ITIF | INFORMATION TECHNOLOGY & INNOVATION FOUNDATION
CENTRE FOR CANADIAN INNOVATION AND COMPETITIVENESS

700 K Street NW Suite 600
Washington, DC 20001

COMMENTS OF ITIF

to the

Competition Bureau of Canada

Gatineau, Quebec

In the Matter of:	)	
	)	
	)	
	)	
Algorithmic Pricing and Competition	)	Public Comment
	)	
	)	
	)	

August 8, 2025

CONTENTS

Comments of ITIF 1
Introduction and Summary 2
I. What Are the Competition Concerns and Procompetitive Effects of Using Pricing Algorithms? 3
A. Horizontal Coordination Risks 3
B. Vertical Control Risks 4
C. Unilateral Conduct and Tacit Signaling 5
II. How Does Algorithmic Pricing Impact Different Consumer Groups? 5
A. Distributional Effects 6
B. Equity Risks and Mitigations 6
III. What Are the Challenges for Competition Law Enforcement Agencies With Algorithmic Pricing, Especially AI-Driven Algorithms? 7
IV. What Role Does AI Play in Reshaping Algorithmic Pricing Strategies? How Is It Changing the Competitive Landscape? 8
A. Pricing Innovation and Market Access 8
B. Concentration and First-Mover Advantage 9
Recommendations 9
Conclusion 10

INTRODUCTION AND SUMMARY

The Information Technology and Innovation Foundation's (ITIF) Centre for Canadian Innovation and Competitiveness (CCIC) appreciates the opportunity to contribute to the Competition Bureau's consultation on algorithmic pricing.

This submission reflects a desire to ensure that competition enforcement supports both market dynamism and consumer welfare. The core message is straightforward: The Bureau should distinguish between conduct that harms competition and conduct that enhances it. Algorithmic pricing can raise legitimate concerns, but it also delivers real productivity gains and consumer benefits.

We caution against conflating the use of algorithmic pricing with an anti-competitive agreement to collude. Instead, we recommend a framework that prioritizes a case-by-case analysis and protects space for innovation, operational efficiency, and legitimate price differentiation.

CCIC's responses to the Bureau's four consultation questions are below.

I. WHAT ARE THE COMPETITION CONCERNS AND PROCOMPETITIVE EFFECTS OF USING PRICING ALGORITHMS?

The Bureau is right to investigate cases where algorithmic pricing may raise competition concerns. But enforcement should be grounded in conduct. Algorithms, whether rules-based or AI-trained, are merely tools. The critical question is not which tools are used, but rather how they are used. Automatically treating, for example, the use of a common algorithm by competitors as an anticompetitive agreement to collude risks chilling innovation, undermining pricing efficiency, and misallocating enforcement resources.[1]

Algorithmic pricing encompasses a wide range of tools, from static systems that automate cost-plus formulas to advanced models that optimize prices using data on competitors, inventory levels, and customer behaviour. These systems serve different functions: Some enforce resale price maintenance across retailers, while others enable personalized offers or segment-specific price differentiation. One prominent subset is dynamic pricing, which adjusts prices in real time based on immediate signals such as demand spikes, competitor actions, or supply fluctuations.

Indeed, dynamic pricing is not entirely novel. Firms have used crude, aggregate customer data to inform pricing for over a century.[2] What has changed is the speed, granularity, and automation with which these decisions are now made. While dynamic pricing often attracts public attention (especially in consumer-facing sectors) it is just one manifestation of algorithmic pricing. The relevant policy question is not which method is used, but how these systems interact with market power, transparency, and competitive conduct.

To guide enforcement, the Bureau should anchor its approach in function, not form. The Bureau should organize algorithmic pricing risks across three enforcement-relevant categories: horizontal agreements, vertical agreements, and unilateral conduct. Each poses distinct challenges, and not all warrant the same degree of intervention. Crucially, many algorithmic pricing applications deliver procompetitive effects, such as enhancing efficiency, lowering costs, and expanding access, and enforcement should weigh these benefits against potential harms.

