
CONFERENCE SYNOPSIS

Compass Lexecon Economics Conference

15 December 2022

Introduction

This synopsis summarises the presentations at the Compass Lexecon Economics Conference held on 23 September 2022 at the Saïd Business School, Oxford, UK, with the theme “*Recent developments in the economics of mergers, and the scope for novel techniques and analysis.*”

The presentations appear in the order of appearance at the conference (see Annex A for the conference schedule).

All speakers spoke on their own behalf expressing solely their own views that cannot be regarded as representing an official position of their respective institutions. The views expressed are those of the speakers or authors only and do not necessarily represent the views of Compass Lexecon, its management, its subsidiaries, its affiliates, its employees, or clients.

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1. Opening statement

(Presented by Kirsten Edwards-Warren, *Compass Lexecon*)

Kirsten Edwards-Warren opened the conference by discussing the importance of strengthening the bonds between practitioners of competition policy and academics that study it.

Kirsten noted that competition policy has encountered growing scrutiny in recent years. Partly, that reflects how important it is. It also reflects the complexity that competition policy has to navigate, as the rise of digital services, new business models, and the importance of innovation have increased uncertainty around whether and when authorities should intervene. Further, the process of competition policy has become more challenging due to increasing availability of evidence, but limited time and resources.

For competition policy to work well and overcome these challenges, economics has a central role to play. Good decision-making, Kirsten considered, relies on having a deep understanding of both: the trends and economic forces that affect competition; and how those forces apply in practice, given the specific facts and circumstances of each case. That combination requires strong communication between the scholars of competition policy and the practitioners of it.

With that in mind, Kirsten noted that Compass Lexecon has established a conference for academics and practitioners of competition economics to share their insight and experience. It provides a platform to discuss recent research that helps understand with greater precision the stakes of competition policy, its challenges, and new techniques and solutions available to it. The conference covers important and diverse topics such as the disproportionate impact of market concentration on people with low incomes, the effects of mergers on sustainability, the interplay between incentives of acquisition and incentives to innovate, and the role of data in merger evaluations.

2. Free entry in a Cournot market with overlapping ownership¹

(Presented by Xavier Vives, *IESE Business School*)

Xavier Vives in his presentation pointed out that we often link the general decline in entry and exit rates of firms that have been observed across many markets with an increase in the number of regulatory restrictions. However, he argued, there are other factors that may impinge on the observed decline in market entry. In particular, the widespread occurrence of overlapping ownership between firms may also be driving the reduction in entry and exit rates.

¹ Authored by Xavier Vives (*IESE Business School*) and Orestis Vravosinos (*New York University*).

Xavier showed that overlapping ownership between firms has been increasing over time, fostered by the growth of investment funds. For instance, the average weight placed by firms on another firm's profits in the United States has almost doubled over the past 35 years.

Overlapping ownership may be relevant at two different stages of the market: pre-entry and post-entry. It is relevant pre-entry, for instance, when the potential entrants are already established firms and have overlapping ownership before entering the market (such as pharmaceuticals considering whether to incur in R&D costs to enter a new drug market). It is also relevant post-entry, that is when firms develop overlapping ownership only after entering the market, which may for example occur if the firms are newly started firms.

After having outlined his underlying theoretical model, Xavier explained how his model shows that in the case of overlapping ownership pre-entry, there are various channels through which firms' incentives are affected and that can lead to competition being either enhanced or restricted, depending on which channel prevails. A social planner looking to maximise welfare by regulating overlapping ownership would therefore need to carefully assess the industry before selecting the threshold allowed maximum level of overlapping ownership. If levels of entry occurring were to be low in the absence of overlapping ownership, for example because costs required to enter the market are relatively high, then a positive level of overlapping ownership would be optimal because it would promote more entry. However, Xavier showed that in the current state of the world, where pre-entry overlapping ownership is already high, further increases in overlapping ownership magnify the impact of entry costs and barriers on actual entry. In this state of the world, regulators may therefore want to take overlapping ownership very seriously.

(See full paper [here](#), and slides [here](#))

3. Optimal matching in two-sided platforms²

(Presented by Daniele Condorelli, *University of Warwick and Compass Lexecon*)

Daniele Condorelli opened his presentation with a claim from the Wall Street Journal stating that on Orbitz (an online travel site), Apple Mac users spend as much as 30% more a night on hotels than Windows users. Therefore, it may be that Orbitz has started to show Apple users different and sometimes costlier options than Windows visitors see. Daniele explained that similarly other platforms, such as Google, can exploit information about their users (including wealth, age, gender, interests, etc.) to optimise matching between sellers (e.g., advertisers) and users.

When sellers internalise the fact that the platform on which they sell their products/services does not show them a randomised subset of buyers, their interaction with the buyers on the platform will be affected. For example, if a seller offering high-quality products is disproportionately matched with relatively wealthy users on the platform, the seller may have an incentive to set higher prices than it would if they had no information on the user. Daniele pointed out that this reasoning could explain the Orbitz case.

