

What's the better approach for estimating the pass-on effect in antitrust damage cases?

Christopher Milde and Miguel de la Mano¹
22 March 2022

For estimating the pass-on effect in antitrust damages cases, the EC Guidelines distinguish two empirical approaches: the comparator approach and the pass-on rate approach. Christopher Milde and Miguel de la Mano discuss how the EC Guidelines express a clear preference for the comparator method while, in reality, the pass-on rate method is more feasible and reliable for more plausible scenarios.

Following a sanction for anticompetitive conduct, minds turn to damages. Then, at some point, the challenge arises of calculating pass-on; i.e., the extent to which commercial customers increased their downstream prices due to the conduct, thus passing on a proportion of the upstream overcharge to their own customers.

To estimate pass-on, the European Commission's Guidelines (EC Guidelines) distinguish two empirical approaches:²

- With the comparator approach, the pass-on amount is to be revealed by comparing (i) downstream prices potentially affected by the passing-on of an overcharge with (ii) downstream prices that are plausibly not affected by the passing-on of the overcharge. For instance, if the unit price of a downstream product was €1.20 during a period affected by an upstream cartel and €1.00 after the end of the upstream cartel, *and* no other factor that influences downstream prices changed

between the cartel and after-cartel periods, then the pass-on amount would be €0.20 per unit (€1.20 minus €1.00).

- With the pass-on rate approach, first the pass-on *rate* is estimated – i.e., the degree to which changes in the upstream input cost that is subject to the overcharge cause changes in the downstream price. For example, each €1 increase in the cost of the upstream input may cause a €0.80 increase in the price of the downstream product, i.e., the pass-on rate is 80%. Then, that estimated pass-on rate is multiplied with the upstream overcharge to obtain the pass-on amount. For instance, if the upstream overcharge is €0.25, then multiplying this overcharge with the 80% pass-on rate gives the pass-on amount of €0.20.

The EC Guidelines express a clear preference for the comparator approach. In our view, this is unwarranted and therefore does not constitute good guidance. While the

comparator approach may be preferable (or the only feasible approach) in some special scenarios, in many more common and realistic scenarios, the comparator approach does not appear to be generally preferable. On the contrary, in many scenarios the pass-on rate approach requires less data and possibly fewer control variables and thus may not only be more feasible but also give rise to more reliable results.

EC reasons for considering comparator approach preferable

The EC Guidelines cite various reasons for preferring the comparator approach.³ For instance, they state that:

- “the comparator method is preferable [...] due to the method’s clear advantage of allowing for an estimation of passing-on based on the actual prices set by a direct or indirect purchaser during the infringement period” (para. 120);
- with the pass-on rate approach “the court can neither establish if the overcharge is actually passed on nor can it observe whether changes in the cost of the affected input are reflected in prices in the downstream markets” (para. 122);
- “the passing-on rate approach relies on the assumption that, during the infringement period, changes in input costs are reflected in prices downstream” (para. 122); and
- it would require “an assumption that may go too far, namely that the marginal cost increases are being passed on at an identical rate irrespective of the source for the cost increase” (para. 124).

It is difficult to follow most of these reasons. The pass-on rate approach relies no less on “actual prices” than the comparator approach, and a court cannot “establish” or “observe” in any more direct way with the comparator approach than with the pass-on rate whether “changes in the cost of the affected input are reflected in prices” downstream. Rather, both approaches rely

on estimating counterfactual costs and prices and therefore both approaches rely on assumptions, including an assumption on how changes in cost are reflected in downstream prices.

The comparator approach is preferable in the simplest scenario

Consider the hypothetical flour cartel discussed in the EC’s Practical Guide on damage quantification:⁴ a mill cartel overcharged its customers for flour; bakeries purchased that flour to make the bread they sold to consumers. The question is: to what extent did those bakeries pass on the overcharge on flour cost to their own customers, by increasing the price of bread (“pass-on amount”)?

