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Resale Price Maintenance in Online Markets: The Role of Artificial Intelligence

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This paper explores the evolving challenges of Resale Price Maintenance (RPM) in the context of digital markets. With the rise of online platforms, characterised by multi-sided markets, network effects, and data-driven algorithms, traditional antitrust concerns require reevaluation. The paper examines the competitive implications of RPM, both positive and negative, in digital and traditional settings. It reviews key cases from the Competition Commission of India (CCI), particularly within the e-commerce sector, to highlight the shifting regulatory approach. Additionally, it analyses how artificial intelligence enhances RPM enforcement and the resulting implications for competition law. The paper aims to provide a nuanced understanding of RPM in the age of digitisation and algorithmic pricing

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Abstract

The rapid digitisation of businesses and the proliferation of online platforms have significantly transformed traditional market dynamics, bringing peculiar characteristics that warrant a fresh examination of antitrust concerns. Online platforms exhibit unique traits, such as multi-sidedness, that connect two different sets of users. Second, network effects occur when each user adds value to the network, and a larger user base on one side enhances the value on the other. Third, leveraging big data and sophisticated algorithms to optimise operations and maximise profitability.

One area of renewed interest among economists and competition authorities is Resale Price Maintenance (RPM) in online markets. While RPM has long been scrutinised for its potential to restrict competition, digitisation has amplified its complexity, necessitating a reassessment. The use of advanced algorithms on online platforms introduces precision in enforcing RPM agreements, potentially enhancing their anticompetitive effects while also presenting efficiencies that could justify their adoption.

This paper examines whether competition authorities should reconsider their assessment of vertical agreements, such as resale price maintenance (RPM), in virtual markets. The first part introduces the concept of RPM, exploring its pro- and anticompetitive effects in both traditional and digital contexts.

The second segment examines key RPM cases analysed by the Competition Commission of India (CCI) across various sectors, shedding light on its evolving stance. The third segment focuses on RPM in the e-commerce industry, highlighting cases in virtual markets to assess their distinct challenges.

The final section investigates the role of artificial intelligence in strengthening the effectiveness of RPM agreements and its implications for competition law.

By contextualising RPM within the digital economy, the paper seeks to provide a comprehensive understanding of its nuances and the regulatory challenges posed by the convergence of big data and artificial intelligence.

Keywords: Artificial intelligence, resale price maintenance, online platforms

1. Introduction

Online platforms have distinct characteristics that set them apart from traditional brick-and-mortar markets. These typically include network effects across sides of the platform. Second, the platform has incentives to invest in developing a user base as broad as possible on one side so that it can monetise its investment on the other side.[1]and the third is big data and algorithms.

The recent increase in digitisation and the concomitant access to sophisticated algorithms has led to a reinstated focus by economists and antitrust regulators on RPM agreements in online markets.

This paper examines whether competition authorities should revisit the competition analysis of vertical contracts in virtual markets. The first part of the paper will introduce the concept of Resale Price Maintenance, including its pro- and anticompetitive effects.

The second segment will capture the relevant cases of RPM dealt with by the CCI in various sectors to understand the CCI's stance on this issue.

Third, specifically in the e-commerce industry, the researcher will discuss cases related to RPM prevalent in virtual markets. The final segment will examine whether AI technology can enhance the effectiveness of resale price maintenance.

2. Resale Price Maintenance

RPM, or vertical price fixing, is essentially an agreement between an upstream manufacturer and a downstream distributor in a distribution chain, which establishes the resale price at which the manufacturer's product or service must be sold by the dealer to its customers.[2] In RPM, an upstream firm controls the price at which the downstream player can sell the product. The upstream play can either impose a price

[1]*Supra note* 8.
[2]Kenneth G. Elzinga, David E. Mills, '*The Economics of Resale Price Maintenance*', 3 ISSUES IN COMPETITION LAW AND POLICY 1841 (2008)

ceiling (maximum RPM) or set a price floor below which products cannot be sold (minimum RPM).[3]

RPM occurs when a supplier and reseller agree that the reseller will sell the supplier's product at or above a particular price. RPM can also be achieved indirectly as a result of restrictions on discounting or where there are threats or financial incentives to sell at a specific price. RPM is illegal because it constitutes vertical price fixing, preventing resellers from offering lower prices and allowing manufacturers to set their prices independently to attract more customers.

The harmful effect of RPM runs along a spectrum from "definitely illegal" to "definitely legal." In *per-se* illegality, there is no scope to show the efficiency benefits[4] Within the current legal framework, there is a conflict between presuming RPM as *per se* illegal, as RPM falls far short of more extreme anticompetitive behaviours, such as horizontal price-fixing or treating it on a case-by-case basis.[5]

The legal status of RPM has undergone a rollercoaster ride, shifting from a per se rule to a rule of reason. In the United States, the landmark case of Dr Miles Medical Co. v. Park & Sons Co.[6]

For the first time, it was held that RPM is per se illegal. The case featured Dr. Miles Medical Company, which, through a written agreement, established an RPM for its jobbers, wholesale and retail druggists, and suppliers. The suit was filed against Park and Sons by Dr Miles, stating that they had violated the contract when they advertised and sold the medicines at less than the resale prices stipulated by the manufacturer. The Court held that such agreements foreclose competition between retailers and are equivalent to the situation in which retailers fixed their costs.

