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COMPETITION COMMITTEE**

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HEARING ON AUCTIONS AND TENDERS: FURTHER ISSUES

-- Paper by Prof. Gian Luigi Albano --

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This paper by Prof. Gian Luigi Albano [Head of Research, CONSIP - Italy] was submitted as background material for Item V at the the 59th meeting of the Working Party No. 2 on Competition and Regulation on 19 June 2015.

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More documents related to this discussion can be found at <http://www.oecd.org/daf/competition/tenders-and-auctions.htm>

Please contact Ms. Cristiana Vitale if you have any questions regarding this document [E-mail: cristiana.vitale@oecd.org].

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ABNORMALLY LOW TENDERS (ALTS)

1. Nomen Omen

1. The phenomenon of abnormally low tenders (ALTs) is widely recognized as a major problem, particularly affecting public procurement of works (including high-value infrastructural projects). Surprisingly, while discussions abound on the problem itself, a universally shared definition of the problem is missing. Literally, the definition of ALTs seem to point towards a deviation from some norm, that is, it seems to be possible to recognize an ALT since one can recognize a “normal” tender.¹

2. International regulations at a global level do not seem to adopt a shared approach in defining ALTs. UNCITRAL’ Model Law on Public Procurement (2011) states the following with regard to ALTs:

3. Under Article 20 - Rejection of abnormally low submissions:

The procuring entity may reject a submission *if the procuring entity has determined that the price, in combination with other constituent elements of the submission, is abnormally low in relation to the subject matter of the procurement and raises concerns with the procuring entity as to the ability of the supplier or contractor that presented that submission to perform the procurement contract,*² provided that the procuring entity has taken the following actions:

1. The procuring entity has requested in writing from the supplier or contractor details of the submission that gives rise to concerns as to the ability of the supplier or contractor to perform the procurement contract; and
2. The procuring entity has taken account of any information provided by the supplier or contractor following this request and the information included in the submission, but continues, on the basis of all such information, to hold concerns.

4. On the subject of ALTs, the WTO/GPA states the following:

¹ Incidentally, one may wonder whether some remnants of scholastic philosophy such as the concept of Thomas Aquinas’ “just price” - which the greatest theologian of the Catholique Church discusses in the section in his "Treatise on Prudence and Justice" called "Of Cheating, Which Is Committed in Buying and Selling" - has filtered through the centuries to get to the public procurement world. Interestingly, ancient Romans seemed to have a much more pronounced *laissez faire* view about commercial transactions as the concept of “justness” is inexistent. The concept of “normal price” might also be traced back to Adam Smith’s concept of “natural price”. In Chapter 7 of Book One of the *Wealth of Nations*, Smith makes use of what has become known since then as the “gravitation metaphor.” He writes: “[T]he natural price is as it were the central price to which the prices of all commodities are continually gravitating. Different accidents may sometimes keep them suspended a good deal above it, and sometimes force them down even somewhat below it. But whatever may be the obstacles which hinder them from settling in this center of repose and continuance, they are constantly tending towards it”.

² Bold and italics added.

“Only tenders that conform to the essential requirements of the tender notice or documentation and are from a supplier which complies with the conditions for participation can be considered for award. Entities have the obligation to award contracts to the tenderer who has been determined to be fully capable of undertaking the contract and whose tender is either the lowest tender or the tender which is determined to be the most advantageous in terms of the specific evaluation criteria set forth in the notices or tender documentation. ***An entity that has received a tender abnormally lower than other tenders may enquire with the tenderer to ensure that it can comply with the conditions of participation and be capable of fulfilling the terms of the contract.***”³ (Article XIII: 4)

5. In the EU, article 69 of the Directive 2014/24/EU puts an explicit obligation on contracting authorities in member states to explain the price or costs contained in a tender in situations where tenders “appear to be abnormally low in relation to the works, goods or services”. Interestingly, the Directive provides no guidance as to the basis upon which a tender may “appear” abnormally low, although it does provide some guidance as to which elements of a tender price may be subjected to further scrutiny.

6. Finally, Multilateral Development Banks’ (MDBs) procurement policies/rules do not contain any specific reference to ALTs either. However, Instructions to Tenderers 31.2 - Tender Adjustments of the Standard Tender Documents for works state:

“If in the opinion of the Employer ***the Tender which results in the lowest Evaluated tender Price, is seriously unbalanced or front loaded or substantially below the Employer’s estimates,***⁴ the Employer may require the tenderer to produce price analyses for any or all items of the Bill of Quantities to demonstrate the internal consistency of those prices with the methods and schedule proposed”.