First, assume the simplest possible scenario: that the *only* difference in the bread market between the cartel period and the after-cartel period is the upstream mill cartel. In this scenario, all other factors that affect bread prices remain the same (i.e., the costs of labour, property, energy and other ingredients are constant and the demand for bread and competition from other bakeries is fixed). Under this assumption the simplest version of the comparator approach uncovers the average pass-on amount accurately – i.e., it is simply the difference between average bread prices during the cartel and average bread prices after (or before) the cartel.⁵

In this scenario, the pass-on rate approach requires additional data and assumptions:

- a. data on the cost of flour, with sufficient variation to allow estimating the pass-on rate;
- b. an estimate of the upstream overcharge; and
- c. the assumption that *the overcharge* on flour is passed on at the same rate as any changes in flour cost that would have occurred in the absence of the overcharge.⁶

In this simple scenario, the comparator approach is thus clearly preferable. But this simple scenario is, of course, almost never realistic. Even without the upstream mill cartel, the cost of flour would have changed. And it is likely that other factors affecting the price of bread would also have changed.

The pass-on rate approach is likely preferable in more plausible scenarios

Thus, as a more realistic second scenario, assume that the cost of flour would have changed over time and differed between the cartel and after-cartel periods, even in the absence of the mill cartel (“counterfactual flour cost”).⁷

In this (more plausible) scenario the *comparator approach* needs to take variation in counterfactual flour cost into account, to avoid a biased estimate of the pass-on amount. In other words, changes in downstream bread prices due to the overcharge on flour must be distinguished from changes in downstream bread prices that would have anyway occurred (due to changes in the cost of flour). Consequently, it is no longer possible to simply compare the *actual* bread prices during the cartel period to the *actual* bread prices in the cartel-free period; that difference would not only include the pass-on amount, but also changes in counterfactual flour cost. Rather, the comparator approach must compare *actual* bread prices during the cartel, to counterfactual bread prices which are estimated by taking into account changes in the counterfactual cost of flour.⁸

Importantly, in this more realistic scenario, the comparator approach loses the data advantages it had over the pass-on rate approach in the simplest scenario described above. First, it also requires data on the cost of flour, with enough variation to estimate how changes in the cost of flour affect bread prices. Second to take into account changes in counterfactual flour cost, the comparator approach also requires an estimate of the overcharge, as counterfactual cost of flour is

the *actual* cost of flour *minus* the overcharge. Hence, estimating pass-on with the comparator approach also requires an estimate of the overcharge.⁹

Thus, the only remaining additional requirement for the pass-on rate approach is the third point above, the assumption that the pass-on rate is the same for the overcharge and the counterfactual flour cost. If one is willing to make this assumption (the merits of which we discuss below), however, the pass-on rate approach has major advantages over the comparator approach.

First, it does not require data from both the cartel and the after-cartel periods. Data from either period (or even subsets of each period) would suffice when assuming – as is also done when applying the comparator approach¹⁰ – that the pass-on rate on counterfactual costs is the same within and outside the cartel period. Such lower data requirements constitute a considerable advantage in practice:

- data collection and cleaning is generally costly;
- data availability may be limited by external factors – e.g., data from the cartel period may be hard to come by if the cartel took place a long time ago, disclosure may only allow obtaining data from the cartel period, or the validity of post-cartel data may be in doubt due to suspected run-off effects; and
- the longer the data period one needs to consider, the more likely it is that changes in data collection or accounting practices or structural changes in the market occur, which make analysis more difficult and thus less robust.

Second, both approaches now require taking into account other price determining factors (control variables), whereby identifying all relevant control variables and measuring them correctly is always challenging. However, doing this for the pass-on rate approach is likely to be less daunting a task than for the comparator approach. The latter

requires finding all (downstream) price determining factors that differ between the cartel and post-cartel periods and taking their impact on price into account in the correct way, so that any remaining difference in prices can be robustly interpreted as the pass-on amount. By contrast, the pass-on rate approach only requires considering those price-determining factors that are correlated with costs, which plausibly is a sub-set of all price-determining factors that differ between cartel and post-cartel periods.¹¹ Moreover, the pass-on rate approach could focus on the cartel period only, further reducing the potential for confounding factors, and thus reducing the number of control variables required.

Discussion of the pass-on rate of an overcharge and that for the affected cost factor

The major practical advantages of the pass-on rate approach in terms of data availability and control variables must be weighed against the additional assumption required for the pass-on rate approach: that the overcharge is passed on with the same rate as the counterfactual cost.¹²

The EC Guidelines cite this assumption as a major drawback of the pass-on rate approach (as stated above).¹³ In particular, the statement in the Guidelines suggests that pass-on rates can be expected to differ depending on whether a cartel or something else caused changes in one and the same cost factor.

