

## Pass-on in Damages Assessment: defence or offence?

When assessing the damage suffered by customers affected by a competition law infringement such as a cartel, it may be relevant to consider the extent to which these downstream firms have passed on some or all of any price increase caused by the infringement to their own customers. Since passing on a price increase will always reduce the damage, reference is often made to the “passing-on defence”.

Whether pass-on factors should be included in competition law damage claims depends on the public policy objectives that are being pursued by private damages initiatives. Where private actions are designed to compensate those affected by competition law infringements for the economic damage they have suffered, an allowance for pass-on is clearly appropriate, and most European legal rules for private damages actions recognise pass-on as a relevant factor.<sup>1</sup>

The EU Commission’s Draft Guidance Paper on Quantifying antitrust damages (“the Draft Guidance”) includes a brief discussion of pass-on but does little to highlight the very significant potential impact it can have on damage calculations.<sup>2</sup> In this Brief we review some relevant insights from the economic literature, discuss the estimation of pass-on and the output effect in practice and consider how taking these into account may impact on the damage figure.

### Pass-on in theory

It is a relatively uncontroversial result from economic theory that a firm that is faced with an increase in its variable input costs as a result of a cartel among its suppliers will typically increase its own prices, because the cost increase will cause it to re-calculate its profit-maximising price. When setting prices, firms take into account the margins associated with those sales volumes that would be lost as a result of any price increase. But since an input cost increase reduces margins, the negative effects of any such volume loss become less severe. As a result, higher input prices make a firm more willing to accept a volume loss, providing it with an incentive to increase prices. However, as we discuss below, firms will hardly ever choose to pass on the cost increase in full.

Economic theory provides several useful insights into how firms may choose to react to an input cost increase. As the Draft Guidance notes, the most widely known results from economic theory relate to the textbook models of monopoly and perfect competition.<sup>3</sup> In a market characterised by perfect competition, a marginal cost increase affecting all firms in the market can be expected to be passed on in full. In contrast, under a host of simplifying assumptions including linear demand, it is possible to show that a monopolist will pass on 50% of a marginal cost increase to its customers.<sup>4</sup> More generally, the *more* competitive the market, the *higher* is the degree of pass-on that can generally be expected. This arises because the lower margins earned by firms in more competitive markets reduce the severity of the commercial impact of losing sales volumes.

Results for the simplest oligopoly models typically lie in between the perfect competition and monopoly cases. For example, in the textbook “Cournot” duopoly model, the predicted pass-on rate of an industry-wide input cost increase would, again on the basis of certain assumptions, be two-thirds.<sup>5</sup>

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This contrasts with the standard that arises from US case law such as *Illinois Brick*, in which pass-on is explicitly denied as a defence to cartel damage defendants. This approach can create stronger deterrence effects, but does not accurately relate the damage claim to the actual harm suffered by customers of the infringing firms.

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*Quantifying Harm in Actions for Damages Based on Breaches of Article 101 or 102 of the European Treaty on the Functioning of the European Union*, Public Consultation, June 2011. Paras 142–151 discuss pass-on.

3

See Draft Guidance, paras 50–51.

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In particular, this textbook result is based on the assumption that the monopolist faces a constant marginal cost and a linear demand function. See Bulow, J I and Pfleiderer, P (1983), *A note on the effect of cost changes on prices*, *Journal of Political Economy* vol. 91, p.182–185.

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This result is based on the assumption that the two firms face the same constant marginal cost of production and linear demand function. See Ten Kate, A and Niels, G (2005) *To what extent are cost savings passed on to consumers? An oligopoly approach*. *European Journal of Law and Economics*, Vol. 20, p. 323–337.

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See Draft Guidance, para 148.

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See Draft Guidance, para 151.

However, as the Draft Guidance notes, the predictions of these simple models do not shed much practical light on the likely extent of pass-on.<sup>6</sup> Other factors impacting on the expected degree of pass-on include whether all or only some purchasers in a market are affected by the cartel (if only a subset is affected, pass-on rates are likely to be quite low since these firms continue to face competition from unaffected firms); the sensitivity of customers to price; the cost structure of the downstream firm; whether the cartel affects marginal or fixed costs (fixed cost increases may in the short term not be passed on at all); and the duration of the infringement.<sup>7</sup> To obtain robust estimates of the degree of pass-on, it is necessary to move away from abstract theory and to undertake more detailed empirical analysis encompassing these factors.

## The output effect

Since passing on an input cost increase in most cases results in a reduction in volumes for the downstream firm, this output effect and any damage caused by the loss of profit associated with it is an integral part of the pass-on assessment.

