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**Working Paper**

# A methodology for the evaluation of competition policy

ZEW Discussion Papers, No. 10-081

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Suggested Citation: Hüschelrath, Kai; Leheyda, Nina (2010) : A methodology for the evaluation of competition policy, ZEW Discussion Papers, No. 10-081

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# A Methodology for the Evaluation of Competition Policy

Kai Hüschelrath and Nina Leheyda

ZEW

Zentrum für Europäische Wirtschaftsforschung GmbH

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**Non-technical summary**

The last couple of years have seen an increasing interest in the evaluation of competition policy. The Office of Fair Trading (OFT) in the UK, for instance, recently started to estimate the 'positive impact' of its activities on direct benefits to consumers and compare these numbers to the budget of the competition authority. The Dutch Competition Authority (NMa) follows a comparable approach to evaluate its competition policy enforcement and even extends the scope of the evaluation by investigating the impact of competition policy on macroeconomic factors such as growth and employment.

These prominent examples of evaluations of entire competition policies are complemented by studies which concentrate on the evaluation and improvement of particular internal processes of competition authorities. Examples for this category are a study on the effectiveness of merger remedies by the European Commission (2005) or a similar study recently published by the UK Competition Commission (2008).

Given the different types and scopes of recent studies in the area of evaluation of competition policy, it can create value to take a step backward and to raise the question of an appropriate general design or set-up of an evaluation of competition policy. This paper aims at providing an answer to this question. Based on the existing literature and experiences with policy evaluations in other areas of economic activity, the three-step / nine-building-blocks methodology provides guidance for evaluation projects and also assists in the identification of avenues for further academic research.

**Das Wichtigste in Kürze**

In den letzten Jahren sind in verschiedenen Ländern verstärkte Bemühungen beobachtbar, wettbewerbspolitische Aktivitäten einer Evaluation zu unterziehen. So nimmt beispielsweise das Office of Fair Trading in Großbritannien seit einigen Jahren eine Quantifizierung des Nutzens seiner Aktivitäten für die Verbraucher vor und stellt diesen dem bereitgestellten Budget gegenüber. Die niederländische Wettbewerbsbehörde (NMa) ist vor kurzem sogar dazu übergegangen, die positiven Auswirkungen ihrer Aktivitäten auf makroökonomische Faktoren wie Wachstum und Beschäftigung zu messen.

In Ergänzung zu diesen ganzheitlichen Untersuchungen zu den Wohlfahrtswirkungen wettbewerbspolitischer Aktivitäten sind ferner auch Studien zu finden, deren Ziel es im Wesentlichen ist, bestimmte interne Prozesse von Wettbewerbsbehörden zu evaluieren und in der Folge gegebenenfalls zu verbessern. Als Beispiele hierfür können eine Studie zur Wirksamkeit von Fusionsauflagen der Europäischen Kommission (2005) sowie eine vor kurzem vorgelegte Studie mit vergleichbarer Ausrichtung der zweiten britischen Wettbewerbsbehörde – der Competition Commission (2008) – angesehen werden.

Vor dem Hintergrund dieser verschiedenen Arten von Studien im Gebiet der Evaluation von Wettbewerbspolitik kann es nutzengenerierend sein, einen Schritt zurück zu gehen und sich die Frage zu stellen, wie eine Evaluation von Wettbewerbspolitik generell aufgebaut bzw. gestaltet sein sollte. Dieser Aufsatz liefert eine Antwort auf diese Fragestellung. Basierend auf der bestehenden Literatur sowie Erfahrungen mit Evaluationen in anderen Bereichen der Ökonomie wird eine dreistufige Methodologie entwickelt, die einerseits als Anleitung für konkrete Evaluationsprojekte dienen kann sowie andererseits akademisches Forschungspotential offenlegt.

# A METHODOLOGY FOR THE EVALUATION OF COMPETITION POLICY

*KAI HÜSCHELRATH[*] AND NINA LEHEYDA[#]*

ABSTRACT
The paper develops a methodology for the evaluation of competition policy. Based on the existing literature and experiences with policy evaluations in other areas of economic activity, the three-step / nine-building-blocks methodology provides guidance for evaluation projects and also assists in the identification of avenues for further academic research.

KEYWORDS
Competition Policy, Evaluation, Merger control, Cartel enforcement

JEL CLASSIFICATION
L41, K21

## A. INTRODUCTION

The last couple of years have seen an increasing interest in the evaluation of competition policy. The Office of Fair Trading (OFT) in the UK, for instance, recently started to estimate the 'positive impact' of its activities on direct benefits to consumers. The purpose of this exercise is to measure the OFT's performance towards the 5:1 target agreed with the HM Treasury – delivering direct financial benefits to consumers of at least five times its cost to the taxpayer, per year, on average, over the period 2008 to 2011.[1] The Dutch Competition Authority (NMa) follows a comparable approach to evaluate its competition policy enforcement and even extends the scope of the evaluation by investigating the impact of competition policy on macroeconomic factors such as growth and employment.[2] Compared to these two relatively new evaluation concepts, the United States must be considered as relatively experienced in the evaluation of competition policy. Since 1993, the Government Performance and Results Act (GPRA) obliges the two US competition authorities to report on the effects of the undertaken actions by documenting suitable performance indicators on a yearly basis.[3]

These prominent examples of evaluations of entire competition policies are complemented by studies which concentrate on the evaluation and improvement of particular internal

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[1] See Office of Fair Trading, "Positive Impact 07/08 - Consumer Benefits from Competition Enforcement, Merger Control, Market Studies and Market Investigation References, and Scam Busting" (2008).

[2] See H Don, R Kemp and J van Sinderen, "Measuring the Economic Effects of Competition Law Enforcement" (2008) 156 *De Economist* 341.

[3] See G Werden, "Assessing the Effects of Antitrust Enforcement in the United States" (2008) 156 *De Economist* 433.

processes of competition authorities. Examples for this category are a study on the effectiveness of merger remedies by the European Commission[4] or a similar study recently published by the UK competition authorities.[5]

In addition to the internal studies conducted by the competition authorities themselves, academic research recently shows an increasing interest in the evaluation of competition policy. However, the focus of such studies is typically not on entire evaluations of the competition policy in a particular country but on more focused special topics – which allow a rigorous application of economic techniques – such as the effectiveness of merger control,[6] the effects of competition policy interventions[7] or the robustness of certain methods to evaluate competition policy.[8]

Given the different types and scopes of recent studies in the area of evaluation of competition policy, it can create value to take a step backward and to raise the question of an appropriate general design or set-up of an evaluation of competition policy. This paper aims at providing an answer to this question. Based on the existing literature and experiences with policy evaluations in other areas of economic activity, the three-step / nine-building-blocks methodology provides guidance for evaluation projects and also assists in the identification of avenues for further academic research.

## B. DEVELOPING A METHODOLOGY FOR THE EVALUATION OF COMPETITION POLICY

Although the evaluation of competition policy significantly gained importance in the last couple of years, the development of a methodology to guide such analyses is – compared to other areas such as labour market policy or innovation policy – still in its infancy. Recent contributions are sparse and basically consist of a process-oriented approach by Kovacic[9] and several contributions in an issue of De Economist which was published in 2008.

One reason for the identified lack of research in the area might be the belief that a fixed methodology is simply not needed or desired – partly because it would constrain active thinking on the best way to approach a certain evaluation question. Although it is certainly true that evaluation exercises need to be flexible in order to be able to adapt the specifics of the project, a methodology – understood as a menu selection device – can still create value insofar as it helps to delineate the important steps and therefore to be consistent in the preparation, execution and reporting of the entire analysis. Taking into account the significant literature on policy evaluation in general[10] and the existing approaches for labour market policies and innovation policies in particular,[11] it is proposed to structure such a methodology into three stages: preparation, execution and reporting. The entire methodology is shown in Figure 1.

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4 European Commission, "Merger Remedies Study" (2005).

5 See Competition Commission, "Evaluation of the Competition Commission's Past Cases" (2008).

6 See T Duso, K Gugler and B Yurtoglu, "How Effective is European Merger Control?", WZB Discussion Paper SP II 2006-12 (2006).

7 See K Hüschelrath, "Is it Worth all the Trouble? The Costs and Benefits of Antitrust Enforcement", ZEW Working Paper (2008).

