

Antitrust market definition: rationale, challenges and opportunities in South African competition policy

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Abstract

Market definition is the first step in competition investigations in South Africa and in other jurisdictions. Recent debates in Europe involving the so-called “economics-based” movement and advances in econometric tools and industrial organization theory have led economists to question the traditional practice of delineating exact market boundaries. Critics argue that the practice of delineating rigid market boundaries does not enable a proper analysis of competitive effects or even of market power, while others note the problem of studying substitutability for differentiated products. This paper has two goals. Firstly, I use the recently concluded Primedia/Kaya FM case to illustrate important aspects of market definition overlooked by critics. Secondly, I develop a simple theoretical model to analyze the implication of judgment and uncertainty for the Tribunal or courts’ assessment of the relevant market. Beyond being a first screen for detecting antitrust problems, market definition should involve an elaborate analysis of competitive constraints. An analysis of competitive constraints assists practitioners in studying the competitive effects of allegedly anti-competitive practices and further dismantles a strictly structuralist approach to competition policy still evident in South African investigations.

Keywords: market definition, flexibility, rigid, statistical decision theory

JEL: K21, L13, L40, L41

1. Introduction

During the first part of the twentieth century two of the most eminent economists of all time, Lord Keynes and Professor Hayek, engaged in a long debate spanning several decades. This titanic clash initially centred on business cycle theory, but soon became the symbol of two dominant streams of thought in economics: the Keynesian or rationalist approach optimistic about economists’ and policymakers’ abilities to engineer economic change and the Hayekian or invisible hand approach stressing the limits of knowledge and the emergent and unpredictable nature of economic activity (du Plessis 2007). Competition policy is arguably rationalist in nature, but practitioners seem nevertheless quite aware of the uncertainties involved in judging business strategy and practices and its effects. Economists play a significant role in this process of inference from scattered data (Decker 2009). Market definition is one area of competition policy investigations that is frequently contentious and one that may take up some time of authorities in sometimes unnecessary arguments over including or excluding a particular substitute from the relevant market.

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In this paper I consider the rationale for market definition and I highlight a number of challenges and opportunities in conducting market definition. I argue that market definition is not a mere first step for the sake of formalism, but an important component of a sound competition investigation. To illustrate some of my arguments, I refer to the recently concluded Primedia / Kaya FM transaction, in which I was involved.

2. Rationale

Modern antitrust increasingly follows an effects-based approach, moving away from traditional form-based analysis and per se prohibitions (Gual, Hellwig et al. 2005; Roeller and Stehmann 2005). This shift started with merger analysis and vertical restraints, but now also covers abuse of dominance cases. Critics argue that market definition is not required under an effects-based approach: these opponents argue that market definition is superfluous if one moves away from “dominance-plus-form” questions towards case-by-case analysis of actual or predicted effects of a particular conduct or merger (Arezzo 2008). In their view, market definition is simply a tool to assess dominance: markets must be exactly delineated in order to calculate market shares and concentration indices. Especially econometricians have argued that market definition do not offer additional information, as it is possible to estimate econometric demand systems and directly track the effects of a particular conduct or merger without defining markets (see Davis and Garcés (2010)). Market definition is viewed as part of the old structuralist regime and it is exactly a strictly structuralist interpretation that the effects-based approach attempts to avoid.

Proponents of market definition and also legal scholars opposed to breaking too much with established legal precedent have held that market definition should be retained, as it may provide a useful screen to economize on the efforts of the courts. These proponents concede that market definition is, at best, a very rough proxy for actual pricing power, but that it is nevertheless a useful screen: if the firm under investigation is not dominant in the relevant market (according to certain market share thresholds) it is unlikely that that firm’s conduct could have significant anti-competitive effects (Carlton 2007). This appears to be the view of competition authorities as well, which explains why the European Commission and other competition authorities have retained market definition as a first step in competition analysis (Office of Fair Trading 2001; European Commission 2008).

