

**“A CRITICAL ANALYSIS OF ALGORITHMIC PREDATION IN COMPETITION  
LAW IN INDIA”**

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**ABSTRACT:**

Usually, when we come across the terminology “**predatory pricing**”, the scenario that emerges, is of an industrial behemoth, with deep pockets. Pricing a product at a ludicrously low rate, in order to stifle the competitors, and gain monopoly in the market. But appearances are often deceptive. Predatory pricing is like a *‘double edged sword’*, as evident in some cases, even a smaller entity would be able to ward off a cartel of bigger entities, coming up with low price tags. However, with the advancement of algorithmic predation, it is an added complexity and burden, to not only the smaller entities, but also the consumer.

In the case of Artificial Intelligence, a developing technology whose growth pattern and impact are still elusive, there is unanimous agreement among the scientists, dealing with such technologies, that unless it is regularised properly with overarching rules and regulations, it would develop into a *Frankenstein*. Algorithmic pricing presents a complex challenge for competition law, demanding a global and collaborative approach. Leaning towards the accepted notion, that, lack of a regulatory framework, would only escalate the matter.

The paper examines India's competition laws without taking into account the potential disadvantages that monopolies and oligopolies may face as a result of algorithmic pricing. It will first analyse the principles and mechanisms of algorithmic pricing, paying special

attention to the price models that have been reported as being employed by large corporations and their potential impact on market dynamics. The collision of oligopolies is profitable even through predatory pricing phases, which is crucial to identifying dangers posed in these systems and minimizing their unfavorable impacts, which are under a narrow notion of recoupment stages. Under the pretext of "AI," the potential illegal monopolization that is necessary to surpass all other market participants is overusing the term. The study will investigate the potential for algorithmic pricing to be abused in order to discriminatorily set prices or to restrict the access of particular groups to the market. Through an examination of both the intended and unforeseen implications of these technologies—which could lead to additional conduct that puts consumers and rivals at risk—the research aims to promote the moral and responsible use of AI in the market.

**Keywords:** Artificial intelligence, Competition Law, Predictive Analysis, Dynamic Pricing, Tacit Collusion, Automatic Pricing, Algorithmic Collusion, Data Bias, and Disruptive Innovation.

## I. Introduction

When it comes to contemporary corporate operations, the employment of price algorithms is no longer unusual. The employment of price algorithms as tools has significantly altered the competitive landscape of industries with the development of new age technologies. Price algorithms are being used by a large number of businesses, both large and small, as tools for business operations and for making strategic and commercial decisions. It is difficult to pinpoint the precise number of businesses that use pricing algorithms in their operations, but it is safe to assume that a sizable portion of them do so in order to enhance their pricing strategy, forecast market trends, deliver targeted advertising, personalize services, and so forth. In its most basic form, an algorithm is a methodical process that helps a digital system handle issues. Algorithm use is just one more instrument in the toolbox for carrying out business operations; its exceptional efficacy has benefitted businesses and customers alike by providing them with cutting-edge, customized services.

Often referred to as a price algorithm, a price determination algorithm is one that is intended to analyze and compile a set of rivals' prices as well as additional information in order to ascertain the cost of a certain seller's good or service. This enables the seller to assign the algorithm the task of setting the price for the good or service. The use of such algorithms is only an

automation procedure, therefore it is not very concerning in and of itself. The world is, nevertheless, shifting toward learning algorithms—that is, algorithms with a propensity for monitoring, learning by observation, and interpreting data in real time. Because intelligent, self-learning pricing setting algorithms might encourage or even promote collusive behavior, their application in a variety of industries, particularly online e-commerce platforms and different e-service providing platforms, has generated worries about competition. The digital economy has made pricing information freely available, and when combined with the usage of these self-learning pricing algorithms, businesses now have the technological ability to obtain competitor or prospective competitor prices. Self-learning algorithms deployed by a business could quickly learn how to behave similarly to its competitors by coordinating their prices in order to maximize profits by watching how competitors' algorithms behave. More than one-third of Amazon.com suppliers had automatic pricing in 2015. This percentage must have gone up since then due to the expansion of the price re-evaluation software market, which offers turnkey pricing algorithm systems at competitive prices.