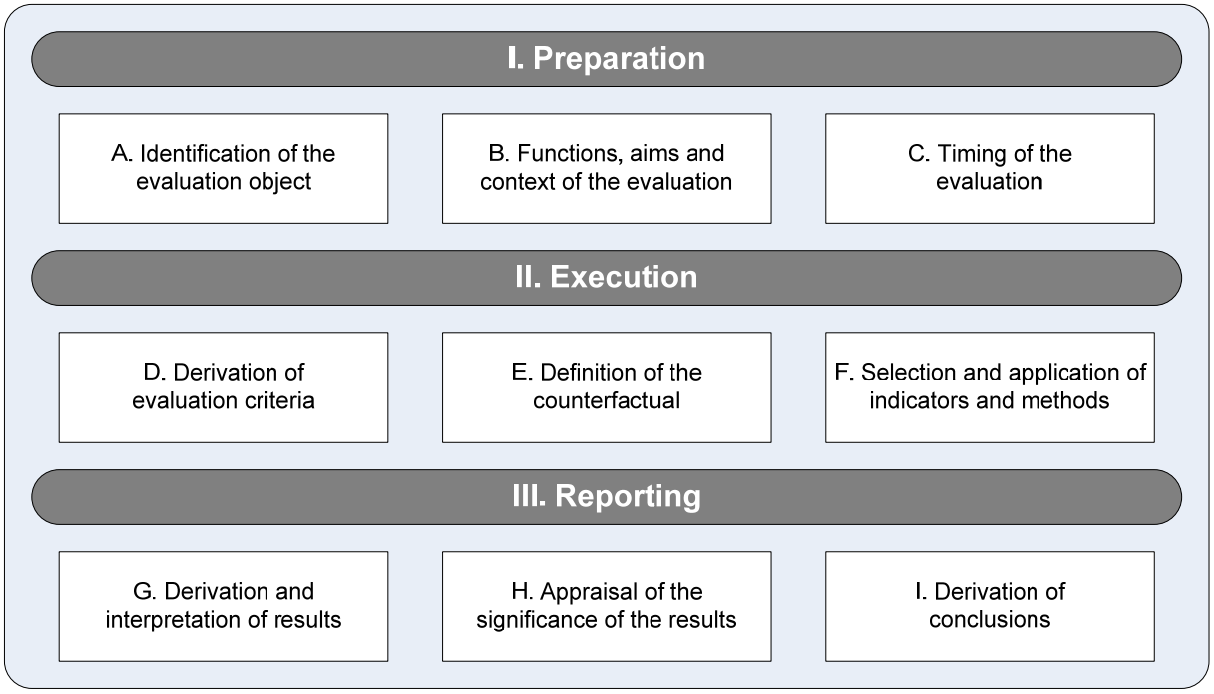
8 See M Weinberg and D Hosken, "Using Mergers to Test a Model of Oligopoly", FTC Working Paper (2009).

9 W Kovacic, "Using Ex-post Evaluations to Improve the Performance of Competition Policy Authorities", (2006) 31 *Journal of Corporation Law* 503.

10 See W Bussmann, U Klöti and P Knoepfel, *Einführung in die Politikevaluation (*Basel, 1997) and R Stockmann, *Evaluationsforschung. Grundlagen und ausgewählte Forschungsfelder* (Opladen, 2000), 11.

11 See D Czarnitzki and A Fier, "Zum Stand der empirischen Wirkungsanalyse der öffentlichen Innovations- und Forschungsförderung" (2005).

**Fig.1 Building blocks of a methodology for the evaluation of competition policy**




As clarified by Figure 1, each of the three stages is subdivided into three building blocks which aim at substantiating the respective analysis. In the following, these nine different building blocks are characterised in greater detail. Technically, it is important to mention at this early stage that the different building blocks on the three stages must not necessarily be completed iteratively; on the contrary, given the interactions between the building blocks, it is advisable to think about a suitable setup of the respective stage simultaneously. This is particularly true for the following characterisation of the first stage of the methodology.

## 1. Stage one: Preparation

The first stage of the proposed methodology is subdivided into three building blocks: The identification of the evaluation object, the determination of the functions, the aims and the context of the evaluation and the timing of the evaluation. These three building blocks of the first stage are characterized separately in the following.

### *(a) Identification of the evaluation object*

The identification of the evaluation object is of strategic importance for the success of the entire evaluation project. This has mostly to do with the fact that the suitable organisation of the subsequent building blocks depend on the chosen evaluation object. Extending the analysis of Niels and Van Dijk,[12] at least seven evaluation objects can be differentiated: Competition as such, the entire competition policy of a country or a federation of countries, a competition law, a competition authority, specific enforcement activities or processes of a competition authority (such as merger control or cartel enforcement) and single decisions or bundles of decisions of a competition authority.

The various evaluation objects basically differ from each other by the degree of aggregation. As part of a bottom-up approach, for example, it is possible to investigate single decisions or bundles of decisions aiming at screening their correctness and deriving improvement potential. However, the identification of improvement potential might also

[12] G Niels and R van Dijk, "Competition Policy: What are the Costs and Benefits of Measuring its Costs and Benefits?" (2008) 156 *De Economist* 351.

demand an evaluation of an entire area of competition policy such as merger control or cartel enforcement. An even higher degree of aggregation is realized if entire competition authorities or competition laws are evaluated – as often demanded by supervising institutions or undertaken by either international organizations such as the Organisation for Economic Co-operation and Development (OECD) or private organisations such as the Global Competition Review (GCR). Finally, the highest degree of aggregation is reached as soon as competition as such is evaluated – probably against alternative forms of organizing an economic system. Such a general discussion is omitted in the remainder of the paper.

***(b) Determination of the functions, the aims and the context of the evaluation***

Following the definition of an evaluation object, the determination of the functions, the aims and the context of the evaluation is the next building block on the first stage of the methodology. With respect to the functions of an evaluation, the general evaluation literature differentiates between the knowledge function, the control function, the legitimacy function and the dialog function. For example, an evaluation can have the function to investigate reasons for wrong case decisions aiming at identifying improvement potential of internal processes.[13] Typically, an evaluation that aims at serving this knowledge function can be expected to operate on a relatively low degree of aggregation, basically because an analysis on higher degrees would become too complex to generate reliable and usable results.

The control function is closely related to the knowledge function, however, concentrates to a larger extent on a comparison of expectations and realised performance – and might even trigger direct organisational and personnel changes. As an allocation of responsibilities for suboptimal performance levels is increasingly problematic with an increasing degree of aggregation, evaluations motivated by the control function either have to concentrate on evaluation objects with a low degree of aggregation or have to accept quite general or even superficial results.

The legitimacy function has again a potentially high significance for an evaluation of competition policy. This has mostly to do with the obligations by competition authorities around the world to furnish evaluation reports about their activities. The majority of such studies focus on the entire competition policy as evaluation object. Following Niels and Van Dijk[14], the legitimacy function is the key motivation of competition authorities to undertake evaluation efforts.

Finally, the dialog function is probably the only function with a universal realisation potential as it typically plays a role as soon as the results of internal or external evaluations are made public and are therefore opened for discussion. According to Sabbatini[15], although most evaluations focus on the legitimacy function, a publication of the results can have a positive effect on the competition culture in the respective country.

The aims of an evaluation are typically closely related to the functions and also depend on the choice of the evaluation object. The general evaluation literature differentiates between two key aims of evaluations: an assessment of the efficacy and an assessment of the efficiency of the effects of the respective evaluation object. With regard to an evaluation of competition policy, Don et al.[16], for instance, separate between three aims of an evaluation of competition policy: meeting the accountability standards with respect to supervising institutions, undertaking a quality control of decisions and reviewing the effectiveness of competition law.

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[13] P Buccirossi, L Ciari, T Duso, S-O Fridolfsson, G Spagnolo and C Vitale, "A Short Overview of a Methodology for the Ex-Post Review of Merger Control Decisions" (2008) 156 *De Economist* 454.

[14] Niels and Van Dijk, *supra* n 12, 350.

[15] P Sabbatini, "Assessing the Impact of Antitrust Intervention by the Italian Competition Authority" (2008) 156 *De Economist* 494.

[16] Don et al., *supra* n 2, 343.

Neven and Zenger[17] agree that an evaluation on the one hand is an internal tool for quality control and on the other hand allows a comparison of the costs and benefits of competition policy and therefore opens possibilities for external quality control by a supervising institution, researchers and the public.

Typically, it is not advisable to follow each possible aim in one evaluation project. Given the identified trade-off between the degree of aggregation and the degree of detail and accuracy, the decision on the most suitable evaluation object should be made after a decision about the key aim(s) of the evaluation project. For example, a supervising institution is usually interested in a full evaluation of the activities of the competition authority and typically only has a minor interest in the reporting of detailed improvement potential.