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[3]OECD, ROUNDTABLE ON RESALE PRICE MAINTENANCE, DAF/COMP (2008)37, (September 10, 2009), *available at*,https://www.oecd.org/daf/competition/43835526.pdf

[4]*Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877, 885 (2007)

[5]Mathew R. Bennet, Amelia Fletcher, Emanuele Giovannetti, David Stallibrass, '*Resale Price Maintenance: Explaining the Controversy, and Small Steps Towards a More Nuanced Policy'*, FORDHAM INTERNATIONAL LAW JOURNAL, VOL. 33, 2010

[6] 220 U.S. 373 (1911).

Thus, the enforcement of such a price was considered *per se* illegal in United States v. Colgate & Co.[7] The strict approach was relaxed, and a shift toward the rule of reason occurred. The case featured the famous toothpaste brand Colgate. The Company's policy was to refuse to deal with vendors who sold below the suggested retail price. The Court, in this case, noted that if there is no intention on the part of the Company to create or maintain a monopoly, a private business entity has the discretion to deal with parties.

The issue of RPM is a highly debatable concern for antitrust enforcement. The debate on RPM has wavered between per se prohibitions on the one hand and using a rule of reason approach on the other. The reason for this conflict is that the RPM has both pro-competitive and anticompetitive effects on the market. The pro-competitive and anticompetitive effects are discussed as follows:

2.1 Pro-Competitive Effect of RPM[8]

RPM can be a benefit for the industry; in the absence of RPM, there is no coordination between upstream and downstream players, and each firm sets its prices. In such a case, each firm, to maximise profits, sets a price that is above the marginal cost. Also, if both firms hold a dominant position in their respective vertical chain, there is leeway for both firms to set a final price higher than the profit-maximising price for the vertical chain as a whole.[9]

Second, in the absence of the RPM clause, the problem of double markup may arise if both upstream and downstream firms are in a position of dominance at their respective levels in the vertical supply chain. In the absence of an RPM clause, firms at different levels of the vertical chain are at ease with setting their separate prices.

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[7]250 U.S. 300 (1919)

[8]*Supra note* 62.

[9]OECD, Competition Policy and Vertical Restraints: Franchising Agreements, (1993), 37-44, *available at* https://www.oecd.org/competition/abuse/1920326.pdf

Let us understand this concept with the help of a hypothetical example. The manufacturer marks the product at Rs. 100, the wholesaler markets it at Rs. 200, and the retailer marks it at Rs. 300. Now, in this situation in the absence of RPM, each player, i.e. manufacturer, wholesaler and retailer hold a position of dominance there might be a possibility that they increase the price at their respective level. This situation will create a double markup problem, as it would maximise the aggregate profits of the upstream and downstream firms together, and the final consumer will have to pay an exorbitant price for the product.

Third, RPM addresses the issue of free riding. A hypothetical illustration of free riding is that there is a retailer, X, who incurs costs for advertising, after-sales services, etc. Due to these additional facilities, the retailer prices the product slightly higher. Now, the consumer obtains the information from this retailer and purchases the product from another retailer, Y, which sells the product at a lower price but does not provide any additional services. This situation incentivises the consumers who first take information from retailer X and then buy it from Y. However, in the long run, it is detrimental to the overall competition, as it will discourage retailers from offering additional benefits to consumers.

Fourth, RPM could be a cure for cream skimming; it refers to a practice where a firm decides to serve only those consumers who can add a substantial number of profits. This relates to consumers who are willing to buy high-priced services or services which can be produced at a low cost.[10]

When businesses at the downstream level are free to price their products, they can either increase the price to a level that skims off customers or provide discounts at levels that might result in the creation of retailers specialising in popular titles sold at

[10] What is cream skimming in business? THE HINDU (October 26, 2018, 12:15 am IST), https://www.thehindu.com/opinion/op-ed/what-is-cream-skimming-in-business/article25324525.ece

a discount. It would make full-line retailers less profitable, causing them to exit the market and leaving consumers with fewer options.[11]

2.2 Anticompetitive Effects

RPM is the most frequently reported vertical restraint, and the reason behind it is the serious harm it can cause to competitors. The RPM has the potential to reduce the overall competition. In this section, the researcher will discuss the harmful effects of RPM. To begin with, RPM is equated with horizontal collusion (cartels) at a vertical level.

