

Damages for exclusionary practices: a primer

Chiara Fumagalli, Jorge Padilla and Michele Polo¹

March 1st, 2010

The debate on the private enforcement of the antitrust laws and the assessment of damages for antitrust infringements has developed in recent years in Europe following the publication of the Commission's white paper on *Damages actions for breach of the EC antitrust rules*.² More recently Oxera, the economic consulting firm, has prepared a paper titled *Quantifying antitrust damages: towards non-binding guidance for courts*,³ which addresses the same topic, though largely from an economic perspective. The Oxera report clarifies the conceptual framework to be applied in the assessment of competition damages as well as the different elements that add up to compute damages on competitors and customers. It also discusses various problems of causality and measurement, and presents the different techniques that can be used in practice.

This brief essay elaborates on one of the issues considered in the Oxera report: the calculation of damages resulting from unilateral practices leading to anticompetitive foreclosure,⁴ and thus infringing Article 102 TFEU (former Article 82 EC).⁵ Such practices include predatory pricing, rebates, exclusive dealing, tying and bundling, refusal to deal and margin squeeze. Although the general framework for the calculation of damages in exclusionary practices is in many ways similar to the one adopted to calculate damages when dealing with cartels and other infringements of Article 101 TFEU (former Article 81 EC), it is important to start our discussion by highlighting the differences that we meet when damages arise from foreclosure rather than collusion. This preliminary discussion will introduce many of the themes that we develop later on.

A first striking distinction between Article 101 and exclusionary Article 102 damages cases rests on the sets of agents that are potentially eligible for damages. In cartel cases, the outcome of collusion can be summarized in an increase in price, affecting negatively the purchasers of the product. Foreclosure, instead, may affect both customers and competitors, and thus requires evaluating both the effects on customers' surplus and competitors' profits.

¹ Chiara Fumagalli and Michele Polo are Professors of economics at Bocconi University (Milan), Jorge Padilla is an economist at LECG consulting and teaches competition policy at the Barcelona Graduate School of Economics. The authors wish to thank comments and support from Kirsten Edwards and Nadine Watson. The usual caveats apply.

² European Commission, *White Paper on Damages actions for breach of the EC antitrust rules*, Brussels, 2.4.2008, COM(2008) 165 final, available at <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52008DC0165:EN:NOT>.

³ Oxera, *Quantifying antitrust damage. Towards non-binding guidance for courts*, December 2009, available at <http://ec.europa.eu/competition/antitrust/actionsdamages/index.html>.

⁴ Including the cases of forced exit, marginalization or prevented entry.

⁵ European Commission, *Guidance on the Commission's enforcement priorities in applying Article 82 of the EC Treaty to abusive exclusionary conduct by dominant undertakings*, (2009/C 45/02), available at [http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009XC0224\(01\):EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52009XC0224(01):EN:NOT).

Second, in cartel cases we focus on the price effect and the associated output effect of the anticompetitive practice, while in exclusionary abuses we also need to account for the market share (or business stealing) effect of the infringement. An exclusionary abuse necessarily leads to a market share loss for the victim(s) of the infringement (or preys). Assessing the magnitude of this last effect requires comparing the evolution of the market under the exclusionary practice (the foreclosure scenario) with what would have happened absent that practice (i.e. with the counterfactual scenario).

Third, in cartel cases the detrimental effects of the infringement are relatively simple. For the duration of the infringement, we observe a price overcharge and a contraction in output as compared to the counterfactual scenario. Both effects make customers worse off. Exclusionary practices, instead, affect market outcomes in a more complex way, possibly with an initial attrition phase (where competition in the market may be quite aggressive), followed by a recoupment period (where market power is exercised) and, once the abuse is discontinued and competitors are able to achieve a critical mass, the recovery to normal competitive conditions.

Fourth, the consumer welfare impact of the competition infringement is less clear-cut in exclusionary Article 102 TFEU cases than in cartel cases. In cartels, customers suffer from a price overcharge and the associated loss of volume. (The same is true for *exploitative* Article 102 TFEU cases.⁶) In exclusionary cases, instead, customers suffer from a price overcharge in the recoupment phase but may benefit during the attrition phase if this involves a period of aggressive competition in the market (e.g. predatory pricing and loyalty rebates lead to lower net prices during the attrition phase). Hence, the net inter-temporal effect on customers may not be easy to quantify. Also, some exclusionary practices may generate efficiency gains which exert beneficial effects on customers. For instance, exclusive dealing may foster relation-specific investments, and bundling may improve the quality of the product offered to customers. This may make the assessment of the net effect on customers even more involved. Finally, the effects of a given abusive practice need not be homogeneous across customers. Consider, for example, a situation where the incumbent uses selective price cuts or offers exclusive dealing contracts which include compensations for specific (crucial) customers. Those pivotal customers would be better off, while others would likely pay higher prices due to the reduction in the number of suppliers.

Fifth, while in most cases the effect of cartels is temporary—it tends to vanish when the cartel collapses or following successful antitrust intervention—exclusionary infringements tend to produce long lasting effects. The incumbent's anticompetitive actions often yield competitive advantages that persist long after the practice has been terminated. This is especially likely in markets characterised by switching costs and network effects.⁷

Finally, while the economic theory of cartels provides a robust framework for the assessment of their effects, our understanding of exclusionary unilateral practices is far less robust. Economic theory has produced a series of *impossibility results* (e.g. the single monopoly

⁶ See, R. O'Donoghue and J. Padilla, *The Law and Economics of Article 82 EC*, Hart Publishing, 2006, chapter 12.