In direct relation to the fixation of the aims of an evaluation, a decision must be taken whether the evaluation should be conducted internally or externally and for internal or external purposes. Generally, all four possible combinations have certain advantages and disadvantages which need to be traded-off against each other. Internal studies for internal purposes have the potential to improve internal processes as the evaluators are typically familiar with them and know their strengths and weaknesses. However, disadvantages which need to be considered are the potential for a certain blindness to the institution's failings and possible obstructions to confront colleagues with bad evaluation results. The alternative of an external study for internal purposes solves these problems, however, might create new ones such as a lack of knowledge of the internal procedures or restricted access to important data sources. A potentially good access to data might be a key motivation to conduct an internal study for external purposes, however, the potential disadvantage of communicating suboptimal evaluation results to the public in general and to the parties involved in the wrong case decisions in particular, must be taken into account as well.[18] The advantages and disadvantages of the last remaining option – an external study for external purposes – can basically be derived from the discussion of the alternative options so far. An argument that must be added is that external evaluators might have a higher expertise in the design and implementation of 'state of the art' evaluation methods than internal evaluators. However, they might also have a tendency to treat the authority with care during the evaluation in order to avoid jeopardising future working relationships as external consultants.

Finally, with respect to the context of an evaluation it is important to perceive the general conditions such as the political, social and economic environment under which the evaluation takes place. This is especially important for the interpretation of the results later on. Furthermore, special situations or motivations for undertaking an evaluation must be taken into account as well. An example of such a special situation could be an accumulation of cases lost in court which would most likely trigger an evaluation to find out about the reasons. Another example could be changes in the government followed by changes in the competition policy philosophy.

### *(c) Timing of the evaluation*

The final building block on the first stage of the methodology is the timing of the evaluation project. Generally, three alternatives can be distinguished: An accompanying evaluation, an ex-post evaluation and an ex-ante evaluation. The choice of the timing of an evaluation again depends on the choice of the evaluation object. An accompanying evaluation, for example, is basically the only available option for an evaluation of competition as such, competition policy or competition law, simply because the termination of the respective activities – which would allow an ex-post evaluation – is not a realistic option.

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[17] D Neven and H Zenger, "Ex-post Evaluation of Enforcement: A Principal-Agent Perspective" (2008) 156 *De Economist* 477.

[18] See M Bergman, "Quis Custodiet Ipsos Custodes? or Measuring and Evaluating the Effectiveness of Competition Enforcement" (2008) 156 *De Economist* 387.

The so-called ex-post evaluation is the most prominent type of evaluation and plays the key role as soon as single decisions or bundles of decisions of competition authorities are being evaluated. Typically, such investigations take place after the cases are decided and are therefore open for an ex-post assessment of the decisions and its effects on the parties and the general market development. Typically, such an ex-post assessment compares the effects of a certain intervention with the counterfactual of its absence.[19]

The so-called ex-ante evaluation probably plays the smallest role in competition policy. This type is a suitable option as soon as possible policy reforms are discussed and an assessment of the potential effects on efficiency and efficacy can help to guide the decision into the right direction. However, it must be reminded in this respect that effectively every competition authority is active in the area of ex-ante evaluation as soon as merger control decisions are involved. As part of an evaluation project of such decisions, it is therefore important to consider the information situation at the time of the decision and not at the time of the evaluation.

## 2. Stage two: Execution

The second stage of the proposed methodology is subdivided into three building blocks: The derivation of evaluation criteria, the definition of the counterfactual and the selection and application of indicators and methods. These three building blocks of the second stage are characterized separately in the following.

### *(a) Derivation of evaluation criteria*

An essential determinant of the success of every kind of evaluation is clarity with respect to the aims of competition policy. Generally, most scholars would probably agree that antitrust policy first and foremost aims at creating a deterrent effect by combining "the prospect of being subject to reasonable (and unpleasant) penalties and the serious likelihood of being caught while engaged in the illegal activity".[20] In other words, the key aim of competition policy must be seen in the prevention of (collusive or exclusive) forms of anticompetitive behaviour. Although such a definition certainly reflects the philosophy of competition policy (as opposed to regulation policy), the satisfaction level is hard to measure as basically the optimal degree of deterrence would need to be investigated as part of an evaluation project. Furthermore, in such a context, actual interventions such as detected cartels or prohibited mergers must be understood as a negative output of competition policy as the deterrent effect factually did not work in these cases.[21]

Taking these fundamental problems into account, the most straightforward way to operationalise the key aim of competition policy is to concentrate on its role to stimulate competition in order to stimulate economically efficient behaviour – which in turn is reflected in higher economic growth, higher productivity increases and a generally higher economic welfare.[22] Following such an approach, an efficient antitrust policy "… consists of a set of effectively enforced rules that constrain the firms' competitive strategies *aiming at maximizing the total welfare contribution* for a given enforcement budget."[23] Assuming that such a definition is agreed on, the follow-up question of how welfare should be defined immediately suggests itself.

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[19] See Neven and Zenger, *supra* n 17, 17, 477.

[20] J Baker, "The Case for Antitrust Enforcement" (2003) 17 *Journal of Economic Perspectives* 27.

[21] However, from a theoretical perspective, it is typically optimal to tolerate some degree of violation of competition laws as long as the damage is less than the ex ante costs of deterrence.

[22] J Van Sinderen and R Kemp, "The Economic Effect of Competition Law Enforcement: The Case of the Netherlands" (2008) 156 *De Economist* 376.

[23] K Hüschelrath, *Competition Policy Analysis – An Integrated Approach* (Heidelberg, 2009), 6 (highlighted by the authors).

Given the two basic options of a consumer welfare standard and a total welfare standard, most economists would probably prefer a total welfare standard which, by definition, is only interested in the incremental change in the sum of consumer surplus and producer surplus. If the change is positive, the respective action is defined as welfare increasing and vice versa. However, a frequently discussed problem of such a total welfare standard is that it does not rule out situations in which firms increase their producer surplus at the expense of consumer surplus. In other words, the total welfare standard is (consciously) blind with respect to wealth distribution issues. For example, under a total welfare standard, a merger that is likely to cause significant price increases post-merger is cleared as long as the merging firms can prove the existence of significant merger-specific economies which at least outweigh the additional deadweight loss created by the price increase. The additional transformation of consumer surplus into producer surplus is of no relevance under a total welfare standard. As clearing a merger which directly leads to a price increase post-merger would be difficult to communicate for a competition authority, Van Sinderen and Kemp[24] conclude that a consumer welfare standard should be the preferred option by competition authorities.

In addition to this practical argument, there are several further arguments for the application of a consumer welfare standard. Besanko and Spulber[25], for example, differentiate between a procedural selection of the welfare standard and a conceptional selection of the welfare standard. Given the information asymmetries between the firms and the competition authority, it can be the optimal solution for the authority to follow a consumer welfare standard in order to reach the overall aim of total welfare maximisation. The selection of the consumer welfare standard is basically used as a counterweight to the information advantages of the firms. A comparable argument is developed by Neven and Röller[26], who concentrate on lobbying advantages of companies as justification for the implementation of a consumer welfare standard.

However, even if an agreement on the consumer welfare standard is reached, it is still necessary to further specify the desired set of criteria. In particular, it must be clarified what is understood by consumer welfare and which determinants should enter a possible quantification. Although most studies concentrate on the effects of changes in the market price on consumer welfare, few economists would disagree that other factors such as quality, service or the introduction of new products can create significant value for consumers which would not be reflected in an analysis that solely concentrates on price. As shown by a recent FIPRA study[27], although consumer welfare is greatly influenced by the market price in the short run, the medium and long run perspective suggests that the consumer welfare goal is best reached by focusing on efficiency and innovation. As a consequence, van Sinderen and Kemp[28] propose to enlarge the system of objectives by including medium and long-term indicators such as growth, productivity and employment.

Despite the observed dominance of the consumer welfare standard in antitrust policy, Niels and van Dijk[29] give cause for concern as such a standard might lead to an overactive, too interventionist competition authority which focuses on the realisation of short-term benefits for consumers while largely ignoring the negative medium- and long-term effects on the firm's incentives to innovate. Furthermore, Niels and van Dijk remind that a welfare analysis has to take into account all affected groups such as consumers, producers, government, tax

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[24] Van Sinderen and Kemp, *supra* n 22, 376.

[25] D Besanko and D F Spulber (1993), "Contested Mergers and Equilibrium Antitrust Policy" (1993) 9 *Journal of Law, Economics, & Organization* 1.

[26] D Neven and L-H Röller, "Consumer Surplus vs. Welfare Standard in a Political Economy Model of Merger Control" (2006) 23 *International Journal of Industrial Organization* 829.

[27] See P Evans, "In Search for the Marginal Customer" (2008).

[28] Van Sinderen and Kemp, *supra* n 22, 266.

[29] Niels and van Dijk, *supra* n 12, 350.

payer etc and has to consider all cost and benefit components which are summarised in Table 1.