Again, economic theory offers some useful insights into the likely damage arising from this output effect under different scenarios. For example, under perfect competition, since firms do not earn any margin over their sales, lost sales do not imply any reduction in profit. By contrast, in a downstream market characterised by imperfect competition, the loss of such sales may entail a significant reduction in profitability. The output effect is also likely to be more significant if only a subset of the firms in a market is affected by the cartel, since these firms will, when trying to pass-on some of the input cost increase to their customers, likely lose market share to unaffected rivals.<sup>8</sup>

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See Verboven, F. and T. van Dijk (2009), *Cartel damages claims and the passing-on defense*, *Journal of Industrial Economics*, 57, 457–491.

In some cases, it will on *a priori* grounds be clear that the output effect is likely to be insignificant. In particular, if the cartelised input accounts for only a small percentage of the total costs of the downstream product, the cartel is unlikely to trigger a significant downstream price increase. If the downstream price increase is tiny, the corresponding reduction in downstream market sales would likely be small as well.

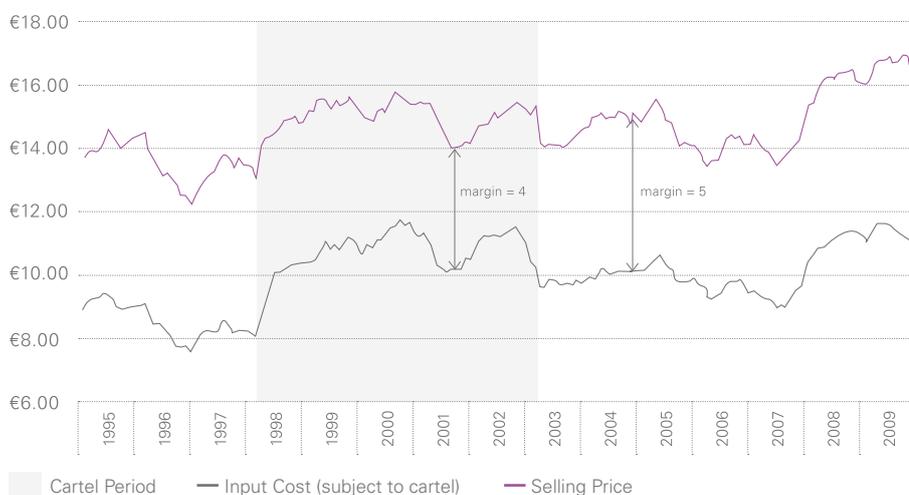
## Pass-on estimation in practice

In order to estimate the degree of pass-on in practice, it is necessary to examine the relationship between the prices charged by the downstream firms and their input costs. When considering the output effect, it is furthermore necessary to consider the impact of the cartel on volumes sold by the downstream firms, as well as the margin foregone on any lost volumes.

The figure opposite illustrates an analysis of pass-on in a simple setting where the cartelised input represents the main input into the downstream product. The lower line represents the cost of the input which was subject to a cartel between 1998 and 2002. In this illustration, the cartel appears to have given rise to higher input prices during these years. The upper line represents the selling price of the downstream firm. Although the selling price increases at the start of the cartel period and falls at the end, only part of the cost increase appears to be passed on, resulting in unit margins during the cartel period being lower (at €4) than outside (at €5) this period.

There are some simple techniques available for assessing pass-on. For example, the analysis could compare average margins both during and after the cartel and relate these to the amount of the cartel overcharge. If the average cartel overcharge per unit was €2 and if average unit margins dropped by €1 during the cartel (from €5 to €4), this would suggest that 50% of the overcharge would have been passed on.

Illustration of partial pass-on



These simple techniques can also have some value in more complex settings, but in practice the price of the cartelised input is usually only one of many factors impacting on the selling prices and margins of the downstream firm. For example, prices of the downstream firms could also be influenced by the price of other, non cartelised inputs, or by factors such as the strength of demand. If these other factors display a high degree of variation, it becomes difficult to disentangle the effect of the cartel overcharge from the effect of these other factors.