⁷⁷ See, e.g., J. Farrell and P. Klemperer, "Co-ordination and Lock-in: Competition with Switching Costs and Network Effects" in M. Armstrong and R. (ed.), *Handbook of Industrial Organization*, volume 3, Elsevier, 2007.

theorem of the Chicago school⁸) and *possibility results* (from so-called Post-Chicago models⁹) but few, if any, *identification results* which could assist the analyst in uncovering all the potential effects (positive and negative) of an exclusionary practice as well as their relative importance in practice.¹⁰ Consequently, the assessment of damages in exclusionary Article 102 TFEU cases will require the development of methodologies that are tailored to the specificities of the different practices and the peculiarities of the strategies adopted, and that require analysts to distinguish prevented entry scenarios from forced exit or marginalization scenarios.

All these elements together make the identification and quantification of damages in exclusionary Article 102 cases a specially challenging task. However, we argue in this paper that reasonable rules and techniques can be found. In the next sections we first provide a conceptual framework which would help analysts to identify the different components of damages in this type of cases (Section 1), and then discuss its implementation (Section 2); next, we address the issue of causality (Section 3), and illustrate an application to the case of predatory pricing (Section 4). Section 5 concludes.

1. The conceptual framework

The conceptual framework for the quantification of damages from an exclusionary infringement of Article 102 TFEU involves the following elements: (a) the time line that describes the different phases of the exclusionary abuse, (b) a description of its potential effects on the eligible agents, (c) the counterfactual scenario and, finally, (d) the derivation of the damages.

1.1 The time line

Any exclusionary practice follows a complex time pattern with different effects in each of its constituent periods. In order to analyze its effects, the practice should thus be properly described by specifying the relevant *time window* – from the start of the exclusionary practice until the period in which the ex ante (i.e. prior to the abuse) competitive conditions are restored – and the sequence of events in between (see Figure 1 below). The exclusionary practice starts at $t = 0$ and ends at $t = T$ and typically there are three phases in between:

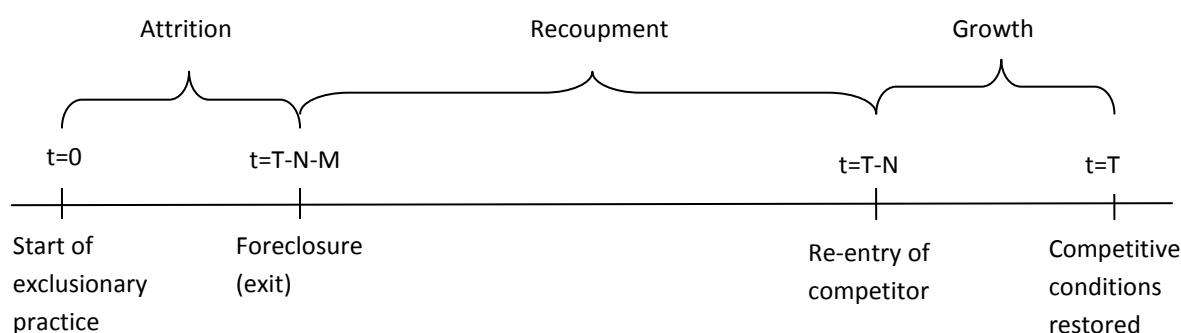
⁸ See R. H. Bork, *The Antitrust Paradox: A Policy at War with Itself*, New York Basic Books, 1978, and R. Posner, “The Chicago School of Antitrust Analysis”, *University of Pennsylvania Law Review*, 127, 925-26, 1979; for predatory pricing see J. McGee, “Predatory Price Cutting: The Standard Oil (N.J.) Case”, *Journal of Law and Economics*, 1, 1958.

⁹ Concerning tying see M.D. Whinston, “Tying, Foreclosure and Exclusion”, *American Economic Review*, 80, 1990; J.P. Choi and C. Stefanadis, “Tying, Investment, and the Dynamic Leverage Theory”, *RAND Journal of Economics*, 32, 2001; D. W. Carlton and M. Waldman, “The Strategic Use of Tying to Preserve and Create Market Power in Evolving Industries”, *RAND Journal of Economics*, 33, 2002. For a summary of the economic theory on predatory pricing see P. Bolton, J.F. Broadley and M.H. Riordan, “Predatory Pricing: Strategic Theory and Legal Policy”, *Georgetown Law Journal*, 88(8), 2000, Chapter 5. On vertical foreclosure see P. Rey and J. Tirole, “A Primer on Foreclosure”, in M. Armstrong and R. Porter (eds), *Handbook of Industrial Organization*, vol. III, North Holland, 2005. On exclusive dealing see M. D. Whinston, *Lectures on Antitrust Economics*, MIT Press, 2006, Chapter 4.

¹⁰ For a discussion, see D. Evans and J. Padilla, “Designing Antitrust Rules for Assessing Unilateral Practices: A Neo-Chicago Approach”, *University of Chicago Law Review*, 72(1), 2005.