**Table 1: Main categories of costs and benefits of competition policy**

| Costs | Benefits |
|---|---|
| *Direct (administrative) costs of the authority* | |
| *Direct costs of firms*<br>Regulatory compliance costs<br>Costs of specific competition proceedings | |
| *Economic costs to the market in question (negative market impacts)*<br>Allocative inefficiency<br>Productive inefficiency<br>Distortion of incentives (reduced dynamic competition/innovation)<br>Reduced product/service quality<br>Restriction on market functioning | *Economic benefits to the market in question (positive market impacts)*<br>Allocative efficiency<br>Productive efficiency<br>Enhanced dynamic competition/innovation<br>Increased product/service quality<br>Enhanced market functioning |
| *Indirect regulatory costs*<br>Regulatory uncertainty<br>Likelihood of regulatory capture | *Indirect regulatory benefits*<br>Regulatory certainty<br>Deterrent effects<br>Improved quality of regulation |
| *Social costs (if relevant)*<br>Distributive costs<br>Reduced security/quality of supply<br>Negative effect on vulnerable customers<br>Other negative externalities on society | *Social benefits (if relevant)*<br>Distributive benefits<br>Enhanced security/quality of supply<br>Positive effect on vulnerable customers<br>Other positive externalities on society |

Source: Niels and van Dijk (2008, p. 355)

As shown in Table 1, different categories of cost and benefit components can be defined. Without wanting to provide an exhaustive discussion of all components, two are of particular importance for the remainder of the paper. First, on the benefits side of competition policy, the value created by the deterrent effect of antitrust enforcement must be considered. Second, on the costs side of competition policy, it is insufficient to concentrate on the budget of the competition authority as the major cost factor. A presumably much higher effect is caused by the compliance efforts within the firms. Further cost factors include negative deterrent effects due to imprecise competition rules or errors of competition authorities.

Finally, it is important to remark that an ex-post or accompanying evaluation has to take into account the aims at the time of the decision – not at the time of the evaluation. As a consequence, it is advisable to define the aims of competition policy as clear as possible in order to allow a fair and effective evaluation later on.

***(b) Definition of the counterfactual***

Following the definition of evaluation criteria, the next step has to define a counterfactual in order to be able to compare the performance level of the status quo with the (likely) performance level if a different action or no action would have been implemented. As counterfactuals – by definition – cannot be observed, they must be constructed. In case of a prohibited merger, for example, it needs to be investigated what would have happened if the merger is cleared.

Given the various evaluation objects with different levels of aggregation, it immediately suggests itself that the counterfactual must be designed individually. Although it is beyond the scope of this paper to discuss all seven possible evaluation objects, an interesting example is the distinction between an evaluation of competition law and an evaluation of a competition authority. While a suitable counterfactual for a legislative change would be the continuation of the old rules or alternative reforms, a suitable counterfactual for an evaluation of a

competition authority is not necessarily a state of no competition policy but could be a state in which only the private enforcement of competition policy is feasible. As a consequence, a competition authority cannot claim the entire benefit of competition law enforcement and a closer investigation would especially need to clarify which types of enforcement benefits would be gained or lost in a system of private enforcement compared to a system of dual enforcement.[30]

On a low level of aggregation, counterfactuals need to be constructed for single case decisions or bundles of case decisions. Although the majority of research is devoted to this question with respect to merger control, a perspective on the construction of a counterfactual for cartel cases should be added in the following. With respect to mergers, Buccirossi et al.[31] develop a whole methodology for an ex-post review of merger control decisions including an elaborate thinking on the derivation of the counterfactual. Generally, the authors differ between three possible decisions of the competition authority: approval without remedies, approval with remedies and prohibition. In a second step, the behaviour of the merging parties must be related to the possible decisions. Basically, the parties can either decide to offer remedies or to refrain from doing so. Given these allocations, the counterfactuals can be derived as summarised in Table 2.

**Table 2: The relevant counterfactuals for an ex-post review of merger control decisions**

| Decision of the competition authority | Parties' behaviour | Counterfactuals |
|---|---|---|
| *Authorisation without remedies* | | |
| | No remedies offered | Prohibition |
| | Remedies offered | Prohibition<br>Authorisation with remedies |
| *Authorisation with remedies* | | |
| | No remedies offered | - |
| | Remedies offered | Prohibition<br>Authorisation without remedies |
| *Prohibition* | | |
| | No remedies offered | Authorisation without remedies |
| | Remedies offered | Authorisation without remedies<br>Authorisation with remedies |

Source: largely following Buccirossi et al. (2008, S. 457)

As shown in Table 2, the only possible counterfactual in case of an approval without remedies and the absence of a remedies proposal by the firms is the prohibition of the merger. This is the case because the competition authority is typically not allowed to propose remedies itself and an approval with remedies is therefore no valid counterfactual in such a situation. Table 2 further clarifies that the construction of a counterfactual is particularly difficult in cases in which the merging parties offered remedies, basically because this leads to an increase in the number of possible counterfactuals.[32]

In the case of cartel enforcement, the construction of a counterfactual looks straightforward. This has partly to do with the fact that a cartel is clearly defined and banned in many countries around the world due to its clearly negative welfare implications. As a consequence, the competition authority is unlikely to make any errors in its decisions. However, it is nevertheless necessary to derive a counterfactual that reflects the (likely) market developments in the absence of the cartel agreement to subsequently derive the incremental welfare effects of the intervention. For the calculation of this welfare differential,

[30] *Ibid*, 357.
[31] Buccirossi et al., *supra* n 13.
[32] See generally Buccirossi et al., *ibid*, for a detailed description.

it is of no particular interest for how long the cartel already existed – this question will be assessed in court as part of the public and private lawsuits – but how long the cartel would have continued to exist without the intervention of the competition authority. The detailed approach will be sketched in the following section.

***(c) Selection and application of indicators and methods***

Following the derivation of evaluation criteria and the definition of the counterfactual, the selection and application of indicators and methods is the next consecutive step in the proposed methodology. Generally, indicators aim at making the aims and criteria observable and measurable. In particular, it must be decided which criteria are considered as especially relevant for the specific evaluation project and how these criteria should be measured. Subsequently, the selection and application of suitable methods has to commence.

In principle, the selection and application of indicators and methods depend on the evaluation object. Although it would be generally desirable to discuss the indicators and methods for all seven evaluation objects, the remainder of this section concentrates on particularly two objects: selected case decisions or bundles of case decisions and the entire competition policy. Most existing studies can be related to one of those two evaluation objects.

**Selected case decisions or bundles of case decisions as evaluation object**

As already discussed above, an evaluation of selected case decisions or bundles of case decisions can be motivated by several aims. Assuming for the time being that the key aim of such an investigation lies in the identification and realisation of improvement potential of the internal processes, the subsequent step has to decide on the appropriate welfare standard. If a consumer welfare standard is chosen, the measurement of the following key indicators is typically suggested: market price, transaction volume, product quality and product diversity. Although these rather short-term indicators will play the key role in the following, the importance of medium- and long-term indicators such as economic growth, productivity or employment is generally acknowledged. However, it is rather unlikely that selected case decisions or (smaller) bundles of case decisions have a significant measurable impact on such macroeconomic indicators. In the following, the analysis is separated into methods to evaluate merger control decisions and the effects of cartel enforcement.

*Methods to evaluate merger control decisions*

Starting from the key aim of merger control – the maximisation of its contribution to consumer welfare – the degree of achievement is typically increasing with decreasing prices, increasing sales as well as increasing product quality and diversity. The key objective for an evaluation now lies in the monitoring of changes in these indicators since the decision and to compare these results to the counterfactual scenario. Based on Table 2 above, Buccirossi et al.[33] propose a separate methodological approach for every single combination of decision by the competition authority and the behaviour of the parties. In the following, only the first case (Authorisation without remedies / no remedies offered / prohibition) and the last but one case (Prohibition / no remedies offered / authorisation without remedies) will be briefly sketched.

In case of an authorisation without remedies where the merging parties did not offer any remedies, the only possible counterfactual is the prohibition (as the competition authority is not allowed to take the initiative in proposing remedies). As a consequence, the consumer welfare effects of the authorisation of the merger must be compared to the (hypothetical) situation of the prohibition of the merger. Such an analysis can be conducted in two steps. In a first step, the changes in the key indicators – such as price or quality – are observed. If it is,

[33] *Ibid.*

for example, found that the price decreased after the merger, this suggests a correct merger decision as consumer welfare likely increased post-merger. However, as these effects are not necessarily caused by the merger but can be driven by external factors, the second step has to investigate econometrically to what extent a causality between the key consumer welfare indicators and the merger exists. In this context, Buccirossi et al.[34] develop a detailed list of possible hypotheses and empirical research strategies.

