IDENTIFYING EMPIRICALLY THE EXTENT OF ECONOMIC ANALYSIS AND THE LEGAL STANDARDS APPLIED IN ANTITRUST ENFORCEMENT: A METHODOLOGY

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I. INTRODUCTION

In our 2018 Methodology Paper, we proposed a methodology for identifying empirically the extent of economic analysis and the legal standards ("LSs") applied in antitrust enforcement. This begins with the understanding that there are variations in the legal standards adopted in competition law enforcement, which is captured by thinking of a continuum at the extremes of which are (1) "strict" *per se* (or object-based) standards, and (2) "full" effects-based ("EB") or "rule of reason" standards.[2]

The progression towards full effects-based standards requires additional "blocks" or components of economic analysis to be applied. These components relate to the definition of the relevant market, the assessment of market power, the assessment of whether market power raising or exclusionary effects is present, the articulation of a theory of harm, the assessment of efficiency effects, and the assessment of what is, ultimately, the welfare impact of the conduct. These components can be identified by analyzing the documents on particular decisions made by a Competition Authority ("CA"). Specifically, all relevant information can be extracted from the texts of the decisions and be categorized by assigning to a variable corresponding to a given component of economic analysis a value of 1 for "Yes" (in case the analysis has been undertaken) or 0 for "No" (where it has not been).

The methodology identifies four broad categories of economic analysis (labelled A, B, C, and D in Table 1 below) that must be performed for the investigation of a CA to constitute an effects-based (or rule-of-reason) analysis.

One or more sub-variables form part of each of these main categories of economic analysis, and are labelled as C.1, C.2, C.3, and so on, in Table 1. Taking into account the fact that non-exploitative and exploitative (in the form of excessive prices) types of conduct require different blocks of economic analysis, different analysis variables must be used in each. Table 1 shows the blocks of analysis in investigations of non-exploitative conduct types. The methodology abstracts from differences in the analysis variables that could be included in the assessment of each specific conduct type, among the many in the non-exploitative category, assuming that these are about the same.

The statements used to identify whether a component of economic analysis has been applied for the non-exploitative conducts are the following:

2 See Jones, Alison & Kovacic, William E., *Identifying Anticompetitive Agreements in the United States and the European Union: Developing a Coherent Antitrust Analytical Framework* (February 17, 2017), Antitrust Bulletin. the United States and the European Union – Developing a Coherent Antitrust Analytical Framework' (2017) Antitrust Bulletin 62(2) 2.

Table 1: Types of Economic Analysis Taken Into Account in the Construction of the Indicators of the Extent of Economic Analysis (or EB indicators)

Restrictions of Competition By Means Other Than Exploitative Conduct			
Statement Category	**Statement Description**	**Comments**	**Score**
A	Discussion of the nature and characteristics of the conduct	Since in all cases there must be some discussion of the nature and characteristics of the conduct, we should not get a score of "0" here. It is included for purely formal reasons, to remind ourselves that an overall score of "1" is a strict per se approach to assessment and that this means that the CA only considered the nature and characteristics of the conduct.	0/1
B	**Market Analysis**		
B.1	Basic analysis of market characteristics based on available market statistics	Economic theory is even necessary in order for a CA to "frame" a case. This typically involves information about the structure of the industry, the firms, the structure of demand and the technology, and determination of market shares (without formal analysis of market definition). It is the first step in an economic analysis in the context of a competition case.	0/1
or B.2	Formal market delineation and market share determination, based on Hypothetical Monopolist methodology.	Market definition decisions based not on qualitative assertions but on more sophisticated economic tests (e.g. SSNIP test, Price correlation and Critical loss analysis).	
C	**Evidence on restrictions of competition/ consumer harm imposed**		
C.1	Analysis undertaken in order to identify whether conduct has market power enhancing (e.g. through agreements) or exclusionary effects (e.g. in monopolization practices)	This need not include the construction of a formal model (e.g. examination of incentive compatibility constraints in a concerted practice case, or examination of how exclusive contracts could lead to exclusion or prevent entry in the specific context, or "equally efficient competitor test"). But must indicate a serious effort to demonstrate the presence of such effects.	0/1
C.2	Articulation of theory of harm to consumer welfare (without taking into account of efficiencies)	When "scoring" CA decisions, this need not be a full-blown formal analysis, but one could also score some effort towards determining where the case stands, on the basis of assessing crucial aspects of the situation (e.g. assessing the size of non-contestable demand of a dominant firm, competitive constraints by established or new competitors) in showing negative impact on consumers.	0/1