Daniele explained that in such a setting, a matching mechanism aimed at favouring the side lacking bargaining power – the buyers in our case – will often introduce substantial sorting inefficiencies. For instance, wealthy buyers would see offers related to low-quality and cheaper products than the ones they are looking for and willing to pay for. However, the information inferred by sellers from the matching of sellers and buyers will help all buyers and sellers to trade efficiently post-match.

² Authored by Daniele Condorelli (*University of Warwick and Compass Lexecon*) and Balazs Szentes (*London School of Economics*).

The policy implication is clear: regulators need to act with caution when regulating big-tech (gatekeeping) platforms' use of information on users to determine who they will be able to interact with. If a too aggressive regulatory approach is taken without regard to the issues raised in Daniele's paper, there is a risk of generating less desirable matching outcomes than necessary. Regulators interested in raising buyer surplus should instead explore interventions that increase their bargaining power once the matching has already occurred. Platforms, such as Priceline and eBay, set an example for this by allowing buyers to make proposals to sellers after the matching has taken place.

(See full paper [here](#))

4. Data and competition: Data-driven mergers³

(Presented by Greg Taylor, *University of Oxford*)

Greg Taylor presented his work on data-driven mergers, based on a paper co-authored with Alexandre de Cornière. He considered two markets; one monopoly market A where data are a by-product of the goods and services sold to consumers, and another duopoly market where firms B1 and B2 buy these data and supply data-augmented services. A merger between the market A monopolist and firm B1 may raise concerns by distorting both the availability of data on market B as well as the incentives to collect data in market A.

First, suppose data is used on market B in a way that benefits consumers (e.g., to improve the quality of product recommendations). Greg showed that a merger increases utility in both markets A and B in the case where data trade between markets A and B is not possible before the merger. As the profit generated on market B is internalized by firm A post-merger, more data is collected and shared with the B-market subsidiary. However, a merger is harmful in both markets when pre-merger data trade is possible. Indeed, the post-merger incentives to over-collect data are then lowered, which decreases the utility generated on both markets A and B. Greg concluded that trade generates and allocates the data more efficiently than a merger does.

When data are used on market B in ways that harm consumers (e.g., price discrimination) the effect of a merger is ambiguous. As the merger allows for the internalization of the profit generated on market B, the collection of data goes up regardless of whether data trade is possible or not. In this case, the merger leads to increased utility in market A (to attract more consumers and their data) but lower utility in market B.

There have been examples of mergers in recent years, e.g. Microsoft's acquisition of LinkedIn or Google's acquisition of Fitbit, where the discourse around the case has been focused on the role of data, and the analysis presented by Greg has relevance for understanding such cases. The paper underlying the presentation also offers extensions to the model by introducing a competitive framework on market A with the possibility for customers to multi-home.

(See slides [here](#))

5. Acquisitions, innovation and the entrenchment of monopoly⁴

(Presented by Vincenzo Denicolò, *University of Bologna*)

³ Authored by Alexandre de Cornière (*Toulouse School of Economics and Compass Lexecon*) and Greg Taylor (*Oxford Internet Institute, University of Oxford*).

⁴ Authored by Vincenzo Denicolò (*University of Bologna*) and Michele Polo (*Bocconi University and Compass Lexecon*).

Entrenched market power sustained by big firms acquiring smaller rivals is currently a widespread concern in the policy debate. In his presentation, based on a paper co-authored with Michele Polo, Vincenzo Denicolò pointed out that technology giants typically acquire start-ups while the latter are still small. The size of each such transaction is therefore typically small enough to escape antitrust scrutiny, which allows ‘stealthy’ consolidation. However, market power in itself need not be bad, because having the most efficient firm supply the whole market may benefit society. Rather, problems only arise if the monopoly remains unchallenged and would not be replaced by a more efficient entrant. Vincenzo also highlighted that acquisitions may either increase or decrease social welfare. Welfare may be enhanced as the transfer of innovations to large firms may increase the value of those innovations, and start-ups who anticipate being acquired have greater incentives to invest. On the other hand, welfare may be harmed if an acquirer abandons the innovation of the target to avoid cannibalisation of its own pre-existing product.

Vincenzo explained that the theoretical model in the paper shows that today’s acquisitions strengthen an incumbent’s competitive advantage against future entrants. Therefore, current acquisitions demotivate future entry and reduce the bargaining power of any start-ups that are acquired in the future (lowering the takeover price of those start-ups). Future entrants therefore have less incentive to innovate and enter as a result of a current acquisition, regardless of whether the future entrants are eventually acquired or not.

Vincenzo emphasised that if acquisitions are prohibited, then an entrant expects that once it takes over the market, it is not allowed to acquire future entrants. For this reason, prohibitions on acquisitions reduce the value of capturing the market, which in turn decreases investment incentives. Permitting acquisitions may therefore increase innovation in the short run but decrease it in the long run.