The second exemplary case sketched here – a prohibition where the merging parties did not offer any remedies – is more complicated to investigate. This has basically to do with the fact that the observable market developments after the merger are of no particular help for the derivation of a hypothesis which could be tested subsequently. As a consequence, it is only possible to define and test a causality between a hypothetical merger and its hypothetical effects on consumer welfare.

Based on this partly sketched methodological framework, Buccirossi et al.[35] collect and describe the key empirical methods which might be used in an ex-post evaluation of merger control decisions. In general, these methods include simulations, structural models, policy evaluation methods (i.e. natural experiments and matching methods), event studies and surveys. Table 3 gives a broad overview of the methods and their key strengths and weaknesses.

[34] *Ibid*, 460.
[35] *Ibid*, 464.

**Table 3: A selection of methods for the evaluation of merger control decisions**

| Method | Characterisation | Strengths (+) and weaknesses (-) |
|---|---|---|
| *Simulation* | Simulations apply oligopoly models to estimate the effect of (hypothetical) changes in market structure on market performance. E.g., in a merger context, simulation tools allow the calculation of hypothetical price increases if the merger would have been cleared. | + Based on a clearly defined theoretical framework<br>+ Allows a quantification of effects<br>+ Allows sensitivity checks<br>- Simplifying assumptions<br>- Evaluation of the method revealed partly disappointing performances |
| *Structural model* | Structural models estimate the parameters of a set of structural equations which characterise the respective market of interest. The equations are derived from oligopoly models. The estimated parameters are applied to simulate possible scenarios which allow an ex-post evaluation. | + Based on a clearly defined theoretical and empirical framework<br>+ Allows various specifications of demand and competitive interaction<br>+ Allows sensitivity checks<br>- Trade-off between applicability and accuracy of the estimations<br>- High data requirements |
| *Natural experiment and matching-method* | Both methods rely on a market- or firm-based comparison of two distinct groups: a control-group and an experimental group. It is assumed that an analysis of the differences in the performance of both groups can be related to the effect of the intervention. | + Frequently and flexibly applicable<br>+ Low to medium data requirements<br>+ Allows a quantification of effects<br>- Accuracy of results depend on degree of similarity of control group<br>- Possible endogeneity problems |
| *Event study* | Event studies aim at measuring the effects of particular events on firm value. In the context of merger control, an analysis of the stock price reactions of the competitors at the time of the announcement of the merger and the decision allows to draw conclusions on the motivation behind the merger as well as the correctness of the decision. | + Based on a clearly defined empirical framework<br>+ Allows a separation of the effects of the merger and the decision<br>+ Low data requirements<br>- Only applicable for listed firms<br>- Simplifying assumptions<br>- Evaluation of the method revealed partly disappointing performances |
| *Survey* | Surveys aim at collecting mostly qualitative information by conducting interviews or submitting questionnaires. Surveys focus on a representative cross-section of the relevant population including competitors and customers. | + Frequently and flexibly applicable<br>+ Complements the other methods as it allows interpretation of results and plausibility checks<br>- Risk of low return/participation rates<br>- Results can underlie response and interviewer biases |

Source: inspired by the detailed characterisation in Buccirossi et al. (2008)

Generally, Table 3 leaves the impression that every technique has its particular strengths and weaknesses and that a suitable selection of the method depends on the question to be investigated, the market characteristics as well as the available data. Ideally, different methods are combined in order to allow robustness checks of the derived results.

Given the characterisation of the key methods for an evaluation of merger control decisions, the economic literature discusses an ample number of problems and challenges with their application. Sabbatini[36] stresses the point that an application of quantitative methods typically demands two data sets – the one from the investigation and a new one

[36] Sabbatini, *supra* n 15, 496.

reflecting market developments in the aftermath of the decision. It often turns out to be difficult to get access to both (structurally identical) data sets as competition authorities are typically not allowed or willing to hand over data sets to third parties and firms cannot be forced to provide new data sets.

Neven and Zenger[37] raise the general question, whether an ex-post evaluation of merger control decisions should concentrate on authorised or prohibited mergers. Authorised mergers are typically easier to investigate as the counterfactual can be derived by studying post-merger market developments. An additional advantage can be seen in the creation of knowledge whether the decision of the competition authority was correct. However, a key problem of constraining the analysis to authorised mergers must be seen in the limitation of the analysis to type 2 errors while ignoring type 1 errors[38]. As a consequence, incentives are created for the competition authority to keep type 2 errors small at the expense of type 1 errors – possibly leading to an overly active competition authority.

Furthermore, Neven and Zenger[39] also remind of the potential relevance of the point in time at which the evaluation is conducted. Given the fact that the market power effects of a merger typically materialise relatively shortly after the merger while the realisation of merger efficiencies might take significantly more time, the point in time at which the evaluation is conducted can have a clear influence on its results.

Additionally, it must be reminded that post-merger price increases as such do not allow the immediate conclusion that consumer welfare has decreased in the aftermath of the merger. In principle, it is possible that a better product quality or variety or positive medium- and long-term effects on eg innovation incentives and possibilities can overcompensate the (possibly) only short-term negative effects of elevated prices on consumer welfare.

In addition to a quantification of the welfare effects of certain case decisions, there are possibilities to evaluate the entire merger control activities of a competition authority.[40] For example, the last years have seen a couple of studies on the effectiveness of merger remedies in both practice[41] and academia.[42] Generally, these studies aim at investigating the effects and effectiveness of merger remedies.

*Methods to evaluate the effects of cartel enforcement*

The general approach to evaluate the welfare effects of cartel enforcement is straightforward. Starting from the observed (elevated) cartel price, a so-called ‘but-for’ price needs to be derived. This is the price that (likely) would have existed in the absence of the cartel. The difference between the cartel price and the ‘but-for’ price must be multiplied by the sales of the cartel (for the entire cartel period) in order to receive a first estimate of the consumer welfare implications of the cartel and its detection.

However, despite this rather simple general approach, practical applications regularly experience several challenges. For example, it is sometimes hard to derive a single market price, to estimate the exact length of the cartel, to estimate the size of the pass-on effects to subsequent stages in the value chain or to consider the impact of taxes. Furthermore, a particular challenge is the derivation of the ‘but-for’ price. Economic research has developed

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37 Neven and Zenger, *supra* n 17, 483.

38 Basically, a competition authority in an imperfect world is confronted with two basic kinds of antitrust errors. On the one hand, the authority might detect an instance of harmful behaviour which in fact is not harmful (a so-called type I error). On the other hand, the authority might come to the conclusion that a certain behaviour is not harmful although it is in fact harmful (a so-called type II error). Generally, antitrust errors harm social welfare directly by undertaking wrong enforcement decisions and indirectly via the consequential reduction in the deterrent effect of fines.

39 Neven and Zenger, *supra* n 17, 485.

40 See generally Hüschelrath, *supra* n 23, 78.

41 See, eg, Federal Trade Commission, “A Study of the Commission’s Divestiture Process” (1999).

42 See, eg, Duso et al., *supra* n 6.

ample methods for its estimation such as the application of market prices before or after the cartel, prices in comparable competitive markets, price simulations with oligopolistic models or the derivation of the 'but-for' price by applying cost data and adding a typical rate of return for the respective industry.[43] The choice of the most suitable method basically depends on the respective market and data situation. For example, if there are indications that tacit collusion was present before the detected cartel, a pre- or post-cartel market price might not act as a suitable 'but-for' price.[44] Furthermore, simulations are often only an available option in homogeneous markets and a comparison with similar (but competitive) markets is only as good as the fit between the cartelised market and the comparator competitive market.

The discussion on the evaluation of cartel enforcement so far is identical to the calculation of damages in private law suits. However, such a procedure is necessarily focusing on the harm caused by the cartel in the past, while the interest of an evaluation is more the question of how significant the losses would have been if the cartel was not detected and continued to operate. As a consequence, as part of an evaluation of cartel enforcement, an estimate of the remaining life of the cartel must be derived. One option in this respect would be to use historical average cartel length data and to subtract the operating time of the cartel before its detection. However, given the different costs and benefits of cartel agreements in different industries, it is sensible to apply at least average industry values on cartel length. Ideally, the case at hand provides insights on the expected remaining life of the cartel.

In addition to a quantification of the welfare effects of certain case decisions, there are certain possibilities to evaluate the entire cartel enforcement policy of a competition authority. Generally, it is a difficult undertaking to interpret the number of detected cartels from an evaluation perspective, basically because a small number can suggest a successful deterrent policy but could also be an indicator of a poor cartel enforcement policy. Given this identification problem, the economic literature has identified several indirect ways to assess cartel enforcement policies. For example, it is possible to compare a best practice enforcement framework with the status quo in a competition authority,[45] to compare the theoretically optimal fines for cartelisation with the fines actually imposed by the competition authority or the court[46] or to investigate the sustainability of the effects of the detection of the cartel on post-cartel market prices and market competition.[47]

### Entire competition policy as evaluation object

Following the discussion of selected case decisions or bundles of case decisions, this section focuses on the entire competition policy as evaluation object. For presentation purposes, the analysis is separated into two sub-sections. The following sub-section discusses methodological approaches in practice while the subsequent sub-section focuses on academic attempts to evaluate the entire competition policy.