This paper aims to determine the impact of algorithmic pricing on competition laws in India. This primary objective examines two significant areas. It will first analyse the specific functions and characteristics of algorithmic pricing models, dissecting various pricing strategies and their potential effects on market dynamics. It is essential to take this first step in order to understand the fundamental principles of algorithmic pricing and the technique employed by its holders. The research will also conduct a comprehensive analysis of the potential anti-competitive impacts of algorithmic pricing in the Indian context. Furthermore, a comparative study of international jurisprudence that has dedicated resources to deciphering the same is necessary in order to find inadequacies in the current Indian Competition Law.

## II. Research Questions

1. Can the Indian Competition Laws address the impact of algorithmic pricing on the Indian market, particularly in relation to market dominance, tacit cooperation, and the drawbacks for consumers and medium-sized enterprises?
2. In the scope of Indian Competition Law, what legislative initiatives and enforcement mechanisms may be implemented to successfully tackle the problems associated with algorithmic pricing and any future developments that it might encounter?

3. How can transparency and accountability in algorithmic decision-making be promoted to stop algorithmic pricing advances in the Indian context from exacerbating already-existing inequities or from spawning whole new instances of discrimination and unfair market practices?

### **III. Rationale and Methodology**

It is evident from the introduction that using artificial intelligence to inform pricing decisions through learning and pricing algorithms has become the new norm for businesses. It is regarded as a good technical advancement as many businesses are using this new age technology for pricing and other business decisions, as it benefits the businesses and has pro-competitive impacts. Price and learning algorithms, however, have the potential to encourage collusion among rival companies and have an anti-competitive impact on both rivals and customers, as was previously mentioned. This paper aims to analyze the application of price algorithms, their anti-competitive impacts, related issues, situations in which price algorithms and learning algorithms can facilitate collusion, and potential regulatory action and recommendations. To achieve the aforementioned research analysis and goal, a doctrinal research approach has been used. This research paper was developed using data from a variety of published sources, including books, journals, research papers, and industry reports. Remarkably, by incorporating and properly acknowledging their work within the paper or in footnotes or references at the end, authors/research scholars and the sources of information such as statutes, research papers, books, various reports, judgements, etc. have been given due credit.

### **IV. Application and Effects of Algorithms**

The use of algorithms by firms in an economy has directly increased their significance. In order to describe how algorithms are used in organizations, Stucke and Ezechri introduced the idea of algorithmic businesses in 2016. These uses can be broadly divided into two categories: business process optimization and predictive analytics.

#### **1. Predictive Analytics:**

Predictive analytics is the practice of estimating the likelihood of future events from the examination of past data using an algorithm created especially for the dataset under study. Predictive algorithms can be used to forecast price

changes, estimate demand, predict customer behavior and preferences, and identify risks and shocks that could impact the market environment. The dataset can be historical or based in real time.

2. **Business Process Optimisation:**

In an oligopolistic market, this refers to the process of putting algorithms into practice to segment customers, apply optimal pricing, stimulate market response, or lower manufacturing or transaction costs in order to obtain a competitive edge over rivals.