- First, we can identify an *attrition phase*, in which the foreclosed competitor loses market share. In Figure 1, this phase ends at $t = T - N - M$ with complete foreclosure; that is, with the exit of the competitor or the giving up of entry projects. The length of this phase will depend on the nature of the abuse. For example, for some abuses that are aimed at preventing entry (e.g. exclusive dealing), there may be no attrition phase as total foreclosure is immediate.
- Second, there is a *recoupment phase*, in which the incumbent (infringer) reaps the full benefits of the abuse. In Figure 1, this phase starts with the total foreclosure of the competitor at $t = T - N - M$. At some point during the recoupment phase, depending on the specific practice, the incumbent may cease the exclusionary practice and, at a later date ($t = T - N$), re-entry into the market may take place, concluding the recoupment phase.
- The third phase is the *growth phase*, during which the competitor wins back market shares and eventually competitive conditions are restored.

Figure 1: Timeline of effects from exclusionary abuses



The quantification of the damages requires identifying these three stages in practice. Note, however, that they do not match directly what is typically denoted as the *infringement period* and the *competitive period*, since the effects of the abuse may be suffered even after the abusive practice is terminated, i.e. long after the end of the infringement period. This poses delicate issues of causality because the antitrust case which lies at the origin of the damages claim (at most) proved that an infringement occurred producing certain exclusionary effects up to $T-N-M$, while the detrimental effects of the infringement can continue until $T-N$, leaving a time window of length M that is not covered by the original case. (See Section 3 below for further discussion on causality.)

The length of each of these three phases will be determined *inter alia* by the timing of the intervention of the antitrust authorities. An early intervention may interrupt the unilateral practice, limiting its foreclosure effect and shortening the attrition phase. Moreover, by implying a close monitoring of the incumbent practices in the future (and higher fines for recidivism), it may make (re-)entry easier, thus shortening the recoupment phase as well. Finally, if the antitrust authority intervenes proactively, for instance by imposing

commitments on the incumbent's conducts, we may have effects on prices which would benefit consumers and facilitate the expansion of competitors in the growth phase.

1.2 Effects

It is important to recognise that the effects of an exclusionary practice affect three different classes of economic agents: the incumbent, its competitors and the incumbent's customers. Regarding the effects on the incumbent, depending on the specificities of the case at hand, we may have an increase in sunk investment and a reduction in current profits (sacrifice) during the attrition phase and a (likely) surge in profits during the recoupment phase. These effects are useful to keep in mind but do not belong to the assessment of damages.

The effects on *competitors* are, however, at the very centre of many antitrust damages cases. We may distinguish two cases, since many elements that enter into the identification and computation of damages differ between them:

- *Forced exit (or marginalization)*: the competitor is forced to exit or, alternatively, reduce its activity and accept a niche role. The competitor may undertake costly defensive actions, possibly involving some sunk investments, during the attrition phase, which are likely to have a negative impact on its current profits. Hence, the competitor is likely to see its profits fall during the attrition phase, when it may even incur in actual losses. Its profits will be low, zero or even negative during the recoupment phase depending on whether it is forced to exit or turn into a fringe player.
- *Prevented entry (or prevented expansion)*: the competitor renounces to enter or expand its activity in response to the anticompetitive actions of the incumbent. Its profits are kept below the level they would attain under the counterfactual scenario during the attrition and recoupment phases.

Other damages cases would involve claims from *customers*. The effects of an exclusionary abuse on the incumbent's customers that can be further distinguished into:

- *Short-run price effects*: they may go either way, but presumably they take the form of price cuts or other measures that increase customers' surplus (e.g. an exclusive dealing contract may include a compensation for signers). However, as long as the practice involves some sort of discrimination (e.g. selective price cuts or exclusive dealing offering compensations to specific (key) customers¹¹), we may have positive and negative effects on different groups of customers during the attrition phase.

¹¹ See Rasmusen E.B., Ramseyer J. M. and Wiley J. J. S. , "Naked Exclusion", *American Economic Review*, 81(5), 1991, 1137-45; Innes R and Sexton R., "Strategic Buyers and Exclusionary Contracts", *American Economic Review*, 84(3), 1994, 566-584; Segal I. and Whinston M.D. , "Naked Exclusion: Comment", *American Economic Review*, 90(1), 296-309, 2000; Fumagalli C. and Motta M., "Exclusive Dealing and Entry when Buyers Compete", *American Economic Review*, 96(3), 2006, 785-795; Fumagalli C., Motta M. and Persson L., "On the anticompetitive effect of exclusive dealing when entry by merger is possible", *The Journal of Industrial Economics*, XLVII(4), 2009, 785-811.

- *Long-run price effects*: these correspond to the recoupment phase, where the incumbent raises prices to recoup the sacrifice incurred in the short-term. These price increases have the same impact than the overcharges in Article 101 TFEU cases or in exploitative Article 102 TFEU cases.
- *Reduction of varieties*: in case of differentiated products, due to the exit or marginalization of a competitor some varieties may not be offered anymore.
- *Efficiency gains*: some abusive practices may generate efficiency gains which benefit customers. For instance, exclusive dealing may promote relation-specific investments such as loyal sales efforts by wholesalers and retailers or manufacturers' efforts to tailor their products to buyers' specificities.¹² Similarly, tying and bundling may improve the quality of the offered product.¹³ Of course, such efficiency gains are dominated by the detrimental effects of the conduct (in particular on competitors), if the latter has been considered abusive in the decision at the origin of the damage claims. Still, efficiency gains may be an important component to account for, when assessing effects on customers. This discussion highlights that the quantification of the *net* effect of the abusive conduct on customers may be a complex task.
- *Pass-on effects*: as long as the exclusionary practice is realized in an upstream stage of the productive process, a relevant issue is whether, and to what extent, the direct customers of the infringer are able to pass the (input) price increase which is caused by the abusive practice onto their selling prices. *Pass-on* involves delicate legal issues, such as whether a *pass-on* defence should be allowed and who bears the burden of proof in relation to pass-on.¹⁴ The quantification of pass-on is also a complex task as its magnitude depends on several market specificities, such as the degree of competition in the market,¹⁵ or whether the input price change is industry-wide or firm-specific (as in the case where the upstream incumbent price discriminates).¹⁶ In this paper we will abstract from pass-on issues and we will refer to the simplest case, in which the alleged anticompetitive conduct is promoted at the final stage of the production chain where the product or service is delivered to final users.