#### *Methods applied in practice*

The key aim of an evaluation of the entire competition policy in practice is to meet the respective obligations from supervising institutions. As it will be shown in the following, the methods applied in such studies are – at least partly – so inexact that they can hardly be used to derive detailed improvement potentials.

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[43] See generally T Van Dijk and F Verboven, "Quantification of Damages", University of Antwerp Working Paper (2005).

[44] See J Harrington, "How Do Cartels Operate?" (2006).

[45] See Hüschelrath, *supra* n 23, 199.

[46] See C Veljanovski, "Cartel Fines in Europe: Law, Practice and Deterrence" (2007) 29 *World Competition.*

[47] R Feinberg, "Strategic and Deterrent Pricing Responses to Antitrust Investigations" (1984) 2 *International Journal of Industrial Organization* 75 and N De Roos, "Examining Models of Collusion: The Market for Lysine" (2006) 24 *International Journal of Industrial Organization* 1083.

To a certain extent the only exception to this initial statement is an ex-post evaluation instrument which on the one hand operates on a case-by-case basis and on the other hand evaluates the decisions of the competition authority on a permanent basis: the investigations and decisions by courts. Generally, every firm (or individual, respectively) that is confronted with a disadvantageous decision of a competition authority has the possibility for a review by the responsible court. Given this form of ex-post assessment, if now the decisions of the competition authority (in a certain area) are frequently corrected or annulled by a court, a suboptimal performance of the authority seems likely. Although, on the surface, it is appealing to take the success rate of decisions of the competition authority before court as a key indicator for an evaluation, Bergman[48] identifies several important drawbacks of such an indicator. For example, not every type of decision of a competition authority is challenged in court with the same probability leading to significant biases in such an evaluation. Furthermore, the decision of the court is concentrating on law-related arguments and is not particularly driven by the economic implications of the respective cases. Additionally, a competition authority which is evaluated on the basis of the success rate in court has incentives to concentrate on rather small cases as the probability of a subsequent investigation in court is reduced significantly.

In addition to a measurement of the success rate in court, several other methods exist to directly assess the (superficial) outputs of a competition authority. Examples for such methods or indicators are the number of investigated and decided cases, the average length of an investigation, the number of published guidelines or the intensity of interaction with other competition authorities. However, as already argued above, such indicators are difficult to interpret and of limited general relevance. Nevertheless, they might reveal important information if the respective numbers are compared for one particular competition authority over time.

Apart from a compilation and assessment of various output-related indicators, other periodical evaluations of the entire competition policy are available. The OECD, for instance, regularly organises peer reviews to evaluate the competition policy of particular countries.[49] Additionally, the OECD calculates a 'Competition Law and Policy Indicator' for all its member countries which aims at reflecting the state of two important policies for the promotion of competition – competition policy and deregulation policy – into a single indicator and therefore allows country-to-country comparisons.[50] Additionally, private institutions such as the Global Competition Review (GCR) are active in the field of evaluation of competition policy. The GCR, for example, evaluates and ranks the competition authorities in many countries around the word on a yearly basis. The underlying data is gathered partly by interviews among the peer group and partly by surveys among antitrust lawyers. Recently, academic studies have partly been based on GCR data comparing the competition policy regimes.[51]

In addition to courts and several organisations, the competition authorities themselves are active in the evaluation of competition policy. The Office of Fair Trading in the UK, for instance, recently started to estimate the 'positive impact' of its activities on direct benefits to consumers. The purpose of this exercise is to measure the OFT's performance towards the 5:1 target agreed with the HM Treasury – delivering direct financial benefits to consumers of at

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[48] Bergman, *supra* n 18, 389.

[49] See, eg, OECD, "Country Studies - Ukraine - Peer Review of Competition Law and Policy" (2008).

[50] See J Høj, M Jimenez, M Maher, G Nicoletti, and M Wise (2007) "Product Market Competition in the OECD Countries: Taking Stock and Moving Forward", OECD Economics Department Working Papers, No. 575 (2007).

[51] See especially M Nicholson, "An Antitrust Law Index for Empirical Analysis of International Competition Policy" (2008) 4 *Journal of Competition Law and Economics* 1009 and M Nicholson, "Quantifying Antitrust Regimes" (2007) 3 *Erasmus Law and Economics Review* 41.

least five times its cost to the taxpayer, per year, on average, over the period 2008 to 2011.[52] The Dutch Competition Authority NMa follows a comparable approach to evaluate its competition policy enforcement and even extents the scope of the evaluation by investigating the impact of competition policy on macroeconomic factors such as growth and employment.[53]

Compared to these two relatively new evaluation concepts, the United States must be considered as relatively experienced in the evaluation of competition policy. Since 1993, the Government Performance and Results Act (GPRA) obliges the two US competition authorities to report on the effects of the undertaken actions by documenting suitable performance indicators on a yearly basis.[54] In all three cases, a so-called bottom-up approach is followed which starts at case decision level and tries to apply rules of thumb or simple simulation models to estimate the consumer welfare implications. This data is aggregated within the different areas and subsequently for the entire competition authority to make a final comparison of the overall benefits with the overall costs feasible. In the following, the evaluation approaches of the US Department of Justice (DOJ) and UK Office of Fair Trading (OFT) are sketched exemplarily with respect to merger control and cartel enforcement.

The evaluation approach of the DOJ follows the aim of measuring the consumer savings due to antitrust enforcement in the areas of merger control as well as the enforcement of cartels and cases of abuse of dominance.[55] In merger control, a rough estimate of the consumer savings is derived by multiplying the yearly revenues in the relevant market with the likely price increase that would have been observed in the absence of merger control. The likely price increases are typically derived by applying simple simulation tools. In differentiated final consumer markets, a differentiated Bertrand-type model provides the basis for the analysis, while the price increases of mergers in all other markets are derived from the application of a Cournot-type model.

In the area of cartel enforcement, the DOJ estimates the consumer savings by applying a simple rule.[56] For cartels that existed one year or longer, consumer savings of 10% of the yearly revenues in the relevant market are included on the benefits side of the calculation. For cartels which existed less than a year, consumer savings of 10% of the yearly revenues in the relevant market for the duration of the cartel are taken as benefits estimate. The 10% value is justified as an estimate of the average price effect of a cartel. However, given that recent economic research finds an average cartel overcharge across all studies of 28.1%, the estimate must be considered as quite defensive.[57] A further assumption which speaks for an underestimation of the effect must be seen in the practice, that the benefit of the detection of a cartel only enters the benefits calculation once – in the year of the detection. Again, casting an eye on existing economic research reveals cartel durations of up to 100 years; therefore, it seems likely that – without the detection success – the average cartel would have caused harm for much longer than one year.

In the UK, the OFT regularly reports on the 'positive impact' of its actions on consumer welfare. The investigation – which started in the business year 2005/06 – includes not only merger control and cartel enforcement but also most other areas of competition policy and consumer protection.[58] The general evaluation approach is similar to the DOJ approach

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52 See Office of Fair Trading, *supra* n 1.

53 See Don et al., *supra* n 2.

54 See Werden, *supra* n 3.

55 *Ibid.*

56 *Ibid*.

57 See generally J Connor and J Zimmerman, "Determinants of Cartel Duration: A Cross-Sectional Study of Modern Private International Cartels", Purdue University Working Paper (2005).

58 See Office of Fair Trading, "Positive Impact: An Initial Evaluation of the Effect of the Competition Enforcement Work conducted by the Office of Fair Trading" (2005) and Office of Fair Trading, "Positive

described above, however, the OFT continuously improved the evaluation concept and the evaluation methods in the last years. In its most recent assessment, for example, the OFT dropped the very simplifying assumption of a 1% price increase for every prohibited or remedied merger and now applies merger simulation tools whenever possible.[59] Additionally, the duration of the consumer welfare effect of the respective enforcement actions was extended from one year to two years. In the area of cartel enforcement the estimation of the (hypothetical) remaining life of detected cartels was improved by introducing a new concept. For cartels which operated seven years or less at the time of the detection, a remaining life of six years is assumed. For cartels which already operated more than seven years at the time of the detection, the remaining life is approximated by multiplying the actual life with the factor 1.4 and subtracting 3.5 years.