His policy recommendation is to ban acquisition by entrenched monopolies (where entrenchment could be measured by a firm’s duration in the market). In his opinion, the small size of an acquired firm should not be an argument for allowing the acquisition, because any acquisition strengthens entrenchment, which reduces innovation. What matters is the size of the acquirer, not the acquired.

(See full paper [here](#) and slides [here](#))

6. Evolving market boundaries and competition policy enforcement in the pharmaceutical industry⁵

(Presented by Georges Siotis, *Universidad Carlos III de Madrid and Compass Lexecon*)

Market definition is a key step in market investigations, particularly in cases where economists are asked to assess the potential anticompetitive nature of conduct. Georges Siotis’ presentation, based on a paper co-authored with Carmine Ornaghi and Micael Castanheira, examined the question of whether market definition should be conditional on the nature of the competitive concern that is being investigated.

Georges addressed this question through an empirical analysis of pharmaceutical markets, in particular by estimating how the entry of “generics” affects the sales of “originators”. An originator is a market incumbent who has originally developed a pharmaceutical product (molecule) and has previously been able to sell the molecule as a monopolist under the protection of intellectual property (a patent). Generics are molecules identical to the molecule sold by the originator, and may enter the market at the end of a patent. After the entry of generics into the market, there will

⁵ Authored by Georges Siotis (*Universidad Carlos III de Madrid and Compass Lexecon*), Carmine Ornaghi (*University of Southampton*) and Micael Castanheira (*Université libre de Bruxelles, ECARES*).

be 'intra-molecule competition' as the originator producer of the molecule will now be in competition with the generics producers of the same molecule. Further, since molecules compete with other molecules addressing the same medical issues, the originator producer of the molecule may also compete with producers of other relevant molecules (which are *potentially* in the same economic market).

For the estimation, Georges used data on revenue and quantities sold for branded and generic prescription drugs in the US over the period 1994 to 2003. The identification strategy relies on the timing of generic entry and the ensuing competitive shock. The latter is driven by Loss of Exclusivity, and not by market size or the initial price level. The competitive shock triggers a significant price drop and a shift in promotional effort by the incumbent.

Georges finds that the entry of generics shrinks the relevant antitrust market down to the molecule level: the entry changes the nature of the competitive constraints such that the prices of molecules in the market affected by generics entry do not pose a competitive constraint to producers of competing molecules. The key policy implication is that the market definition exercise cannot be dissociated from the theory of harm. In particular, if the concern is coordinated behaviour and there is no generics entry at issue, one should define a market to include all molecules that exert a significant pricing constraint on each other. Instead, when the concern is foreclosure of generics, the market should be defined more narrowly, because then the relevant competitive constraint will be intra-molecular.

(See full paper [here](#) and slides [here](#))

7. Optimal exit policy with uncertain demand⁶

(Presented by Michele Bisceglia, *Toulouse School of Economics*)

Michele Bisceglia's presentation, based on a paper co-authored with Jorge Padilla, Joe Perkins and Salvatore Piccolo, investigated the role that the threat of market exit can play in stimulating competition, in particular through its impact on incentives for up-front investment in demand-enhancing innovations. The role of market exit is studied in an environment where demand is uncertain at the time of making investment decisions (e.g., in the market for wireless communications).

Michele examined the relation between exit threat and investment decisions through a theoretical model. The main feature of the model is that the investment is explicitly modelled in terms of the "exit value", i.e. the economic value that can be obtained by the firm when it exits the market. The exit value can be influenced by regulatory changes, but is initially considered as exogenous. Michele explained that the return of the investment to the firm is (positively) driven by two forces: the reduction in the probability of the firm exiting from the market and the increase in the firm's profit margin conditional on the firm staying in the market. Further, the incentives for the firm to invest have an 'inverted U' relation with the exit value of the investment. Therefore, incentives to invest are highest either when there is no exit value or very high exit value, while incentives to invest are low when exit value is intermediate.

On policy applications, Michele first explained that the socially optimal exit policy is more likely to be lenient when demand is more uncertain. This means that the higher the uncertainty of demand, the higher the likelihood that a positive exit value needs to be guaranteed to incentivize the company to make those investments in the first place. Second, Michele discussed the relevance of the model

⁶ Authored by Michele Bisceglia (*Toulouse School of Economics*), Jorge Padilla (*Compass Lexecon*), Joe Perkins (*Compass Lexecon*), and Salvatore Piccolo (*University of Bergamo and Compass Lexecon*).

for the impact of mergers: in such context, exit occurs when a firm is acquired. Here, the exit value is fully endogenous and coincides with the takeover price, and therefore, the merger's profitability will depend on the investment decision. The merger analysis reveals that a more stringent merger policy, which strengthens product market competition, might stifle investment incentives by reducing the exit value. The regulator in those cases should adopt a merger policy decision that is contingent on the observed transaction price, which is informative about the investment effort that has been made by the acquired firm.

