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**ANATOMICAL SNAPSHOT OF COMPUTATIONAL  
TECHNIQUES FOR DAMAGES/COMPENSATION  
CALCULATION IN ANTITRUST INJURY: AN  
ECONOMETRIC ANALYSIS OF LAW OF ANTITRUST  
DAMAGES**

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**ABSTRACT**

*Private enforcement of competition law in India has remained an unfulfilled promise for an extended period. Although the Competition Act of 2002 allows for private enforcement, providing injured parties the opportunity to claim compensation, no cases have been decided by the Competition Commission of India thus far. This can be attributed to the lack of adequate guidance for assessing compensation. The evaluation of compensation or damages is a complex task, requiring a profound understanding of applied economics and econometrics. As mentioned earlier, the absence of decided cases in Indian competition policy hinders the development of guidance on assessment techniques for calculating compensation or damages. This paper seeks to elucidate the economics of damages by exploring various facets, including how traditional tools of damages calculations fall short in addressing the complex and unique challenges posed by antitrust*

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*laws. Furthermore, the paper delves into jurisprudence and economic models developed in advanced antitrust regimes such as that of the United States of America (“USA”) and the European Union (“EU”). Additionally, the paper explores the aspect of passing-on and how it further complicates the assessment of damages. Conclusively, this paper provides a basic economic framework for the assessment of damages that can be applied in the Indian context.*

**Keywords:** *Private enforcement, Follow-on actions, Damages, Economic models, Pass-on etc.*

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## I. INTRODUCTION

The Competition Act, 2002 (“**Act**”) in India aims to enhance economic efficiency and safeguard consumer welfare by prohibiting anti-competitive agreements, to curb the misuse of market dominance, and overseeing combinations that may adversely impact fair competition and destabilize market equilibrium.<sup>1</sup> The Act allows for enforcement action by the Competition Commission of India (“**CCI**”) and provides the right to sue for private damages upon establishing a contravention of competition law.<sup>2</sup> However, despite the statutory grant of the right to private action, progress has been limited due to inadequacies surrounding the quantification of harm to claim damages.<sup>3</sup>

Currently, Indian law actions rely on common law, contractual and tort damages principles, which are unsuited for diffusing competition law harms impacting complex markets and stakeholders.<sup>4</sup> As many as 7 cases are pending before competition law authorities which require guidance concerning the calculation of compensation. Novel approaches are required to address broader losses alongside the complex supply chain and economy. The lack of legislative guidance or established judicial precedents on quantifying such harm poses barriers to potential private actions in India.<sup>5</sup> In contrast, other major jurisdictions have made significant strides -

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<sup>1</sup> Competition Act, 2002, No. 13, Acts of Parliament, 2003.

<sup>2</sup> *Id.* §53N-53O.

<sup>3</sup> ABIR ROY, COMPETITION LAW IN INDIA: A PRACTICAL GUIDE (1st ed. 2016). ABIR ROY & JAYANTA KUMAR, COMPETITION LAW IN INDIA (2nd ed. 2018).

<sup>4</sup> Alison Jones, *Private Enforcement of EU Competition Law: A Comparison with, and Lessons from, the US*, SSRN JOURNAL (2016), <http://www.ssrn.com/abstract=2715796>.

<sup>5</sup> Roy, *supra* note 3.

the EU has introduced legislation and guidelines on quantifying harm,<sup>6</sup> while US courts have developed approaches relying on economic models.<sup>7</sup>

A key gap in the status quo pertains to the lack of adequate guidance either under legislation or judicial precedents for quantifying diffuse competition law losses not amenable to contractual or tort damages calculations. As Landes notes, “*virtually all damages suffered from price-fixing and other cartel activities are lost consumer surpluses*” encompassing overcharges and deadweight losses, necessitating bespoke methodologies beyond contractual frameworks.<sup>8</sup> US courts have sought to address this issue by allowing economic models to rely on estimations based on sophisticated empirical techniques grounded in factual evidence.<sup>9</sup>

The EU’s competition law reforms have also focused on enhancing access to compensation, with the Directive on Antitrust Damages Actions mandating “*full compensation*” encompassing the right to claim actual loss along with lost profits and interest.<sup>10</sup> Commentators have argued this necessitates moving past the subjective “*but for*” assessment of harm.<sup>11</sup> The

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<sup>6</sup> Council Directive 2014/104, Arts. 16-18, 2014 (EU).

<sup>7</sup> Herbert J. Hovenkamp, *Quantification of Harm in Private Antitrust Actions in the United States*, SSRN JOURNAL (2011), <http://www.ssrn.com/abstract=1758751>.

<sup>8</sup> William Landes, *Harm to Competition: Cartels, Mergers and Joint Ventures*, 52 ANTITRUST LAW JOURNAL 625 (1983).

<sup>9</sup> Louis Kaplow, *An Economic Approach to Price Fixing*, 77 ANTITRUST LAW JOURNAL 16 (2011).

<sup>10</sup> Council Directive 2014/104, pmb. ¶ 12, arts. 2-3, 2014 (EU).

<sup>11</sup> EUROPEAN COMMISSION. DIRECTORATE-GENERAL FOR COMPETITION & OXERA, *QUANTIFYING ANTITRUST DAMAGES: TOWARDS NON-BINDING GUIDANCE FOR COURTS* (2009), <https://data.europa.eu/doi/10.2763/36577>.

reforms also introduced rebuttable presumptions on harm quantification in cartel cases, which could potentially be analyzed for the Indian context.<sup>12</sup>

Therefore, the broad research problem is the lack of clarity and robust frameworks for quantifying harm under the private enforcement provisions of the Indian Competition policy. Viable approaches need to be developed by taking into account domestic legal and economic realities. The paper aims to undertake a comprehensive comparative analysis of methodologies in EU and US competition regimes and, adapt insights to formulate guiding principles and quantification methods suited for the Indian context.

## **II. PRIVATE ENFORCEMENT OF COMPETITION LAW: REGULATORY LANDSCAPE AND CHALLENGES**

### **A. REGULATORY LANDSCAPE OF PRIVATE ENFORCEMENT OF COMPETITION LAW**

At a cursory glance, the implementation of law is typically entrusted to a centralized bureaucracy. However, the intricate landscape of economic and trade legislations have prompted the emergence of a diverse array of regulators, encompassing both institutional bodies and individual actors, to actively participate in the enforcement of private laws as well as public laws. Delving into the realm of commercial law, contract law stands as one of the earliest exemplars. Here, individuals who are parties to contractual agreements increasingly resort to legal avenues, approaching the courts to ensure the fulfilment of obligations emanating from these contracts. A

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<sup>12</sup> Directive 2014/104, art. 17(2).

parallel trend is evident in the domain of torts and other private laws, where individuals, recognizing the need to protect their rights and seek redress for wrongs, navigate the legal system.

Within the domain of antitrust law, a clear pattern unfolds, marked by endeavours aimed at fostering fair competition and restraining anti-competitive practices. This pattern extends beyond regulatory bodies to encompass vigilant individuals and enterprises, empowering them to report potential violations. A significant ruling by European Court of Justice (“**ECJ**”),<sup>13</sup> explicated the need for private enforcement of Treaty on Functioning of the European Union (“**TEFU**”) provisions is imperative given the harmonization of principles of equivalence and effectiveness of laws. This inclusive approach gives rise to private enforcement of antitrust regulations, emphasizing a collaborative effort to uphold fair market practices.

Private actions generally encompass follow-on actions as well as standalone actions. In the case of the former, an action for compensation can only be brought after a factual finding of infringement of antitrust laws is made by an adjudicating authority. In the case of the latter, a private person or enterprise can institute a case, and the factual finding of antitrust violation is determined by the pleadings and evidence presented by the parties themselves.<sup>14</sup>

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<sup>13</sup> CJEC, Case C-453/99, Judgment of 20 September 2001.

<sup>14</sup> Nimit Rajesh Goyal, *The Promise of Private Enforcement of Competition Law in India*, INDIANCORPLAW (May 6, 2022), <https://indiacorplaw.in/2022/05/the-promise-of-private-enforcement-of-competition-law-in-india.html>.