Given this short foray through the evaluation concepts of the DOJ and the OFT, a couple of methodological problems or challenges are obvious. For example, both concepts assume that the competition authority was always right in their decisions. Although such an assumption might be reasonable for cartel enforcement, it is probably not for merger control and the other areas of competition policy. A further problem lies in the failure of both concepts to include the deterrent effect of competition policy enforcement into the evaluation. Given the frequent statements that the deterrent effect is probably the most important effect of competition policy enforcement, the question about the value of an evaluation which leaves out this effect immediately suggests itself.[60] A further critical point must be seen in the failure to secure a balanced comparison of costs and benefits. It must be considered suboptimal to invest substantial resources in the more and more sophisticated measuring of the benefits of competition policy to then continue with a comparison of this value with the budget of the competition authority. A balanced comparison of the costs and benefits demands an equally sophisticated assessment of the respective costs such as compliance efforts by firms, business chilling effects (i.e. negative deterrent effects) due to imprecise competition rules or the costs of running the respective parts of the law system.

In addition to these general drawbacks of the approaches, there are a couple of more specific critical aspects. For example, the studies measure consumer welfare basically only with respect to price changes, largely ignoring other determinants of consumer welfare or

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Impact 06/07 - Consumer Benefits from Competition Enforcement, Merger Control, and Scam Busting“ (2007a).

59 See Office of Fair Trading, “Consumer Savings from Merger Control. Merger Simulation for Impact Estimation” (2007b).

60 A recent study by Deloitte on behalf of the OFT tries to tackle this key problem. Interestingly, the aim of the study was not to simply detect indications for the existence of a deterrent effect but to measure its size in relation to the direct effects realized in the areas of cartels, mergers and abuses of dominant positions. In order to reach this aim, 30 expert interviews were conducted between May and November 2006 among antitrust lawyers, economists and firms. These efforts were complemented by two telephone-based surveys: the first survey addressing 234 antitrust lawyers and the second survey addressing 202 firms (all belonging to the ‘more than 200 employees’ category) in the UK. As part of this extensive survey, the deterrent effect of, eg, merger control was measured as number of merger plans that were abandoned or modified after consulting external lawyers but before the OFT was informed about the plans relative to the number of mergers in which a substantial lessening of competition was found during an OFT investigation. The results for the survey of the lawyers show for the period from 2000 to 2006 a ratio of 5 to 1 for merger control and cartel enforcement and a ratio of 10 to 1 for abuses of dominant positions – in all cases reflecting the relationship of the deterrent effect and the direct effect. Gordon und Squires interpret these estimates as rather defensive given the fact that the study only focused on merger plans which were abandoned or modified after consulting external lawyers. In practice, especially large companies might provide the respective consulting services in-house and are therefore not reflected in the results. This conjecture is confirmed by the complementary survey of firms which finds that on average only one out of four merger plans is discussed with external lawyers. See Deloitte, “The Deterrent Effect of Competition Enforcement by the OFT” (2007) and F Gordon and D Squires, “The Deterrent Effect of UK Competition Enforcement” (2008) 156 *De Economist* 418.

other damages caused by cartels, respectively. With respect to the cartel enforcement approach, both concepts ignore deadweight losses and possible umbrella effects. Furthermore, the approaches to derive the (hypothetical) remaining life of cartels at least demand further discussions. Following a hypothesis by Shughart and Tollison[61], a competition authority tends to detect over proportionally many inefficient cartels which are at the border of breaking apart anyway, leaving the really successful cartels undetected. Furthermore, economic research has partly confirmed market price decreases after the detection of the cartel, however, also found significant price increases relatively shortly afterwards. If such behaviour can be observed regularly, the medium- and long-term deterrent effect of cartel enforcement might be significantly smaller than initially expected. Given the multitude of problems to measure the effects of the entire competition policy, Neven and Zenger[62] raise the question to what extent it is sensible to regularly burn resources for such heavily built investigations.

*Methods applied in academia*

In addition to the practical approaches to evaluate the entire competition policy of a country, there are a couple of methodological approaches in academia which try to address this issue. For example, the probably oldest studies which can be interpreted as evaluation studies are estimations of the size of the deadweight losses for industries and even whole economies. Based on the well-known relationship between the deadweight loss and the price-cost margin, the industry revenues and the price elasticity of market demand, Harberger[63] and other researchers after him tried to approximate the size of deadweight loss (expressed in % of GNP) and were partly surprised by its relatively small size. However, if further welfare losses due to market power such as rent seeking expenditures or productive inefficiencies are taken into account, the negative effect of market power – and therefore the positive effect of competition policy – grows significantly.[64] However, in addition to several severe methodological problems of these approaches, in particular, they do not offer a possibility to derive a counterfactual. Therefore, the key message of these early contributions is that even if competition policy only has a tiny influence on competition in an economy, the resulting positive effects on welfare can be quite substantial.

George Stigler can be considered as pioneer of studies which compare the market outcomes in economies or industries with a) other countries without a comparable degree of antitrust enforcement, b) periods before and after certain legislative changes went into force, or c) industries which enjoyed some form of antitrust immunity.[65] To give a specific example of such a type of analysis, Baker[66] evaluates evidence from four episodes of no or lax antitrust enforcement in the US and basically finds that periods of relaxed antitrust enforcement showed an increase in anticompetitive behaviour such as cartel formation or anticompetitive horizontal mergers. He therefore concludes that "[c]ompetition does not invariably happen by itself"[67], as firms have incentives to restrict competition either collusively or exclusively.

Also in the spirit of the work of Stigler is the contribution of Warzynski.[68] He tests whether antitrust policy had an impact on the price-cost margins in the US manufacturing industry. His results indicate the presence of market power in many industries but also substantial

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61 W Shughart and R Tollison, "Collusion, Profits, and Rational Antitrust" (1998) 43 *Antitrust Bulletin* 365.

62 Neven and Zenger, *supra* n 17.

63 A Harberger, "Monopoly and Resource Allocation" (1954) 44 *American Economic Review - Papers and Proceedings* 77.

64 See generally Hüschelrath, *supra* n 23, 12.

65 See generally G Stigler, "The Economic Effects of the Antitrust Laws" (1966) 9 *Journal of Law and Economics* 225.

66 Baker, *supra* n 20, 27.

67 *Ibid*, 42.

68 F Warzynski, "Did Tough Antitrust Policy Lead to Lower Markups in the US Manufacturing Industry?" (2001) 70 *Economics Letters* 139.

heterogeneity of behaviour, across both time and industries. However, he concludes that price-cost margins were significantly lower when the antitrust policy was tough. Furthermore, Konings et al.[69] investigate the impact of competition policy on the level and the dynamics of firm price-cost margins in the Belgian and Dutch manufacturing industries. Belgium significantly strengthened their competition law in 1993, while the Netherlands followed a more lenient approach until the very end of the last century. The empirical results show that the reform of competition policy in Belgium did not have any significant effect on the price-cost margins in Belgium. However, a comparison between Belgium and the Netherlands revealed that price-cost margins in the Netherlands were significantly higher than those in Belgium.

With respect to cartel enforcement, there are several studies which shed some light on the importance and value of the deterrent effect. Block et al.[70], for example, find for the US bread industry that an increase in the DOJ's enforcement capacity or filing of a DOJ price-fixing complaint had a negative effect on the price mark-ups. Furthermore, Block and Feinstein[71] find evidence on the existence of a deterrent effect in highway construction procurement auctions. Clarke and Evenett[72] show for the case of the international vitamins cartel that the cartel reduced its overcharges in jurisdictions with tough cartel enforcement. For most European jurisdictions, this reduction in overcharges reached by the presence of tough cartel enforcement regimes was already large enough to cover a substantial proportion of the overall budgets of the respective antitrust authorities (including the budget of DG Competition at the European Commission). Finally, Symeonidis[73] analyses the effect of the introduction of anti-cartel laws in the United Kingdom in 1956 and finds that price competition increased and led to lower margins in industries which had been previously cartelized.

## 3. Stage three: Reporting

The third stage of the proposed methodology is subdivided into three building blocks: The derivation and interpretation of results, an appraisal of the significance of the results and the derivation of conclusions. These three building blocks of the third stage are characterised separately in the following.

### *(a) Derivation and interpretation of results*

Following the selection and application of indicators and methods on the previous stage, the derivation and interpretation of the results of an evaluation is the natural starting point on the reporting stage. Dependent on the evaluation object, the aims of the evaluation and the applied methods, it might not only be necessary to interpret single results but also to initially aggregate single results to an overall result. For example, as part of an evaluation of a competition authority, although the results for the different activities were derived on the preceding stage, the aggregation to an overall benefit and a comparison to the overall costs needs to take place on the third stage. As part of such an exercise, the introduction of different weightings for the various criteria or results might be suitable.

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[69] J Konings, P Van Cayseele and F Warzynski, "The Dynamics of Industrial Markups in Two Small Open Economies: Does National Competition Policy Matter?" (2001) 19 *International Journal of Industrial Organization* 841.