A. Horizontal Coordination Risks

Algorithms used as part of an agreement that may have collusive effects, whether directly by parties agreeing to share price data or indirectly as a third-party tool used by competitors, can violate antitrust laws. However, two different types of cases should be distinguished:

- **Cartel-facilitating algorithms:** Pricing algorithms that are used as part of an agreement among competitors to engage in behaviour like price fixing fall squarely within the scope of antitrust

[1] Atinuke Lardner, G. Schuette, and E. Woo, "Antitrust and Algorithmic Pricing," *The Regulatory Review*, July 12, 2025, https://www.theregreview.org/2025/07/12/seminar-antitrust-and-algorithmic-pricing/.

[2] Arnoud V. den Boer, "Dynamic pricing and learning: Historical origins, current research, and new directions," Surveys in Operations Research and Management Science, 20(1), https://www.sciencedirect.com/science/article/abs/pii/S1876735415000021.

enforcement.[3] These should be treated no differently than traditional price-fixing schemes, and existing law is sufficient to prosecute them.

- **Information sharing that facilitates alignment:** Cases where the use of an algorithm does not rise to the level of a cartel agreement, but only the sharing of data, should be reviewed on a case-by-case basis that seeks to weigh the possible anticompetitive harms and procompetitive benefits.

In short, the question is whether the algorithm is being used to implement the sort of collusive scheme that antitrust laws have always prohibited, or whether it is a more benign form of information sharing (even among competitors) that may or may not be anticompetitive.

Whereas the former behaviour is unlikely to have offsetting benefits, information sharing agreements can have procompetitive justifications, such as better price discovery, enhanced transparency for smaller sellers, and reduced search costs for consumers in fragmented markets.

B. Vertical Control Risks

Algorithmic pricing can also be used by firms in a vertical relationship, for example, to enforce resale price maintenance.

- **Potential anticompetitive harms:** Vertical pricing tools have the potential to raise two types of risk. Resale price maintenance and automated price parity rules can raise exclusionary concerns when used to limit discounting or raise rivals' costs. Automated enforcement can also produce more consistent downstream pricing, which may appear like alignment to outside observers. This appearance alone is not anticompetitive. Competitive risk arises only where pricing tools are used to reinforce market power or facilitate explicit coordination. Dual-role platforms (e.g., those serving as both the platform and the seller), common in modern e-commerce, should be evaluated based on their actual conduct and market effects, not the mere fact that they host and sell simultaneously.
- **Procompetitive benefits:** In many cases, the vertical use of pricing algorithms serves legitimate market maintenance purposes. For example, algorithmic enforcement of price floors can prevent destructive price spiraling in hypercompetitive online marketplaces, where repricing bots trigger unsustainable price wars. Left unchecked, these spirals can lead to margin collapse, stockouts, and degraded service as sellers exit. Moreover, platforms that use algorithmic tools to moderate repricing speed or stabilize pricing can protect smaller sellers, preserve availability, and maintain brand value. Algorithms can also reduce operational waste. For example, grocery platforms use automated markdown algorithms to dynamically discount perishables nearing expiry, balancing margin preservation with inventory efficiency. Such mechanisms can reduce food waste, improve environmental performance, and maintain availability for price-sensitive buyers.[4] These are concrete examples of efficiency gains, especially in digital markets where manual enforcement is infeasible.

---

[3] Hamdan, Laura, "Algorithmic Collusion: From Smokeroom to Code Lines? How Collusion Can Evolve & Are We Prepared," *Canadian Competition Law Review*, *35*(2), https://mcmillan.ca/wp-content/uploads/2021/05/Laura-Hamdan-Publication.pdf.

[4] Xabier Barriola et al., "Reaping the Benefits of Expiration Tracking: Policy Actions for Data-Driven Markdowns," (SSRN, February 1, 2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4687311.