As many as 95% of the antitrust matters in the United States are being brought by private parties.<sup>15</sup> Section 4 of the Clayton Act, 1914 provides the private enforcement mechanism to sue and recover damages up to three times. The treble damage suits have become one of the surest weapons to ensure enforcement in anti-trust matters.<sup>16</sup> Similarly, EU Directive 2014/104/EU<sup>17</sup> provides the European Commission with the opportunity to entertain cases of private claims of antitrust matters, wherein parties may recover compensation sustained due to the anti-competitive conduct of the defendant. EU directives, in principle, do not provide direct remedy for the individuals, and it is in fact, the states which have to implement these directives in their national laws. Therefore, a number of states have incorporated the provisions within their legal system to allow parties for private action.

Likewise, in India, Section 53N of the Act provides for private enforcement of competition law, allowing an injured person to claim compensation. The US and the EU allow both follow-on actions and standalone actions, whereas Indian competition policy only allows follow-on actions. Furthermore, no provision exists for standalone actions.<sup>18</sup>

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<sup>15</sup> Richard A. Posner, *A Statistical Study of Antitrust Enforcement*, 13 THE JOURNAL OF LAW & ECONOMICS 365 (1970).

<sup>16</sup> *Minnesota Mining & Mfg. Co. v. New Jersey Wood Finishing Co.*, 381 U.S. 311 (1965)

<sup>17</sup> Directive 2014/104/EU of the European Parliament and of the Council of 26 November 2014 on certain rules governing actions for damages under national law for infringements of the competition law provisions of the Member States and of the European Union, OJ L 349, 1–19 (Dec. 5, 2014).

<sup>18</sup> Nimit Rajesh Goyal, *The Promise of Private Enforcement of Competition Law in India*, IndiaCorpLaw (May 6, 2022), <https://indiacorplaw.in/2022/05/the-promise-of-private-enforcement-of-competition-law-in-india.html>.

In either case, the regulatory authority has to assess damages. However, the issue is not as simple as it looks. It is pertinent to note that the underlying discipline of competition law is economics and not any other social science. Competition law and economics are intrinsically linked and share a symbiotic relationship.<sup>19</sup> The marriage between competition law and economics reaches to its saturation point when discourses take place on law of damages.<sup>20</sup>

**B. CHALLENGES WITH RESPECT TO TRADITIONAL TOOLS OF ASSESSING DAMAGES**

Quantification of damages is required in both public and private enforcement of competition laws.<sup>21</sup> Indian competition law regime lacks substantive guidance on assessing the damages on private enforcement under Section 53N of the Act. Indian literature on law of damages is still confined to traditional contract law and tort law cases. Assessment of damages on the lines of contract law and tort law methodologies has certain shortcomings owing to limited number of actors involved the damages' action.

Privity of contract which is a cardinal rule of law of contracts, suggests that only parties to contract can sue for its enforcement or

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<sup>19</sup> Competition Commission of India, Government of India, <https://www.cci.gov.in/economics-research>.

<sup>20</sup> HERBERT HOVENCAMP, FEDERAL ANTITRUST POLICY, THE LAW OF COMPETITION AND ITS PRACTICE (HORNBOOK) (5th ed. 2015).

<sup>21</sup> Van Dijk and Verboven, *Quantification of Damages*, (3) COMP. LAW AND POLICY 2331 (2008).

subsequent breach.<sup>22</sup> Since contract law creates a right in the nature of a personal right (**‘right in personam’**) and not against whole world (**‘right in rem’**), therefore the quantification of damages does not involve complex economic problems as one encounter in competition law. If a party to the contract fails to perform his promise the court may grant him damages for the injury that has been caused due to non-performance of the contract.

Let’s assume the Court is to grant expectation damages,<sup>23</sup> in a specific case.

In an illustrative scenario, A, the proprietor of a theatre, entered into a contract with B to vend a certain number of tickets for a movie scheduled for an 8 o’clock screening on a Sunday evening at a specified price,  $P_A$ . Simultaneously, another merchant, C, was offering the same tickets at a different price,  $P_C$ , in the same location. Unfortunately, at the time of the scheduled performance, A reneged on the agreement, refusing to fulfill their contractual obligations, including the delivery of tickets. Meanwhile, the ticket prices surged to a substitute price,  $P_S$ . Consequently, B found themselves compelled to purchase replacement tickets at the escalated price,  $P_S$ .

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<sup>22</sup> LAW OF CONTRACT AND SPECIFIC RELIEF, CH. IV, Universal Law Publication Co. (2011), <http://student.manupatra.com/Academic/Abk/Law-of-Contract-and-Specific-Relief/Chapter4.htm>.

<sup>23</sup> Anke Sessler, Sharmistha Chakrabarti, Max Stein, *Compensatory damages principles in civil and common law jurisdictions: requirements, underlying principles and limits*, GLOBAL ARBITRATION REVIEW, (Jan 16, 2024) <https://globalarbitrationreview.com/guide/the-guide-damages-in-international-arbitration/6th-edition/article/compensatory-damages-principles-in-civil-and-common-law-jurisdictions-requirements-underlying-principles-and-limits>.

Now, replacing the promised performance of seller with the perfect substitutable option would generate optimal economic efficiency for the party whose interest was prejudiced due to non-performance and hence expectation damages. This too would require determination of counterfactual world, where performance of the contract provide baseline for computing injury.<sup>24</sup>

$$\textit{Expectation damages} = \textit{Value of Expected Performance} - \textit{Value of Actual Performance}$$

In this example, a substituting performance consists in buying of tickets at substitutable price  $P_s$ . Therefore the perfect expectation damages in the case equals to:

$$\textit{Expectation damages} = N_A (P_s - P_A) \dots\dots (1)$$

Here,  $N_A$  represents number of tickets purchased and  $(P_s - P_A)$  represents the difference of price per unit which B was compelled to purchase at escalated price. In a parallel scenario, where contractual breach by B necessitates A to sell tickets at a diminished rate in the final moments, a marginal refinement of the identical formulaic expression becomes imperative for the scholarly assessment of this alternative factual context.

Contracts, as exemplified in the provided scenario between A and B, delineate a confined arena where rules and expectations govern interactions. The inherent challenge of subjective value disparities, where personal assessments do not align with market values, is aptly addressed by

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<sup>24</sup> ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS (6 ed., 2016).

the economics of contracts law.<sup>25</sup> This field emphasizes the efficient allocation of resources, aiming to minimize transaction costs and provide a structured approach for determining damages in cases of breach. In the given illustration, the failure of A to deliver tickets prompts the economics of contracts law to address the increased costs incurred by B in obtaining substitute tickets at the elevated market price,  $P_s$ . Other kind of compensation can be calculated by adding punitive multiplier or other kind of correlation which suits the compensation or damages policy. This approach distinguishes itself from antitrust analysis by focusing on individual transactions, efficiency, and the establishment of objective standards within the specific context of contractual relationship.

Shifting the focus to tort law, damages within this legal framework serve a dual purpose. Firstly, they seek to reinstate the victim to their initial utility level or indifference curve that existed prior to the tortious act. Secondly, they entail an additional cost imposed on the injurer as reparation for the harm inflicted. In the majority of tort law instances, compensatory damages emerge as the primary means of redress.<sup>26</sup> The concept of perfect compensation is pivotal, representing a scenario where the victim remains indifferent between sustaining the injury and receiving compensation or not experiencing harm at all.<sup>27</sup> The computation of such perfect compensation is relatively straightforward, aligning with the fundamental

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<sup>25</sup> *Id.* at 313.

<sup>26</sup> *Id.*

<sup>27</sup> *Id.*

principles of basic economics, akin to the calculations employed in contract law.

There are certain injuries which are irreparable and hence, not compensable, like killing of child or other forms of grievous hurt.<sup>28</sup> In the US, it is a jury which decides the quantum of damages. In a case when court awarded damages in the case of irreparable losses, judges did not provide any instructions to jury as to the procedure to calculate damages in such cases. The jury read the following<sup>29</sup>:

*“Recovery for wrongful death represents damages to the survivors for the loss of value of decedent’s life.... There is no special formula under the law to assess the plaintiff’s damages.... It is your obligation to assess what is fair, adequate, and just. You must use your wisdom and judgment and your sense of basic justice to translate into dollars and cents the amount which will fully, fairly, and reasonably compensate the next of kin for the death of the decedent. You must be guided by your common sense and your conscience on the evidence of the case....”*

The computation of non-economic considerations encounters several challenges, and notably, Indian courts have shown a reluctance to adopt economic models. Parallel to the discernible patterns within contract law, tort law cases predominantly involve a finite set of actors except class action suits. However, it is the relative scarcity of class action suits in the Indian legal milieu, where such collective legal actions against tortious acts

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<sup>28</sup> Robert D. Cooter, *Hand Rule Damages for Incompensable Losses* (2003), UNI. OF CAL. AT BERKELEY, [https://escholarship.org/content/qt5rf3f1m2/qt5rf3f1m2\\_noSplash\\_4f4477a265afb3816ec102927fda2663.pdf](https://escholarship.org/content/qt5rf3f1m2/qt5rf3f1m2_noSplash_4f4477a265afb3816ec102927fda2663.pdf).