7. The briefly survey of international regulations points toward two major approaches to define ALTs:

1. ALT with respect to some allegedly “sustainable” price benchmark (often the procuring entity’s estimate);
2. ALT in terms of relative distance between one tender and all/some other or a statistics of other submitted prices (often a tender is deemed to be an ALT when it is lower than x% of an adjusted average of all submitted bids).

2. Does the concept of “normal price” have any economic foundation?

8. Let us first consider the approach to “normal price” in terms of “acceptable” or “sustainable” distance with respect to the procuring entity’s estimate for the project, where the buyer’s estimate is particularly relevant in the procurement of civil works of medium/high complexity (e.g., infrastructures).

³ Bold and italics added.

⁴ Bold and italics added.

9. Buyer's estimates do exert an impact on the so called "common value" components of bidders' production costs, that is, those dimensions of production costs that affect all competing bidders although each of them might have different quality of information at the bidding stage.⁵ Uncertainty about the common component of the cost of serving a contract matters since the contractor may find out that the "true" cost of performing the contract differs from its initial estimate. This may happen if the contractor submitted a bid on the basis of too an optimistic forecast. More generally, if a supplier does not take this possibility into account at the time of bidding for the contract, it may suffer from the 'Winner's Curse', that is it may realize that actual production costs are higher than estimated ones. On the one hand, the danger of running losses ex-post may induce tenderers to bid too cautiously for the contract, which implies potentially high awarding prices for the buyer. On the other hand, the tenderers' inability to recognize the Winner's Curse may generate too an aggressive bidding that results in low awarding prices for the buyer, but may induce the contractor to cut productions costs by lowering the quality of the performance in order to recoup losses or to raise profit. More reliable estimates about the common value component of the cost function generally translate into a lower risk of suffering from the Winner's Curse. However, overbidding might also be a bidder's strategic choice aiming at getting the contract and renegotiate, at least partially, financial conditions at the execution stage as well as a byproduct of firms' limited liability which make the most distresses ones risk-seekers when bidding for a contract.⁶

10. Whether a bid is biased by over-optimism or "forward-looking" strategic considerations it remains nonetheless true that, under all circumstances, uncertainty about production costs resolve only when the project is executed. Hence if uncertainty is deemed to affect tender proposals - and uncertainty does not symmetrically affect participating bidders⁷ - one is left to wonder how and to what extent a procuring entity would be able to use a predetermined measure of the distance between its own estimates and submitted tenders to determine whether or not a bid is "abnormally" low.

11. Assuming that the procuring entity is in a position to provide all cost-relevant information about the project, the distance of bids from the procuring entity's estimate is likely to depend on many fluctuating factors such as the number and the nature (e.g., local vs. foreign, big vs. small, solo bidders vs. joint ventures, specialized vs. multi-product/service) of participants, each bidder's specific economic-financial conditions (e.g., level of spare capacity, whether or not some of the cost components are sunk at the time of bidding), and the overall business cycle.

12. Let us now consider the second methodology for ALTs, namely the one based on some specific characteristics of the bids distribution. Absent any "strategic underbidding", competing bidders' financial offers depend upon bidders' estimate of production costs as well as some crucial aspects of the competitive tender design, among which the price-vs.-non-price weighting and scoring rules stand up. While it is almost immediate that raising the weight of the price dimension of the tender is likely to raise price competition, it is far from being an obvious conclusion that this enhanced competition effect is symmetric among all bidders. Moreover, it is well known that bids distribution is deeply affected by the nature of the scoring rule, that is, by the mathematical algorithm used to transform prices into a neutral score.⁸

⁵ Examples would comprise the main physical characteristics of the location where a project has to be carried out (construction) or the purchasing patterns through a centrally awarded framework agreement for products/services before a new solicitation is issued.

⁶ See, for instance, J.-J. Ganuza, "Competition and Cost Overruns in Procurement," *The Journal of Industrial Economics*, 2007, Vo. 44, Issue 4, pp. 633-660.

⁷ The most obvious source of asymmetry is the different level of knowledge about the project between an incumbent firm and potential entrants.