Prima facie, such differential pass-on rates depending on the cause of a cost change seem implausible. First, at the time of the cartel, cartel customers – such as the bakeries in our example – typically would not know that a cost increase is due to a cartel; obviously, cartel members will not reveal the cartel but rather cite an accepted and typical cause for price increases during negotiations.

More importantly, from an economic perspective, the *reason* of a cost increase makes no difference to bakeries' pricing

decisions, nor to their customers' purchasing decisions. For a bakery, maximising profit in no way depends on the cause of a cost increase. The change to the profit maximising price would be exactly the same whether the marginal cost of making bread increased by 20 cents due to a mill cartel or whether it increased by 20 cents due to a bad harvest (for example). Accordingly, a bakery could be expected to make the same change to its pricing irrespective of the cause of a cost increase. Likewise, downstream customers of the bakeries would not care about the reason for an upstream cost increase. They would try to avoid or resist it depending on their outside options. Thus, the *causes* of a marginal cost increase are irrelevant for downstream prices.

However, differential pass-on rates may be plausible in another scenario outlined in the EC Guidelines, namely that *the scale* of a cost increase (relative to typical cost increases) changes the pass-on rate in downstream prices. For instance, if large increases are passed on at a higher rate than small cost increases, and cost increases due to the cartel are much larger than typical changes in counterfactual costs, then overcharges may be passed on differently than counterfactual cost.¹⁴

This scenario is very similar to the first scenario discussed above. In that scenario, there was *no* variation in the cost of flour, which makes it impossible to estimate the pass-on rate. In the present scenario, there is *too little* variation in costs; if we can only analyse small cost variations, we cannot estimate with confidence what impact a single large cost increase might have on prices. In this case, the pass-on rate approach could lead to too low an estimate of the pass-on amount.

However, just as the first scenario discussed above – where nothing else changes in the bread market but the mill cartel – this is a very special case as well. First, one would expect any cost factor to exhibit variation over time. Second, it seems unlikely that a newly formed cartel would try to implement an unusually

large one-time price increase.¹⁵ It seems more likely that if a cartel did reach a large overcharge (relative to normal cost changes) it would achieve this with a gradual path to a higher cost level. Such a gradual path towards the total overcharge would – by definition – take place during the cartel period and thus its effects on downstream prices could be estimated using the pass-on rate approach.

Conclusion

There are scenarios in which the comparator approach is preferable to the pass-on rate approach, namely where the upstream overcharge constitutes the only or main change in cost for the direct downstream customers of the cartel. Such scenarios, however, are likely to be special cases.

In a more realistic and standard scenario, one would expect the cost factors affected by a cartel to vary considerably over time independently of the cartel. In this case the pass-on rate approach has important practical advantages in terms of lower requirements for data and likely also for control variables, which make estimation of the pass-on amount more feasible and more reliable. The additional assumption required for the pass-on rate approach – that *an overcharge on a cost factor* would be passed on at the same rate as that *cost factor itself* – seems highly plausible in many situations, given that an overcharge would not be known to customers at the time of the cartel and the economics of pricing products does not depend on the *cause* of changes in input costs, but only on the fact that costs change.

Thus, in our view, the EC Guidelines' preference for the comparator approach does not constitute good guidance to pass-on estimation. A general preference seems unwarranted, and there are good reasons to expect the pass-on rate approach to not only be more feasible in most situations but also to produce more reliable estimates.

1 The views expressed in this article are the views of the authors only and do not necessarily represent the views of Compass Lexecon, its management, its subsidiaries, its affiliates, its employees, or its clients. This article is related to de la Mano, Miguel and Milde, Christopher, Estimating the Pass-On Effect in Antitrust Damage Cases: Relative Strengths and Weaknesses of the ‘Comparator’ Method vs. the ‘Pass-On Rate’ Method (April 30, 2019). For a more detailed discussion the paper is available at <https://ssrn.com/abstract=3380657> or <http://dx.doi.org/10.2139/ssrn.3380657>.

2 Guidelines for national courts on how to estimate the share of overcharge which was passed on to the indirect purchaser, Official Journal of the European Union, C267/4, 9.8.2019; in the following EC Guidelines, sections 5.1 and 5.2.