<sup>29</sup> ROBERT D. COOTER & THOMAS ULEN, *LAW AND ECONOMICS* (6th ed.).

are less prevalent. A notable exception is the Supreme Court's handling of the Bhopal Gas tragedy<sup>30</sup>, which, despite being a form of a class action suit, computed damages using the “*deep pocket theory*” without providing a comprehensive rationale or detailing the method of calculation.<sup>31</sup> Unlike many class action suits that involve physical rather than monetary injuries, antitrust analyses, in contrast, are primarily shaped by pricing parameters due to the monetary nature of the harm caused.

Most of the econometric principles and economic methodologies applied in substantive anti-trust analysis are conceptual and written by academicians (mostly economists) who were unaware of limitations caused by litigation.<sup>32</sup> Sophisticated economic principles to assess damages which have been explicated by them require empirical studies within specific context of the case. Damages in competition law cases focus on assessing the harm, relative impact on other market players and consumers, market dynamics etc. Such an analysis involves economic concepts such as market definition, quantification of overcharges, issues relating to passing-on, market power etc.

In contrast, contract law and tort law cases are more concerned with individual transactions and limited relationship between the parties involved. Though, the economic analysis is not wholly irrelevant in contract

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<sup>30</sup> Union Carbide Corporation v. Union of India, AIR 1990 SC 273.

<sup>31</sup> Jayanth K Krishnan, *Bhopal in the Federal Courts: How Indian Victims Failed to Get Justice*, 72 RUTGERS UNI. L. REV. 20 (2020).

<sup>32</sup> HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY, THE LAW OF COMPETITION AND ITS PRACTICE (HORNBOOK) (5th ed. 2015).

law and tort law cases, the complexity in economic models used in competition law assessment is higher due to intricacies of the market. These methods of quantifying damages in competition law cases include higher form of mathematical calculation, regression analysis and advances statistical assessment, thereby developing a whole new discipline termed as ‘computational anti-trust’; which might result into the nightmare for the judges.<sup>33</sup>

### **III. COMPENSATORY DAMAGES VERSUS DETERRENT DAMAGES: A JURISPRUDENTIAL DISCOURSE ON QUANTIFICATION APPROACHES**

Anti-trust policies fundamentally rely on the economic efficiency maximization as its central goal, though not only one.<sup>34</sup> When it comes to the law of damages, economic models suggested by economics’ scholarship bases its assessment on efficiency based parameters.<sup>35</sup> Such models complicate eco-legal analysis, that the damages for a particular anti-trust conduct should be quantified so as to make effect of such conduct as unprofitable when it is inefficient. However, a challenge arises when efficient antitrust conduct still violates antitrust provisions.<sup>36</sup> The underlying factor in these efficiency parameters is consumer welfare.<sup>37</sup>

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<sup>33</sup> *Id.*

<sup>34</sup> Kenneth G. Elzinga, *The Goals of Antitrust: Other Than Competition and Efficiency, What Else Counts?*, 125 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 1191 (1977).

<sup>35</sup> HERBERT HOVENCAMP, FEDERAL ANTITRUST POLICY, THE LAW OF COMPETITION AND ITS PRACTICE (HORNBOOK) (5th ed. 2015).

<sup>36</sup> WILLIAM BREIT & KENNETH G. ELZINGA, ANTITRUST PENALTY REFORM: AN ECONOMIC ANALYSIS (1986).

<sup>37</sup> William F. Baxter, *Posner’s Antitrust Law: An Economic Perspective*, 8 THE BELL JOURNAL OF ECONOMICS 609 (1977).

When consumer welfare is involved, the debate between compensatory damages and deterrent damages intensifies.

Assessment of damages primarily relies on the goal of anti-trust policy as to whether the rationale of antitrust damage is compensatory or deterrence.<sup>38</sup> Most of the anti-trust law scholars across the globe would agree that the primary role of anti-trust law is to deter economically undesirable conduct that distorts the competition in the market.<sup>39</sup> An award of compensatory damages seeks to restore the claimant back into the financial position if such anti-trust conduct would not have happened.<sup>40</sup> Similarly, an enforcement system based on deterrence seeks to identify optimal level of anti-trust violations that must be eliminated, thereby making anti-trust violations unprofitable by imposing additional costs on violators.<sup>41</sup> Hence, a deterrence based system align with the punitive goals of anti-trust policies.

There have been divergent approaches in varied jurisdictions, notably, US and EU. As noted earlier, while more than 90% of the cases are private actions, the cases come from public enforcement in a vast majority of jurisdictions in the US.<sup>42</sup> It is pertinent to note that there is a distinction between standalone actions and follow-on actions in private

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<sup>38</sup> Herbert J. Hovenkamp, *A Primer on Antitrust Damages*, SSRN Journal (2011), <http://www.ssrn.com/abstract=1685919>.

<sup>39</sup> *Id.*

<sup>40</sup> GUNNAR NIELS, HELEN JENKINS & JAMES KAVANAGH, *ECONOMICS FOR COMPETITION LAWYERS* (3rd ed. 2011).

<sup>41</sup> HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY, THE LAW OF COMPETITION AND ITS PRACTICE* (HORNBOOK) (5th ed. 2015).

<sup>42</sup> *Id.*

enforcement. In the former, the actions are initiated by private individuals without the decision of anti-trust authorities whereas in the latter, the action for damages are preceded by a decision of antitrust authority.

In standalone actions, private individuals/enterprises need to establish the anti-trust infringement and anti-trust injury before claiming compensation. However, in follow on actions, once the competition authorities decide the case, only then can the injured parties can claim damages.<sup>43</sup> Jurisprudential analysis suggests that in standalone actions, the degree of deterrence is generally higher as compared to follow on action. The rationale behind such a claim is that in standalone actions, damages are sole the reward whereas; in follow on actions, damages are awarded in addition to the fines.

US antitrust regime allows standalone actions preceded by treble damages. American antitrust scholarship asserts that the primary function of treble damages in private antitrust actions in the US is deterrence rather than compensation for victims. This is why the damages extend to three times the actual harm.<sup>44</sup> Even early congressional debates make the deterrent function evident.<sup>45</sup> Section 4 of the Clayton Act follows the original textual approach of its predecessor i.e., Section 7 of Sherman Act, 1890 which intends to make anti-trust law self-enforcing by imposing additional costs to channelize the vision of operating economic system

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<sup>43</sup> Elizabeth Morony, *Private Antitrust Litigation, Global Practice Guide*, CHAMBERS (2019).

<sup>44</sup> William H. Page, *Antitrust Damages and Economic Efficiency: An Approach to Antitrust Injury*, 47 THE UNIVERSITY OF CHICAGO LAW REVIEW 467 (1980).

<sup>45</sup> *The Antitrust Treble Damages Remedy*, 9 WILLIAM MITCHELL LAW REVIEW 437 (1983).

efficiently.<sup>46</sup> Another justification for treble damages is that since public enforcement can't cover all the cases of antitrust infringement due to infrastructural constraints and other limitations, providing extra incentive in the form of treble damages encourages standalone actions.

Two fundamental objectives of EU Competition Law Policy are implementation of adequate measures to prohibit anti-competitive behaviour and deterrence. Similar to the US, European Commission ("EC") laws also provide both the kind of private actions i.e., standalone actions and follow-on actions. A formal and unified private enforcement mechanism was proposed in 2014 in EC Parliament. This directive provided a more formalistic approach to assessment of damages in private actions. However, there has been paradox as to objectives of this directive. While strengthening the private enforcement system, the directive somehow left the 'deterrence gap' by not providing anything in the lines of treble damages.<sup>47</sup>

Green Paper (2005) on damages action to some extent followed the US approach to treble the damages by proposing doubling the damages in most serious anti-trust offences.<sup>48</sup> On the other hand, White Paper (2008) took a restrictive approach by considering the compensatory justice as a

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<sup>46</sup> Richard A. Arnold, *Implied Right of Action Under the Antitrust Laws*, 21 WILLIAM AND MARY L. REV. 456 (1980).