⁸ See F. Dini, R. Pacini and T. Valletti, "Scoring Rules," in N. Dimitri, G. Piga and G. Spagnolo (eds.), *Handbook of Procurement*, Cambridge University Press, 2006.

13. A rather simple economic reasoning would point towards the contractor's *variable* costs for undertaking the project as the sensible threshold below which a procuring entity might become concerned, but certainly neither the characteristics of bids distribution nor the distance of submitted bids from the buyer's estimates. However, the concept itself of variable costs may become somewhat slippery as in many industries production costs are mainly fixed costs (e.g. R&D costs) so that marginal costs are naught. Moreover, firms may intentionally submit bids below variable costs thanks to cross-subsidies from other high-profit activities.

14. To sum up the above discussion one may wonder whether we need a *universally valid* definition of ALTs. If the main economic aspect is **to minimize the risk that the project remains uncompleted or the contractor is tempted to shirk on quality aspects to recoup additional profit at the execution stage**, then we should look for solutions to make bidders internalize the cost of cheating, that is, sound procurement design would require providing bidders with incentives that make it extremely costly for them to dramatically reduce bids to maximize the chances of winning while aiming at raising profit margins ex post through renegotiations.

15. Thus resorting to arguably convoluted award criteria aiming at rewarding tenderers for not submitting (*too*) low prices not only does not provide correct incentives, but may trigger some form of coordination among bidders, thus favoring collusion. For instance, Average Bid Methods (ABMs)⁹ have been designed so as to reward tenders close to a "reference price" and punish those that are far away from it. The most commonly used "reference prices" are the simple average or the geometric average of all submitted bids, where the latter provides a much stronger incentives to submit prices as close as possible to each other. A short Appendix at the end of this section will illustrate a special type of average-bid method, which is used in Italy when public contracts are awarded by means of the most economically advantageous criterion.

16. This brief discussion on scoring rules as potential "preventive" measures against ALTS has emphasized the widespread temptation of handing procuring entities some kinds of regulatory power so as to "fine-tune" the degree of competition, thus raising concrete concerns as to why we should use competitive mechanisms at all!

17. In conclusion, it is worth underlining that there seems to exist two major causes of what some would define "excessively aggressive" price competition: *i*) strategic bidding, and *ii*) utterly imprecise cost estimates by some participating bidders.

18. Potential solution to the "strategic bidding" problem would include:

- Adequacy of performance securities (e.g., a letter of credit);
- Surety bonds¹⁰;

⁹ For a simple economic analysis, see G. L. Albano, M. Bianchi and G. Spagnolo, "Bid-Average Methods in Procurement," *Rivista di Politica Economica*, 2006, N. I-II, pp. 41-64.

¹⁰ A surety bond (typically issued by a surety company) is a guarantee that the firm will fulfill the obligation specified in the bond. Surety bonds are secured by the surety company's assets. The firm's assets are never pledged. Should a default occur the surety company has two options: it can either take up the contract and complete the project or pay the amount specified in the bond to the buyer. The fee the firm pays to the surety company is firm-dependent. For an in-depth analysis of the difference between a letter of credit and a surety bond in terms of incentives to bidders see A.R. Engel, J.-J. Ganuza, E. Hauk and A. Wambach, "Managing Risky Bids," in N. Dimitri, G. Piga and G. Spagnolo (eds.), *Handbook of Procurement*, Cambridge University Press, 2006.

- Systematic use of “performance evaluation mechanisms”, even in the most extreme form as debarment of suppliers for a certain period of time.

19. Potential solutions to the risk of overoptimistic bidding would certainly include forcing procuring entities to publish all relevant information about the project, particularly those aspects that are not immediately available to non-incumbents.