The data presented above indicates that India's market for algorithms, machine learning, and artificial intelligence is expanding quickly and is no longer in its infancy. The market is growing and rapidly becoming more digitalized as a result of the widespread and mainstream adoption of algorithms by businesses, which has also changed how these businesses function and interact with one another. The more widely these technologies are adopted, the more strongly the industry as a whole is encouraged to employ algorithms. Most people believe that when businesses employ algorithms to increase their effectiveness and efficiency, other businesses are pressured to digitize their processes and create algorithms of their own. As a result, data scientists and computer scientists are driven to create more modern, sophisticated programming principles and technologies as more businesses depend on these systems. This in turn motivates companies to create novel commercial solutions based on algorithms. The need to develop uses for algorithms has even inspired government bodies worldwide. A machine learning system named "Series Finder" uses past crime data to identify patterns in housebreaks and calculate a technique. This is just one example of how data-driven applications have been proposed—and occasionally even used—to detect patterns of criminal behavior. This specific algorithm has shown to be an effective weapon in the police toolbox, helping them to identify potential suspects and discover patterns of criminal activity. Additionally, algorithms have been proposed for automating screening processes, detecting collusion, and even looking into cartels.

Algorithms have significantly increased demand side efficiency by assisting customers with their purchase selections, organizing information, and improving accessibility. In order to explain the change in how customers make decisions, Michal S. Gal & Niva Elkin-Koren conceptualized the idea of the "Algorithmic Consumer" in 2017. Many consumers in today's data-driven economy have delegated their decision-making to algorithms by using price comparison websites, which are websites that employ algorithms to compare products and prices.

## V. Evidenced assistance of Algorithms in Collusion

Automated computer algorithms, as previously mentioned, are effective commercial instruments with numerous favorable competitive consequences. But just as in traditional markets, algorithms may also be employed to carry out almost any form of anti-competitive behavior. The question that causes the greatest degree of concern worldwide is whether algorithms can be utilized in a way that makes them enable collusion. In the modern world, cartel activity has changed and is now more than just two operatives getting together to plot over a computer or a mobile device. The conventional conditions of anticompetitive behavior have been expanded by pricing algorithms, which have also made it more elusive and subtle, transforming it into non-hard-core cartel-like formation. However, the goal should be to comprehend the different situations in which pricing algorithms may enable a more inventive technique of price collusion, not to decide whether or not they should be outlawed.

- A. Explicit Collusion:** It describes anti-competitive agreements that are the result of deliberate planning between the cooperating parties and can take the shape of verbal or written contracts. This type of collusion has historically been observed in the market. In order to establish collusion, businesses in this sort of collusion communicate, reach direct agreements, and come to a consensus on issues related to price, output, and scientific and technical advancement.
- B. Tacit Collusion:** In implicit collusion, rivals can achieve collaboration by realizing their mutual reliance while maintaining their uniqueness, without the need for an explicit agreement or arrangement among the colluding parties. Here, competitors use a transparent market and market participants to determine their own separate profit maximization strategies, allowing the businesses to benefit from their combined market strength without explicitly agreeing on anything.
- i. The Messenger:** In this case, businesses come to an agreement to employ an algorithm that sets cartel prices regardless of fluctuations in the market. Here, an explicit agreement between the competing enterprises is necessary in order to form and maintain a cartel, therefore even when an algorithm is used as a collusive device, no new competitive concern is presented. Thus, in this case, algorithms are essentially simply another new technology that cartelists have embraced. It has been noted over time that cartelists have always made use of whatever new technology that has become

accessible, whether it be the introduction of computers, phones, email, or messaging apps.

- ii. The Hub and Spoke:** Under this scenario multiple firms use the same algorithm for the same purpose, such as for shifting pricing decision to a common third party which provides services of algorithmic pricing, companies like *Boomerang*, *Feedvisor*, *Pricing Pro* and others. In this scenario the third-party acts as the Hub and there is an exchange of sensitive information through the Spokes, i.e. the competitor multiple firms that choose to outsource their pricing decision to the hub. Thus, the hub facilitates cartelistic behaviour among competitors, this arises concern because these arrangements remove uncertainty with respect to competitor's behaviour.

**iii. Analysis of Judgement revealing the collusion via algorithmic pricing:**

In *Samir Agarwal v. Ola & Uber*, the Competition Commission of India (CCI) rendered its first decision on the hub-and-spoke arrangement problem on November 6, 2018, ruling that collusion was a prerequisite for a hub-and-spoke conspiracy.