<sup>47</sup> Wouter P. J. Wils, *The Relationship between Public Antitrust Enforcement and Private Actions for Damages*, 32 WORLD COMPETITION (2009), <https://kluwerlawonline.com/api/Product/CitationPDFURL?file=Journals\WOCO\WOCO2009002.pdf>.

<sup>48</sup> *Damages actions for breach of the EC antitrust rules: Green Paper*, COM 672 (2005), <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52005DC0672>.

prime objective for private enforcement and deterrence as its by-product.<sup>49</sup> Many scholars consider that White Paper represents a realistic approach to Green Paper.<sup>50</sup> While the White Paper continues to emphasize deterrence, the latest version of the Directive addressing private enforcement in the EU is notably silent on this aspect. The Directive appears to prioritize solely the right to full compensation as the primary mechanism for addressing anticompetitive behaviour and therefore goal of competition damages in purely compensatory.<sup>51</sup> EU Directives prohibit overcompensation and thus, individual damages do not contain necessary multiplier or punitive correlation, like treble damages, which inversely reflect punishment or potential deterrence.<sup>52</sup>

In the author's opinion, it appears to be inclined towards compensatory justice. Otherwise, despite proposals from the Green Paper and White Paper, and constant reports, it would have included damages multipliers or punitive measures, similar to the US. To buttress such a claim, it is essential to note that the terms '*Damages*' and '*Compensation*' are often used interchangeably. From the standpoint of a quantifiable monetary value, damages constitute a broader category, with compensation being a specific subset within it. Damages may or may not be compensatory in nature, it may have additional value. However, the primary purpose of

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<sup>49</sup> S.N. Pahari, Private enforcement of EU competition law: an imperative with differing consequences, *10(7) ICC Global Antitrust Rev* (2017).

<sup>50</sup> *Id.*

<sup>51</sup> European Commission, Directorate-General for Competition, *Study on the conditions of claims for damages in case of infringement of EC competition rules: comparative and economics reports* (2004).

<sup>52</sup> Edward D. Cavanagh, *De-trebling Antitrust Damages in Monopolization Cases*, *76 ANTITRUST LAW JOURNAL* 97 (2009).

compensation is restoration and therefore, inculcating the essence of corrective justice. From a comparative standpoint, the US approach of private enforcement is purely deterrence-based, while the EC's approach is somewhat watered down. As Section 4 of the Clayton Act uses the term '*Damages*' whereas EC Directives incorporates the term '*full compensation*'.

Now coming to Indian Competition Law regime, Section 53N of the Competition Act, 2002 too uses the term '*compensation*' and not '*damages*'. Additionally, Indian law allows only for follow-on actions i.e., private actions can be instituted only after the final report of the CCI. Thus, by not providing the standalone remedy, Indian Competition law regime predominantly relies on public enforcement as a mode of deterrence. Therefore, while quantifying the amount for private actions no multiplier or punitive correlation needs to be added. The amount arrived at would be purely restorative in nature since no substantial resources are invested in anti-trust assessment by private parties and no imperative is needed for addition incentives.

#### **IV. ECONOMICS OF QUANTIFICATION OF ANTITRUST DAMAGES/COMPENSATION**

Anti-competitive conduct, be it entering into a cartel or abuse of dominance, lead to loss of welfare, economic loss and harm the purchaser. Anti-competitive conduct undermines fairness and integrity of market and thereby, shakes the market equilibrium by distorting efficient allocative

functioning of perfect markets and creates market inefficiencies.<sup>53</sup> These market inefficiencies redistribute wealth disproportionately with an aim of providing unjust revenue to perpetrators.<sup>54</sup> An action for damages seeks to rectify economic distortion through assessing the economic harm caused by anti-competitive conduct.

There are numerous economic methodologies that may be used to calculate damages. This paper is constrained to follow only those approaches that calculate damages which are compensatory in nature, eliminating punitive correlation and multipliers that have a deterrent effect. The methodologies and approaches mentioned in this paper aim to restore the claimant to the financial position they would have been in if there had been no breach of competition regulations.

The computation of damages falls within the realm of economics, and thus requires a robust economic and econometric analysis. Sophisticated economic analysis is the centrepiece of antitrust enforcement in the US.<sup>55</sup> Consequently, it plays a pivotal role in evaluating damages in the Indian context. Such an analysis secures accuracy. Nonetheless, any discussion pertaining to accuracy rests on one fundamental premise i.e., the use of private damages actions for the enforcement of anti-trust laws is undermined by impractical and unrealistic expectations of precision.<sup>56</sup>

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<sup>53</sup> DAVID ASHTON, *COMPETITION DAMAGES ACTIONS IN THE EU: LAW AND PRACTICE* / DAVID ASHTON, EUROPEAN PARLIAMENT, BRUSSELS; DAVID HENRY, MC DERMOTT WILL & EMERY, BRUSSELS; ECONOMICS CONTRIBUTION FROM FRANK MAIER-RIGAUD AND ULRICH SCHWALBE. (2013).

<sup>54</sup> *Id.*

<sup>55</sup> HERBERT HOVENCAMP, *FEDERAL ANTITRUST POLICY, THE LAW OF COMPETITION AND ITS PRACTICE* (HORNBOOK) (5th ed. 2015).

<sup>56</sup> *Id.*

Computation of damages relies more on speculation rather than mathematical precision. Further, any assessment of damages needs to strike a proper balance between accuracy and an approach that is easy and clear. Therefore, anti-trust enforcement system must be flexible enough to accommodate those economic models and approaches that estimate damages that are reasonably within their reach.

Computation of damages requires delineation of proper counterfactual scenario (but for scenario).<sup>57</sup> A counterfactual scenario or *but-for* scenario represent an imaginary world wherein assessment focuses on the economic outcome, if alleged or proven anti-trust activity would not have occurred.<sup>58</sup> It is the difference of economic outcome between actual world and counterfactual world that provides for measurement of damages.<sup>59</sup>

Illustratively, within a price-fixing cartel arrangement, several enterprises collectively decided to elevate the price of a specific product, such as Android Television. In this agreement, all parties committed to increasing the market price by 1.2 times its existing value. Consequently, the collusive input price results in 20% surge in final output price. The counterfactual scenario serves to distinguish the real-world outcome from an imaginary scenario where such collusion did not occur i.e. non-cartelized

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<sup>57</sup> GUNNAR NIELS, HELEN JENKINS & JAMES KAVANAGH, *ECONOMICS FOR COMPETITION LAWYERS* (3rd ed. 2011).

<sup>58</sup> Van Dijk and Verboven, *Quantification of Damages*, (3) *COMPETITION LAW AND POLICY* 2331 (2008).

<sup>59</sup> *Id.*

market. The resulting 20% increase represents the lost consumer surplus and referred as cartel overcharge, constituting the measure of damages. This 20% is overcharged price which consumers are indirectly forced to pay due to collusion. This, in turn, leads to a reduction in the output quantity of Android Television. The diminished output adversely affects potential consumers who would have purchased the product if no reduction in quantity had occurred.

Assessment measures the monetary effects of both A and B, in order to quantify numeric values of damages. However, in not so advanced anti-trust regimes like India, the quantification of damages is restricted to computation of A which is only the overcharge.

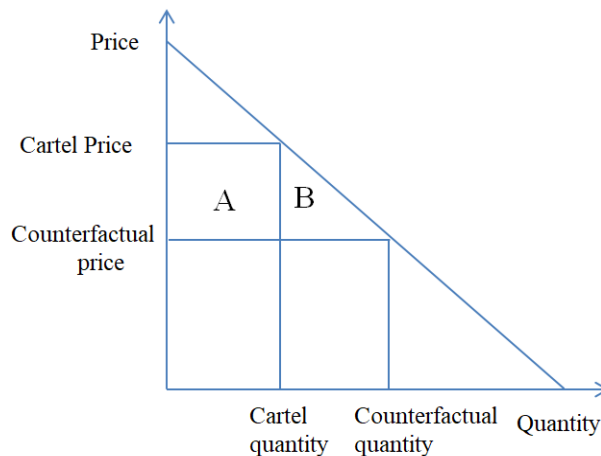


Fig. 1

- Here rectangle A represents effects of higher price on consumer.