C.3	Analysis of potential efficiency defense	Analysis should be based on efficiencies that are expected to result from conduct, that will create benefits to consumers (again, this need not be very sophisticated but must indicate a serious effort to take efficiencies into account). This may involve an analysis of a potential efficiency defense relating to factors that tend to prevent a price rise or other harm to consumers. Counterfactual analysis[3] may be undertaken under any of the "C" components – though this is not strictly necessary for considering the investigated effect as established.	0/1
D	**More effects-based analysis to determine effects on social welfare**		
D	Balancing of potential anticompetitive effects of conduct with all the potential efficiencies and determination of the final impact on total welfare.	This is any analysis "over and above" the analysis that may have been included under "efficiencies" above (taking into account efficiencies that need not impact consumers, especially in the short-term). By "balancing" we mean any formal economic analysis that attempts to measure the net effect of the conduct, that may not be related to efficiencies, e.g. balancing the short-term and long-term implications of a refusal to license (or of compulsory licensing) an innovation.	0/1
Total Score		**6**	

Source: Revised from the 2018 Methodology Paper

Note that the value (1 or 0) of an analysis variable (e.g. of B.2 or C.2, etc.) is based on a judgment as to whether the relevant analysis has been undertaken or not, and it says nothing about the correctness or "quality" of the analysis or of the data used. In other words, the value of an analysis variable indicates whether the CA, in the particular case, has tried to address the specific question associated with that analysis variable.

II. EFFECTS-BASED SCORES AND TYPES OF LEGAL STANDARDS

On the basis of the above methodology, one can construct effects based scores ("EBS"), using the 6 statements above. EBS are calculated as the sum of the analysis variables presented in Table 1 – with a minimum of 1[4] and a maximum of 6. The question is: is it reasonable for undertaking empirical analysis to use data that aggregate scores over many different forms of conduct (e.g. all types of non-exploitative conduct)?

The answer is that a straight aggregation of scores across different conduct types will not provide indicators which can be used to undertake meaningful empirical analysis of the extent of economic analysis and type of LSs adopted. Such EBS cannot be used to measure meaningfully whether economic analysis is used "optimally" – since optimal LSs can only be defined at the level of each type of conduct.

Furthermore, such EBS cannot be used to make comparisons between different countries and over time – since the level of the score levels will depend on the composition of conduct types that will be different for different countries, and will change over time. So, for example, an EBS of, say, 2.91 for both Greece and France certainly does not mean that the extent of economic analysis relative to some optimal level is the same in Greece and France given that the composition of conduct types may well be completely different between the two countries.[5]

3 I.e. analysis proposing that a theory of harm is not valid and demonstrating the absence of foreclosure effects and consumer harm of exclusionary conduct.

4 As noted in Table 1, there must always be at least some discussion of the nature and the characteristics of the conduct so the minimum EBS will be 1.

5 E.g. in France there may be proportionally many more decisions on conduct types for which the appropriate LS is *per se* or close to *per se*.

Moreover, such EBS cannot be used to examine how changes in the economic analysis, if measured by changes in the value of the score, affect the annulment rate of the CA's decisions, since the latter is expected to be influenced by what "type" of economic analysis[6] is utilized and how this changes, while a given value of EBS cannot reflect what "types" of analysis are utilized and, when the value of the score changes, what "type" of economic analysis is responsible for the change in the score's value.[7]

Empirical researchers can respond in two ways to the above difficulties in undertaking empirical analysis. One way is to use available data for each conduct type and constructing indicators for each conduct type,[8] using a table (that may be very similar to Table 1) identifying the analysis variables for the specific conduct type. This is not an approach without disadvantages, an important one been that the number of decisions for each conduct type in any given country is small, making difficult statistical analysis of, for example, how LS affect the annulment rate of the CA's decisions. The number of decisions can in principle increase through the collection of data from different countries though this increases substantially the necessary effort for putting together the database and makes more difficult the interpretation of results.

A second way[9] is, rather than use the EBS described above, to use EB indicators that result from aggregation across conduct types but for which, when aggregating, we make sure that we assign the same score to different decisions only when the same amount *and also* the same "type" of economic analysis is undertaken. This procedure can be used to define LS indicators both at the level of specific conducts and for groups of conduct types. Its use in defining LS indicators for groups of conduct types (e.g. all non-exploitative conduct types) allows one to undertake statistical / econometric analysis of how variations in the LS adopted affects the annulment rate of the CA'a decisions. We describe in details this procedure below for all non-exploitative types of conduct (these include horizontal and vertical agreements, concerted practices, and exclusionary conduct[10]) – of course, the procedure is the same for defining LS indicators at the level of a specific conduct.

