural and remote areas, and this expansion of access is a real welfare gain distributed in the opposite direction from some of the costs. The honest conclusion is that digital retail has produced substantial aggregate benefits while distributing gains and costs unevenly, conferring clear advantages on people in their capacity as consumers while imposing significant costs on many of the same people in their capacities as workers, small-business owners, and members of communities, and concentrating the largest gains in the hands of the dominant firms and their owners.

11. CONCLUSION

The economy of digital retail is best understood not as conventional retailing conducted through a new channel but as a distinct economic formation whose characteristic features follow from the reduction of five fundamental costs (Goldfarb & Tucker, 2019). This article has taken that framework as an organizing device and applied it in full, including to the two costs the literature most often names and least often examines. From the reduction of search costs flowed intensified price competition and expanded variety, delivering lower prices and a large increase in accessible variety, even as the prediction of a frictionless market gave way to persistent dispersion (Brynjolfsson & Smith, 2000; Brynjolfsson, Hu, & Smith, 2003). From the reduction of verification costs flowed the reputation systems without which a marketplace of anonymous third-party sellers could not exist at all, and which turn out to contribute to platform stickiness as well as to trust (Tadelis, 2016). From the reduction of tracking costs flowed recommendation, targeting, and a dynamism of pricing whose competitive consequences are now, on the most recent evidence, a documented rather than a speculative concern (Assad, Clark, Ershov, & Xu, 2024). And from the reallocation of transportation costs flowed the economics of fulfilment that replaced the economics of the storefront.

The central analytical theme is that the economics of digital retail are pervaded by increasing

returns to scale, and that these produce a powerful tendency toward concentration, so that the same forces generating digital retail's efficiency also generate its market power. Efficiency and concentration have advanced together, and the benefits to consumers and the concentration of power are not separable phenomena but two aspects of the same underlying economics.

Several of the sector's most important questions remain unsettled, and the article has tried to mark them as such rather than resolve them by assertion. Whether digital retail ultimately diversifies or concentrates the sales of products depends on the opposing pulls of expanded variety and popularity-reinforcing algorithms, and the evidence supports both. Whether personalized pricing will become general remains unclear, and the gap between the technical capacity and the observed practice is itself informative. Whether the coordination effects now documented for algorithmic pricing in one physical market generalize to online marketplaces is an open empirical question and, in the author's view, the most valuable one this literature could next address. And whether competition policy is adequate to the market power digital retail has produced is now being tested rather than debated, with results that are, so far, genuinely mixed.

A recurring obstacle underlies several of these uncertainties and deserves a place in the conclusion rather than the caveats. The questions least answerable from outside the firms — how pricing algorithms behave, what terms sellers face, how recommendation systems are tuned, what the unit economics of fulfilment are, how advertising placement affects what consumers see — are systematically those bearing most directly on market power. This is not a coincidence of research design but a feature of the industry's structure, and it means that the economics of digital retail will remain partly a matter of inference until access to the relevant data is secured, whether through regulatory mandate, litigation discovery, or negotiated research access. The state of knowledge in this field is itself shaped by the concentration it seeks to measure.

What is not in doubt is that digital retail has become a central economic institution whose dominant firms exercise a degree of power over commerce, over the businesses that depend upon them, and over the workers they employ that raises questions extending well beyond economics into the domain of governance. The economy of digital retail, in the end, is one in which the technology of selling has been substantially perfected, and in which the pressing questions increasingly concern not how goods are sold but how the powerful intermediaries that now organize their sale are to be governed — how the substantial efficiencies of digital retail are to be preserved while the concentrations of power they produce are held to account, and how the gains of this transformation might be more broadly shared. These are not questions the market will answer on its own, and they are likely to define the political economy of retail for the foreseeable future.

REFERENCES

Acquisti, A., Taylor, C., & Wagman, L. (2016). The economics of privacy. *Journal of Economic Literature, 54*(2), 442–492.

Alcedo, J., Cavallo, A., Mishra, P., & Spilimbergo, A. (2025). Back to trend: COVID effects on e-commerce in 44 countries. *Journal of Policy Modeling*. Advance online publication.

Anderson, C. (2006). *The long tail: Why the future of business is selling less of more*. Hyperion.