- Here, triangle B represents effect of higher price on lost volume of quantity for potential purchasers.

To understand the consequences of an overcharge on ultimate profits, consider the following equation in an actual world where infringement has occurred: A company sets a unit price ( $P_{real}$ ) for its output ( $Q$ ), with the input cost, denoted as the production cost, represented by  $C$ . Here,  $\pi_{real}$  signifies the net profit during the infringement period.

$$\pi_{real} = (P_{real} - C) \cdot Q \dots\dots\dots (1)$$

Conversely, in counterfactual scenario lets' reformulate this equation with  $\pi_{but-for}$  and  $P_{but-for}$  representing, net profits and price per unit wherein cost of production remain same, where no infringement would have occurred.

$$\pi_{but-for} = (P_{but-for} - C) \cdot Q \dots\dots\dots (2)$$

Here the price per unit in actual world ( $P_{real}$ ) is impacted by overcharge ( $\delta$ ) which increases the price per unit therefore,

$$P_{real} = P_{but-for} + \delta \dots\dots\dots (3)$$

The difference between profits ( $\Delta\pi$ ) of actual world and counterfactual world represents the gross overcharge which is the actual injury of the plaintiff which in-turn is awarded as damages/compensation.  $\Delta\pi$  represents actual harm to the market in objective numeric manner.  $\Delta\pi$  directly captures the monetary loss experienced by the plaintiff in the actual world when compared to the counterfactual scenario where no infringement occurred.  $\Delta\pi$  acts as a numerical indicator of the tangible

financial harm suffered by the plaintiff in the actual world compared to a counterfactual scenario. This difference is considered a robust measure for assessing damages and compensating the injured party for the economic impact of the overcharge.

$$\Delta\pi = \pi_{real} - \pi_{but-for} \dots \dots \dots (4)$$

Or

$$\Delta\pi = \delta \cdot Q \dots \dots \dots (5)$$

To accurately quantify the objective value of damages ( $\Delta\pi$ ) in the case of anti-trust infringement, relevant information needs to be analysed to assess the counterfactual scenario. However, most of the time, complete information is not available. Therefore, economic models rely on simplifying assumptions to estimate the projection of a counterfactual world. Thus, both relevant available information and simplified (but reasonable) assumptions are instrumental in this assessment, forming the basis for a rationalised assumption that represents counterfactual world.<sup>60</sup> In this backdrop, let us start with the discussion on economic models and methodologies.

#### **A. METHODS AND METHODOLOGIES**

Ashurst Report (2004) recommended five non-binding guidance models for courts to assess damages. These methods include the before and after method, yardstick approach, price prediction approach, cost-based

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<sup>60</sup> EUROPEAN COMMISSION. DIRECTORATE-GENERAL FOR COMPETITION & OXERA, QUANTIFYING ANTTITRUST DAMAGES: TOWARDS NON-BINDING GUIDANCE FOR COURTS (2009), <https://data.europa.eu/doi/10.2763/36577>.

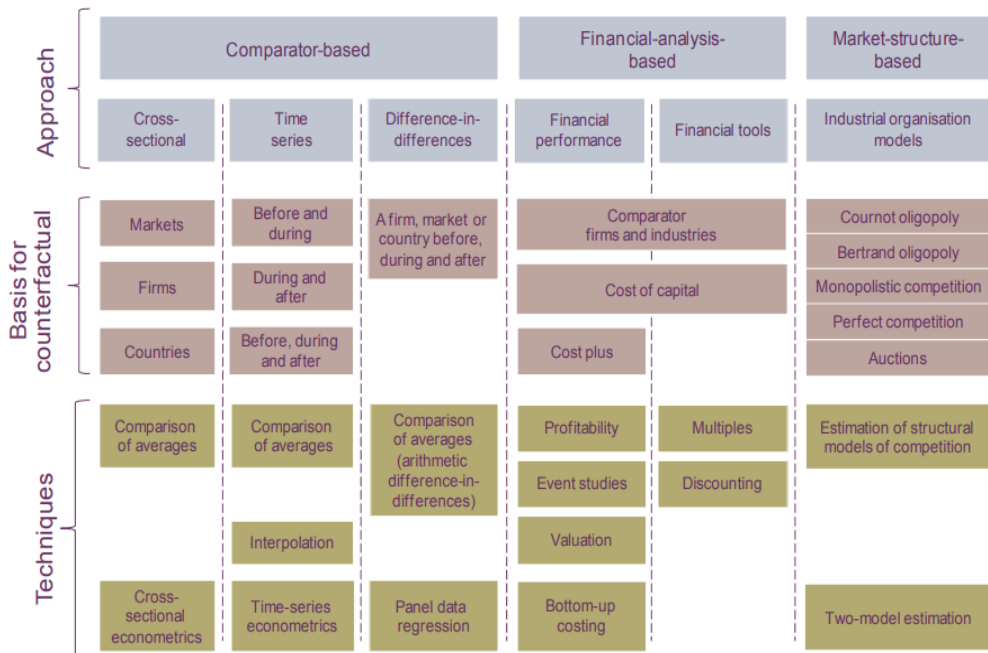
approach, econometric price prediction and theoretical modelling of oligopoly (also known as simulation approach).<sup>61</sup> However, Oxera prepared a report for EC in 2009 wherein it restructured the previous classification into three broad categories i.e. comparator based, financial analysis based and market structure based.<sup>62</sup> This classification broadly encapsulates previous approaches in comprehensive and refined manner. These methods range from simple cost plus framework to complete simulation analysis that involves creating complex economic models and methodologies to assess market conditions in counterfactual world.<sup>63</sup> Let's start with the detailed overview of each method.

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<sup>61</sup> European Commission, Directorate-General for Competition, *Study on the conditions of claims for damages in case of infringement of EC competition rules : comparative and economics reports* (2004).

<sup>62</sup> EUROPEAN COMMISSION, DIRECTORATE-GENERAL FOR COMPETITION & OXERA, *QUANTIFYING ANTITRUST DAMAGES: TOWARDS NON-BINDING GUIDANCE FOR COURTS* (2009), <https://data.europa.eu/doi/10.2763/36577>.

<sup>63</sup> JOHN E. KWOKA & LAWRENCE J. WHITE, *THE ANTITRUST REVOLUTION ECONOMICS, COMPETITION, AND POLICY* (5<sup>th</sup> ed. 2009).



*Fig. 2 Classification of Models and Methods (Oxera Report)*

## **B. COMPARATOR-BASED APPROACH**

The comparator based model assesses overcharge and estimates the counterfactual based on data representing a market unaffected by any antitrust infringement.<sup>64</sup> It compares the actual market by analysing certain parameters such as product or geographic market comparisons (yardstick method), comparisons across time (before-and-after method), and comparisons using both metrics, i.e., time and cross-sectional data (difference-in-difference method).<sup>65</sup>

<sup>64</sup> GUNNAR NIELS, HELEN JENKINS & JAMES KAVANAGH, *ECONOMICS FOR COMPETITION LAWYERS* (3rd ed. 2011).

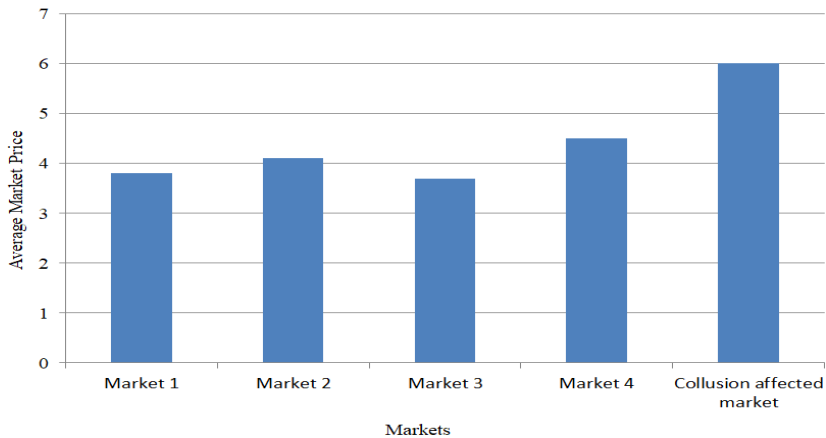
<sup>65</sup> WOLFGANG WURMNEST, *ASSESSING ANTITRUST DAMAGES IN FOLLOW-ON ACTIONS AGAINST CARTELS*, *CAMB. YEARB. EUR. LEGAL STUD.* (2023).