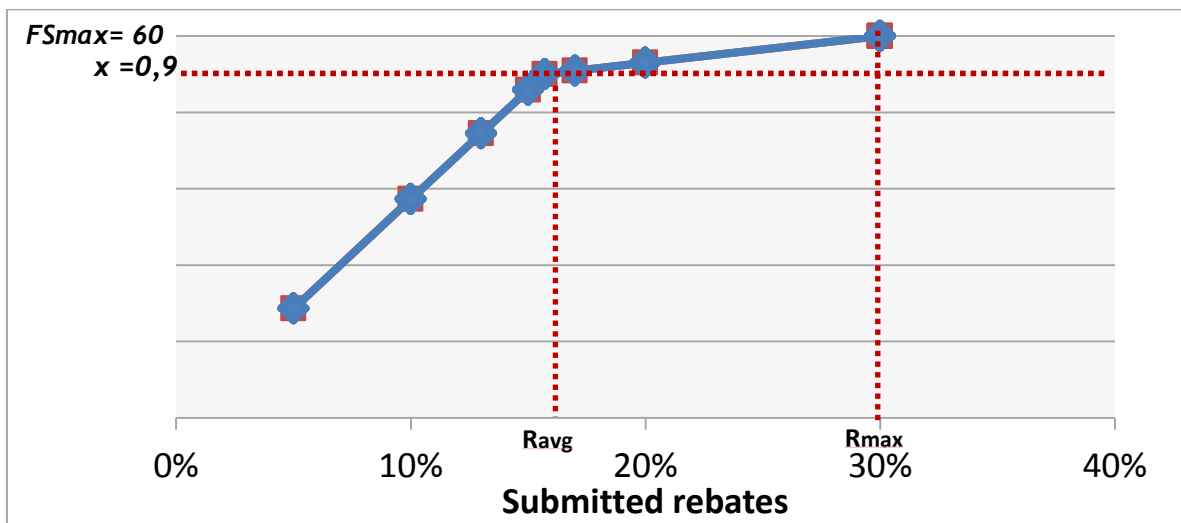
20. One final remark is in order. Sound procurement design is quintessential to reduce the risk that firms manipulate the “rules of the game” to get additional benefits. Contract design is indeed one major aspect of procurement design. When projects comprise many unforeseeable dimensions (e.g. infrastructural projects) it is well known that negotiation-like procedures with a set of highly reputable firms is the best procurement option. If, instead, the procuring entity were to opt for a fixed-price contract to be awarded by an open competitive process - lured, say, by the prospect of reporting sizeable savings to its main stakeholders soon after the contract has been awarded - then renegotiation and cost overruns may simply result from a flawed contract choice.

APPENDIX

1. In Italy, the current secondary legislation on public contracts explicitly foresees one special kind of scoring rule - that is, a mathematical algorithm for transforming submitted prices into a neutral score when the procurement contract is to be awarded by using the most economically advantageous tender criterion - whereby the simple average of submitted rebates determines a dramatic change in the variation of financial score due when rebates are lower than the average of all rebates. More precisely, the “kinked” average-bid scoring rule can be written as follows:

$$FS_i = FS_{max} \cdot \begin{cases} x \cdot \frac{R_i}{R_{avg}}, & R_i \leq R_{avg}; \\ x \cdot (1 - x) \cdot \frac{R_i - R_{avg}}{R_{max} - R_{avg}} & R_i > R_{avg}, \end{cases}$$

2. Where FS_i = bidder i 's financial score, FS_{max} = maximum financial score (set in the tender documents), R_i = bidder i 's submitted rebate with respect to a publicly announced reserve price, R_{avg} = simple average of all submitted rebates, R_{max} = highest submitted rebate, x is a constant determined by the procuring entity that can take only three values: {0.8, 0.85, 0.9}. The figure below provides an example of the “kinked” average-bid scoring rule.



3. While identical marginal variations of rebates are rewarded differently according to whether the former are below or above the average, the slope of the scoring rule is always positive. The extent to which this scoring rule possesses anti-competitive features remains, though, an open question.

SPLITTING PROCUREMENT CONTRACTS INTO LOTS

1. Why splitting a procurement contract into lots?

1. Splitting a procurement contract into different lots design is one of the most crucial decisions in designing competitive procurement processes. By affecting the number and the types of firms that are able to compete, lots design has a dramatic impact on the level of competition today and, possibly, on the level of participation and competition for future contracts.

2. In particular, multiple lots are likely to favor the participation of small and medium-sized enterprises (SMEs) that sometimes display higher levels of specialization/efficiency than bigger competitors. Moreover, multiple lots may reduce the risk of lock in, which is a potential by-product of the repeated nature of public procurement activities. Lock in may be generated by three main factors.