Assad, S., Clark, R., Ershov, D., & Xu, L. (2024). Algorithmic pricing and competition: Empirical evidence from the German retail gasoline market. *Journal of Political Economy, 132*(3), 723–771. https://doi.org/10.1086/726906

Autor, D., Dorn, D., Katz, L. F., Patterson, C., & Van Reenen, J. (2020). The fall of the labor share and the rise of superstar firms. *The Quarterly Journal of Economics, 135*(2), 645–709.

Bakos, J. Y. (1997). Reducing buyer search costs: Implications for electronic marketplaces. *Management Science, 43*(12), 1676–1692.

Brynjolfsson, E., Hu, Y. J., & Simester, D. (2011). Goodbye Pareto principle, hello long tail: The effect of search costs on the concentration of product sales. *Management Science, 57*(8), 1373–1386.

Brynjolfsson, E., Hu, Y. J., & Smith, M. D. (2003). Consumer surplus in the digital economy: Estimating the value of increased product variety at online booksellers. *Management Science, 49*(11), 1580–1596.

https://doi.org/10.1287/mnsc.49.11.1580.20580

Brynjolfsson, E., & Smith, M. D. (2000). Frictionless commerce? A comparison of Internet and conventional retailers. *Management Science, 46*(4), 563–585. https://doi.org/10.1287/mnsc.46.4.563.12061

Calvano, E., Calzolari, G., Denicolò, V., & Pastorello, S. (2020). Artificial intelligence, algorithmic pricing, and collusion. *American Economic Review, 110*(10), 3267–3297.

Cavallo, A. (2017). Are online and offline prices similar? Evidence from large multi-channel retailers. *American Economic Review, 107*(1), 283–303. https://doi.org/10.1257/aer.20160542

Chen, L., Mislove, A., & Wilson, C. (2016). An empirical analysis of algorithmic pricing on Amazon Marketplace. In *Proceedings of the 25th International Conference on World Wide Web* (pp. 1339–1349). International World Wide Web Conferences Steering Committee.

Darvish, A., Dastyar, F., & Dariush, B. (2019). The phenomenon of lifestyle and the architecture of apartments in Iran: Case study of the apartments in District 9, Tehran. *Socio-Spatial Studies, 3*(5), 78–84. https://doi.org/10.22034/soc.2019.84455

Evans, D. S., & Schmalensee, R. (2016). *Matchmakers: The new economics of multisided platforms*. Harvard Business Review Press.

Fleder, D., & Hosanagar, K. (2009). Blockbuster culture's next rise or fall: The impact of recommender systems on sales diversity. *Management Science, 55*(5), 697–712. https://doi.org/10.1287/mnsc.1080.0974

Goldfarb, A., & Tucker, C. (2019). Digital economics. *Journal of Economic Literature, 57*(1), 3–43. https://doi.org/10.1257/jel.20171452

Goldmanis, M., Hortaçsu, A., Syverson, C., & Emre, Ö. (2010). E-commerce and the market structure of retail industries. *The Economic Journal, 120*(545), 651–682.

Hortaçsu, A., & Syverson, C. (2015). The ongoing evolution of US retail: A format tug-of-war. *Journal of Economic Perspectives, 29*(4), 89–112. https://doi.org/10.1257/jep.29.4.89

Khan, L. M. (2017). Amazon's antitrust paradox. *The Yale Law Journal, 126*(3), 710–805.

Parker, G. G., Van Alstyne, M. W., & Choudary, S. P. (2016). *Platform revolution: How networked markets are transforming the economy and how to make them work for you*. W. W. Norton.

Rochet, J.-C., & Tirole, J. (2003). Platform competition in two-sided markets. *Journal of the European Economic Association, 1*(4), 990–1029.

Sabbar, S., & Habib Zadeh Khiyaban, S. (2023). Algorithms of displacement: Emotional and rhetorical responses to AI-driven job loss in digital public discourse. *International Journal of Advanced Multidisciplinary Research and Studies, 3*(4), 1324–1331. https://doi.org/10.62225/2583049X.2023.3.4.5012

Tadelis, S. (2016). Reputation and feedback systems in online platform markets. *Annual Review of Economics, 8*, 321–340. https://doi.org/10.1146/annurev-economics-080315-015325