RPM can facilitate the practice of collusion both at the upstream and downstream levels. First, the researcher will discuss the role of RPM in facilitating collusion at the upstream level. The RPM agreement gives control to the manufacturer (the Upstream player) to decide the final retail price of the product. Thus, in an oligopoly market, if upstream players wish to collude, they can do so, rather than entering into direct collusion that is subject to strict legal enforcement, by enforcing an RPM agreement. With this mechanism, the element of price will be more uniform and cannot be monitored easily.[12]

Furthermore, when manufacturers impose strict prices, they have great control over the market and deviations by retailers in such cases are also detected easily.[13]

Cartels are often not self-sustaining because members have an incentive to deviate from cartel prices and gain market shares by undercutting their competitors. Sustaining cartels among upstream firms is considered even more difficult due to a lack of transparency on wholesale prices. With the help of RPM, the prices would be more stabilised, leading to fewer chances of deviation.[14]

[11] *Supra note* 62.
[12] Bruno Jullien, Patrick Rey, '*Resale Price Maintenance and Collusion*', 38 RAND J. ECON. 983, 996 (2007)
[13] PATRICK REY & THIBAUD VERGE, RESALE PRICE MAINTENANCE AND HORIZONTAL CARTEL, (Working Paper Series No. 02/047, Université des Sciences Sociales (Toulouse) 2 CMPO and University of Southampton, July 2004)
[14] Thomas K. Cheng, '*A Consumer Behavioural Approach to Resale Price Maintenance*', 10 VIRGINIA LAW & BUSINESS REVIEW 1-92 (2017)

The second theory of harm relates to RPM as a facilitating practice to sustain downstream collusion. This can happen where downstream firms wish to engage in collusion. In this scenario, retailers set the price of the product among themselves. This type of collusion cannot be easily detected, as the general presumption regarding pricing schemes is that manufacturers decide and set the price; thus, retailers use the RPM policy as a cover for their price-fixing activities. RPM, if used in this manner, is effectively no more than a sham vertical agreement.[15]

The third theory of harm about RPM is augmented foreclosure. Consider a situation where an implicit contract exists between manufacturers and retailers, in which manufacturers restrict retailers from distributing competing brands in exchange for high profits. This RPM-protected profit margin on sales of the incumbent manufacturer's product can limit competition and create high entry barriers.[16]

The fourth theory of harm relates to the use of RPM as a means either to soften downstream competition or deter downstream entry. Downstream firms may have a unilateral incentive to ask the upstream firm to implement RPM as a means to mitigate competition between themselves.[17]

Additionally, RPM can be beneficial for downstream firms as it makes it difficult for new entrants to establish a foothold in the industry by cutting prices. The only way for new entrants to participate in the industry is through greater efficiencies, but they cannot use these efficiencies to steal business by offering lower prices.[18]

Thus, RPM can have serious anticompetitive consequences on the overall competition if market power resides with few suppliers and manufacturers that may result in market

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[15] *Argos Ltd. v. Office of Fair Trading*, [2006] EWCA (Civ) 1318, [141], [2006] U.K.C.L.R. 1135 (Eng.)
[16] *Supra note* 65.
[17] Greg Shaffer, '*Slotting Allowances and Resale Price Maintenance: A Comparison of Facilitating Practices'*, 22 RAND J. ECON. 120, 130 (1991)
[18] OFFICE OF FAIR TRADING, AN EVALUATION OF THE IMPACT UPON PRODUCTIVITY OF ENDING RESALE PRICE MAINTENANCE ON BOOKS (2008), *available at* http://www.oft.gov.uk/shared_oft/economic_research/oft981.pdf; Stephen Davies et al., The Benefits from Competition: Some Illustrative UK Cases 31–46

foreclosure by increasing entry barriers, reduction of inter-brand competition including facilitation of collusion, both explicit and tacit, reduction of intra-brand competition as there will be no additional incentive for retailers to carry out competition stimulating sales activities, and creation of obstacles to market integration.[19]

The forthcoming segment of this research will critically examine the approach adopted by the CCI in addressing issues related to RPM.

3. RPM: Indian Perspective

The CCI has been consistent in its approach towards matters involving RPM over the years. In this section, the researcher will discuss the relevant cases of RPM dealt with by CCI in various sectors.

In Ghanshyam Dass Vij v. Bajaj Corp. Ltd. and Ors.[20]The manufacturer prescribed the rates at which the hair oil was to be resold by dealers to retailers. The resale price was imposed on dealers, and the agreement stipulated that in the event of deviations, the dealership would be terminated. However, the CCI concluded that the market structure of the hair oil segment was dynamic and diverse, offering customers a range of options to choose from. Therefore, the manufacturer's RPM arrangements were deemed not to have any appreciable adverse effect on competition.