Following this procedure, the analysis variables that describe the different analytical steps used in antitrust investigations are ordered as in Table 1 above, that is, in a sequence that represents what most economists would recognize as representing successively increased application of economic analysis. That is, Table 1 describes additional blocks of analysis applied, as we move from strict *per se* to full effects-based LS. This is very useful in mapping the extent of the economic analysis applied in a specific case to the LS used in that case. Of course, while we consider the order of statements above to reflect a common (or "natural") order in which economic analysis is applied as we move from "low" (*per se*) to "high" (effects-based) LS, this order cannot be considered to be universal for the assessment of all types of conduct in practice.[11]

Given these points, the aggregate EB indicator, that is used below to identify the legal standard adopted, is obtained by constructing the following sets of EB analysis ("SEBA"), which, hereafter, we will also term legal standard Indicators ("LSI"), using the statements in Table 1:

S1: this contains all the decisions in the sample in which we find "1"scores just for the A statement (for all other statements the score is "0").

S2: this contains all the decisions in which we find "1"scores for the A statement and for the B statement (for all other statements the score is "0").

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6 For example, different types of economic analysis can lead to a score 3 and different ways of increasing economic analysis can increase the score from 3 to 4 but the implications of each case for the rate of annulment may not be the same.

7 An important empirical question is whether adopting LS closer to effects-based will increase the annulment rate of decisions by appeal courts.

8 The main broad categories of conduct types among non-exploitative practices are horizontal and vertical agreements and concerted practices and unilateral exclusionary conducts by dominant firms. The amount of data for each specific conduct type, e.g. for bundling, among those in the non-exploitative conducts category, is quite small for any one country for undertaking empirical analysis.

9 Which is, indeed, complementary to also using data from different countries together.

10 There are significant common elements in the assessment of these conduct types to justify using a unified methodology for constructing EB indicators. Of course, we could distinguish (additionally) between two sub-categories of anticompetitive agreements and exclusionary conduct (and can disaggregate even further) and construct EB indicators for each of these more disaggregated conduct categories. As already noted, the main disadvantage of disaggregating further is that disaggregation leads to smaller samples with which to undertake statistical work.

11 Also, when the order is followed, this may not be reflected in the decision text. For example, when in the text of a decision some analysis of a higher level (in the sequence) is found, this does not necessarily imply that lower level analyses have also been explicitly described. This is particularly important with regard to the B statements relating to the contextual analysis of the market and the firms. We believe that an analysis putting forward a theory of harm even if it is not preceded by an explicit description of the market in the decision text, will be based on developing some understanding of market characteristics and conditions.

S3: this contains all the decisions in which we find "1" scores for the A statement and for the B statement and for the C1 statement (for all other statements the score is "0").

S4: this contains all the decisions in which we find "1" scores for the A statement and for the B statement and for the C1 statement and for the C2 statement (for all other statements the score is "0").

S5: this contains all the decisions in which we find "1" scores for the A statement and for the B statement and for the C1 statement and for the C2 statement and for the C3 statement (for all other statements the score is "0").

S6: this contains all the decisions in which we find "1" scores for the A statement and for the B statement and for the C1 statement and for the C2 statement and for the C3 statement and for the D statement.

Thus, by construction, our (new) aggregate EB indicator (or LSI) with a value of 1 is represented by the set of decisions S1, that is, 1 is the value of the indicator when, in decisions, only block A of analysis is undertaken; our aggregate EB indicator (or LSI) with a value of 2 is represented by the set of decisions S2, that is, 2 is the value of the indicator when, in decisions, only blocks A and B of analysis are undertaken; our aggregate EB indicator (or LSI) with a value of 3 is represented by the set of decisions S3, that is, 3 is the value of the indicator when, in decisions, only blocks A, B and C1 of analysis are undertaken, etc.

In particular, we identify the following sets of decisions $S_i, i=1,\ldots\ldots 6$, as described above and the corresponding value of the aggregate EB indicator (or LSI) for each set:

S1: {A} –LSI of value 1.
S2: {A, B} - LSI of value 2.
S3: {A, B, C1} –LSI of value 3.
S4: {A, B, C1, C2} – LSI of value 4.
S5: {A, B, C1, C2, C3} – LSI of value 5.
S6: {A, B, C1, C2, C3, D} – LSI of value 6.