(See full paper [here](#) and slides [here](#))

8. Search and price discrimination online⁷

(Presented by Eeva Mauring, *University of Bergen, University of Vienna* and *CEPR*)

Eeva Mauring presented a paper on price discrimination online, with a focus on consumers' search behaviour and online privacy regulation. She highlighted that searching for products online is costly for buyers, and firms often collect information about the search behaviour of a consumer: metrics such as pages visited, time spent, scrolling, clicks and mouseovers. One of the reasons that firms collect such information is because consumers' search behaviour can be informative of their price-sensitivity. Eeva pointed out that for this reason "personalised experience" clauses in privacy policies allow firms to price discriminate based on consumer search behaviour, as well other factors. Such price discrimination has been documented in insurance, hotels, car rental, travel and office equipment.

Eeva showed how her theoretical analysis demonstrates that a high probability of price discrimination (for instance if a firm can observe consumers' browsing history) benefits those consumers who like comparing prices between providers, because these consumers face lower prices when firms are able to identify them and target them with low prices. The consumers with a high cost of searching for prices from different providers are on the other hand harmed when price discrimination is easier, because the firms then target them with high prices. Consumers on average may benefit or lose from firms not being allowed to price-discriminate based on consumer search behaviour. In this context, regulation aimed at bolstering privacy, such as making it harder for firms to track consumers' browsing history, prevents price discrimination. Therefore, privacy regulation reduces the highest prices in the market and increases the lowest prices, with ambiguous overall net effects on consumers' welfare.

(See full paper [here](#) and slides [here](#))

9. Merger review using online experiments⁸

(Presented by Janithe Siriwardana, *University of East Anglia*)

Janithe Siriwardana pointed out that merger assessments do not often make use of available relevant tools, such as merger simulations, due to challenges both in data and time constraints. When faced with such constraints, Janithe showed, based on a paper co-authored with Farasat Bokhari and Stefan Penczynski, that economists could rely on experiments or surveys to estimate demand parameters, which can in turn be used to understand the effects of mergers.

⁷ Authored by Eeva Mauring (*University of Bergen, University of Vienna* and *CEPR*).

⁸ Authored by Farasat A.S. Bokhari (*Centre for Competition Policy, University of East Anglia*), Stefan Penczynski (*Centre for Behavioural and Experimental Social Science, University of East Anglia*), and Janithe Siriwardana (*Centre for Behavioural and Experimental Social Science, University of East Anglia*).

Janithe explained that surveys have their limitations, for example, because incentivisation is difficult or because people may in practice take very different actions to the actions they claim they will take. However, experiments or surveys also have a number of advantages. Using surveys, data can be collected quickly and for targeted demographics. The experiment or survey can also be designed to solve issues that are difficult to resolve with standard econometric approaches, including issues such as endogeneity of prices or lack of price variability.

Janithe discussed an experiment he and his co-authors have performed in relation to the beer market. Participants (US beer drinkers aged 21-30) were shown multiple hypothetical shopping options, each with random combinations of information on price, container material, volume per container and alcohol levels (ABV). Participants were then asked to select their preferred option in each different scenario they were presented with. For example, a participant would have to choose between four products (A, B, C, and D), where A could be a bottled 12-oz product with a price of \$6.49 and an ABV of 3.6%, B could be a canned 16-oz product with a price of \$7.99 and an ABV of 4.6%, and so on. In just three days of experiment and at a very small cost, data on nearly 500 participants was collected. These data were then used to successfully estimate a consumer demand curve, which could then be employed for a merger simulation. Janithe emphasised that this was all completed in a very short period of time, illustrating one important aspect of the potential usefulness of survey techniques.

(See slides [here](#))

10. Do the poor pay disproportionately more for increasing market concentration? A study of retail petroleum markets⁹

(Presented by Peter Ormosi, *University of East Anglia*)

Peter Ormosi's presentation, based on a paper co-authored with Franco Mariuzzo, investigated to what extent market concentration impacts different consumers in different ways. Whereas previous literature has found that the presence of heterogeneity among consumers can lead to price dispersion even for homogeneous goods, Peter's work is the first contribution to show empirically that changes in concentration can lead to different price markups for different categories of consumers.

The data used for the empirical analysis is an entry/exit study in the retail markets for gasoline in Western Australia. The study exploits a long panel (18 years) of price data for gasoline at the station level, with significant variability of prices observed across the different geographical markets considered and contains data on relevant characteristics for modelling retail prices of gasoline (e.g. social characteristics, average commuting distance, occupation levels). To identify the effect of changes in market concentration, Peter used a 'difference-in-differences' approach (embedded in a causal forest): the effect is obtained by comparing the pre- and post-period after entry or exit of a new gas station, as well as comparing neighbourhoods affected by entry/exit with neighbourhoods not affected. Non-affected neighbourhoods are identified by relevant characteristics, which are selected through machine learning techniques. Peter used a variation of non-parametric methods in the literature to derive response heterogeneity using the same characteristics that are selected through the machine learning process.