A defence of market definition as a preliminary screen is helpful, but focuses attention away from the significant other benefit of a market definition exercise, namely that it identifies and ranks competitors of the firm under investigation. Competitor identification and ranking is very

important, for the extent of substitution lies at the heart of what competition policy considers facilitating conditions for the exercise of market power. By treating market definition as a remnant of an old approach to antitrust, we forego a large chunk of information directly relevant to the effects-based approach. An effects-based approach requires the analyst to link supposedly anti-competitive behaviour with market effect and substitution patterns are crucial for this: anti-competitive behaviour requires the use of market power, which only exists in the absence of meaningful competitors. The market definition exercise therefore helps us to assess the feasibility and possible effect of anti-competitive strategies – the heart of an antitrust inquiry.

3. Challenges

Competition policy employs a specific market concept when defining markets. Market definition assists competition analysts in assessing the constraints on market power of the firm(s) under investigation (Geroski 1998). The emphasis on market power constraints lead competition analysts to refer to a market as the set of products in a certain geographic area that can be considered reasonably close competitors of the firm(s) under investigation – a concept that practitioners have attempted to formalize in the hypothetical monopolist thought experiment. However, even this thought experiment remains difficult to operationalize (Stigler and Sherwin 1985), as the economic notion of price constraint and substitutability is quite broad.

Apart from the conceptual problems, market definition also faces serious empirical challenges. In many competition investigations, the application of the SSNIP to delineate markets is straightforward, especially where homogenous goods are involved. Market definition is appreciably more difficult for differentiated goods. The competition literature has therefore developed a range of empirical tools for market definition purposes. As a competition market is framed in terms of demand-side behaviour, these empirical tools usually involve a study of substitution patterns of buyers. Consumer surveys and econometric models providing price elasticity estimates are the most direct tools for market definition, as they are directly relevant to the SSNIP question. Such direct forms of evidence on consumer behaviour are not generally available though, especially in developing market contexts. Even when data is available, time constraints may not permit sophisticated econometric models (Coate and Fischer 2008). Furthermore, beyond time and data constraints, competition authorities do not necessarily weigh any particular piece of quantitative evidence heavier than other forms of evidence, requiring direct evidence for market definition purposes to be corroborated by other evidence

(Bishop and Walker 2002). The practical problems of time, availability and equal weights to different forms of evidence motivate the use of a wide range of tools for market delineation.

Beyond practical motivations, there are also deeper theoretical motivations for considering alternative tools for market definition. The increasing emphasis on an effects-based approach in Europe and elsewhere signals a serious attempt at moving away from the structuralist framework that has historically informed competition policy. Mainstream antitrust analysis still relies on a narrow view of how markets function, with theoretical IO models treating competition as an outcome dictated by market structure rather than as a process (see early critiques by Hayek (1946 [1984]) and McNulty (1967)). Empirical IO models then attempt to model this market outcome using a small number of econometric equations, which are prone to misspecification errors in many modern industries. Of course, theoretical and empirical limitations do not necessarily invalidate economic theory, but the IO literature is currently at a juncture where, depending on assumptions, virtually every type of behaviour can be explained from either a pro- or anti-competitive angle. Furthermore, it is problematic to estimate price elasticity using a model that assumes certain types of behaviour *ex ante*. These costs seem to justify the use of other approaches that make fewer assumptions about structure and return us to a view of competition based on the extent of rivalry (see Manne and Wright (2009)).

4. **Opportunities: insights from the Primedia case**

The broad conceptual and empirical challenges highlighted in the previous section is well-illustrated by the recently approved partial acquisition of 24.9% of Kaya FM (Kaya hereafter) by Primedia and Capricorn. Primedia already owned two other radio stations in the same province, Highveld Stereo (Highveld) and 702 Talk (702), and the competition investigation revolved around market definition, with counterparties disagreeing on the extent of the relevant market.

The Competition Tribunal explains the difficulties in defining a clearly delineated radio market (Lewis, Manoim et al. 2008: 18):

“Radio markets are complex to analyse and although we had the benefit of the testimony and research of three economists in the course of the hearing in this matter, none of them emerged with a more probable version of the market than the others. At best the economists knocked holes into the more tenuous assumptions of their opponents, and so we can discount certain of the more border line theories of the relevant market, but we were still left with a middle ground, where consensus could not be found and on whose assumptions, wildly conflicting notions of

the extent of the concentration could be made. This is not a criticism of the efforts of these economists – indeed they all demonstrated great diligence in examining the data – but the nature of the industry”