Finally, exclusionary practices may also affect other parties besides customers and competitors. For instance, suppliers upstream of the practice may suffer lost sales (and thus lost profits) to firms excluded from the market. Or suppliers of complementary products may

¹² See Segal I. and Whinston M.D. "Exclusive Contracts and Protection of Investments", *RAND Journal of Economics*, 31(4), 2000, 603-633; DeMeza D. and Selvaggi M., "Exclusive Contracts Foster Relationship-Specific Investments", *RAND Journal of Economics*, 38(1), 2007, 85-97.

¹³ See Evans DS, Padilla J and Polo M, "Tying in Platform Software: Reasons for a Rule of Reason Standard in European Competition Law", *World Competition*, 509, 2002.

¹⁴ This debate is extensively discussed in the EC's White Paper. In the USA, this issue has been debated also in the Report by the 'Antitrust Modernization Commission', April 2007.

¹⁵ See Duffy-Deno K.T., "Retail Price Asymmetries in Local Gasoline Markets", *Energy Economics*, 18, 1996; Kim D. and Cotterill R. W., "Cost Pass-through in Differentiated Product Markets: The Case of US Processed Cheese", *The Journal Of Industrial Economics*, 56, 2008.

¹⁶ For a general theoretical framework to assess pass-on effects see T. van Dijk and F. Verboven, "Cartel Damages Claims and the Passing-on Defense", *Journal of Industrial Economics*, vol. 57, 2009. An overview on the empirical literature on estimating pass-on rates can be found in Stennek J. and Verboven F., "Merger Control and Enterprise Competitiveness: Empirical Analysis and Policy Recommendations," *European Economy*, 5, 2001.

experience a fall in sales volumes if the price of a given product increases as a result of the abusive conduct. However, it may be difficult in practice for parties who are not customers or competitors of the infringers to bring successful damages claims, mostly because of causation problems. For this reason, in our discussion we will focus on customers and competitors.

1.3 The counterfactual

The hypothetical situation absent any anticompetitive practice, which defines the relevant counterfactual in an exclusionary damages case, is captured by an oligopoly equilibrium in which the competitor obtains positive profits and sets up the investments to properly serve the market. Depending on the specific anticompetitive story of the case at hand, the competitor could be an established firm that had reached its steady-state market shares, or a new competitor that was scaling up its market position, a process that would have continued absent the exclusionary practice until reaching a stable market position, or even a potential entrant that in the counterfactual has to follow the entire adjustment process towards the long run equilibrium.

1.4 Damages

We can now finalize our conceptual framework by formulating the damages caused by the antitrust infringement.

We first formulate the profits of the competitor under the foreclosure scenario (F). They add up to those obtained during the attrition phase (A), the recoupment phase (R) and the growth phase (G), and are given by the following expression:

$$\Pi^F = \sum_{t=0}^{T-N-M} \delta^t (\Pi_t^A - S_t^A) + \sum_{t=T-N-M+1}^{T-N} \delta^t (-S_t^R) + \sum_{t=T-N+1}^T \delta^t (\Pi_t^G - S_t^G),$$

where Π_t^i , $i = A, R, G$ are the per-period (t) profits of the competitor gross of any sunk cost incurred during the attrition, recoupment and growth phases, that is the per period revenues minus the (variable and fixed) non sunk costs and S_t^i are the per period sunk costs in phases $i = A, R, G$.

Then we formulate the customers' surplus under the foreclosure scenario as:

$$CS^F = \sum_{t=0}^{T-N-M} \delta^t CS_t^A + \sum_{t=T-N-M+1}^{T-N} \delta^t CS_t^R + \sum_{t=T-N+1}^T \delta^t CS_t^G.$$

Likewise, we can express the profits of the competitor in the counterfactual scenario (C) as:

$$\Pi^C = \sum_{t=0}^T \delta^t (\Pi_t^C - S_t^C),$$

where Π_t^C is defined as above and S_t^C are the sunk costs (per period) that the competitor would sustain under the counterfactual scenario, and the customers' surplus in the counterfactual scenario as:

$$CS^C = \sum_{t=0}^T \delta^t CS_t^C$$

We can then compute the damages for the competitor as $DCOMP = \Pi^C - \Pi^F$, where $DCOMP$ is defined in such a way that the competitor receives once the damages are paid in the time window the same discounted net profits that it would gain in the counterfactual scenario. Likewise, we can compute the damages for a customer of the incumbent as $DCUST = CS^C - CS^F$.