To evaluate vertical uses of algorithmic pricing, the Bureau should utilize a case-by-case analysis that weighs the harms and benefits of each arrangement and resist calls to pre-emptively flag vertical platform pricing algorithms as inherently suspect.

C. Unilateral Conduct and Tacit Signaling

The unilateral use of algorithms to price products is often procompetitive. Labeling them suspicious based on speed or complexity risks confusing competitive dynamism with bad behaviour.

To be sure, there have been instances where algorithmic pricing may appear to enable collusion, even without any horizontal or vertical agreement. However, while algorithms may in this way raise prices for consumers, this does not justify expanding antitrust law to condemn tacit collusion.[5]

Indeed, it is an axiom of antitrust law that above-cost pricing should not be unlawful. Penalizing firms for market-driven prices would transform competition law from a system of ex post enforcement against demonstrable anticompetitive conduct into a form of ongoing price regulation, which would chill normal rivalry and discourage innovation.[6]

Specifically, economic research has long confirmed that the link between market concentration and innovation often follows an inverted-U pattern, meaning that moderately or even highly concentrated markets can actually spur innovation.[7] In this view, higher concentration doesn't necessarily signal weak competition; it can reflect a dynamic, innovation-driven rivalry.

As such, antitrust enforcement should target unilateral conduct only when there is clear exclusionary or manipulative intent, such as with an explicit invitation to collude. To avoid administrative overreach and the chilling of legitimate pricing behaviour, the Bureau should prioritize targeted audits and detection tools over blanket restrictions, recognizing that parallel pricing outcomes alone are not actionable anticompetitive conduct.

II. HOW DOES ALGORITHMIC PRICING IMPACT DIFFERENT CONSUMER GROUPS?

Algorithmic pricing can raise fairness concerns, especially when consumers do not understand why prices differ or feel they are being treated unequally.[8] But these tools can also help match prices to consumers' needs,

---

[5] Hamdan, Laura, "Algorithmic Collusion: From Smokeroom to Code Lines? How Collusion Can Evolve & Are We Prepared," Canadian Competition Law Review, *35*(2), https://mcmillan.ca/wp-content/uploads/2021/05/Laura-Hamdan-Publication.pdf.

[6] Giorgio Castiglia, "Increased Market Concentration Does Not Equal Less Innovation," (Information Technology and Innovation Foundation, January 30, 2025), https://itif.org/publications/2025/01/30/increased-market-concentration-does-not-equal-less-innovation/.

[7] Philippe Aghion at al., "Competition and Innovation: An Inverted-U Relationship," 120 Q. J. ECON. 701 (2005).

[8] "Personalised Pricing in the Digital Era", (OECD, 2018), https://www.oecd.org/en/publications/personalised-pricing-in-the-digital-era_db4d9c9c-en.html.

offering targeted discounts that improve affordability and access. Blanket bans on personalized pricing risk eliminating mechanisms that benefit the very groups regulators aim to protect.[9]

A. Distributional Effects

Algorithmic pricing can support more equitable outcomes by enabling better differentiated pricing (sometimes known as price discrimination) that expands access, as well as through dynamic stabilization mechanisms that preserve availability and affordability in volatile markets. These tools are not uniformly beneficial, but well-designed ones can deliver real gains for shoppers, especially those who are price-sensitive or face fragmented retail options.

- **Inclusion through differentiation:** Retailers and platforms routinely use algorithmic tools to identify consumers who are more price-sensitive, such as first-time buyers, lapsed users, or those browsing discount channels, and extend targeted offers accordingly. These personalized discounts improve affordability and can expand access to essential goods or services that may be out of reach with uniform pricing. This model is especially valuable in digital markets with low marginal costs, where differentiated pricing can support broader participation without eroding overall margins. Prohibiting such practices in the name of uniform pricing risks eliminating benefits for the very consumers most in need of flexibility.
- **Protection for price-sensitive consumers:** Algorithmic systems that stabilize pricing, especially in fragmented or rapidly changing markets, can protect consumers from price spikes resulting from supply shocks or demand surges. Dynamic adjustment based on real-time data can help keep essential goods available and affordable, where manual pricing systems would fail to respond in a timely manner.