Consequently, the Tribunal agreed with the position of some parties that “it is far more meaningful to state propositions about relative relations between potential competitors than to make conclusions about absolute boundaries to markets” (Lewis, Manoim et al. 2008: 15-16). Therefore, the Tribunal argued that “it is easier to ask whether A and B are more or less meaningful competitors in a market than say B and C, than to ask which competitors must be regarded as in the market and which outside of it” (Lewis, Manoim et al. 2008: 18). The Tribunal applied the hypothetical monopolist test first to Kaya and then to Highveld to identify *and rank* competitors for each, as shown in Figure 1 (Kaya) and Figure 2 (Highveld). The Tribunal identified an inner and outer circle of competitors for each and also, within the inner circle, it identified the closest possible competitors for both Kaya and Highveld (indicated with a dashed line circle in the graphs below).

Figure 1. The market for Kaya as hypothetical monopolist.

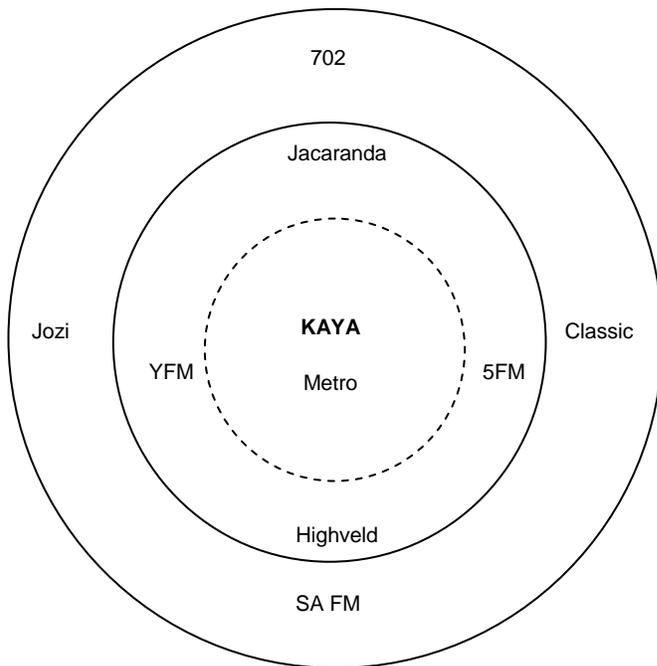
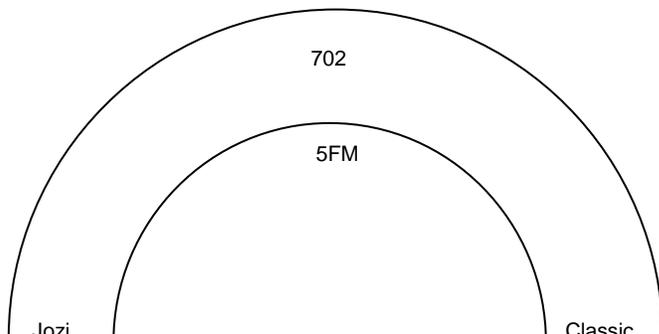
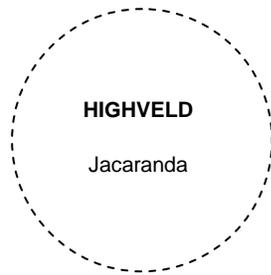


Figure 2. The market for Highveld as hypothetical monopolist.





The Tribunal is not clear whether it considers both circles to constitute the relevant market, although it veers in this direction for Highveld: “We are not certain that the market extends only to the first circle and there may be circumstances for some advertisers, as they are not a homogenous group either, that stations in the second circle are an adequate substitute, and this group of advertisers may be sufficiently large to deter a successful post merger price increase, assuming Primedia was in a position to control Kaya’s pricing post merger” (Lewis, Manoim et al. 2008: 20).