Regarding online markets, the first case dealt with by the CCI about RPM is *Jasper Infotech Pvt. Ltd. v. Kaff Appliances (India) Pvt. Ltd*.[21] The case is between an online shopping platform and a manufacturer of chimneys and hobs. The issue is that the manufacturer imposed a "Minimum Operating Price" on the online platform. The manufacturer advised the platform not to sell the products below the minimum

[19]Hughes, Foss, Ross, '*The economic assessment of vertical restraints Under U.K. and E.C. Competition Law'*, EUROPEAN COMPETITION L. REV: 427(2001)
[20]Case no. 68 of 2013

[21]Case No. 61 of 2014

operating price and threatened to ban online sales if such prices were not maintained. The CCI did not penalise the manufacturer as the restrictions did not cause an AAEC in the market. The CCI, in this case, considered online platforms as a separate channel of distribution rather than an individual market.

In *Counfreedise v. Timex Group India Ltd*.[22]The information was filed against Timex Group India Limited by one of its non-exclusive online distributors, M/S Counfreedise. The Informant is involved in the business of purchasing lifestyle products, such as belts, wallets, and sunglasses, and selling them on several e-commerce platforms, including Flipkart, Paytm Mall, and Amazon (under the trade name 'BUYMORE'). The Informant alleged that Timex group has imposed RPM on it and, for non-compliance, has stopped doing business with it, thus contravening section 3(4)(e) of the Act. CCI dismissed the allegation, stating that there is not enough evidence to prove RPM against Timex. Moreover, Timex is supplying its goods to other e-commerce retailers that offer significant discounts.

Additionally, Timex, as a non-dominant player in the market, lacked sufficient market power. It was just one of several watch manufacturers that did not enforce RPM across the distribution channel. Therefore, the Act could not have caused an adverse action event (AAEC). For RPM to be anticompetitive, it needed to result in an actual adverse effect on competition (AAEC), and accordingly, the allegation of RPM could not be sustained.[23]

Based on the above cases, it can be inferred that the CCI has adopted a rule of reason approach in dealing with cases involving vertical restraints, such as minimum RPM, given the effects-based approach in the aforementioned cases.

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[22]Case No. 55 of 2017

[23]*CCI dismissed allegations of resale price maintenance against Timex*, AZB PARTNERS, (October 30, 2018), https://www.azbpartners.com/bank/cci-dismissed-allegations-of-resale-price-maintenance-against-timex/

Fx Enterprise Solutions Pvt. Ltd. and Anr. v. Hyundai Motor India Pvt. Ltd[24]This is the first case dealt with by the CCI wherein a penalty was levied for engaging in RPM. In this case, information was filed against Hyundai Motors, alleging a contravention of Section 3(4)(e) read with Section 3(1) of the Competition Act, 2002.

The Informant alleged that Hyundai Motors, through dealership agreements, restricts dealers from taking on dealerships of competing brands. It also fixed the maximum retail price and the maximum discount that the dealers could offer through its Discount Control Mechanism. Hyundai Motors implements its discount control mechanism by engaging "mystery shopping" agencies to monitor its dealers through fake customers.

On this aspect, CCI opined that fixing a maximum retail price and maximum permissible discount, which dealers could give, effectively amounts to setting a minimum resale price and, hence, restricts competition. The kind of discount policy offered by Hyundai can harm both intra and inter-brand competition. CCI found that the Hyundai Discount Control Mechanism did not result in any consumer benefits and is in contravention of the Competition Act.

Thus, from the above-discussed cases, it can be concluded that CCI has approached RPM cases with leniency. The RPM agreements were held to be violative only when they caused an appreciable adverse effect on Competition. Thus, in cases involving vertical agreements, the CCI has observed that an agreement entered into by a non-dominant undertaking is unlikely to have a significant adverse effect on competition in India. The rationale for such a stance is that an agreement among parties with minimal market share will generally never have a foreclosure effect or create entry barriers.

[24]Case Nos. 36 & 82 of 2014

To date, the cases dealt with by CCI do not involve the technical intricacies associated with digital markets, such as AI and big data. This paper is specifically focused on the impact of AI on the existing competitive framework.

4. RPM in Online Markets

Online platforms have distinct characteristics that set them apart from traditional brick-and-mortar markets. These typically include network effects across sides of the platform. Second, the platform has incentives to invest in developing a user base as broad as possible on one side so that it can monetise its investment on the other side.[25] Third is big data and algorithms. The question that the researcher will address is whether changes are needed to the competition analysis of vertical contracts in these settings.

The growth in the e-commerce industry is tremendous due to its lower overhead costs and lower prices. A recent trend has been observed, where consumers typically visit brick-and-mortar retailers to gather information on a product and consume a salesperson's time, only to subsequently purchase the item from an Online retailer at a lower price.[26]

It is particularly relevant for products that have a sensory touch, such as makeup. The consumer now visits only one brick-and-mortar department store to select a brand and shade and then returns home to effortlessly search the internet for the identical item sold at a lower price by an online retailer with no geographic constraints.