These issues can in principle be addressed by undertaking a multivariate econometric analysis. This tests how changes in the “dependent variable” (e.g. the selling price or the margin) can be explained by changes in other, “independent” variables (e.g. the price of inputs or the strength of demand). The critical feature of such an analysis is its ability to “isolate” the effect of each of the factors impacting on the selling price, controlling for the impacts of the other factors, and to indicate the degree of confidence in the results of such an analysis by stating whether the effect of a particular factor is statistically “significant”.<sup>9</sup>

For example, in a recent damages estimate case we worked with an econometric model that explained prices charged by the downstream firm as a function of the cost of the various inputs. By finding a statistically significant relationship between the price of the cartelised input and the selling price, our analysis suggested that some degree of pass-on was likely to have occurred. In other cases, it has been more appropriate to set up the analysis to test whether margins during the cartel period were lower than outside the cartel period. A finding of lower margins during the cartel would suggest that pass-on would have been less than complete.<sup>10</sup>

Identifying the changes in downstream firm margins that arise from the cartel rather than other influencing factors raises challenges that closely mirror those associated with the use of various benchmark techniques to estimate the original effect of the cartel on prices. These issues are discussed at length in the Draft Guidance,<sup>11</sup> in which the Commission makes no secret of its desire to encourage private actions to happen, often suggesting that claimants should be allowed to take short cuts in establishing the damage that they have suffered.<sup>12</sup> However, it is far from clear that courts will or indeed should allow the policy objectives of the Commission to influence their willingness to accept damage claims that cannot provide a robust link between the original infringement and an identifiable downstream effect. The task of constructing estimates of pass-on calculations that are both economically rigorous and readily comprehensible to judges will remain one of the major challenges as the private enforcement initiative develops.

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The impact of a particular variable is statistically significant if the analysis gives a high degree of confidence (typically a 95% probability or more) that the very existence of that impact is real and not caused by chance.

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Econometric analysis can also be used to examine the output effect, for example by examining the relationship between selling prices and volumes sold by the downstream firm.

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See paras 63–84 of the Draft Guidance for a discussion of reduced form model estimates, and paras 86–93 for a discussion of more ambitious simulation models which seek to address the problems inherent in reduced form models.

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For example, para 75 asserts that econometric analysis can sometimes be meaningful even when only a small number of data observations is available. That might be true, but incomplete and/or poor data make it much harder to use such techniques to achieve the levels of robustness that would normally be required to establish an economic effect.

If only some downstream firms incurred higher input costs, their ability to pass-on these higher costs must have been somewhat constrained by the fact that other competitors will have left their price unchanged. At the same time, the output effect will be relatively high since the firms raising prices will likely lose market share to their rivals.

## Assessing the interaction of pass-on and output effects

Since customer firms always have the option not to pass on an input cost increase, a decision to pass on a cost increase will invariably mean that the downstream firm has incurred a lower damage than in a situation where no pass-on had occurred. This suggests that the existence of pass-on will always help to mitigate the liability for damages that cartel members face from their customers.

Importantly, however, the impact of pass-on and the output effect on an actual damage calculation can pull in opposite directions. In practice, it is the actual volumes purchased by the downstream firm that are typically taken as a starting point for the damage calculation, multiplied by the estimated overcharge. But since the typical damage assessment starts from the position in which some pass-on has already occurred, actual volumes will already reflect the impact of higher downstream prices on sales. A damage figure calculated this way does not necessarily diminish if both pass-on and the associated output effect are taken into account. It may for example increase when only some of the firms in a given market were affected by the cartel, in which case the output effect is high relative to the effect of pass-on.<sup>13</sup> On occasion, the output component of the pass-on debate can thus create some uncomfortable consequences for defendant firms that are often overlooked, and the pass-on defence can take on the features of an offence.

## Conclusions

Pass-on plays a crucial role in an approach to third party actions under any legal system that focuses on compensating downstream firms for the damage they have suffered from competition law infringements.

Economic theory provides some insights into the incentives of firms to pass on cost increases under different circumstances and in particular suggests that firms will often choose to absorb a portion of the cost increase. However, an accurate estimate of the actual magnitude of pass-on can be obtained only on the basis of a detailed empirical analysis. The options available to conduct such measurement are as varied as (and potentially more complex to implement than) the benchmarking and other techniques that are used in assessing the initial impact of the infringement on upstream prices. But by using the same quantitative techniques that are regularly employed in other areas of competition law investigations, it is possible to estimate the extent to which cartel overcharges have been passed on, thus resulting in awards that more accurately reflect the actual economic damage incurred by the claimant.

Since any decision by a firm affected by a cartel to raise its selling prices will result in lower sales in its downstream markets, the consequent impact on its output levels is an integral counterpart to any analysis of pass-on. Such output reduction generates its own profit losses to the downstream firm. Hence, introducing pass-on arguments can have a double-edged impact on the overall damage figure that makes them less of a one-way bet for the defendant than is sometimes assumed.