B. Equity Risks and Mitigations

Algorithmic pricing can raise concerns about fairness, especially when personalized prices are opaque or reflect broader socioeconomic patterns. But the risks come less from personalization itself than from how models are designed, which proxies they use, and how firms communicate price variations. These are governance issues, not reasons to ban the tool.

- **Opaque targeting and geographic bias**: Critics argue that algorithmic pricing may disadvantage certain groups (such as residents of low-competition or low-income areas) based on indirect data signals like postal code or browsing behaviour. The concern is less about technical accuracy than about transparency: Consumers often cannot see or understand why they are being offered a particular price. In most cases, these patterns reflect structural market gaps, not an intent by retailers to discriminate through algorithms.
- **Low consumer trust from unclear pricing**: Consumers may view personalized prices as arbitrary or unfair if firms do not explain why prices differ. This is a communications failure, not a competition

[9] Trevor Wagener, "Personalized Discounts, Public Gains: The Welfare Case for Algorithmic Pricing," *Computer & Communications Industry Association*, July 8, 2025, https://ccianet.org/articles/personalized-discounts-public-gains-the-welfare-case-for-algorithmic-pricing/.

problem. Voluntary disclosure norms, like flagging when a retailer offers a discount or applies personalized pricing, can improve transparency without overwhelming consumers or freezing innovation through over-regulation.

- **Regulatory overreach can backfire**: Attempts to pre-emptively ban personalized pricing in the name of equity can undermine access for the very groups they aim to protect. As noted above, price-sensitive consumers often benefit from differentiated pricing models that would be unsustainable under uniform rates. Existing consumer protection and anti-discrimination laws provide the right vehicle for targeting harmful outcomes without flattening legitimate pricing flexibility.

III. WHAT ARE THE CHALLENGES FOR COMPETITION LAW ENFORCEMENT AGENCIES WITH ALGORITHMIC PRICING, ESPECIALLY AI-DRIVEN ALGORITHMS?

Greater use of AI, particularly pricing algorithms that use machine learning methods, changes the mechanics of firm conduct, not the substance of what antitrust law prohibits. The challenge for enforcement is operational, not conceptual: Algorithms may be faster and more adaptive, but the antitrust enterprise remains well-equipped to police anticompetitive behaviour. The Bureau should prioritize detection and capacity-building, not expanding the scope of antitrust liability.

- **Algorithmic collusion still fits existing law**: Where firms use pricing algorithms to facilitate a cartel agreement or otherwise produce collusive effects, the conduct should be challenged under current statutes. The Bureau should focus enforcement on cases where shared third-party algorithmic tools or common vendors are used by competitors to share competitively sensitive data in real-time and in a concentrated market where pricing is parallel across competitors.
- **AI may disrupt cartelization:** While some may speculate about whether greater adoption of AI will make it easier for firms to form and maintain cartel agreements, it is far too early to suggest that current antitrust laws are inadequate. Not only have antitrust enforcers brought algorithmic collusion cases using existing tools, which in the future could even be enhanced by AI technologies that make it easier to detect cartels, but AI may also increase firms' incentives to disrupt cartel behaviour, because self-optimizing algorithms are designed to maximize individual firm profit in real-time. They will identify opportunities to undercut a cartel price or capture market share faster than human decision-makers would be able to, making collusion less stable and more prone to breakdowns.[10]
- **Tacit alignment is not anticompetitive:** Better algorithmic pricing, enabled by machine learning, may increase parallel pricing in concentrated markets, but similarity alone does not prove collusion. Courts require evidence of communication, shared intent, or other evidence of coordination that is sufficient to imply an agreement. The Bureau should hold the line and refrain from treating common outcomes as anticompetitive conduct.

[10] Joseph V. Coniglio, "Testimony Before the House Judiciary Committee Regarding Artificial Intelligence Trends in Innovation and Competition," (ITIF, April 2, 2025), https://www2.itif.org/2025-ai-antitrust-testimony.pdf.