Additionally, e-commerce platforms can offer significantly larger selections than brick-and-mortar stores, as physical space limitations do not restrict them.[27] Take, for example, "*Amazon.com is known to carry many more book titles than the approximately*

[25] *Supra note* 8.
[26] Marina Lao, '*Resale Price Maintenance: The Internet Phenomenon and Free Rider*', 55 ANTITRUST BULL. 473 (2010).
[27] Yannis Bakos, '*The Emerging Landscape for Retail E-Commerce*', 15 J. ECON. PERSPECTIVES 69 (2001)

150,000 titles that the largest physical bookstore carries."[28] This is particularly beneficial to buyers with less common needs that are difficult to meet at physical stores.[29]

Another convenience for online stores is that there are no geographical constraints involved in these markets. People can conveniently order from anywhere and have it delivered to their doorstep.[30]

It also benefits consumers living in communities without a sufficient population to support a robust local retail market, who would face local monopolies if brick-and-mortar stores were their only option.[31]

However, with online shopping, consumers cannot touch, physically examine, or otherwise experience the product through their senses. Nor can they interact with a live salesperson. Thus, the researcher observes that products involving high stakes are still preferred to be bought offline after examination and assurance from the salesperson.

Big data, AI, and network effects are quintessential to the functioning of digital markets, and they enhance the ability of digital platforms to foreclose competition. A digital platform may capture a substantial portion of potential participants due to indirect network effects facilitated by algorithms. The recent increase in digitisation and concomitant access to sophisticated algorithms has led to a reinstated focus by economists and antitrust regulators on RPM.

Online shopping gives consumers easy access to multiple retailers. This should increase competition between retailers and suppliers as they strive to attract shoppers seeking the best prices. However, when RPM occurs and restricts retailers' ability to set

[28] Judith Chevalier, '*Measuring Prices and Price Competition Online: Amazon.com and BarnesandNoble.com*', 1 QUANTITATIVE MARKETING & ECON. 203, 205-06 (2003)

[29] Mary Wolfinbarger, Mary C. Gilly, '*Shopping Online for Freedom, Control and Even Fun*', 43-2 CAL. MGMT. REV. 34, 34-36 (2000)

[30] Indrajit Sinha, '*Cost Transparency: The Net's Real Threat to Prices and Brands*', HARV. BUS. REV.,43, 48 (2000)

[31] Judith A. Chevalier, '*Free Rider Issues and Internet Retailing 1 (Written Statement to the Federal Trade Commission Public Workshop on Possible Anticompetitive Efforts to Restrict Competition on the Internet*', (October 10, 2002), *available at*, http://www.ftc.gov/opp/ecommerce/anticompetitive/panel /chevalier.pdf

their online selling prices, it weakens a key benefit of e-commerce for consumers and risks damaging consumer trust in the online market.[32]

RPM, specifically focused on online sales practices, has been enforced by the Competition and Market Authority in the music sector. The case is related to the Fender Musical Instruments Europe Limited, an international seller of guitar instruments.[33]

The Company infringed Section 2(1) of the Competition Act 1998 and/or Article 101 of the Treaty on the Functioning of the European Union by entering into an Authorised Dealer agreement and participating in a concerted practice with a reseller. The Competition Authority imposed a fine of £4,521,185 (the largest fine imposed in the UK for resale price maintenance).

As per the agreement, the dealer must fulfil a variety of level requirements to stock the products contained at that level and be restricted from advertising or selling the electric guitars, electric basses and acoustic guitars supplied to it by the Company online below a price specified by it from time to time (the Minimum Price). The pricing policy was based on a formula that allowed resellers to calculate the minimum price and prohibited the use of online discount codes. The prices were verbally communicated to resellers and updated through Fender Europe's circulating price lists, as well as follow-up calls to resellers.

The Competition Authority noted that, although there was no written agreement, the absence of an agreement does not preclude tacit acquiescence from giving rise to a deal under competition law. The Competition Authority considered the fact that had there been no agreement, the dealers would have entered the market and would have been able to determine their prices. Therefore, the policy restricted reseller's ability to compete and potentially resulted in higher prices for consumers.[34]

[32]Simon Nichols, '*Everyone loses out with resale price maintenance*', CMA, (July 1, 2022), https://competitionandmarkets.blog.gov.uk/2022/07/01/everyone-loses-out-with-resale-price-maintenance/
[33]*Online resale price maintenance in the guitar sector*, Case 50565-3,
[34]Bird and Bird LLP, '*The CMA fines Fender Europe £4.5m for engaging in resale price maintenance'*, LEXOLOGY, (April 22 2020), https://www.lexology.com/library/detail.aspx?g=90f5d8a7-8634-48e6-9701-8f3820fac27f

In the Domestic Light Fittings case, the National Lighting Company Limited (NLC) prevented retailers from setting their prices online and required them to sell at a minimum price.

Additionally, the Company had set a maximum discount that retailers were allowed to offer. To enforce the regulation, the Company used an Internet Licence Agreement. The retailer that failed to comply with the manufacturer's pricing scheme was threatened with penalties, including suspension and revocation of the retailer's license, as well as the inability to use official images online.