Four general insights emerge from the market definition approach adopted in the Primedia case:

- The Tribunal acknowledges the importance of market definition not only for its facilitation of concentration calculations, but also for its relevance to assessing “patterns of diversion” and, more important, in “analysing incentives to co-ordinate” (Lewis, Manoim et al. 2008: 21). In other words, the Tribunal highlights that market definition is not a mere formalistic or legalistic exercise, but that it provides the basis for assessing the likely competitive effects of the merger: “we must know something of who is in the market, whether they have similar incentives to co-ordinate, and ... how much of the market might be party to the coordination”.
- The case highlight the implication of complex theoretical issues – in this case, two-sidedness – for the empirical evidence used for market definition: “the more data we received from the duelling teams of economists ... the more the boundaries of the market receded into fog as opposed to clear lines” (Lewis, Manoim et al. 2008: 16). This is consistent with our earlier discussion on the extent of uncertainty accompanying the market definition exercise in differentiated product markets.

- The Tribunal indicates that an important strategy to deal with this complexity is to think about a range of empirical tools as useful for market definition: “Absent reliable econometric evidence and inconclusive evidence from the demographics of audience and advertiser profiles, the next best evidence we have of who competes in the market are the opinions of the stations themselves” (Lewis, Manoim et al. 2008: 17). Subsequently the Tribunal relied on qualitative evidence to form a view of the extent of the market. The Tribunal avoids over-reliance on any particular set of evidence, including the extensive demographic analyses of either side, and chooses to integrate different forms of evidence.
- One can achieve flexibility even while one is drawing market boundaries. At first glance it would seem paradoxical, but the important point to note is that the flexibility lies with recognizing that it is not only market *boundaries* that matter: market definition is not only about identifying substitutes, but also about ranking them. Inclusion in the relevant market does not imply equality of status: in differentiated product markets some substitutes are closer to others. Negotiating this uncertainty even while properly defining the market space is what renders market definition difficult.

5. **Opportunities: thinking about market definition as a decision rule**

One may reduce some of the risks above – or, at least, better appreciate them – by employing statistical decision theory. Statistical decision theory is employed here as an analytical device and does not imply an endorsement of quantitative-only analysis in market definition: the statistical perspective helps to isolate specific factors and to highlight the role of different factors in arriving at a particular decision. Specifically, statistical decision theory interprets the market definition ruling of a court to be a problem of statistical inference, where a conclusion about the “true” substitutability is reached on the basis of sample data. Statistical decision theory has been applied extensively in economics and played an important role in elucidating rational decision-making in the 1970s (Simon 1979; Heiner 1983). It has also been applied previously to settings where qualitative data predominate, notably in business risk management (Conrath 1973). More recently, and relevant to our discussion, Cooper et al (2005) employ the theory to highlight the problems facing antitrust policy dealing with vertical restraints.

Market definition involves classifying a candidate product as inside or outside of the relevant market. Inclusion depends on the extent of substitutability between the candidate product and the product under investigation. When a candidate product is a substitute close enough to constrain the market power of the firm(s) under investigation, it is labelled as *C* and included in

the relevant market. Alternatively, when it is not a close enough substitute to constrain market power it is excluded and labelled as F .

We denote the evidence considered in a market definition exercise collectively as e and this which may include a variety of both quantitative and qualitative evidence. As noted earlier, we are studying the court's decision function. We therefore assume that e includes all evidence that the court has access to. It may be that e does not represent the entire set of available evidence: some evidence may not be reported by parties and some evidence may not be admissible for legal reasons. Incomplete evidence may be less of a problem in adversarial jurisdictions, including the US and South Africa.

The process of market definition can be described as the application of a decision rule, which classifies a candidate product as either in or out of the relevant market based on e . The decision to include or exclude a candidate product depends on the decision-maker's belief concerning the relative odds that a candidate product is a close substitute. The relative odds can be expressed mathematically as $\frac{P(C|e)}{P(F|e)}$, where:

$P(C|e)$ is the probability of a substitute being close, given the evidence

$P(F|e)$ is the probability of a substitute being far, given the evidence

Bayes (1783) showed that the relative odds can be rewritten as:

$$\frac{P(C|e)}{P(F|e)} = \frac{P(e|C)P(C)}{P(e|F)P(F)}$$

In words: the relative odds of the candidate product being included in the market are determined by the decision maker's prior beliefs concerning the extent of substitutability, $\frac{P(C)}{P(F)}$, and the relative likelihood of the evidence being more consistent with what is expected of the evidence assuming the product is a close rather than a far substitute, $\frac{P(e|C)}{P(e|F)}$. These terms can be used to elucidate the actions of the different parties during the market definition exercise. Firstly, economists and legal practitioners will attempt to establish the prior beliefs by relating extant research and quoting similar cases and the Tribunal or court will combine these arguments in forming its own prior beliefs about the merits of including a candidate product in the relevant market. Secondly, and more important, the economists will attempt to uncover evidence on substitutability (or against) by means of quantitative or qualitative analyses and attempt to

match the evidence with theoretical arguments concerning the size of the relevant market (Decker 2009). The court will again collate the different pieces of evidence and attempt to test whether the evidence is consistent with close substitutability or not.

The Bayesian exposition above suggests that courts may find the posterior probability (i.e. the relative odds) to be quite close to the prior probability of being included in the market when two conditions hold simultaneously: inconclusive evidence *and* strong prior beliefs that the candidate product should be excluded. Put differently, when case evidence is inconclusive but previous research and case law strongly suggest that the product should be excluded, it is *rational* for the court to exclude it. This result questions the critique of market definition as an arbitrary exercise and we will return to this issue in subsequent sections.

What happens if there are no strong prior beliefs regarding substitutability *and* the evidence is inconclusive? Then the costs of a particular decision to include or exclude a product become important. In fact, these costs are always important but become salient under conditions of high uncertainty as the possibility of error is higher. Market definition can be interpreted as statistical inference, relying on the following hypotheses:

Null hypothesis: Product is C and should be included in the relevant market

Competing or alternative hypothesis: Product is F and should be excluded from the relevant market

Market definition therefore faces type-I error, excluding a substitute from the relevant market that would have constrained the market power of the firm(s) under investigation, and type II-error, including a substitute in the relevant market that would not constrain the market power of the firm(s) under investigation. Let each error carry a specific loss: the loss associated with Type I error is denoted L_1 and the loss associated with Type II error is denoted L_2 . The decision-maker only suffers these losses if an incorrect classification is made. We assume that incorrect classifications (either way) have certain probabilities attached to them, so that one can form an idea of the expected losses from Type I and Type II. We can use these expected losses to derive an optimal “rule” for market definition.

An optimal rule requires the Tribunal or court to exclude a candidate product from the relevant market if the expected loss from including it incorrectly (given the evidence) exceeds the expected loss from excluding it incorrectly (given the evidence). One may ask whether the optimality condition is the most relevant one for market definition. It may be argued that the

Tribunal or court is unbiased between the two classification errors and that it may only be interested in minimizing the probability of misclassification. It is possible to derive alternative optimal rules, embodying different assumptions about the loss function, from the above general rule. The general rule therefore encompasses a number of specific cases (Johnson and Wichern 2002).

One may rewrite the optimal rule as follows:

$$\frac{P(e|C)}{P(e|F)} < \left(\frac{L_2}{L_1}\right) \left(\frac{P(F)}{P(C)}\right)$$

In words: a product should be excluded if:

- (i) The weight of probability is strongly against close substitutability
- (ii) When $\frac{L_2}{L_1}$ is relatively large, i.e. when the cost to the Tribunal of court of including an irrelevant substitute in the market is high relative to the cost of excluding a relevant substitute
- (iii) When $\frac{P(F)}{P(C)}$ is relatively large, i.e. when the court or Tribunal has strong prior beliefs, from previous cases or research but not related to the case evidence, that a product should be excluded.

The above analysis suggests why two opposing parties arrive at relevant markets of quite different sizes even while evidence from neither party is implausible. It may be that evidence supporting and evidence not supporting inclusion of a specific product in the market are fairly balanced. One party will then adopt a risk-minimizing approach by excluding the product, while another party will adopt a risk-minimizing approach by including it. This explains much of the divergence between the economists in the Primedia case, as the Tribunal noted in its ruling: “[t]his is not a criticism of the efforts of these economists – indeed they all demonstrated great diligence in examining the available data...” (Lewis, Manoim et al. 2008: 16).

It is not only decision uncertainty that is best dealt with under a Bayesian framework. A Bayesian decision rule also clarifies the role of subjective judgment. Under a classical approach to inference, the role of divergent preferences in shaping the subjective judgment of the decision-maker is ignored. Without preferences, it is difficult to judge whether a market definition

exercise is consistent with other cases or with the evidence, as it is difficult to distinguish between bad decisions and good decisions shaped by particular preferences.