IV. WHAT ROLE DOES AI PLAY IN RESHAPING ALGORITHMIC PRICING STRATEGIES? HOW IS IT CHANGING THE COMPETITIVE LANDSCAPE?

AI, especially machine learning, is a general-purpose technology that is reshaping algorithmic pricing the same way it is transforming other sectors: by accelerating responsiveness, lowering coordination costs, reducing barriers to entry, facilitating disruption, and enabling new business models. While its effects on competition are still unfolding, the underlying dynamics are familiar. Past waves of technological change, from barcode scanners to e-commerce to cloud computing, triggered similar anxieties about pricing opacity, market power, and competitive fairness. In each case, the tools evolved, but the core enforcement challenge remained the same: distinguish conduct that exploits dominance from conduct that intensifies competition.

A. Pricing Innovation and Market Access

AI-enabled pricing systems are likely to enhance economic efficiency by optimizing user experience as well as responding faster to supply, demand, and competitive signals:

- **Consumer-facing AI:** In some cases, algorithmic tools empower consumers directly. Mobile apps, personalized shopping assistants, and deal-aggregation services use similar data to help consumers find lower prices, compare offers, and time purchases more effectively.[11]
- **Real-time optimization**: Machine learning models can continuously test and adjust prices across product lines; tailoring offers to specific segments or market conditions with far greater speed than rule-based systems. This reduces pricing lag and enables firms to respond to demand shocks or input cost changes without manual intervention.[12]
- **Lower barriers to entry**: Algorithmic pricing tools delivered using cloud-based services allow smaller firms and new entrants to adopt sophisticated pricing strategies with reduced in-house infrastructure.[13] These services, once limited to large firms, now enable SMEs to implement practices like dynamic pricing at scale, mirroring how cloud computing has broadly lowered entry costs across the innovation economy in the past digital revolution.
- **Inclusion through segmentation**: AI enables firms to model price elasticity and willingness to pay with far greater accuracy, using behavioural data, purchase history, or context-specific signals to tailor offers to distinct segments. This will allow businesses to offer lower prices to consumers with tighter budgets or lower engagement levels, while maintaining margins by charging more to high-intent or inelastic customers. The result is more efficient price discrimination that expands access without requiring across-the-board price cuts. This approach improves revenue management and enables

[11] "Pricing algorithms Economic working paper on the use of algorithms to facilitate collusion and personalised pricing," (UK Competition & Markets Authority, October 2018), https://assets.publishing.service.gov.uk/media/5bbb2384ed915d238f9cc2e7/Algorithms_econ_report.pdf.

[12] Biman Barua, M. Shamim Kaiser, "Leveraging Microservices Architecture for Dynamic Pricing in the Travel Industry: Algorithms, Scalability, and Impact on Revenue and Customer Satisfaction," arXiv, November 3, 2024, https://arxiv.org/abs/2411.01636.

[13] "Dynamic Pricing in Retail: How AI is Helping Small Businesses Maximize Margins," *Retail Cloud*, February 25, 2025, https://retailcloud.com/dynamic-pricing-in-retail/.

viable service delivery in markets where standard pricing would either exclude too many customers or undercut financial sustainability.[14]

B. Concentration and First-Mover Advantage

AI can reinforce scale advantages by enabling firms with large customer bases, integrated data systems, or extensive transaction histories to refine pricing models faster and with greater precision. This may lead to increased concentration in some markets, especially where data feedback loops or multi-service integration offer compounding benefits.

But greater concentration does not automatically mean weaker competition. Much like the digital platform era, early fears of runaway dominance from AI may be overstated.[15] In previous waves—such as search, e-commerce, and mobile—first movers gained share quickly, but the ebbs and flows of the market proved more fluid than expected as tools diffused and rivals adapted. There is little evidence that AI, on its own, will produce permanent consolidation across the economy.