[70] M Block, F Nold and J G Sidak, "The Deterrent Effect of Antitrust Enforcement" (1981) 89 *Journal of Political Economy* 429.

[71] M Block and J Feinstein, "The Spillover Effect of Antitrust Enforcement" (1986) 68 *Review of Economics and Statistics* 122.

[72] J Clarke and S Evenett, "The Deterrent Effects of National Anticartel Laws: Evidence from the International Vitamins Cartel" (2003) 48 *Antitrust Bulletin* 725.

[73] G Symeonidis, "Price Competition and Market Structure: The Impact of Cartel Policy on Concentration in the UK" (2000) 48 *Journal of Industrial Economics* 1.

Following the derivation of the results, they have to be interpreted. In particular, it is important to identify the important drivers of the results and to draft suggestions for improvement. If this is not possible – possibly due to a high level of aggregation of the evaluation – there is still a need to identify problematic areas which can be investigated more closely in the aftermath (see especially the subsequent building block).

A last aspect that needs to be considered within this building block is the question of how to communicate the results of the evaluation. As already sketched on the first stage, internal studies on the one hand have the disadvantage of foreclosing external quality control and suggestions of improvement ideas. On the other hand, it must be considered that the communication of the evaluation results can also have negative effects on the internal incentives of the authority as such as well as individual employees.[74] Additionally, the publication of erroneous decisions might cause legal problems for the competition authority if the parties involved decide to sue.

***(b) Appraisal of the significance of the results***

Technically, an appraisal of the significance of the results can be seen as part of the interpretation of the results sketched in the preceding section. However, given its importance for the overall success of the evaluation, the proposed methodology considers it separately. In particular, this building block follows the aim of identifying the key results together with the underlying key assumptions as well as the general weaknesses or methodological challenges.

In general, the discussion on the previous stages of the methodology identified several potential methodological problems of an evaluation of competition policy. With respect to the first stage, the clear identification of an evaluation object is as important as the respective harmonisation with the functions, the aims and the context of the evaluation. In particular, the prioritisation of aims and potential problems experienced during the evaluation – such as severe data constraints, doubts on the independence of the evaluation team or weaknesses in the application of certain methods – should be discussed on this occasion. This includes an appraisal of the question to what extent the context of the evaluation drives the observed results.

With respect to the second stage, the derivation of the evaluation criteria for the chosen evaluation object is of great importance for an appraisal of the significance of the results. This is especially true for cases in which the aims and criteria are not as clearly defined as necessary. The same conclusion is basically true for the selection of indicators. Given the diversity of possible indicators, it is virtually impossible to consider all of them in an evaluation. As a consequence, it needs to be discussed why the respective selection was considered as optimal and what would be the likely effects of changes in the indicators on the final results. This includes an appraisal of the role of interactions and overlaps of different policy actions.

The probably largest degree of freedom is present in the selection and application of methods. Given this flexibility, a detailed explanation of the chosen method is pivotal. This is particularly true in cases where sub-samples of cases are investigated and the question is raised how this sub-sample relates to the population (i.e. the potential problem of sample selection biases). Furthermore, simplifying assumptions such as the abstraction from deadweight losses or the use of average cartel lengths have to be expressed clearly. In case of efficiency or effectiveness analyses, it is of great importance to provide a detailed appraisal of possible over- or underestimations of the true costs and benefits of certain actions. Following the detailed assessment by van Sinderen and Kemp[75] a purely static assessment of the welfare effects of competition policy might miss a large fraction of the positive (or negative) spill-over effects in either the same or adjacent markets. A further factor which is usually

[74] See generally Neven and Zenger, *supra* n 17.
[75] Van Sinderen and Kemp, *supra* n 22.

connected to an underestimation of the benefits of competition policy is the deterrent effect of antitrust enforcement. As long as only the direct effects enter a quantification leaving out the potentially more important deterrent effect, an evaluation exercise is necessarily incomplete.[76]

In addition to an underestimation of the benefits, the opposite possibility needs to be considered as well. As argued by van Sinderen and Kemp[77], the benefits might be overstated due to the failure to consider switching to alternative products following a price increase or the negative effects on innovation and economic growth a decision of a competition authority (based on short-term indicators) might cause. A further important welfare decreasing effect is created by wrong case decisions of competition authorities and their negative spill-over effects on firm decisions in the future.

However, the probably most important message in this building block is that in order to secure a balanced comparison of costs and benefits, it is suboptimal to invest substantial resources in the more and more sophisticated measuring of the benefits of competition policy to then continue with a comparison of this value to the budget of the competition authority. A balanced comparison of the costs and benefits demands an equally sophisticated assessment of the respective costs such as compliance efforts by firms, business chilling effects (i.e. negative deterrent effects) due to imprecise competition rules or the costs of running the respective parts of the law system.

***(c) Derivation of conclusions***

The final step of the methodology aims at initiating learning and implementation processes. A key technical aspect in this respect is the effects of the evaluation (results) on the incentives of the authority in general and the individual employees in particular. For example, a suboptimally conducted and/or communicated evaluation might not only interfere with the individual motivations of the employees but might also lead to incentives to reallocate parts of the authorities' budget in a way which is detrimental to the desired maximisation of the positive welfare impact of competition policy. Following an example by Neven and Zenger[78], an authority which is evaluated solely by its contribution to consumer welfare has an incentive to focus their enforcement efforts on large cases while ignoring the smaller cases. However, such a development might cause a suboptimal overall antitrust enforcement as also an enforcement of smaller cases can have an important signal function which directly feeds into the important (and valuable) deterrent effect of antitrust enforcement.

A further question which needs to be addressed on the final stage refers to the repetition cycle of evaluations. With respect to an evaluation of the entire competition policy – as demanded by several supervisory institutions – the question needs to be raised whether it is sensible to repeat such a full evaluation every year. As argued by Neven and Zenger[79], it does not make much sense to invest a significant budget every year in a full evaluation of competition policy activities although it is clear beforehand that the benefits will dwarf the costs anyway. Bergman[80] adds that the impossibility to measure a key benefit of competition policy enforcement – the deterrent effect – questions the value of cost-benefit comparisons generally. A greater potential for new insights is identified by promoting initiatives to create data and methodological standards which would allow benchmarking exercises for competition authorities. Generally, it might be worth thinking about conducting a full evaluation of competition policy every three to four years and to use the evaluation budget in the other years for more detailed investigations of certain activities or even selected cases or bundles of cases.

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[76] See generally Gordon and Squires, *supra* n 60.
[77] Van Sinderen and Kemp, *supra* n 22, 378.
[78] Neven and Zenger, *supra* n 17.
[79] *Ibid*, 488.
[80] Bergman, *supra* n 18.

However, the probably most important question of the final building block of the final stage is how the results of the evaluation should be used further. In this respect, Buccirossi et al.[81] as well as Bergman[82] argue that it does not make much sense to solely focus on a quantification of the costs and benefits without taking the additional step of an assessment of the possibilities to improve the decision processes within the competition authority. In particular, it is not sufficient to know that a particular decision was wrong but it additionally needs to be investigated why it was eventually decided in the wrong way. Following Kovacic[83] and his process-based approach of an evaluation of competition policy, an efficiency or effectiveness analysis should be interpreted as a good starting point for more focused internal projects which aim at improving important in-house processes. Such a process evaluation "... might seek to assess the quality of the competition agency's internal operations—the mix of managerial methods and organizational choices that determine how the agency allocates and applies its resources. This approach treats management and organization as critical inputs into the implementation of competition policy and seeks to identify improvements in how the competition agency operates. The logic is that progress toward superior managerial and organizational techniques will increase the likelihood that the agency's substantive outputs generally promote the realization of the competition law's objectives."[84]

## C. CONCLUSION

In the year 2005, a OECD Policy Roundtable exchanged views on the topic 'Evaluation of the Actions and Resources of Competition Authorities' and concluded that "[c]onsiderable work remains to be done to refine the methodologies used to evaluate the effectiveness of completed competition policy interventions."[85] Although only a couple of years have passed by since the Roundtable took place, the importance of an evaluation of competition policy has increased significantly, both in practice as well as in academia.

Against this background, the paper aimed at developing a methodology for an evaluation of competition policy. Based on the existing literature and experiences with policy evaluations in other areas of economic activity, the three-step / nine-building-blocks methodology provides guidance for evaluation projects and also assists in the identification of avenues for further academic research.

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[81] Buccirossi et al., *supra* n 13.
[82] Bergman, *supra* n 18.
[83] Kovacic, *supra* n 9.
[84] Kovacic, *supra* n 9, 506.
[85] OECD, "Evaluation of the Actions and Resources of the Competition Authorities" (2005), 10.