The optimality condition highlights the fact that the case-specific evidence is not the only factor determining a competition authority's ruling on the extent of the relevant market: both prior beliefs and the loss function of the decision-maker play a role. Investigating the role of priors and the loss function helps to understand how broader antitrust paradigms may shape individual case outcomes.

5.1 The role of the loss function

The decision rule outlined above highlights the potential role of the loss function of the court in guiding its judgment of the relevant market. The loss function refers to the losses incurred from incorrect classification – either incorrect inclusion or incorrect exclusion from the relevant market. Arguably, the court may not have a bias in either direction, in the sense that it must adopt the loss function implied in the competition law. As far as market definition is concerned, the competition policy does not explicitly force courts to define narrow or broad markets. In other words, $L_1 = L_2$. This implies that, for the court, the loss function does not necessarily feature in its market definition decision: the court is led by the weight of evidence in a particular case and the evidence or theory from other cases and the literature (as embodied in the priors²). This does not imply that studying the loss function is not important. The exposition in terms of a loss function is also useful in understanding the proposed market definitions of opposing parties in a competition investigation. Specifically, considering the role of the loss function, the rule shows that opposing parties may deal differently with uncertainty about substitutability, due to diverging loss functions: differences in loss function may lead the parties to differ over the extent of the market.

The divergence in loss functions between parties is particularly salient under a strict “form-based” approach to competition policy. A form-based approach centres on first establishing dominance (or a related concept of significant market power) and then proving conduct to take a particular prohibited form, rather than assessing economic effects of the conduct (Theron and Boshoff 2010). Under a form-based approach, much more hinges on the market definition. The prosecuting authority will assign a heavier cost to defining an overly broad market, while the

² ‘Prior’ is perhaps an unfortunate term here as it may be incorrectly interpreted as denoting preferences. In our framework the loss function captures preferences, while the prior probability refers to the information from the literature and case law.

defendant will do the same for a narrow market. This would imply, for example, that where there is disagreement about substitutability the prosecuting authority may favour excluding the substitute from the relevant market even if the evidence is slightly (but not overwhelmingly) in favour of inclusion.

Although establishing dominance continues to be relied upon as a first step in competition policy, it is of less concern under an economics-based approach. In fact, there is debate about the merit of even continuing with establishing dominance or significant market power. Nevertheless, even if it remains, the point is that arguing about the exact extent of the relevant market is less important the more effects-based a competition policy becomes.

The discussion of the loss function's role in market definition also serves to connect market definition decisions to the broader competition policy regime. Market definition under an effects-based approach is not less important, but less contentious because the loss functions of the parties converge (at least partially) on that of the court. Arguably, this has two benefits. Firstly, market definition and dominance can at last function more effectively as a first screen. It is frequently argued that market definition should be retained under an effects-based approach as it still helps to identify problematic cases. The argument for the retention of market definition is based on the assumption that, although the form-based approach has not been entirely successful, there is still evidence that structure yields certain conduct. However, the extent of the relevant can be a screen for dominance only if one does not pre-impose a certain market by a skewed loss function. We know that there is a whole processes preceding actual court proceedings (see e.g. Decker (2009)). Therefore, this analysis of the loss function matters because it determines whether firms become involved or accused of anti-competitive strategy in the first instance: the prosecuting authority may have a biased loss function even if the court does not.

Secondly, beyond being a screen market definition now reaches its true purpose, namely to identify and rank competitors by establishing and describing the space within which the firm strategy should be assessed.