The CMA found that the Internet Licence agreement did not, *prima facie*, mention the pricing instructions, as the manufacturer was aware of the competition law risk associated with RPM. Therefore, there was no written evidence of pricing instructions, and this was communicated at the time of renewal of the Internet Licence Agreement.

The supplier was aware of the legal risks associated with what it was asking resellers to do – it sought to conceal the practice of RPM behind Internet Licence Agreements (ILAs). It also avoided communicating pricing instructions and policies via email or in writing.

According to the CMA, NLC's policy restricted resellers' ability to sell the supplier's products online at independently determined prices, thereby amounting to illegal RPM. The fine imposed by the Competition Authority for this violation amounted to £2.7 million, which included a 25 percent uplift due to the company's failure to heed a previous warning letter sent by the Competition Authority.[35]

In another case from the commercial refrigeration sector,[36]Foster Refrigeration Company issued a policy to its entire network of resellers. The policy outlined the discount scheme and prohibited retailers from advertising and selling their products

[35]CMA, '*Resale price maintenance case studies, Lessons from the Competition and Markets Authority's (CMA) resale price maintenance cases*, (June 20, 2017), https://www.gov.uk/government/case-studies/resale-price-maintenance-case-studies

[36]*Online resale price maintenance in the commercial refrigeration sector*, Case CE/9856/14

below a minimum advertised price, both in digital and brick-and-mortar markets. The discounted price was calculated by the manufacturer based on the net price plus an additional markup.

This policy was introduced to alleviate competitive stress among traditional retailers whose businesses were struggling due to the prevalence of online discounts. Additionally, this scheme was introduced to enhance the margins available to retailers when selling the products.

The manufacturer implemented the discounting scheme through frequent monitoring of the retailers' websites. If, on the website, the products are priced below the discussed price, then, as per the policy, the manufacturer holds the right to reduce retailers' wholesale terms of supply if prices are not amended. Second, the manufacturer ceased supplying products or permanently closed the retailer's account.

The Competition Authority of the UK found that the policy introduced by Foster genuinely restricted, in practice, the ability of resellers to determine their online sales prices at a price below the MAP and, as such, amounted to RPM in respect of the online sales of foster products.

In the Bathroom fitting case, Ultra Finishing Company introduced a trading policy specifically for online trading that prohibited retailers from providing discounts of more than 20 percent. This policy was introduced in 2009 and subsequently withdrawn.

Afterwards, another policy was introduced in 2010, which changed the maximum discount resellers could offer to 25 percent. The condition in the policy is that if the resellers fail to comply with this condition, their rights to use the image of the products will be withdrawn. CMA concluded that such policy amounted to RPM that is violative of Ch-1/ Article 101 TEFU.[37]

[37]CMA, '*Bathroom fitting sector, investigation into anticompetitive practise*', (May 17, 2016), https://www.gov.uk/cma-cases/bathroom-fittings-sector-investigation-into-anti-competitive-practices

In light of the CMA's findings of fact, the CMA has concluded that Ultra has infringed the Chapter I prohibition and/or Article 101 TFEU by participating in an agreement or concerted practice with its retailers.

The European Commission recently dealt with another case related to online RPM. In four separate decisions, the electronic product manufacturers, namely Asus, Denon & Marantz, Philips, and Pioneer (hereinafter referred to as the manufacturers) were penalised with amounts exceeding €111mn for imposing minimum resale prices on their online retailers.[38]

The manufacturers imposed a condition on online suppliers that they cannot sell the product for less than a specified retail price. On failure to comply with the imposed condition, their supplies were threatened to be blocked.

In particular, Asus (the headquarters of Asus is in Taiwan) requested its retailers to increase the price. They continuously monitored the prices of specific computer hardware and electronics products, such as notebooks and displays. Pioneer restricted its retailers from selling the products across borders to sustain different resale prices in other Member States.

Denon & Marantz**,** headquartered in Japan, had limited the cost of products such as headphones and speakers through RPM in Germany and the Netherlands. Philips, headquartered in the Netherlands, engaged in RPM about a range of home appliances in France.

The four Commission decisions impose significant penalties on consumer electronics manufacturers. However, the Commission reduced the fine from 40 percent (for Asus, Denon, Marantz, and Philips) to 50 percent (for Pioneer), as the companies cooperated during the investigation process. This case has acknowledged a new concern for the

[38] Press release, '*Antitrust: Commission fines four consumer electronics manufacturers for fixing online resale prices'*, (July 24, 2018), *available at* https://ec.europa.eu/commission/presscorner/detail/en/IP_18_4601

antitrust authorities. The problem is that RPMs entered the digital sector are monitored through algorithms and AI technology.

In the next section, the researcher will discuss the fears surrounding AI and RPM and answer the research question: whether pricing software plays a role in contributing to the effectiveness of the resale price maintenance practice.

5. Artificial Intelligence and Resale Price Maintenance

Vertical restraints pose different challenges for digital businesses compared to physical ones. The differences in challenges between the two markets stem from their distinct characteristics. Traditional brick-and-mortar markets operate on a regular supply chain, spanning from manufacturers to wholesalers, retailers, and ultimately to consumers. The stock requirement, price setting, market demand, and supply are humanly made, leading to a slow process throughout the system.