Peter explained that there was an asymmetry in the effect of exit compared to the effect of entry (the reduction in margins induced by entry is much larger than the increase in margins induced by exit), but also that the increase in gas station margins following an increase in market concentration is larger in areas characterized by more low-income households. The effect appears to be driven,

⁹ Authored by Franco Mariuzzo (*University of East Anglia*) and Peter Ormosi (*University of East Anglia*).

at least to an extent, by whether consumers are sufficiently informed. That is, in low-income areas it appears easier for gas stations to increase prices following an increase in market concentration (e.g., following an exit from the market). Peter's findings highlight the importance of demand-side remedies, and suggest that there is scope for competition policy to help address inequality as part of the aim to safeguard market efficiency.

(See full paper [here](#) and slides [here](#))

11. The competitive effects of mergers with Cournot competition¹⁰

(Presented by Markus Reisinger, *Frankfurt School of Finance & Management*)

Markus Reisinger explained in his presentation that in merger evaluations competition authorities are often confronted with the question of the likely impact of the merger on prices. Practitioners typically rely on pre-merger concentration measures to assess the likely effects of a merger, such as the Herfindahl–Hirschman index (HHI), which could lead to erroneous predictions since competitive effects are to a significant extent determined by post-merger changes in market shares as well as other factors.

Markus explained that his paper, co-authored with Hans Zenger, departs from the use of market concentration measures in merger assessments. Instead, he presented a simple merger evaluation technique in the standard Cournot model with constant marginal costs which shows that the price change brought about by a merger in this setting only depends on the smaller merging firm's market share and the number of firms, but does not depend on market shares of other firms (including the larger merging firm). Therefore, a market-wide price increase caused by a "15% + 10%" merger has the same effect as that of a "30% + 10%" merger in the same market, irrespective of the parameters of the model.

Markus explained that the paper also provides practitioners with a simple technique for evaluating the price effects of mergers based on mostly observable parameters: (i) the number of firms, (ii) the smaller merging firm's market share, (iii) the efficiencies brought about by the merger, (iv) the pre-merger elasticity of demand, and (v) the post-merger elasticity of demand. The first four of these variables can either be directly observed by competition authorities or inferred from observable parameters. The only variable that is not observable *ex ante* is the post-merger elasticity, but Markus explained that this could still be approximated and bounded under relatively mild assumptions on demand.

(See full paper [here](#) and slides [here](#))

12. How mergers enhance sustainability and consumer welfare despite raising prices¹¹

(Presented by Johannes Paha, *Justus-Liebig-University Giessen* and *Stellenbosch University*)

Johannes Paha in his presentation addressed the issue of how mergers affect firms' incentives to invest in sustainable technologies. He explained how the issue is currently relevant in light of recent calls for competition authorities to vigorously enforce innovation theories of harm to prevent the conclusion of mergers that inhibit 'green' innovation, and calls for a need to take into account consumer preferences for sustainable products. In his presentation, he presented a theoretical

¹⁰ Authored by Markus Reisinger (*Frankfurt School of Finance & Management*) and Hans Zenger (*European Commission, Chief Economist Team, DG Competition*).

¹¹ Authored by Johannes Paha (*Justus-Liebig-University Giessen, and Stellenbosch University*).

model which demonstrated circumstances in which allowing a merger to proceed would cause sustainability investments to take place.

Johannes outlined a model of a market with two firms competing in prices, and where each firm decides whether to invest in a sustainable technology, or not. In his framework, a merger between the two firms could cause the sustainability investment to occur, when it otherwise would not have. He further demonstrated that this result is more likely to occur when products are differentiated (to ensure that the merged entity still offers both products after the merger), and when the effect of the potential sustainability investment is intermediate. If the innovation is too drastic, it would have been undertaken in the absence of the merger in any case, and if the effect is too low, the merged entity might not undertake the investment. Consumers may benefit from the merger, even if prices were to rise, due to the sustainability benefits.

Johannes caveated that the importance of mergers for optimal sustainability incentives were relevant only if environmental policies related to sustainability had failed to set the right incentives. Therefore, he hypothesised that it may be more effective for policymakers to focus on environmental policy, than letting sustainability considerations overburden competition policy. In response to a question remarking that it might be easier to prove the sustainability benefits in Johannes' model in a merger proceeding than proving cost efficiencies, Johannes explained that it may not necessarily be easier, as assessing the benefits to consumers from the sustainability improvement can be complex, as it requires an assessment of consumer preferences over sustainability.

13. Competition with differentiated products and individually-negotiated prices¹²

(Presented by Howard Smith, *Oxford University*)

In his presentation, Howard Smith began by explaining that it can be difficult to find economic frameworks that can be used to study contexts in which products are differentiated and in which firms do not set uniform prices for all customers. These types of situations are sometimes proxied by models in which firms set prices first and customers decide on quantities later, or when appropriate they can be modelled by auction models in which there are multiple participants on one side of the market. Neither of these frameworks is appealing to use in situations in which prices are negotiated specifically for each transaction between a single buyer and a single seller, as is the case for the brick market in the UK.