Even where AI adoption does lead to higher margins or fewer players, this can reflect productive efficiency rather than anticompetitive conduct.[16] Streamlined pricing, reduced waste, and faster responsiveness are legitimate outcomes of technological improvements. The policy focus should remain on how market power is utilized, rather than whether it exists. Enforcement should target exclusionary behaviour, not the mere presence of scale by itself.

RECOMMENDATIONS

- **Distinguish harmful conduct**: Algorithmic pricing, even amongst competitors, should not be presumed anti-competitive. The Bureau should focus enforcement on conduct that is part of an anticompetitive collusive scheme or otherwise results in competitive harms that outweigh consumer and efficiency benefits.
- **Adapt enforcement tools without stretching legal thresholds**: The Bureau should resist calls to attack tacit collusion and require sufficient evidence of an anticompetitive agreement. The Competition Act is already equipped to address algorithmic collusion and abuse effectively, especially with improved detection tools, enhanced data access, and increased analytic capacity that AI can help facilitate.
- **Evaluate vertical pricing tools by effect, not form**: The Bureau should assess algorithmic resale price maintenance on a case-by-case basis, weighing market power, competitive alternatives, and functional impact. Vertical restraints can stabilize pricing in fragmented markets but may also

[14] Naman Shukla et al., “Dynamic Pricing for Airline Ancillaries with Customer Context,” arXiv, February 9, 2019, https://arxiv.org/abs/1902.02236.

[15] Lilla Nóra Kiss et al., "Comments to the Competition Bureau Canada Regarding AI and Competition,” (ITIF, May 3, 2024), https://itif.org/publications/2024/05/03/canada-ai-competition/.

[16] Hadi Houalla, “Concentrated Markets Are More Productive” (ITIF, May 10, 2023), https://itif.org/publications/2023/05/10/concentrated-markets-are-more-productive/.

suppress discounting or entrench dominance. Enforcement should distinguish between coordination that is procompetitive and control that forecloses competition.

- **Address distributional risk through safeguards, not bans**: Personalized pricing can expand access for price-sensitive consumers. Rather than outlaw price differentiation and dynamic pricing, policymakers should promote voluntary disclosure norms, enforce existing consumer protection laws, and encourage ethical data practices.
- **Preserve room for innovation in a dynamic landscape**: Advances in AI and algorithmic pricing are poised to lower entry barriers and enable smarter competition that can make collusion less likely, but scale advantages and opaque outcomes can warrant monitoring. Regulators should maintain vigilance without assuming adoption of AI will bring about more competitive harms and instead treat algorithmic pricing innovations as the next development in competitive markets, not a flaw.

CONCLUSION

Algorithmic pricing is not inherently harmful. It encompasses a broad set of tools, ranging from static pricing engines to real-time, AI-assisted systems, that enable firms to adjust prices based on changing market conditions. Despite the technological variation, the core functions remain consistent: matching prices to demand, managing inventory efficiently, and enhancing competitive positioning. What AI changes is the speed, granularity, and adaptability of that process, not the economic rationale behind it.

Indeed, AI is broader than pricing. From customer service to product development, its applications will reshape business operations in many domains. But competition enforcement agencies should resist the urge to treat every AI-enabled process as a regulatory anomaly. The challenge is not to contain it, but to govern its use in ways that preserve open markets and deliver broad-based consumer benefits.

To that end, the Bureau should not treat algorithmic pricing as a risk category in itself. The relevant concern is not whether pricing is algorithmic, dynamic, or AI-enabled, but whether it is used to harm competition or consumers. Addressing that will require focusing on market context and firm conduct rather than the type of tool used.

Some applications will merit scrutiny, particularly where dominant platforms use pricing systems to foreclose rivals or facilitate collusion. Other uses of algorithms should be protected, especially when they lower barriers to entry, improve efficiency, or expand access for price-sensitive consumers. The right enforcement approach is targeted, evidence-based, and grounded in outcomes, not technological novelty.

Thank you for your consideration.

Lawrence Zhang
Head of Policy, Centre for Canadian Innovation and Competitiveness