The characteristic that distinguishes digital markets from brick-and-mortar markets is the role of algorithms and big data in operating these markets. In the e-commerce market, the price, placement, demand, and supply of a product are operated algorithmically within a fraction of a second.

The question that needs to be answered is whether algorithms play a role in enhancing the effectiveness of resale price maintenance practices. Whether AI-operated digital businesses have the ability and incentive to foreclose competition through vertical practices pose a challenge for competition authorities worldwide.[39]

According to Ann Pope, CMA Senior Director, "*Price competition from online sales is usually intense, given the ease of searching on the internet. RPM, by preventing retailers from offering discounted prices, denies buyers the benefit of the lower prices and increased quality that comes from genuine competition*."[40]

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[39]*Ohio v. American Express Co*., 138 S.Ct. 2274 (2018).

[40]Press release, *CMA guides businesses on online competition law*,

To facilitate interactions between participants, platforms provide search and discovery tools for finding potential partners, as well as targeting methods to present themselves to these potential partners. The platform may also display connections on its own based on its predictions of participants' value from being exposed to potential trading partners.

Digital platforms, more so than others, heavily utilise software-based technologies to perform these functions. These technologies utilise algorithms that employ data and statistical methods to learn from the data and make predictive decisions. Digital platforms also rely on many other techniques. They provide reviews for users and products, tools for participants to display information, and targeted advertising.[41]

E-commerce platforms offer manufacturers the opportunity to easily monitor the price-setting behaviour of retailers and intervene to mitigate price pressure. Many online retailers use pricing software to automatically adjust their retail prices to match those of their competitors. 53 percent of e-commerce sector inquiry respondents track competitors' online prices, and 67 percent of these do so automatically using software specifically designed for this purpose. 78 percent of retailers who use price-tracking software adjust their prices to those of their competitors.[42]

Price monitoring algorithms can be used to detect deviations from a fixed or minimum resale price. Algorithm-enabled price monitoring does not constitute an RPM offence in itself but rather forms part of the RPM infringement. The role of the algorithm is to enhance or maintain the effectiveness of the vertical agreement or, more typically, the RPM. In this sense, detecting deviations from the vertical agreements is easier and

(June 21, 2016), *available at*,https://www.gov.uk/government/news/cma-guides-businesses-on-online-competition-law

[41]Hal Varian, '*Artificial Intelligence, Economics, and Industrial Organization' in* THE ECONOMICS OF ARTIFICIAL INTELLIGENCE: AN AGENDA (Ajay Agrawal, Joshua Gans, and Avi Goldfarb ed., University of Chicago Press, 2019)

[42] Johannes Laitenberger addresses at ICN Annual Conference Vertical restraints and enforcement tools in emerging digital markets. (March 22, 2018), *available at*, https://uk.practicallaw.thomsonreuters.com/w-014-0557?transitionType=Default&contextData=(sc.Default)&firstPage=true

more immediate. As a result, retailers may be incentivised not to deviate from the collusive agreement.[43]

As previously discussed, digital markets are highly dependent on big data, software, and algorithms to provide services such as search, communication, stock updates, and reviews. The significant difference between markets driven by AI and the markets not driven by AI is the speed and velocity.

Another relevant feature of the digital market is that it acts as an intermediary between the two sides of the users. The platforms, therefore, have good bargaining power to provide access to users on the other side; they have the power to negotiate and get users to enter into vertical agreements that have vertical restraints by threatening not to provide full access to the other side's database. This can easily be achieved by the platform with the help of AI technology, which can create an exclusionary effect that makes it difficult for users to sustain.[44]

The case relating to RPM by four electronic manufacturers discussed above has raised a critical issue about the use of AI technology in initiating RPM practices. The Commission, in this case, considered the fact that algorithmic-driven RPMs have greater harmful effects on competition. The Commission concluded that "*price monitoring and adjustment software programmes multiply the impact of price interventions*."[45]

It was further noted that "*many, including the biggest online retailers, use pricing algorithms which automatically adapt retail prices to those of competitors. In this way,*

[43]OECD–NOTE FROM THE EUROPEAN UNION, ALGORITHMS AND COLLUSION, (May 30, 2017), *available at* https://one.oecd.org/document/DAF/COMP/WD(2017)12/en/pdf.
[44]*Google search (shopping),* Case AT 39740.
[45]*Pioneer, Case*, AT.40182 *at* p.27

the pricing restrictions imposed on low-pricing online retailers typically had a broader impact on overall online prices for the respective consumer electronics products."[46]

Another significant role that an algorithm plays in facilitating vertical agreements is that it can effectively track resale prices, and if any deviations occur, restrictions can be imposed immediately. As tracking prices with the help of AI are a matter of a few minutes or seconds, deviations can be detected immediately, creating a significant impact on the overall price level in the industry.[47]

6. Conclusion

There is no doubt that AI is beneficial for today's online retailers in delivering an outstanding customer and user experience in the digital market sector. AI is becoming a substantial part of the business world and has helped businesses to grow and reach the maximum consumer base. However, it becomes highly problematic when technology enables manufacturers to control the entire pricing chain.[48]

The monitoring of prices through algorithms can lead to sudden and aggressive price changes. Retailers can change prices in seconds, and a price war may ensue among competitors as they vie to offer the best price. The prices are displayed online with the help of AI technology and can be monitored using AI.