**i. Cross-Sectional Comparison Approach**

This method observes and analyses the data (anything like sales or price) either from different geographic market or different products in same geographic market. Nevertheless, data from either fundamental base of comparison should be devoid of any effects stemming from antitrust infringements. Fundamental base (including competitive characteristics) of comparison, though not identical, should be sufficiently similar to market which is being compared.<sup>66</sup> Attempts must be made to mitigate the market difference by limiting the assessment to a close, yet relatively significant market participants. The cross-sectional method disregards variation across time and is restricted to comparing products or markets within the same time frame. The figure below illustrates a cross-sectional comparison of different geographic market with collusion affected market:

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<sup>66</sup> QUANTIFICATION OF HARM TO COMPETITION BY NATIONAL COURTS AND COMPETITION AGENCIES, OECD POLICY ROUNDTABLE, Report No. DAF/COMP(2011)25, (2011), <https://www.oecd.org/daf/competition/QuantificationofHarmtoCompetition2011.pdf>.



*Fig. 3*

Now, the market price in the non-collusion-affected market needs to be extracted for comparison with the collusion-affected market to estimate the overcharge. Resultant analysis of non-collusion affected market provides counterfactual market price. In order to estimate such counterfactual price several estimation techniques can be employed. A relatively simple comparison may entail deriving average price by basic statistical methods like mean, median or mode or advanced and more complex econometric and statistical techniques like regression analysis or t-test.

## ii. Time Based Comparison Approach

Time based comparator approach is perhaps the most commonly used technique to determine counterfactual price. This approach is generally referred as '*before and after method*'. However, it is pertinent to note that there are three types of comparison which may be undertaken. Those are *first* before and during the affected period, *second*, during the affected

period and after affected period and *third*, before-during and after the affected period.<sup>67</sup> In order to arrive at the most robust finding, attempts should be made to analyse the phenomenon across the time i.e., all three timeframes, as it encompasses the most relevant information.<sup>68</sup> Although the before-and-after method has a longer history in estimating damages compared to the cross-sectional method, it carries a higher degree of elements requiring speculation.

Analysing the variation in price or other dependent variables over time allows for the examination of observable fluctuations in the market, aiding in the speculation of an accurate market trend during the affected period.<sup>69</sup> Assessment using this approach can be either univariate or multivariate. In the univariate model, there is no attempt to establish a behavioural relationship between the variable under consideration (e.g., price) and other variables to determine the relevant variable (counterfactual price).<sup>70</sup> Conversely, the multivariate model considers multiple variables and endeavours to formulate behavioural relationships among them to assess the relevant variable (counterfactual price).<sup>71</sup> Now similar to cross sectional assessment difference between counterfactual price and actual price is called as overcharge.

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<sup>67</sup> GUNNAR NIELS, HELEN JENKINS & JAMES KAVANAGH, *ECONOMICS FOR COMPETITION LAWYERS* (3rd ed. 2011).

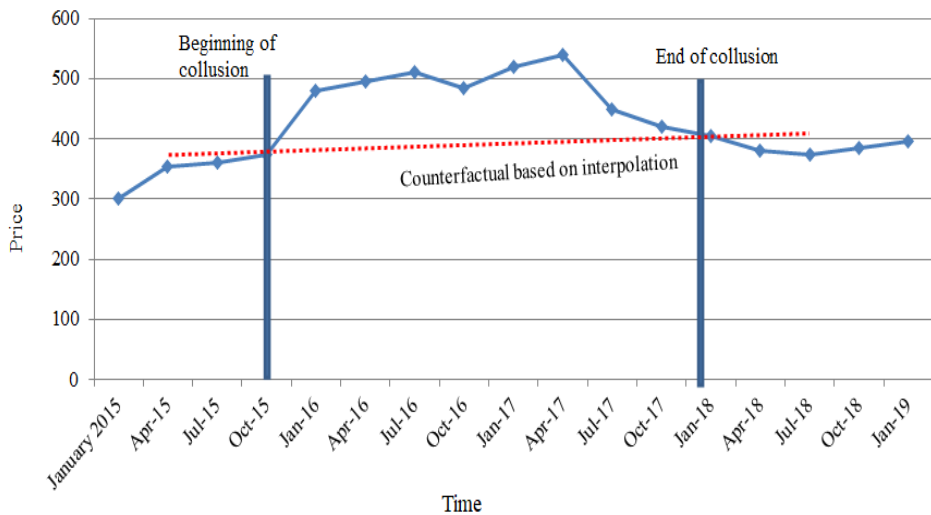
<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> *Id.*

<sup>71</sup> *Id.*

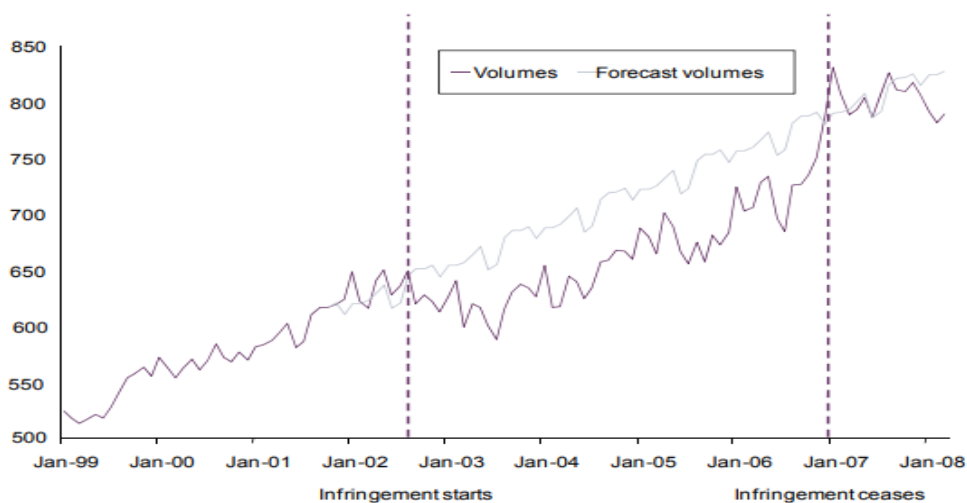
In either assessment, two primary techniques can be employed to determine the counterfactual price: interpolation and autoregressive integrated moving average (“**ARIMA**”). The former technique involves joining the price of, before and after the affected period to assess as to what would have been the price if no anti-competitive or an anti-trust activity would have occurred. In the simplest form, a linear line can be drawn for connecting dots. However, in dynamic markets which are affected by seasonal fluctuations, sophisticated interpolation techniques may be used. Illustration of a cartel using simple interpolation technique is reproduced below wherein red dotted line on after being interpolated represents the counterfactual price.



*Fig. 4 (Simple Interpolation Technique)*

However, the latter technique i.e., **ARIMA** is a pure time series method. Instead of simple interpolation, it utilizes the patterns of past values of the

variable under investigation to forecast its future values.<sup>72</sup> Illustratively, in the case of exclusionary conduct, historical sales volumes of the injured party are modelled using ARIMA. The results of this modelling are then used to speculate on volumes during the period of infringement. The forecast serves as the counterfactual volume, which is subsequently compared with the actual volume to estimate the harm resulting from the infringement of antitrust conduct.<sup>73</sup>



*Fig. 5 (Auto-regressive Integrated Moving Average Technique)*

### iii. Difference-in-Difference Technique

In cases where sufficient data is available, it becomes feasible to merge comparisons over time and across different markets (geographic or

<sup>72</sup> *Id.*

<sup>73</sup> EUROPEAN COMMISSION. DIRECTORATE-GENERAL FOR COMPETITION & OXERA, QUANTIFYING ANTITRUST DAMAGES: TOWARDS NON-BINDING GUIDANCE FOR COURTS (2009), <https://data.europa.eu/doi/10.2763/36577>.

product). This integrated approach is commonly referred to as the ‘difference in differences’ method. This method scrutinizes the evolution of the relevant economic variable (e.g., price) in the infringement market throughout a pertinent period (difference over time).<sup>74</sup> It then compares this evolution with the development of the same variable during the same time period in an unaffected comparator market (difference between markets).<sup>75</sup> The resulting comparison reveals the difference between these two changes over time, providing an estimate of the change in the variable induced by the infringement. This approach excludes all other factors that affected both the infringement and the comparator market in the same manner.