Howard explained how he and his co-authors estimated an economics framework on data for the UK bricks market, that is suitable to this type of market. The novel empirical framework combines a generalization of existing theory models and an empirical approach, and can be used to derive counterfactuals of interest for these kinds of markets (e.g. in the context of merger review). Howard walked through the empirical evidence obtained by estimating the model on the UK bricks market data, which showed that the presence of negotiated pricing in the market reduces – at least in this market – the harmful effect on prices of mergers, compared to situations in which pricing is uniform (i.e. the same price for every customer). This result demonstrates the importance of adapting the framework of analysis to reflect the existence of individualized pricing when conducting merger control, or an incorrect conclusion about likely effects on price can be reached.

Howard was asked about the relationship between the framework he analysed in the paper with auction theory, in particular the standard intuition from the revenue equivalence result from auction theory which when applied to the current setting might imply that uniform and individualized prices

¹² Authored by Walter Beckert (*Birkbeck College, University of London*), Howard Smith (*Oxford University*), and Yuya Takahashi (*University of Washington-Seattle*).

should produce equivalence in outcomes (contrary to the results of the paper). Howard explained that the structure applied in his paper is more general than the theoretical models that give rise to the revenue equivalence result, and argued that this fact highlights the flexibility of the framework that he and his co-authors have developed.

(See full paper [here](#) and slides [here](#))

14. Price setting on a network¹³

(Presented by Toomas Hinnosaar, *University of Nottingham* and *CEPR*)

Modelling of pricing in complex supply chain networks presents challenges, as it requires the integration of a model for each actor in the network and any propagation of effects between actors, into a single framework. In his presentation, Toomas Hinnosaar outlined the framework presented in his paper that relies on relatively few assumptions to analyse these types of complex situations in which multiple vertical and horizontal links between market participants exist. The inputs required for his framework are only a list of all pairs of firms and an indication of which firm that is influential in the decision-making of the other firm in the pair. The list is flexible and can include not only the obvious horizontal influence links that naturally emerge between competitors, but also vertical links in which providers and clients influence the decisions of the firm.

Toomas explained that one relevant application of his framework is to merger investigations, and in particular to merger setting in which there are both horizontal and vertical effects at play. By way of illustration, Toomas contrasted two situations in which a merger of the same two firms, but where in one of the scenarios a common supplier has influence over both firms, and in the other scenario the common supplier has influence over only one of the merging firms. He showed that the answer to the question of whether the merger is socially desirable can be different across the two scenarios.

When asked about the intuition for why changes in vertical ownership create such dramatic changes in predictions of social welfare following mergers, Toomas explained that the key mechanism is the changes to double marginalization that emerge when firms merge, and that this social benefit to mergers is particularly strong when the merger involves a vertical link, as other literature has shown before.

(See full paper [here](#) and slides [here](#))

15. Anticompetitive bundling when buyers compete¹⁴

(Presented by Alexandre de Cornière, *Toulouse School of Economics* and *Compass Lexecon*)

Alexandre de Cornière presented findings from his paper, co-authored with Greg Taylor, on circumstances under which bundling could be profitable and be used as a means of increasing a firm's market power. In a standard "Chicago School" model, bundling is never rational for firms to undertake unless bundling in itself introduces efficiencies (e.g. saves on packaging costs). Take for example a market with two upstream firms, 1 and 2, which provide perfectly complementary technologies, A and B, to a single downstream firm. Firm 1 produces two technologies, A and B1, whereas Firm 2 only produces a single technology, B2, that is superior to B1. Therefore, the downstream monopoly firm's profits would under certain pricing conditions be higher if it purchases technology A from Firm 1 and B from Firm 2. The standard "Chicago School" model finds that

¹³ Authored by Toomas Hinnosaar (*University of Nottingham* and *CEPR*).

¹⁴ Authored by Alexandre de Cornière (*Toulouse School of Economics* and *Compass Lexecon*) and Greg Taylor (*Oxford Internet Institute, University of Oxford*).

upstream Firm 1 will always be at least better off by pricing both technologies independently instead of bundling because they would be able to extract some (or all) of Firm 2's profits by increasing the price of technology A ("price squeeze").

Alexandre explained that their paper relaxes the assumptions of the "Chicago school" model and explores whether bundling becomes profitable when downstream competition is introduced. In their model bundling has two opposite effects on downstream and upstream firms. First, for a given technology mix used by a downstream firm's rival, forcing the use of an inefficient technology reduces the downstream firm's gross profits, and prevents the upstream Firm 1 from extracting as much profit as with independent pricing. On the other hand, as long as bundling applies to all buyers (Firm 1 offers the bundle to all customers), downstream firms will all choose the inferior technology. This increases the downstream firm's expected gross profits, which can be extracted by the upstream Firm 1. Alexandre explained that there are conditions where the second effect dominates and that it becomes more profitable to bundle (and foreclose) upstream when downstream competition intensifies.