The damages $DCOMP$ ($DCUST$) include the loss of profits (surplus) prior to the damage claim as well as the loss of future profits (surplus). It includes actual losses (*damnum emergens*) and opportunity costs (*lucrum cessans*).¹⁷

The general formula $DCOMP$ leads to different expressions for the prevented entry and forced exit cases. In the former, $S_t^i = 0$ and $\Pi_t^i = 0$ for $i = A, R$. In other words, during the attrition and recoupment phases, the competitor obtains no profits and does not incur in any sunk costs. Hence, in this case, the damages suffered by the competitor equal its net profits in the counterfactual situation minus the net profits he could obtain during the growth phase (i.e. the profits obtained once the infringement is discontinued and the potential competitor finally enters the market):

$$DCOMP = \sum_{t=0}^T \delta^t (\Pi_t^C - S_t^C) - \sum_{t=T-N+1}^T \delta^t (\Pi_t^G - S_t^G).$$

When, instead, the incumbent induces the competitor to exit the market, the competitor obtains (positive or negative) gross profits during the attrition phase and zero gross profits during the recoupment phase. Moreover, the use of defensive strategies during the attrition phase may imply additional sunk costs as compared to the counterfactual scenario. Those extra costs may not be fully depreciated until the recoupment phase. Hence $S_t^i \geq S_t^C$ for $i = A, R$. In this case damages, $DCOMP$ would be equal to the reduction in gross profits relative to the counterfactual and the additional sunk costs (if any) committed during the attrition period. If in the attrition phase the competitor obtains negative gross profits, i.e. $\Pi_t^A < 0$, the damages correspond to the gross profits in the counterfactual plus these losses and, in addition, the difference in sunk costs.

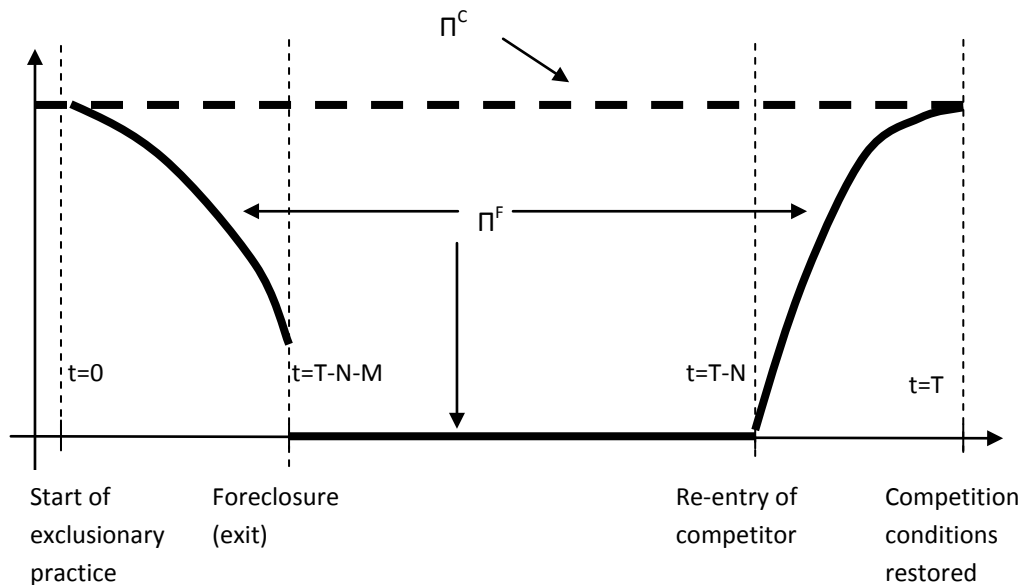
Notice that if the sunk costs incurred by the competitor are the same in the counterfactual and the foreclosure scenarios, such costs should not be reimbursed. This is because the decision to exit the market would not be driven, and hence could not be attributed, to difference in sunk costs in either scenario. Differently stated, once the compensation received restores the competitor's gross profits to their counterfactual level, the competitor is not entitled to anything else. Hence, the only component of sunk costs that enters in the damages

¹⁷ Note that neither $DCOMP$ nor $DCUST$ are calculated by reference to the excess profits made by the infringer.

calculation are the additional sunk costs (if any) deriving from the use of defensive strategies during the attrition phase.

Figure 2 describes the evolution of the competitor's gross profits in the different phases of the damages case's time line. The dotted line corresponds to the counterfactual scenario and the solid line to the foreclosure scenario. For simplicity, we assume that in the counterfactual profits are constant over time.

Figure 2: Competitor's profits in case of forced exit.



Finally, the damages $DCOMP$ and $DCUST$ are expressed as present value at the beginning of the exclusionary practice at $t = 0$. The exact computation of the damages, given the expressions $DCOMP$ and $DCUST$, depends on the time when the damages decision is taken, and requires capitalize/discount the expressions according to the standard techniques. As a matter of economics the discount rate δ should be given by the plaintiff's cost of capital. Most often, however, courts apply a simple (or in occasions compound), pre-determined interest rate.

2. Some implementation issues

Hitherto, we have proposed a conceptual framework for the assessment of damages in exclusionary Article 102 TFEU cases. In this section we discuss the many problems of implementation that are met once we try to translate that framework into a precise quantification of damages.

2.1 Estimating counterfactual profits and surplus

We proceed to discuss the difficulties we are likely to encounter when estimating counterfactual profits and surplus.

In order to quantify the *gross profits of the competitor* under the counterfactual scenario, we could use two alternative approaches.¹⁸ First, we could rely on *yardsticks* to approximate how the market affected by the infringement would have evolved absent the anticompetitive practice. We can refer to, for example, the same industry in other countries or geographical areas,¹⁹ or consider different markets with similar features in terms of demand, costs and market shares. For instance, in bidding markets, we may use auctions where no exclusionary practice was claimed.