1. **Learning by doing** whereby firms may exploit the advantages acquired through experience as contractors (e.g. buildings maintenance services, ICT services). In other words, having been contractor in the past raises the likelihood of being selected in the future.
2. **Dominant buyer** when a buyer holds a relevant market share choosing a single-source solution would allow only one firm to improve the production process. In this case, the single-sourcing solution strengthens an existing competitive advantage.
3. **Idiosyncratic investments** whereby specific investments are needed to carry out the procurement project. These investments turn into sunk costs as they cannot be exploited for purposes other than the one for which they were made, thus raising entry barriers for new competitors. (e.g. defence/space procurement).

3. There exist at least two potential drawbacks stemming from splitting a procurement contract into lots:

1. While promoting participation of SMEs, splitting a procurement contract into lots does not guarantee per se a multi-award outcome, that is, it may still be the case that one big firm will be awarded all lots.¹¹
2. Bigger firms bear more uncertainty about their chances of getting the whole pie and thus fully exploit the potential of economies of scale/synergies, which might induce them to lower their bids (this is reminiscent of a well-known phenomenon in multi-unit ascending auctions which goes under the name of the “exposure problem”).

¹¹ While benefiting from economies of scale, bigger firms will have to formulate by taking the economies-of-scale effect into account without being sure that they will be awarded exactly the number of lots they considered in formulating their offers.

4. One potential solution to problem 2 is to adopt a tendering format with *package bidding* whereby competing firms can bid for individual lots as well as for bundles of lots. This solution is now explicitly foreseen – although described in a fairly cryptic way – in art. 46(3) and recital 79 of the 2014/24/EU Directive on public procurement. A solution to problem 1 is for a procuring entity to introduce *participation or award limits*, which are also foreseen by art. 46(2) and recital 79 of the 2014/24/EU Directive on public procurement. The participation limit defines the maximum number of lots for which any bidder can compete for, while the award limit provides the highest number of lots that each bidder can be awarded. If N is the number of lots to be awarded, then a participation/award limit is any number between 1 and $N - 1$.

5. The use of package bidding in public procurement is not very customary, though. The main reason is likely to rest on the difficulty for an “average” public procurement specialist to handle the practical difficulty stemming from defining the relevant packages of lots and the computational complexity of comparing a potentially very high number of different tenders. Indeed if the number of individual lots is M and all packages are allowed then each bidder can submit up to $2^M - 1$ bids, that is, if $M = 6$ then the number of packages is 63!

6. Participation and award limits seem to serve the same function, although they may generate different strategic considerations. Absent, to our knowledge, any theoretical research on this subject, we shall limit ourselves to flesh out some qualitative considerations on the two tools. When facing a participation limit, each firm is likely to bid for those lots that it values most. Thus if bidders have heterogeneous preferences over lots then the more stringent the limit (that is, the lower the number of admissible bids) the higher the chances that at least one lot receives no bids at all, thus generating potentially sizeable costs for a public organisations in terms of foregone outsourcing opportunities. If an award limit is adopted, firms can in principle submit bids for all lots. “Weak” bidders - that is, bidders that under no award limit would have thin chances of getting at least one lot - have a stronger incentive to bid on all lots as they may benefit from “strong” bidders becoming constrained at the award stage. Bidding patterns are then likely to be determined by the method used to award lots, namely whether lots are awarded sequentially or simultaneously.

7. Most importantly, participation/award limit raises serious concerns as they may favor market-sharing schemes normally used by cartels. Thus we now turn our attention to the impact between lots design and collusion in public procurement markets.

2. Lots design and cartels

8. Collusion is endemic in public procurement markets.¹² While favoring entry of smaller firms (pro-competitive effect), splitting a contract into multiple lots may help an already-active cartel solve the problem of how to allocate collusive profits among cartel members. Indeed the cartel may allocate a certain number of lots to each member without resorting to any side-payment scheme that may raise the likelihood of detection by antitrust authorities. Market (lots) sharing among cartel members is implemented by a variety of techniques among which stand up “cover bidding” and “bid rotation” schemes, subcontracting agreements and joint ventures.