Several of the most important antitrust cases of the past 20 years, both in Europe and the United States, concern the practice of bundling. Alexandre's findings have important implications for antitrust and merger proceedings, since competition in a downstream market may lead to unintended consequences of softening competition through partial or full foreclosure in the upstream market.

(See full paper [here](#) and slides [here](#))

16. Technologists' roles in the analysis of mergers

(Presented by Stefan Hunt, CMA)

Stefan Hunt gave in his presentation an overview of the history and roles of the Data, Technology and Analytics (DaTA) Team at the CMA, starting from 2017. He described the roles that the team fulfils at the CMA: data and technology advice, data acquisition and analysis, software development, behavioural science, research, horizon-scanning and case pipeline development. He explained that in particular, the first three of these roles are very relevant for mergers. The team assists the Mergers Intelligence Committee mainly in acquisition of software companies by providing insights and advice on data and technology, by preparing technical questions for requests for information (RFIs), by attending meeting with parties and by rapid research on more unfamiliar or niche technology.

Stefan explained that an example of a case where the team had a significant impact was Google's acquisition of Looker, a data visualisation software firm. The main concern of the CMA in this case was that Google could foreclose competitors of Looker from using Google data post-acquisition. Even before the CMA considered the economic incentives for Google to harm competitors, the DaTA team verified the technical feasibility of each foreclosure mechanism in order to identify the most likely foreclosure mechanisms and help the other teams restrict attention to these mechanisms. Another example of a case where the team had a significant impact was Meta's acquisition of Giphy. The CMA's concern in this case was that Meta could use Giphy's data to disadvantage competitors. Stefan explained that using his team's technical understanding of the potential foreclosure mechanisms, the CMA evaluated the value to Meta of Giphy's data and the implications of the merger for competitors.

The DaTa team helps CMA with document review and information extraction in practical cases which may sometimes require review of millions of documents. This technical expertise offered by the team allows CMA to meet its statutory deadlines and save many hours of work compared to

manual analysis. Stefan's recommendation is to encourage wider use of data science both within the CMA and in other agencies – although he noted that this is already happening to some extent, as agencies outside of the UK are currently also building data science capability.

(See slides [here](#))

17. Panel discussion

The panel discussion concluding the conference was chaired by Joe Perkins, *Compass Lexecon*, and had the topic “*The extent to which authorities are adopting, or should be adopting, novel economic techniques and ideas in merger reviews*”. The panellists included Szabolcs Lorincz, *European Commission*, Mary Starks, *Flint Global*, Patricia Lorenzo, *Compass Lexecon* and Stefan Hunt, *CMA*.

Szabolcs Lorincz opened the panel discussion.¹⁵ He underlined that although some advanced methods (e.g., machine learning, deep learning, reinforcement learning, etc.) were currently frequently adopted by tech companies in their own fields, competition economists, and in the field of merger assessment in particular, had to balance between using complex techniques and complying with the legal and procedural framework of competition enforcement. In this context, Szabolcs considered that some of the immediate challenges included for example big data handling and management. In this respect, economists are adding new technical methods developed by data scientists and software engineers in addition to the more traditional statistical/econometric toolkits. He also mentioned the recent [announcement](#) of the European Commission (“EC”) about its use of Article 22 referrals in examining some merger transactions involving companies with low turnover, but high competitive potential in the internal market. The first such example has been the EC’s [decision](#) in the Illumina/Grail case.

Mary Starks highlighted in her remarks that there is a high degree of variability of how economically literate policymakers are and decision-makers are reliant on their staff to produce compelling analyses. Mary considers that quantitative analyses can come up in a helpful way or confusing and annoying way. They are confusing when different analyses produces results that are conflicting with each other’s. Helpful analyses show up as support of a clear narrative. The more novel the method, the clearer it needs to be. Mary added that novel techniques might have their opening on vertical mergers in very innovative markets, where there can be an unstable counterfactual. A merger can now be assessed at an incredibly early stage for a business’ life, meaning that there is an enormous amount of doubt that is involved, and it is very difficult to advise the Parties on what the rules are.

Patricia Lorenzo used her opening remarks to show results on the types of economic evidence used in merger assessments, from a unique database built by Compass Lexecon of the EC and CMA’s Decisions for the past 30 years. Patricia observed that there are techniques that have been used in the early 2000s but are no longer frequently used, such as demand estimations. On the flip side, there are techniques increasingly used since 2010, e.g. price upward pressure measurement and diversion ratios. According to Patricia, data science contributes to the traditional data analysis under three forms, namely (i) it increases efficiency as it allows grouping, collecting data, processes and automatize the creation of databases, (ii) it allows the creation of databases so that those data analysis techniques can be applied in new sectors or to answer different questions, and (iii) the development of techniques such as natural language processing that can potentially be used to perform competitive analysis. Therefore, Patricia concluded that we should rely on new quantitative

¹⁵ Szabolcs spoke on his behalf expressing solely his own views that cannot be regarded as representing an official position of the European Commission. Similarly, all other panellists spoke on their own behalf expressing solely their own views that cannot be regarded as representing an official position of their respective institutions.

techniques, but they should currently be seen as complementary to our traditional techniques. These techniques might eventually replace the current ones in a number of years.