The estimation techniques employed in this method are akin to those commonly used for evaluating clinical trials and the effects of policy choices. In this analogy, one group undergoes a ‘treatment’ (the infringement), while another group that remains untreated serves as the ‘control’ group. The difference-in-differences estimator then compares the outcomes for each group before and after the ‘treatment’ By utilizing the control group, the estimator effectively eliminates the influence of any changes that impact both the treatment and control groups in a similar way.<sup>76</sup> This is crucial for removing biases that could have been introduced in a time-series-based damages estimate. Illustration of this technique is reproduced below.

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<sup>74</sup> WOLFGANG WURMNEST, ASSESSING ANTITRUST DAMAGES IN FOLLOW-ON ACTIONS AGAINST CARTELS, *CAMB. YEARB. EUR. LEGAL STUD.* 1 (2023).

<sup>75</sup> *Id.*

<sup>76</sup> European Commission, *supra* note 73.

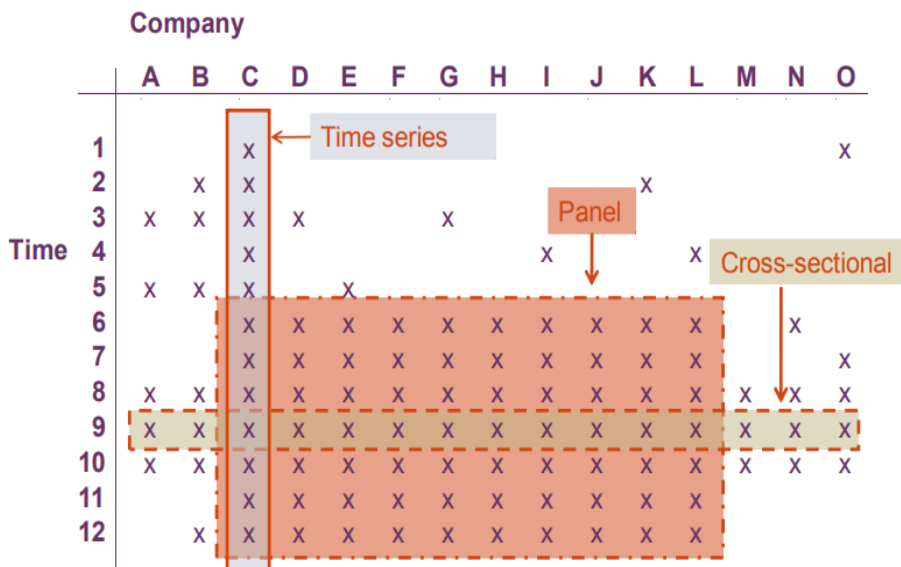


Fig. 6 (Example of panel data used for difference-in-differences analysis)

The presented panel incorporates data observations spanning periods 6 to 12 and includes companies labelled C to L. The assumption is that all these companies could serve as potentially relevant comparators. However, for the sake of simplicity, the figure does not delve into whether these companies operate in the same or different relevant markets.

**C. COST-BASED APPROACH/FINANCIAL ANALYSIS BASED APPROACH**

This approach is founded on corporate finance theory and practical analysis techniques. An alternative method for evaluating the cartel overcharges involves examining cost or broader financial metrics obtained from comparator firms or the industry. The concept underlying the cost-based approach is to calculate the production cost per unit and then add a

reasonable rate of profit that would have been applied under competitive conditions. This profitability analysis involves comparison of actual returns earned by parties involved in anti-competitive conduct with the returns that would have occurred in the absence of such conduct.<sup>77</sup> This forms the basis for modelling the counterfactual scenario.<sup>78</sup> On the other hand, the finance-based approach involves scrutinizing the financial performance of both the claimant and defendant to gauge the impact of anticompetitive conduct.<sup>79</sup> Given that accounting costs may not always align with economic costs, obtaining reliable cost estimates can often be a challenging endeavour.<sup>80</sup>

#### **D. MARKET STRUCTURE AND INDUSTRIAL ORGANIZATION BASED APPROACH**

The discipline of Industrial Organization (“**IO**”) theory has been instrumental in developing models that predict competitive interactions and firm behaviour across a spectrum of market structures. Ranging from the least competitive scenario of monopoly to the most competitive scenario of perfect competition, these models serve as valuable tools for estimating or simulating market outcomes, particularly in terms of prices and volumes.<sup>81</sup> In the context of antitrust damages actions, this market structure-based approach employs IO models to quantify economic harm

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<sup>77</sup> *Id.* at 67.

<sup>78</sup> Communication from the Commission on quantifying harm in actions for damages based on breaches of Article 101 or 102 of the Treaty on the Functioning of the European Union Text with EEA relevance, (2013).

<sup>79</sup> *Id.*

<sup>80</sup> Hans Friederiszick and Lars-Hendrik Röller, *Quantification of harm in damages actions for antitrust infringements: Insights from German cartel cases*, 6 JOURNAL OF COMPETITION LAW AND ECONOMICS 595 (2010).

<sup>81</sup> European Commission *supra* note at 61.

inflicted by anti-competitive conduct, providing insights into both factual and counterfactual scenarios.<sup>82</sup>

In scenarios such as cartel damage actions, determining the counterfactual—what the market would have looked like in the absence of the cartel—requires selecting a model that reflects the nature of competition. The IO literature highlights several key models:

- ***Perfect Competition***: Characterized by numerous firms producing homogeneous products with no barriers to entry, resulting in prices equalling marginal cost and optimal efficiency.<sup>83</sup>
- ***Monopolistic Competition***: Involves a large number of producers selling differentiated goods, allowing some control over prices due to product differentiation. In the long run, average prices equate to average costs.<sup>84</sup>
- ***Bertrand Oligopoly (Homogeneous Goods)***: Firms set prices, assuming unchanged prices from competitors. Equilibrium results in prices at marginal cost, akin to perfect competition.<sup>85</sup>
- ***Bertrand Oligopoly (Differentiated Goods)***: Prices above marginal cost due to product differentiation, varying based on the degree of differentiation and the number of competitors.<sup>86</sup>

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<sup>82</sup> *Id.*

<sup>83</sup> *Id.*

<sup>84</sup> *Id.*

<sup>85</sup> *Id.*

<sup>86</sup> *Id.*

- ***Cournot Oligopoly***: Firms set quantity before pricing, resulting in prices above marginal cost, influenced by the number of competitors.<sup>87</sup>
- ***Monopoly***: A single supplier model where the monopolist sets prices to maximize profits, akin to the behaviour of a perfectly functioning cartel.<sup>88</sup>

These models generate theoretical outcomes depicting the range from least to most competitive scenarios in terms of prices and quantities. The choice of counterfactual model significantly influences the estimation of damages, with more competitive models leading to greater disparities between factual and counterfactual prices and volumes.

In practice, IO models are employed to estimate counterfactual outcomes and quantify damages.<sup>89</sup> The approach involves calibrating the model using market data and making assumptions about the nature of competition. Two principal methods, the ‘one-model’ and ‘two-model’ approaches, offer flexibility in estimating damages. The former employs a single IO model for the counterfactual, calibrated using factual outcomes, while the latter incorporates IO models for both factual and counterfactual scenarios. The choice between these approaches depends on the availability of data and the level of reliance on theoretical assumptions.

This market structure-based approach, rooted in IO theory, provides a robust framework for assessing damages in antitrust cases,

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<sup>87</sup> *Id.*

<sup>88</sup> *Id.*

<sup>89</sup> European Commission, *supra* note at 73.

combining theoretical models with empirical estimation to navigate the complexities of competitive interactions and firm behaviour in the marketplace. However, recent scholars refer to this method as the least effective method of calculating damages.<sup>90</sup>

**V. UNRAVELLING THE COMPLEXITY OF ANTITRUST DAMAGES: A QUANTITATIVE APPROACH TO PASS-ON EFFECTS IN MARKET STRUCTURES**

The complexity inherent in market structures encompasses a myriad of actors, including market players, consumers, and various intermediaries involved in the distribution chain. The journey of products from market entry to reaching end-users involves a multifaceted network of distributors, retailers, agents, and other intermediaries. In cases of antitrust violations, where an enterprise wielding dominant market power engages in unfair trading practices, such as overcharging, the resulting impact on the total cost of finished products or services reverberates through this intricate distribution chain.