Now, by comparing the different sets of decisions, $S_i, i=1,\ldots\ldots 6$ we can identify the effects of additional economic analysis. For example, by comparing decisions in S2 with decisions in S3 we can identify the effect of adding the C1 block of analysis; by comparing decisions in S3 with decisions in S4 we can identify the effect of adding the C2 block of analysis. We are also able to identify the frequency with which the CA applies the analysis associated with each one of the sets in assessing different conduct types and, hence, infer the extent to which the CA favors a certain legal standard for the different conduct types (see below).

The 2018 Methodology Paper distinguishes between a number of distinct LS that are intermediate between strict *per se* and full effects-based, corresponding to the above-mentioned sets (see Table 2, below). A brief description of the main LS follows.

- Under the strict *per se* ("SPS") LS, for which LSI = 1, the CA makes decisions on the basis only of the purely formal characteristics of the conduct under investigation, relying on strong presumptions about the implications of the general class of conduct to which the specific conduct belongs for welfare. Alternatively, one can say that under the SPS LS the CA makes inferences about effects (on welfare) from the formal characteristics of the conduct and some basic analysis of the market.

- The modified *per se* ("MPS") LS , for which LSI = 2, can be considered as a *per se* rule subject to a significant market power requirement or, more generally, as supplementing *per se* by undertaking an analysis of market characteristics, for example, when assessing conduct under abuse of dominance, or in an information exchange agreement, or in a concerted practice for which there is no hard evidence of collusion. Alternatively, one can say that under the MPS LS, the CA makes inferences about effects (on welfare) from the formal characteristics of the conduct, detailed analysis of market characteristics and, depending on the type of conduct, the implications of these for incentives to achieve sustainable collusion and/or on the size of extant market power.

- Truncated effects-based ("TEB") LS, for which LSI = 3, represent a higher standard of economic analysis, under which decisions about whether or not there is liability in the case of specific conduct are reached by establishing that the characteristics of the specific conduct and of the market in which it is undertaken are such that it belongs to a class of conduct that distorts the competitive process by disadvantaging *rivals* (i.e. through exclusionary effects, widely defined) or by enhancing market power (as in a concerted practice case) and, assuming a welfarist substantive standard, by establishing that the conditions present are such that a strong presumption can be made of adverse welfare effects. Alternatively, one can say that under a TEB LS the CA decides that there is liability by inferring adverse welfare effects from the potential of the conduct to distort the competitive process by disadvantaging rivals (i.e. through exclusionary effects, widely defined) or by enhancing market power (as in a concerted practice case).

- The inclusion of analysis C2 (recognizing factors that affect whether exclusion, for example, reduces consumer welfare, before taking account of efficiencies) leads to an intermediate LS (for which LSI = 4), between truncated and full effects-based.

- Finally, full effects-based ("FEB") represents the LS under which a finding of liability relies on all potential anticompetitive (exclusionary or market power enhancing) and also potential pro-competitive (efficiency) effects of the specific conduct being assessed and compared and a showing of adverse effects on welfare (consumer welfare, for whch LSI = 5 with just the inclusion of C3, or total welfare for which LSI = 6 with the inclusion of D too), of the specific conduct being established.

A more detailed characterization of the various LS is given in the Table below.

Table 2: Identifying Legal Standards

Components of economic analysis applied in assessment	*SEBA*	*Legal Standards / Value of LSI indicator*
A	S1	Strict Per Se (SPS) LS: LSI = 1
A and B	S2	Modified Per Se (MPS) LS: LSI = 2
A and B and C.1	S3	Truncated Effects Based (TEB) LS: LSI = 3
A and B and C.1 and C.2	S4	Intermediate between Truncated and Full Effects Based (FEB) LS (ITFEB): LSI = 4
A and B and C.1 and C.2 and C.3	S5	FEB LS under a Consumer Welfare Substantive Standard[12] LSI = 5
A and B and C.1 and C.2 and C.3 and D	S6	FEB LS under a Total Welfare Substantive Standard[13] LSI = 6

Source: Revised from 2018 Methodology Paper

12 That is, when the criterion about whether or not there is violation of law when assessing a conduct is whether or not there is an adverse effect on consumer welfare. Clearly, the economic analysis under statement D is not relevant (or, is not needed) when the substantive standard is that of consumer welfare.

13 That is, when the criterion about whether or not there is violation of law when assessing a conduct is whether or not there is an adverse effect on total welfare.

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