Thus, manufacturers and suppliers can efficiently utilise algorithms to execute RPM and take immediate action against retailers who deviate. The result of such regulation can also facilitate tacit collusion, which is a serious concern in competition law, as discussed in the previous chapter.

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[46]Press release, *Antitrust: Commission opens three investigations into suspected anticompetitive practices in e-commerce*, (February 2, 2017), *available at* https://ec.europa.eu/commission/presscorner/detail/en/IP_17_201

[47]ARIEL EZRACHI & MAURICE E. STUCKE, VIRTUAL COMPETITION: THE PROMISE AND PERILS OF THE ALGORITHM-DRIVEN ECONOMY 39 (Harvard University Press, 2016).

[48]Melanie Johnson, '*AI in e-commerce: benefits and examples*, DIVANTE, (October 29 2022, 6 pm), https://www.divante.com/blog/ai-in-ecommerce-benefits-and-examples

Therefore, the rise of pricing algorithms and AI software will require changes in our enforcement practices. It is advised that regulatory authorities ensure this technological disruption translates into tangible benefits for consumers. Regulators are advised to maintain open and contestable markets and to utilise advanced technology in regulating them.

Policymakers should draw up a clear statement outlining the rules governing vertical agreements in online markets. For example, the policy should clearly state that manufacturers/suppliers should not use threats or financial incentives or take any other action, such as withholding supply or offering less favourable terms, to compel retailers to follow a vertical restraint agreement.

While vertical restraints are typically less harmful than horizontal restraints between competitors, they may also negatively affect competition, especially when they are widespread, as we found in the e-commerce sector inquiry. Vertical restraints may lead to the foreclosure of other suppliers or buyers and facilitate collusion at the supplier or buyer level. RPM practices directly lead to a reduction in intra-brand price competition, and MFN clauses used by online platforms may lead to the foreclosure of more efficient, smaller platforms.

In this paper, the researcher explores the question of whether algorithms contribute to the effectiveness of resale price maintenance. It is concluded that algorithms have indeed expanded the business reach and convenience for both sellers and buyers. However, it has also aided businesses at the upstream level in tracking the prices offered by retailers. Continuous price monitoring by manufacturers and retailers has a broader impact on overall online pricing. Technology can help manufacturers quickly access the prices offered by retailers and create a deterrent effect immediately. This might result in no better prices for consumers, as all retailers are bound to adhere to the prices set by manufacturers. This process can promote tacit collusion and harm consumers. Thus, if manufacturers use monitoring systems to speedily issue pressure or sanctions against retailers when underpricing is detected, the RPM practice can be effective and efficient.

The answer doesn't end here; it is essential to find ways to protect consumers and maintain the overall market balance in such cases. The first measure that the competition authority should take in this regard is to create awareness about the illegality of RPM. This can be done by educating industry participants about the potential harm from RPM conducted in digital space. Retailers should be aware of what constitutes an RPM and the factors that constitute ceilings on discounts, including prohibitions on advertising lower prices online and linking the resale price of one retailer to that of other retailers.

The UK competition authority maintains a social media blog that regularly updates stakeholders on competition policy, promoting self-assessment of agreements by parties engaging in RPM. The competition authority can also conduct surveys to gather evidence from stakeholders.

It is essential to create awareness through various channels and mediums, as this will ensure that such businesses do not evade the law, thereby causing harm to end consumers. Furthermore, companies that commit to engaging in RPM and provide cooperation during investigations may receive some leniency from regulators and courts presiding over their cases.

Digital markets have no boundaries; thus, it is also essential that competition authorities around the world cooperate and collaborate through knowledge sharing, exchanging experiences on how large volumes of data are handled and technology is used to manage tech cases.

E-commerce companies use algorithms to track their competitors' prices, which also increases the manufacturer's ability to enforce illegal RPM pricing policies and widen their impact. This ability of manufacturers and retailers to track and monitor online prices in this way led the CMA's Data, Technology and Analytics Unit to develop an in-house price monitoring tool to detect suspicious online pricing activity.[49]

The researcher suggests that CCI should deploy a technology to monitor illegal agreements and RPM practices.

[49] Simon Nichols, '*Everyone loses out with resale price maintenance*', CMA, (July 1, 2022), https://competitionandmarkets.blog.gov.uk/2022/07/01/everyone-loses-out-with-resale-price-maintenance/