Consider a scenario where a dominant market player abuses its position by imposing unfair trading terms, leading to an overcharge on products. This overcharge does not merely affect the end-user; rather, it permeates through the entire distribution chain, affecting intermediaries such as distributors, retailers, and agents. Faced with increased costs, these

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<sup>90</sup> WOLFGANG WURMNEST, ASSESSING ANTITRUST DAMAGES IN FOLLOW-ON ACTIONS AGAINST CARTELS, *CAMB. YEARB. EUR. LEGAL STUD.* (2023).

middlemen may, in turn, pass on the effects of the overcharge to their downstream markets.

In the assessment of damages, a crucial consideration arises. If one were to solely focus on the end-user, the estimation of damages might result in an overestimation. This is because the monetary losses incurred by the end-user do not precisely align with the culpability of the primary infringer. Imposing the entire monetary loss solely on the main infringer may lead to an unjust enrichment for the intermediaries in the distribution chain.

Therefore, a nuanced approach is warranted. Recognizing the pass-on effect, whereby the impact of the antitrust violation is transmitted through the distribution chain, it becomes imperative to adjust the quantified damages. Attribution of the entire monetary loss to the main infringer may not accurately reflect the distribution of responsibility. Consequently, a fair and equitable resolution involves a judicious reduction of the pass-on effect from the overall quantified damages, ensuring that accountability is apportioned appropriately across the various actors within the complex market structure.

As previously mentioned, the intricate economic models created by academics and economists are so complex that they go beyond the technical expertise of courts. This is because judges are not well-acquainted with the encompassing economic theories and empirical techniques. There exist several economic models for assessing the impact of pass-on, with some being extremely intricate. Even lawyers, who have ample time to prepare and present evidence of antitrust injury, find certain models challenging to comprehend, let alone the judges.

In both the US,<sup>91</sup> and the European Union, an on-going policy debate revolves around whether the pass-on defence should be available to defendants, potentially absolving them from liability in certain legal contexts. However, the focus of this paper does not delve into the policy debate surrounding the merits of granting or denying the pass-on defence. Rather than engaging in the policy discourse, this paper takes a distinct approach by presenting an economic model. The objective is to provide a quantitative framework for precisely assessing the cost-based effects of pass-on. It provides the economic model as to quantify the cost based effect of passing on to calculation precisely accurate damage value. In that case the total damage after considering pass on effect becomes:

$$\text{Total damage} = \text{Total overcharge} \times \text{Pass on rate} \dots\dots\dots (1)$$

**A. MEASURING PASS-ON RATE IN PERFECTLY COMPETITIVE MARKET<sup>92</sup>**

In a perfectly competitive market, the pass-on rate ( $\rho$ ) of a unit cost increase can be expressed using the following formula:

$$\rho = 1 / (1 + \eta \cdot \epsilon) \dots\dots\dots (2)$$

Where  $\eta$  is the absolute value of the price elasticity of demand and  $\epsilon$  is the responsiveness of marginal cost to an output increase. This formula shows that in a competitive market, the pass-on rate depends on, *firstly*, the price elasticity of demand ( $\eta$ ) - The more inelastic demand is, the higher the

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<sup>91</sup> Illinois Brick Co v. Illinois, 431 U.S. 720 (1977).

<sup>92</sup> Van Dijk and Verboven, *Quantification of Damages*, (3) Issues in Competition Law and Policy 2331 (2008).

pass-on rate. *Secondly*, the responsiveness of marginal cost to output ( $\epsilon$ ) - The less responsive marginal cost is, the higher the pass-on rate. The extreme cases are:

- Perfectly inelastic demand ( $\eta = 0$ )  $\rightarrow \rho = 1$  (100% pass-on)
- Perfectly elastic marginal cost ( $\epsilon = 0$ )  $\rightarrow \rho = 1$  (100% pass-on)

To estimate  $\rho$ , the demand and cost elasticities  $\eta$  and  $\epsilon$  need to be quantified from data. Qualitative factors affecting these can also inform the likely pass-on rate.

### **B. MEASURING PASS-ON RATE IN IMPERFECTLY COMPETITIVE MARKET**<sup>93</sup>

In an imperfectly competitive market, where firms possess market power and set prices above marginal cost, analysing pass-on rates becomes nuanced. While traditional economic models rely on supply-and-demand elasticities, recent insights from oligopoly theory emphasize the role of demand curvature, specifically represented by the elasticity of the elasticity of demand ( $\eta$ ). This parameter assesses the variation in the absolute value of the price elasticity of demand ( $\epsilon$ ) as prices rise. Additionally,  $\pi$  represents the responsiveness of marginal cost to an increase in output, signifying the percentage increase in marginal cost corresponding to a 1 percent rise in output.

In scenarios where  $\eta=0$ , indicating constant demand elasticity, firms optimize by maintaining percentage mark-ups despite cost

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<sup>93</sup> *Id.*

fluctuations, thereby promoting pass-on. Conversely, when  $\eta > 0$ , reflecting an increase in demand elasticity with rising prices, firms find it optimal to decrease percentage mark-ups. This strategic adjustment discourages pass-on as consumers become more price-sensitive, reallocating their budgets to alternative products.

Consider an oligopoly model with N firms producing a homogeneous product, where each firm independently maximizes profits based on competitors' outputs. The pass-on rate ( $\rho$ ) in this context is expressed as:

$$\rho = \frac{1}{1 + \epsilon\pi + \frac{(\eta-1)}{\epsilon N}} \dots\dots\dots (3)$$

This formula unveils the intricate dynamics at play. If  $\eta = 0$ , the third term in the denominator is negative, yielding a pass-on rate higher than perfect competition. Conversely, when  $\eta > 1$ , the third term is positive, resulting in a pass-on rate lower than in a perfectly competitive market. The formula introduces a term related to  $\eta$  and the number of firms (N), capturing strategic mark-up adjustments absent in perfect competition scenarios.

Pass-on rates in imperfect competition hinge on the curvature of demand and the adjustments firms make to their optimal margins in response to cost changes. As competition diminishes and demand concavity increases, the pass-on rate declines, reflecting the complex interplay between market structure and consumer behaviour.

## VI. CONCLUSION

The market operates on the foundational principle of economic efficiency, wherein the maintenance of financial equilibrium is crucial to strike a balance between risk and reward. Consequently, the paramount goal of economic legislation should be to safeguard the economic interests of market participants. Failure to ensure the protection of these economic interests may engender reluctance among market players to actively engage, thereby, posing a potential destabilizing threat to the economic framework.

Against this backdrop, the competition policy within any legal jurisdiction serves the crucial purpose of ensuring equitable competition within the market. A robust competition law framework is instrumental in providing redress for any instances of antitrust injuries encountered by market participants. Presently, the public enforcement mechanism under Indian Competition law lacks a comprehensive restorative approach. Notably, there has been no adjudication on the grant of compensation under Section-53N of Competition Act, 2002 to any private party. In contrast, advanced antitrust regimes such as those in the United States and the European Union routinely address and grant compensation in analogous scenarios. The current absence of a robust economic model and methodologies for assessing compensation in the Indian context presents a significant challenge.

Given the complex nature of damage/compensation assessment, this paper demonstrates various economic models and methodologies prevalent in jurisdictions like the US and EU. The proposed models in this paper have the potential to revolutionize private enforcement of the

Competition Act, 2002, thereby contributing significantly to the development of jurisprudence in the field of competition law in the Indian context. These emerging standards and scholarship surrounding harm calculation methodologies provide useful anchors for developing Indian guidelines.

Anti-trust enforcement in the US is complicated and predominantly litigation oriented, the statutes are concise and law has been developed through judicial interpretation for more than a century.<sup>94</sup> These methods and methodologies for computation of damages have been applied by the US courts for over a century in thousands of cases. Such a systematic approach is instrumental in Indian context too. However, given significant differences between the developed regulatory environments like the US, EU and developing economies, viable proposals must contextualize these external insights after analysing domestic statutory schemes and economic constraints. For that matter, Indian courts should start adjudicating pending matters by assessing damages in the lines of proposed models and methodologies. Similar to the EU,<sup>95</sup> Indian Competition Law regime should also evolve these regulatory changes through notifications or circulars or regulations.

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<sup>94</sup> Eleanor M Fox, *Global Competition Policy*.

<sup>95</sup> *Id.*