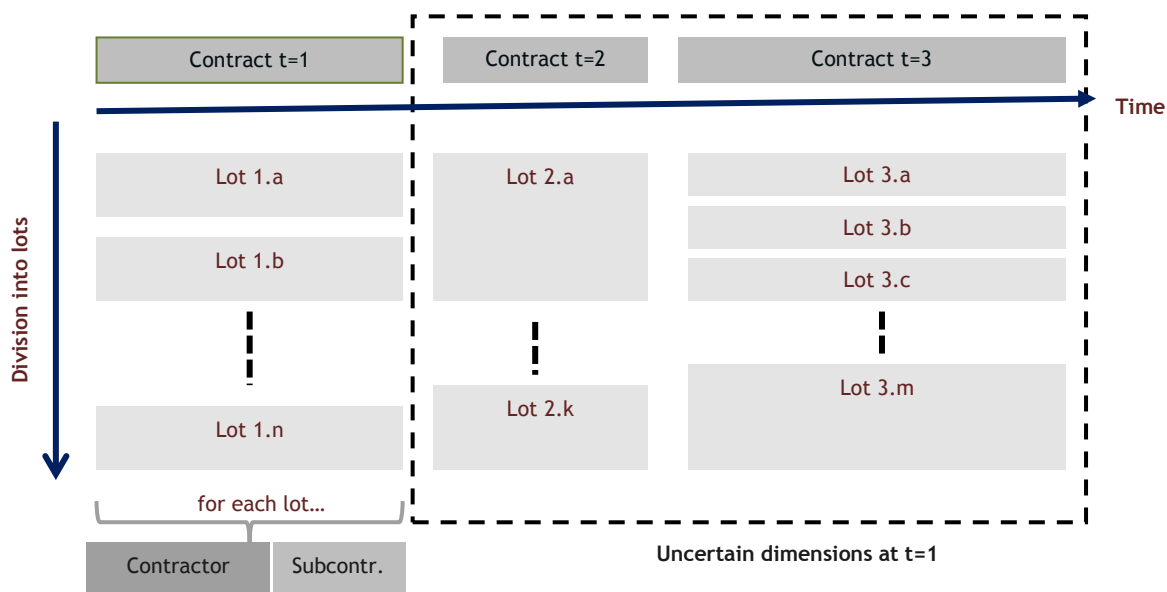
9. In order to assess to what extent a specific division into lots may favor collusion one should first consider the *absolute* number of lots (at any given time). Indeed, for a given number of firms (that is, keeping the potential cartel size fixed) and for a given overall value of the procurement contracts, the higher the number of lots the higher the risk of collusion as the cartel can exploit a higher number of

¹² See, for instance, A. Heimler, “Cartels in Public Procurement,” *Journal of Competition Law and Economics*, 2012, 8 (4), pp. 849-862.

degrees of freedom to distribute collusive profits. Furthermore, one should consider to what extent lots values are similar (*homogenous* lots) rather than different from each other (*heterogeneous* lots). The reason is that collusive profit shares are typically allocated according to cartel members' bargaining power. Thus when the latter is asymmetrically (symmetrically, respectively) distributed among cartel members, that is, when cartel members display very different (similar, respectively) market power then heterogeneous (homogenous, respectively) lots may facilitate the task of sharing collusive profits.

10. As procurement contracts of similar contract matter are repeatedly awarded over time the temporal dimension also matters in evaluating buyers' strategy in splitting contracts into lots. Cases abound whereby cartels members have adopted a rotation scheme in taking turn to win procurement contracts. Thus the duration of the procurement contract represent another crucial dimension affecting the risk of collusion. In particular, the longer the duration the lower the risk of collusion as any deviation from a "bid rotation" scheme would allow a deviant firm to steal a higher share of collusive profits.¹³ At the same, though, one should not overlook the potentially anticompetitive effect of overstretched procurement contracts that may become a barrier to entry for new firms.

11. The picture below summarizes the way a cartel looks at possible market sharing agreements over time (each rectangle length is a proxy for contract duration while the height is a proxy for value per period of time, say, yearly value):



12. One main message that comes out of this brief discussion is that the more stable the picture above, that is, the more predictable lots design at any given point in time and across periods the easier market sharing agreements. This effect is reinforced by other factors such a reduced number of active firms in the relevant procurement market or few substitutes. Consequently, while splitting a contract into lots may serve a pro-competitive purpose, it results that a certain *degree of unpredictability* of lots design may cause more instability of collusive agreements. Ready-to-use recipes are unfortunately not available. Sound economic principles together with some a trials-and-errors approach seem to represent the most constructive approach that, however, does not seem to be at hand to most procurement specialists working in rather unspecialized procurement organisations.

¹³ A longer duration can be thought of, *ceteris paribus*, a higher-valued lot.