Samir Agarwal, the informant, used Ola and Uber as service providers. He complained to the Commission, claiming that Ola and Uber's actions had breached Section 3 of the Competition Act of 2002. The complaint claimed that Ola and Uber's use of algorithms to assess and establish taxi pricing prevented the drivers using this platform from bidding against one another on fare. In addition, the complaint contended that the drivers using the platforms were independent third-party service providers and could not be considered Ola/Uber employees. This would prove that the drivers and the companies were not one and that their arrangement amounted to price fixing, with Ola/Uber acting as the hubs and the drivers acting as the spokes to conspire on prices. Because there was no coordination or agreement to conspire between the drivers on Ola and Uber, the CCI said in its order that the current structure was not a hub and spoke arrangement. The Commission concluded that even though the drivers had consented to Ola or Uber's algorithms being used to determine cab pricing, there was no evidence of collusion among them. The aforementioned conclusion is supported by the fact that, in this particular scenario, a hub-and-spoke model of cartelization would require an agreement amongst the drivers for the platforms to coordinate prices among the drivers. In its observation on hub and spoke conspiracies, CCI highlighted the significance of horizontal agreement—that is, the drivers' agreement to collude on prices so as to lose the consumer—as a prerequisite for the establishment of a hub and spoke type of

collusion conspiracy. This is an important finding because collaboration between the hub and spoke is essentially collusion between the spokes. Consequently, a horizontal collusion involving several spokes (drivers) entering into a vertical agreement with the hub, such as Ola or Uber, would be implied by a vertical agreement between the hub and spokes. In this instance, there was no horizontal conspiracy between the drivers, or spokes.

**iv. Predictable Agent:**

In this case, every company creates its own algorithm to forecast results and respond to shifting market conditions in specific ways. In this case, every company is fully aware of the likely advances resulting from rival algorithms. Algorithms will eventually cause interdependence between the organizations because they are created and utilized in a way that allows them to track and observe the pricing set by other algorithms. Because these algorithms can respond quickly to these changes in pricing, there will be less market pressure for competition and a higher chance of collusive behaviour.

**Autonomous Machine or Digital Eye:**

In the autonomous machine scenario, algorithms are autonomous agents designed by corporations to achieve certain objectives, such as profit maximization, rather than just being tools employed by homo-sapiens to construct a cartel. According to Ezrachi and Struke, "The machines will determine the means to independently optimize profits through self-learning and experimentation." Additionally, they have stated that the rival companies will have complete knowledge of every facet, including production, logistics, customers, sales, and deliveries, thanks to the internet.

The main worry that this paper hasn't addressed yet is that algorithms have the potential to widen the gap between explicit and tacit collusion, enabling businesses to maintain profits above the level of a competitive market without ever entering into an explicit agreement. For instance, an algorithm could be used to develop a new mechanism that makes it easier to implement shared policies and keep an eye on other businesses' behavior without ever requiring human interaction. In this way, the algorithm would take the place of explicit collusion and create tacit coordination. Agreements are defined as "any arrangement or understanding or action in concert—whether or not it is written or whether or not it is intended to be enforceable by legal proceeding" under



the Competition Act, 2002, which has guaranteed the broadest possible application of the law. A cursory examination of section 3 of the act will make it clear that, due to the structure of competition law, it is necessary to establish an agreement between rivals before collusive behavior may be considered. The question that needs to be resolved soon by competition law enforcement organizations worldwide is whether the more nuanced forms of communications will fit under the definition and scope of agreement.