Alternatively, we could use the same market that was affected by the infringement but at points in time where no abusive behaviour was alleged as our *benchmark*. For example, we could use market data before the unilateral practices were initiated. The “market before” benchmark can offer useful insights related to the time pattern of market shares and profits: if for instance the competitor had experienced a continuous contraction in its market share and profits, we can use that information to assess whether the exclusionary practice accelerated a process of market marginalization or, instead, had no impact on the way the market was trending. An in depth analysis of the “market before” benchmark, therefore, not only provides useful information in order to quantify the relevant items in the assessment of damages, but also it helps us to identify other processes that overlapped with the exclusionary practices affecting the decisions of the competitor.

We can also combine the use of yardsticks and benchmarks to develop *difference in difference* models, which would compare how market outcomes change from the market before scenario to the foreclosure scenario in the market affected by the infringement with the changes observed in other yardstick markets. Leaving aside data availability issues, these models can more accurately identify the impact of the anticompetitive behaviour under analysis. They are useful both in terms of calculating damages but also in assessing causality (see Section 3 below).

Unfortunately, finding reliable comparables, whether yardsticks or benchmarks, may in some cases be hard and, what is more troublesome, these benchmarks and yardsticks will most often provide only limited information on the distribution of markets shares, prices and profits under the counterfactual scenario. We thus may be unable to draw an estimate of damages using comparables. When that is the case, we may want to use *simulation models* calibrated on the industry. In other words, in the absence of a suitable benchmark, we may employ simulation techniques to “create” one. If we proceed this way, we advise in favour of using simple and manageable models, as for instance the sort of differentiated products price competition models or quantity competition models with homogeneous products which are often used in merger simulations. This way of proceeding is admittedly quite demanding, as calibrating this kind of simulation models requires some estimate of the elasticities of demand as well as detailed data on marginal costs and market shares.

Sometimes we may use both approaches in combination. On the one hand, data from the market before scenario can be used to calibrate the relevant parameters of the simulation model. In fact, the simulation model should be designed so as to closely mimic market outcomes before the infringement—i.e. the market before scenario. Only if the simulation

¹⁸ For a detailed classification and description of the techniques that can be used to estimate the counterfactual see the Oxera Report (December 2009).

¹⁹ See Martinez-Granado M. and G. Siotis, “Computing abuse related damages in the case of new entry: an illustration for the directory enquiry services market”, CEPR Discussion Paper No. 5814, September 2006.

model is able to accurately approximate observed market outcomes can we trust it to simulate a counterfactual scenario.

On the other hand, the use of a simulation model can help to refine the analysis based on a simple comparison of observed and counterfactual scenarios. For example, if the counterfactual scenario differs from the foreclosure scenario not only in terms of prices and market shares but also in terms of the number of players and/or the number and nature of the varieties offered by those competitors, then the calculation of damages most likely requires using a simulation approach, since it may be practically impossible to find an appropriate comparable situation.

Estimating the *surplus of the incumbent's customers* under the counterfactual scenario is not much easier. As in the derivation of competitors' counterfactual profits, analysts can employ comparators or use simulation methods. The information needed for these methods relates to quantities, prices, varieties and some estimate of the elasticity of demand. As a first approximation, we may ignore any output effect and quality or product variety effects and concentrate on the price effect of the infringement. This approximation implicitly assumes perfectly inelastic demand, which is obviously unrealistic. Any damage calculation based on this assumption would yield conservative estimates from the viewpoint of customers, i.e. it will provide a lower bound to the damages they actually suffered.

Two further issues merit consideration. First, the theoretical models that are commonly used to identify the anticompetitive effects of exclusionary practices, usually assume a very intense, Bertrand-type, form of competition. Provided that we rely on simulation techniques, should we use a similar assumption when simulating the counterfactual scenario? Our answer is negative. We believe that the counterfactual scenario should be modelled using oligopoly models associated with less intense forms of competition, such as quantity competition or price competition with product differentiation. Implicitly we assume that competing firms can choose one among several ways of competing, the most intense when the incumbent is trying to exclude the rival and a softer one when accommodation is pursued. An exception to this claim is when the situation clearly fits the case of bidding markets, as when the deals are organized through auctions or procurements, because in that case even the counterfactual may be characterised by Bertrand-type behaviour. The reason behind our negative answer is that all simulation models presume an anticompetitive effect (whose size needs to be simulated, however). The size of that effect, and hence the theoretical bias introduced in the assessment of damages, would be greater if the counterfactual is based under the assumption of Bertrand-type competition.

Second, should we assume an "equally efficient" competitor, a "more efficient" or a "less efficient" competitor in the counterfactual scenario? Well, it may not really matter: if competition in the counterfactual is not Bertrand, the impact of different costs on the incumbent's and competitor's market shares in the counterfactual equilibrium should be limited. In any event, in cases brought by a competitor, we suggest that courts rely on market data from available benchmarks even if they most likely relate to data on the incumbent, under the assumption that the foreclosed competitor is "as efficient" as the incumbent. The incumbent should, of course, be given the opportunity to show that the competitor would have (much) less efficient had it not being excluded or marginalised, and to propose alternative figures. The incumbent will have an incentive to do so in order to minimise the damages claim. The alternative would be to require the competitor to prove that it would be

as efficient as the incumbent under the counterfactual scenario before it is allowed to use observations from comparable market situations involving the incumbent in its estimation of the counterfactual scenario. We regard this alternative as inferior, since the competitor's knowledge of the market is likely to be less than the incumbent's.