An exposition of the market definition exercise in terms of a loss function is also useful in generally promoting sound economic analysis in competition policy. Some critics of market definition argue that it is not material to economic analysis and that market definition is conducted purely for legal purposes – in order not to break with established procedure and case law. Put differently, they argue for a type of dual loss function, which will produce a market

definition that is proposed and defended in a case and a market definition implicitly employed in arguments on the specific theory of harm and consumer effects. Duality may suffice in winning some legal cases, but its adoption would run counter to the project of introducing economics as an analytical framework into competition policy: proponents of duality approach a competition investigation in a fragmented fashion by viewing market definition as just another hurdle to pass instead of as a process of collecting information. This is exactly the type of approach that economics seeks to avoid. It implies that economists can analyze competition without reference to the central concept of competition policy, namely market power, which in turn derives from the extent of competitive constraints operating on the firm under investigation. There is no way in which the analysis can proceed without consideration of competitive constraints. A related argument may be that one shouldn't be too specific about the competitive constraints. This argument should raise alarm among legal practitioners, as the competition analysis is not an academic exercise but a legal exercise – so that the need for clarity and openness to scrutiny must still apply.

Beyond this somewhat philosophical issue, relying on a variety of loss functions in a single case raises challenges for the court in interpreting economic evidence produced by opposing parties. The message of decision theory for competition policy is that evidence presented in a competition investigation, including all econometric and other quantitative evidence, involves judgment, which depends on preferences. If opposing parties apply specific loss functions when delineating the relevant market, the court must consider to what extent they hold to their loss functions throughout the analysis. This is frequently the case where one party is conservative when defining the market but liberal when interpreting its own evidence. This is probably the source of the argument that market definition is arbitrary: specific parties may adopt case-specific loss functions that may even vary within the case. This would go against the spirit of the law and undermine the salience of evidence, as it may lead a loss function to cancel evidence out conveniently. Then one is really in arbitrary terrain. This may show one reason why the decision rule we are proposing here can help to improve consistency and predictability, by making explicit the factors that are important in market definition and the role of the loss function.

5.2 The weighing of probabilities

The rule derived above analyzes market delineation as the process of weighing probabilities. The important point to see is that the challenge of market definition does not really lie with cases

where the weighing is very high or very low, i.e. clear-cut cases. The challenge lies with those that have more evidence rather than less. The problem comes in that the market definition as it is frequently applied in a legalistic sense results in a transformation of data that results in a loss of information: although a weighing of the probabilities may not produce a very strong conclusion it may nevertheless pass the optimality condition. The problem is that substitutes are subsequently labelled “in” or “out”. Some argue that this is too stringent and that we should not lose sight of those that are out. That is one perspective and we have shown that the optimality rule tries to reduce error in this regard. The more important and often less emphasised point is not those that are left out, but those that are in but are treated equally. So, we treat the close substitutes effectively the same as the less close substitutes. They belong in the market as they seem to constrain market power, though they are not the first line of defence against power abuse. The argument, then, for flexibility is perhaps not an argument for loose market boundaries but for a nuanced understanding of what is in the market. Perhaps this is what the effects-based approach implies for market definition: it’s not that market definition should now be eschewed. For legal purposes, we need clarity about when a firm is subject to the constraints of competition policy: dominance achieves this because it is located at the start of the legal process and is supposed to be easy to apply and to understand.

As argued earlier, the presentation of the process as a weighing of probabilities does not necessarily involve quantitative calculations but rather qualitative judgment. For example, the implication is not that the decision-maker finds “eight” pieces of evidence in favour of including the product in the relevant market and “five” against. The point is not that an optimal rule requires the decision-maker to weigh mathematically a set of de-linked pieces of evidence. Decker discusses the way in which applied economists in competition cases weave evidence together. It is very rarely the case that they give you a single table with the market and there you are. You have a story in which a range of evidence is weaved together to make the claim for substitutability (or not). It is very rare that the substitutability evidence presented by either parties are completely false, it is more a case that the overall evidence is more compelling from one side than the other – which requires weighting by the court.

Nevertheless, the weighing of probabilities still applies even if only econometric estimates are allowed as evidence for market definition. This is because, despite more extensive knowledge about substitutability and access to more sophisticated models, the application of knowledge to a specific case is not objective. Decker highlights the problem of “multiple actors...involved in the process of enforcement...each of who have their own perspectives and interests in the use

of economics”. Econometric models, for example, will not remove the need for judgment, given that models involve a large number of assumptions (not to speak of the use of specific datasets) and competition courts will always have to weigh evidence regardless of how sophisticated they are.