## **VI. Plausible Alternative Approaches**

A serious effort should be made to apply the current, traditional approaches to the issues at hand before leaping to the conclusion that radical approaches, possibly of a legislative nature, or revisiting the notion of agreement or reevaluating legal approach to tackle tacit collusion as well as for deciding the scope of liability for artificial intelligence, are necessary. This is because, in practice, competition law is just now beginning to come to terms with algorithms and the distortions they create in the market. A few of these conventional strategies that have a good chance of working against collusive algorithms are ex ante actions like the use of market studies, the enforcement of merger controls, or regulatory corrective actions. When there are clear signs that a sectoral market is not operating well but no indications of coordination among the market participants, it may be necessary to conduct a market investigation and study. The goal of the study should be to determine why the market is failing as well as potential remedies for market self-correction, enforced correction, and potential policy solutions.

## **VII. Plausible Regulatory Intervention**

Due to the potential for additional forms of harm to the competitive process, no competition regulatory agency has yet implemented legislation to stop machine learning algorithms from reaching tacit collusion. Regulating algorithmic collusion in the context of international competition has not yet been the subject of any proposed legislation. It's also critical to keep in mind that there is currently no basis for the development of legislation to stop algorithmic collusion because there are no competitive probes or cases. It is not appropriate to enact legislation to stop the harmful effects of unobserved behaviours.

### **i. Price Regulation:**

Upon discovering that algorithms in the digital marketplaces are generating prices that are anti-competitive in the absence of classic collusion criteria like intention and

communication, many competition regimes may instinctively respond by enacting maximum price rules.

**ii. Framework on Algorithm Outlook:**

Over time, competition authorities might think about enacting regulations that limit the algorithm design process itself.

Vestager (2017) states that companies "must and can do is ensure antitrust compliance by design." As a result, pricing algorithms must be developed in a way that prevents collusion. They must answer, "I'm sorry, I'm afraid I can't do that," in response to an offer of collusion, much like a more honorable version of the computer HAL in the movie 2001. Regulating some market factors that are determined to be essential to maintain tacit collusion may prohibit algorithms from responding in a way that hinders enterprises from independently arriving at coordinated anti-competitive prices.

**iii. Insufficient Policies misdirecting Tactic Collusion:**

Developing policies that will alter the structural makeup of the digital market in a way that will make collusion more possible is another tenable step towards regulation. Reducing the transparency of discounts offered by different digital shopping platforms through the increased usage of discount codes is one example of this; another would be a policy imposing lags on price adjustments and the frequency of interactions in the digital market. Additionally, this solution will likely result in severe completion restrictions and limit the amount of information that the consumer may access.

**VIII. Conclusion**

In conclusion, the nature of cartel activity is evolving, and soon machine learning algorithms or pricing algorithms created expressly for the purpose of collusion will replace people utilizing computers to do so. Because an algorithm does not need to maintain an internal paper or email trail for communication that would have demonstrated the formation of a cartel, it presents special challenges for the enforcement of competition law. In addition, it is more difficult to assign liability for any antitrust acts committed by the algorithm. Because they can no longer rely on the inevitable dissolution of a traditional cartel or on defectors taking advantage of the leniency programs provided by various competition regulatory bodies in exchange for

cooperation and information about the cartel, the competition law regulatory authorities will also need to adapt.

The Competition Act of India offers a strong legal framework to handle issues raised by algorithmic pricing methods, thanks to its restrictions on anti-competitive agreements and abuse of dominant position. However, given the quickly changing nature of digital markets, the implementation of these regulations calls for thorough assessment of both the technical and practical aspects of the economy.

Policymakers, regulators, and academics should give important problems like algorithmic pricing transparency, data access, and the function of competition authorities in overseeing and controlling it more consideration. To effectively identify and discourage anti-competitive behavior in algorithm-driven marketplaces, cooperation between engineers, economists, and competition authorities is also necessary. In the age of algorithmic pricing, competition law's primary goal ultimately remains finding the correct balance between fostering innovation and competition and protecting consumer welfare. India must take a proactive and flexible stance as it navigates this challenging environment to guarantee fair and competitive marketplaces that serve the interests of both companies and consumers.

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