2.2 Calculating profits and surplus under the foreclosure scenario

As already discussed, the foreclosure scenario can be conveniently divided into an attrition phase, a recoupment phase, and a growth phase. The time length of each of these phases depends on the kind of practice (i.e. prevented entry versus forced exit), the characteristics of the affected market (e.g. the existence of barriers to entry and exit) and the timing of antitrust intervention (that may affect the strategies of the incumbent).

In what follows we briefly discuss the challenges that will be faced when calculating competitors' profits and customers' surplus in each of these phases. Let us begin by considering the attrition phase. Note first that the length of the attrition phase depends on the nature of the abuse and, in particular, whether this involves the exit of an established competitor (in which case it could span for several months or years) or the deterrence of a potential competitor (in which case it may be very short). The calculation of profits and surplus in this phase will be based on observed data on volumes, prices and costs. One likely difficulty will be to distinguish between the sunk costs that competitors would have been incurred absent the exclusionary practice from those which were incurred for defensive purposes only.

The challenges of calculating profits and surplus during the recoupment phase are by and large similar to those of the attrition phase. The main difficulty would be to determine when this phase ends and the growth phase begins. This is the point in time when the incumbent faces the re-entry of the foreclosed competitor or the entry of new competitors. In markets characterised by significant barriers to entry (economies of scale and scope, network effects, IPRs, etc.), entry may prove impossible and, therefore, the recoupment phase may not have an end (and least not a predictable one). In some others, where entry barriers are modest, entry/re-entry will take place eventually following the cessation of the anticompetitive practice. In those markets, the proper assessment of damages requires identifying the point in time where entry is likely to occur, the time needed for the complete restoration of the conditions of competition that existed prior to the infringement, and the evolution of profits and surplus during that phase. Note that, unless damages are calculated after the end of the recoupment phase, the estimation of profits and surplus during the growth phase represents a difficult prospective exercise, similar in nature to the derivation of the counterfactual scenario.

3. Causality

In this paper we are considering damages claims made in follow-on suits which, by definition, take place after an antitrust agency or court has established the existence of an anticompetitive exclusionary practice. A fundamental element that conditions these claims is whether, and if so to what extent, the claimant can rely on the original antitrust decision or ruling as a legal basis for its own claim. More specifically, the key question is whether the

original case, in which a given practice has been proved to be exclusionary, has also established the exclusionary effects suffered by the claimant. If this is the case, the claimant can then simply concentrate on the quantification of the damages. Otherwise, the claimant must first prove the *causal link* between the antitrust infringement and its effects, and only then will it be able to move to analyse quantum.

The UK Competition Appeals Tribunal (CAT) recently rejected a damages claim because the claimant had failed to prove that the contracts that it lost during the infringement period were lost as a direct result of the infringement, and not as a result of its own inefficiency.²⁰ Therefore, in the UK, causality must be proven as part of the damages claim and cannot be presumed following a finding of abuse made by the Office of Fair Trading.

We are not qualified to discuss whether this would also be the case in other jurisdictions, though our own experience indicates that the same principles apply in many other countries. We note, however, that the way the original antitrust decision has been taken has important implications for the follow-on damages suit. Depending on the threshold for regulatory intervention (i.e. the standard of proof required), causality may follow directly from the decision or not.

To illustrate this point, consider a case in which the antitrust infringement has been proved under a *per se* illegality standard. In this case the infringement has been established by considering the form of the practice under scrutiny rather than its (likely, potential or actual) effects. Hence, the causal link between the infringement and the harm of the claimant cannot be found in the original antitrust decision. In this case causality would have to be analysed as a first step during the follow-on litigation.

At the other extreme, consider a case in which the infringement has been established under an effects-based approach—i.e. by estimating the effects of the allegedly anticompetitive conduct on the market.²¹ In this second case, the original antitrust case offers a very rich set of references to establish the effects of the infringement in the follow-on suit. It follows that the adoption of an *effects-based approach* in exclusionary Article 102 TFEU is likely to promote the private enforcement of the abuse of dominant provision of the Treaty, as it makes easier (though not necessarily trivial) to establish a causal link between the anticompetitive conduct sanctioned by the competition authority and the harm caused to competitors and consumers.

In between these two extremes we will have situations where the competition authority reviewing the conduct finds that behaviour to constitute an infringement of Article 102 TFEU because, though no effect is identified, the unilateral conduct in question may still be *capable* of causing an anticompetitive effect on the market. In this case, we submit that causality cannot be presumed and would have to be established as part of the damages case. The fact that a certain unilateral business practice by a dominant company may be capable of excluding competitors does not imply that the exit of one or more competitors is necessarily caused by such an illegitimate practice; not even in probabilistic terms, since the effect may be possible but not necessarily likely.

²⁰ Enron Coal. Services (In Liquidation) v English Welsh & Scottish Railway [2009] CAT 36.

²¹ See the EAGCP Report, “An economic Approach to Article 82”, July 2005, available at http://ec.europa.eu/competition/publications/studies/eagcp_july_21_05.pdf.

An additional issue regarding causality has to do with the definition of the recoupment phase. Not in all jurisdictions the relevant antitrust authority needs to show evidence of recoupment to establish an exclusionary abuse. If the decision does not analyze whether the infringer did recoup the reduction in profits experienced during the attrition phase, it may be difficult to apply the approach described above in order to calculate the profits received by the complainant under the foreclosure scenario.