5.3 Relation to other cases

We argue in this paper that market definition involves judgment. This view is relevant to South African competition policy more broadly, as it emphasises the need for strong economic evidence to underlie a particular relevant market and assessment of market power. Consider, for example, the 2009 approved merger between wholesalers Masscash and Finro (Manoim, Mokuena et al. 2009). Although the case may appear to focus less on the issue of specific market delineation, a substantial portion of the case is devoted nonetheless to the application of quantitative techniques for the measurement of competitive constraints. In this regard it is useful to note the salient issue flagged by Tribunal in its assessment of these techniques: the apparently sophisticated statistical analyses presented were found not to hold up to closer econometric scrutiny or were found to be conflicting with other qualitative evidence. Two lessons related to market definition emerge from this particular case. Firstly, the econometric procedures used in that case is frequently argued to obviate the need for formal market definition – yet they are also exposed to statistical uncertainty as is any tool for statistical inference. Secondly, one cannot engage one-dimensionally with market definition or any issue in competition policy and should treat any one econometric approach as part of and the whole of the analysis. These insights are consistent with the arguments developed throughout this paper.

6. **Conclusions**

Given that the decision rule will be consistent with legal principles, it could serve to improve future decisions by elucidating the many factors that already play a role in decisions. In this sense, the paper contributes towards consistency in judgment. But the Tribunal or courts do not seek merely to make consistent decisions out of an affinity for being fair. A more explicit use of a decision rule serves to at least increase legal certainty about a decision that is frequently considered arbitrary. This in turn assists opposing parties in developing their arguments. But this is perhaps too optimistic. Nevertheless, apart from consistency and improved legal certainty, a decision rule analysis also helps to elucidate the trade-offs made in arriving at a particular market definition. The exposition assists in tracking the effect of changes in either economic theory or empirical evidence or policy stances on market definition decisions. It is also

of benefit to the body of competition practitioners as a whole as it serves to dismiss some of the myths surrounding “the problem of market definition”. There is a strong push from some academics (less so from practitioners) that market definition, which is frequently based on qualitative inquiries, is crude and therefore arbitrary. The argument is frequently made that the empirical IO models have advanced to such an extent that it is no longer necessary to define markets. Underlying this train of thought that market definition and its accompanying tools are less useful is an idea that these tools suffer from high error rates (type I and II). By viewing market definition as a statistical inference problem we see that it faces very much *the same* problems as models purporting to directly estimate levels of competition or market effects. The fact that market definition involves a binary decision based on certain losses and preferences is similar to other situations in competition policy where decisions also involve binary choice. Market definition need not be more arbitrary than these other competition policy judgments.

At a more general level, the paper presents an important criticism of ideal types in competition policy. It questions notions such “close” and “far” substitutes, being “in” and “out” of the market, being “differentiated” and “homogeneous”. There is not necessarily a link between ideal type and certainty. Market definition can be optimal, in the sense of minimizing incorrect market boundaries, without reverting to looseness. Furthermore, the paper highlights the problems generated by the highly specific nature of any particular market definition exercise. This trade-off between generalizability and specificity, the fact that average forms derived by averaging across industries can only bring one so far and that acknowledging and accounting for specificity is the challenge.

Finally, it is appropriate to ask to what extent the analysis of competition policy decision as presented in this paper and in Cooper is compatible with legal procedure. The paper may be more accessible to competition economists than it is to competition lawyers, but there is nothing inherent to the Bayesian analysis suggested here that imposes certain “economic standards” for evidence. Depending on the type of system in place, the particular court or competition authority may only be allowed to “weigh” evidence in front of it, whereas inquisitorial systems will allow authority to collect information on their own. The latter type of weighing is what I am referring to in my paper, although, technically, one could apply to both. This is because you simply “treat” the evidence as being the only evidence. Whether the decision-maker has to judge the market extent on the basis of a certain subset of legally admissible evidence rather than the true set of evidence is not necessarily important for the rule. In both cases, a decision must be made and that decision must be accompanied by a certain loss function and a certain set of prior beliefs. It

may be that weighing of probabilities is more difficult, but that does not affect the validity of the decision rule. Furthermore, the compatibility between economics and law is much less of an issue in competition policy. Competition cases do not usually rest on fact only, they usually involve how facts fit with a particular economic theory and, as such, require a judgment about different stories – of substitution, for example, in this case.

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