Stefan Hunt, having already presented the CMA's work on these tools in his preceding talk, pointed out that when dealing with large amounts of data (and in particular when doing large scraping jobs, which can be quite complicated for a variety of reasons), having data engineers can be very useful and has made a big difference at the CMA.

In the open discussion, Stefan and Szabolcs both indicated that there are not yet any best practice guidelines on data handling issued by the CMA or the EC (apart from the EC's [Best practices for the submission of economic evidence guidelines](#)), but this is something that could potentially be considered in the future.

Regarding the issue of the accountability of an automated decision process, Stefan indicated his service at the CMA does not make any tangible decision based on automated decision processes, and human judgment is still involved. On this topic, Mary added that one of the next challenges in this will be to identify who is responsible for an error to which the blame cannot be clearly attributed to anyone.

Finally, on the question on how to make data science relevant to decision-makers, Patricia thought that one way to introduce them is in the pre-notification phase of a merger. As this phase has tended to be longer over time, there is an opportunity to deal with more sophisticated techniques in this stage of the process. Szabolcs added that another way to introduce data science in merger analysis was to use such tools as an intermediate step before any final analysis. Stefan and Joe concluded that it is very difficult to use new techniques in real time as deadlines are tight and it requires human resources with the right capability.

A. Conference Schedule

Thursday 22 September

17:00 Pre-dinner drinks at King's Arms pub

19:00 Conference dinner at Mansfield College

Friday 23 September

08:30 – 09:00 Registration and arrival refreshments

09:00 – 09:15 Introductory speech by Kirsten Edwards-Warren (Compass Lexecon)

09:15 – 10:00 Keynote speech by Xavier Vives (IESE Business School)

Free entry in a Cournot market with overlapping ownership

10:00 – 11:00 **Parallel sessions:**

Paper session chaired by Soledad Pereiras (Compass Lexecon)

- Daniele Condorelli (Compass Lexecon and University of Warwick)
Optimal matching in two-sided platforms

Paper session chaired by Laura Rovegno (Compass Lexecon)

- Greg Taylor (University of Oxford)
Data and Competition: Data-driven mergers
- Vincenzo Denicolo (University of Bologna)
Acquisitions, innovation and the entrenchment of monopoly

11:00 – 11:30 Morning coffee break

11:30 – 12:30 **Parallel sessions:**

Paper session chaired by Soledad Pereiras (Compass Lexecon)

- Georges Siotis (Compass Lexecon and Universidad Carlos III de Madrid)
Evolving market boundaries and competition policy enforcement in the pharmaceutical industry
- Michele Bisceglia (Toulouse School of Economics)
Optimal exit policy with uncertain demand

Paper session chaired by Laura Rovegno (Compass Lexecon)

- Eeva Muring (University of Bergen)
Search and price discrimination online
- Janithe Siriwardana (University of East Anglia)
Merger review using online experiments

12:30 – 13:30 Lunch

13:30 – 15:00 Parallel sessions:

Paper session chaired by Kadu Prasad (Compass Lexecon)

- Peter Ormosi (University of East Anglia)
Do the poor pay disproportionately more for increasing market concentration? A study of retail petroleum markets
- Markus Reisinger (Frankfurt School of Finance & Management)
The competitive effects of mergers with Cournot competition
- Johannes Paha (Justus-Liebig-University, Giessen)
How mergers enhance sustainability and consumer welfare despite raising prices

Paper session chaired by Segye Shin (Compass Lexecon)

- Howard Smith (University of Oxford)
Competition with differentiated products and individually negotiated prices
- Toomas Hinnosaar (University of Nottingham)
Price Setting on a Network
- Alexandre de Cornière (Compass Lexecon and Toulouse School of Economics)
Anticompetitive bundling when buyers compete

15:00 – 15:30 Afternoon coffee break

15:30 – 16:00 Keynote speech by Stefan Hunt (Competition and Markets Authority)

Technologists' roles in the analysis of mergers

16:00 – 17:00 Panel discussion chaired by Joe Perkins (Compass Lexecon)

The extent to which authorities are adopting, or should be adopting, novel economic techniques and ideas in merger reviews

Panellists:

- Stefan Hunt (Competition and Markets Authority)
- Patricia Lorenzo (Compass Lexecon)
- Szabolcs Lorincz (DG Competition, European Commission)
- Mary Starks (Flint Global)

17:00

Post-conference drinks