We would like to conclude our discussion on causality by considering a technical point of practical relevance. When an expert is asked whether a given anticompetitive practice has had an impact on, say, market prices, she would commonly compare the prices observed in a situation (a period of time or a geographic market) where the practice was absent with the prices actually paid in the market subject to that anticompetitive practice—i.e. she would use as yardstick, benchmark or differences in differences approach. She would then rely on standard statistical techniques to assess whether the difference, if any, is statistically meaningful. Unfortunately, whether the difference is statistically meaningful depends on the quality of the price data available to the expert. If she is fortunate enough to have a very rich dataset and still finds that the difference is not statistically meaningful using standard criteria, then we may safely conclude that the anticompetitive practice was unlikely to have an impact on prices. If, on the contrary, the data used in the analysis is not of sufficient quality (either because the number of observations is small or because the data is measured with error), an expert relying on standard statistical tests may conclude that the practice under analysis did not have a causal effect when that effect indeed existed and would have been successfully uncovered with a richer dataset.

The standard statistical tests, as usually applied in antitrust cases, are based on the convention that the price increase caused by an anticompetitive practice can only be regarded as statistically meaningful if there is at least a 95% (alternatively 90% or 99%) probability that the price impact is not zero. The 95% convention has a long tradition in economics and statistics. It represents a reasonable criterion when (i) whether the practice has an anticompetitive effect or not is equally likely a priori and (ii) the quality of the data used in the statistical is high. When conditions (i) and (ii) are not met, because *more likely than not* the practice will produce an adverse effect on prices (which is the very reason why that practice was found to infringe the competition laws) and the data is poor, we wonder whether the 95% convention should be relaxed and causality could be established at lower levels of “statistical significance” (e.g. 70% or 80%). This possibility should be discussed further but we find no reason to discard it out of hand.

4. An application: predatory pricing

In order to illustrate some of the subtleties of the analytical framework developed in this brief paper, let us consider a situation where, during the attrition phase, the incumbent adopts a very aggressive pricing strategy, so that its competitor is induced to leave the market. Once exit has occurred, the incumbent raises the price, recouping the opportunity costs incurred during the attrition phase. At some point re-entry occurs and the growth phase starts until the competitor reaches its steady state market share.

Assume for simplicity that the claimant did not increase its sunk costs during the attrition phase. We can then compute the damages experienced by a foreclosed competitor as follows. If the prey suffered (gross) losses during the attrition phase, the damages for the prey during the attrition phase would be given by the sum of the following two terms: the gross profits the prey would have been able to achieve in the counterfactual scenario and the losses actually incurred in the foreclosure scenario. In addition, the prey would have made no profits during the recoupment phase. The damages for that phase would be given by the counterfactual gross profits.

Turning now to the impact on customers of the infringement, they will experience an increase in consumer surplus during the attrition phase because of the lower prices charged by the incumbent during this phase. These gains may be underestimated if we do not take into consideration the volume effects of the infringement and just focus on its price effects, as is usual in damages litigation. During the recoupment phase, instead, customers are negatively affected by the increase in prices compared to the counterfactual. This time ignoring the volume impact of the increase in prices is bound to lead us to overestimate the damages caused by the infringement during the recoupment phase. Therefore, the estimate for the overall damages suffered by the incumbent's customers may be overestimated or underestimated when output effects are ignored.²²

In our discussion so far we have assumed that the firm sets, in each situation, a price that is the same for all the customers. Hence, while there are no redistributive effects across consumers, the time pattern of prices involves some inter-temporal price discrimination. In our formula for customers' damages, we added up over time the net variation in surplus during the attrition and recoupment phases. This implies that the initial gain during the attrition phase is subtracted to the losses suffered later on, entitling to a reimbursement as long as the latter are larger than the former. This criterion implies that if a customer, overall, has a net positive effect, because for instance the recoupment phase was interrupted soon by the antitrust intervention and the incumbent has been induced to moderate its prices, the customers keep their net gain while the incumbent is still entirely liable for any damage that its behaviour has provoked to competitors.

The same argument applies in case of selective price cuts that may have benefited some customers while hurting other groups of buyers: the latter group can require a reimbursement, while the group of the lucky buyers can freely cash in their net gains. Put another way, the incumbent cannot rely on any cross compensation between its customers and competitors, and is liable for any negative effect that it generates on them.

5. Conclusions

In this paper we have provided some, hopefully useful, suggestions on how to extend the framework of analysis usually employed to estimate cartel damages to the assessment of damages following an exclusionary Article 102 TFEU infringement. We have proposed a simple, but exhaustive, analytical framework and discussed a number of implementation difficulties. We have also discussed the extent to which follow-on damages cases will have to

²² When the unilateral practice involves prevented entry the attrition phase (almost) vanishes and the simplified approach that ignores the output effects leads certainly to an overestimate of the damages that is larger the more elastic is demand.

deal with causality and argued that whether causality needs to be established as part of the damages case should depend on the standard of proof applied to the assessment of exclusionary behaviour.

This paper provides a very preliminary overview of the issues related to the assessment of damages in exclusionary cases. We are convinced that while the framework developed in this paper can provide useful guidance to practitioners seeking to estimate damages for exclusionary abuses, it will necessarily have to be adapted and refined to fit the facts of each particular case. There have been few cases of this sort and, therefore, our practical experience is necessarily limited. As the number of cases of this type grows, our understanding of the subtle difficulties will also improve. At that time, we will need to review what we have written here. For the time being, however, we believe that, subject to the various caveats discussed above, our proposed methodology provides at very least a reasonable starting point.