3 EC Guidelines, para. 120 et seq.

4 See Commission Staff Working Document, Practical Guide, Quantifying Harm in Actions for Damages Based on Breaches of Article 101 or 102 of the Treaty on the Functioning of the European Union, European Commission, Strasbourg, 11.6.2014.

5 The scenario assumes that the only difference in bread price, p , during and after the infringement period, I , is the passed-on overcharge, or, more formally, that the truth is $p = \alpha + \gamma \cdot OC \cdot I + \epsilon$, where α is a constant, γ is the true pass-on rate of the overcharge, and ϵ is an error term. Then in a regression on price with a dummy for the infringement period: $p = a + b \cdot I + e$, the estimated coefficient on I , b , gives the true the pass-on amount: $\gamma \cdot OC$.

6 I.e., it is assumed that flour cost, C , affects bread price, p , and in the cartel period flour cost is equal to counterfactual flour cost, C_{cf} , plus the overcharge: $C = C_{cf} + I \cdot OC$, so that the truth is $p = \alpha + \beta \cdot (C_{cf} + I \cdot OC) + \epsilon$. The parameter β is common to C_{cf} and OC which reflects the assumptions that both are passed on at the same rate. Coefficient b in regression $p = a + b \cdot C + e$, using data for the cartel period only, gives the correct pass-on rate, which after multiplication with the OC gives the pass-on amount $\beta \cdot OC$.

7 For simplicity, we assume that any other bread price determining factors (e.g. demand) remain unchanged.

8 The truth is then $p = \alpha + \beta \cdot C_{cf} + \gamma \cdot OC \cdot I + \epsilon$, with possibly differing pass-on rates for counterfactual cost and for the overcharge, i.e. β not equal γ . When regressing p on C_{cf} and I : $p = a + b \cdot C_{cf} + d \cdot I$, the coefficient on I , d , gives the pass-on amount $\gamma \cdot OC$. NB that if actual flour cost, C , was used as explanatory factor instead of counterfactual flour cost, C_{cf} , in regression, the coefficient on I , d , cannot be expected to estimate the pass-on amount, $\gamma \cdot OC$, as pass-on is already captured partly or fully in the term $b \cdot C$. In fact, if γ is equal to β , the coefficient on I , d , should be zero; incidentally, this fact could be used as an informal test for correct specification.

9 Note that the use of proxy variables for counterfactual flour cost in the regression on bread price amounts to an overcharge estimation as well. These proxy variables would have to correctly control for all cost, demand and market structure factors that affected flour price independently of the mill cartel – as in the case of direct overcharge estimation. If proxy variables failed to control for, say, effects of demand on flour price an increase in bread price that is due to an increase in flour price that is in turn due to an increase in demand for flour would falsely be measured as a pass-on effect.

10 Note that the comparator method assumes the truth $p = \alpha + \beta \cdot C_{cf} + \gamma \cdot OC + \epsilon$, i.e. that the same coefficient on counterfactual costs, β , holds during and after the infringement period.

11 This is obvious when taking a ‘structural’ perspective on the regression equation. Denoting other price determining factors X , the true model may look like $p = \alpha + \beta \cdot C_{cf} + \gamma \cdot OC + \delta \cdot X + \epsilon$. To correctly estimate the pass-on amount, $\gamma \cdot OC$, also the pass-on rate, β , must be correctly estimated. Thus, the comparator approach requires all control variables, e.g. X_1 , needed for correctly estimating β , plus any additional ones to capture variation in other factors, e.g. X_2 that affect price.

12 Formally, this can be expressed if in the assumed truth, different coefficients work on counterfactual costs and OC as in $p = \alpha + \beta \cdot C_{cf} + \gamma \cdot OC \cdot I + \epsilon$: While the comparator method, i.e., regression $p = a + b \cdot C_{cf} + d \cdot I + e$, would still correctly estimate the pass-on amount $\gamma \cdot OC$ the pass-on rate approach would be incorrect, the more γ differs from β .

13 EC Guidelines, para. 124. “an assumption that may go too far, namely that the marginal cost increases are being passed on at an identical rate irrespective of the source for the cost increase”.

14 Compare EC Guidelines, para. 127.

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An unusually high increase in price would not only raise suspicions among customers but also generate large incentives for cartel members to deviate by undercutting the cartel price.