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The award of French public procurement contracts : A beauty contest ?

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- In France, the decree of March 25, 2016 (transcription into French law of European Directives 2014/24/EU) reaffirmed the principle of awarding public contracts on the basis of the **economically most advantageous tender**
- A **multitude of criteria** can be taken into account by the public buyer (PB) when evaluating the bids
 - Technical value
 - price
 - Quality
 - Time of delivery
 - Performance in terms of environmental protection
 - Professional integration of people in difficulty...

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- Since 2004, french procurement regulation promotes environmental and social criteria
- The Climate and Resilience Act (July 20, 2021), requires that, within five years at the latest, all public procurement contracts must include
 - An ecological clause
 - The obligation of clauses related to the social domain and employment

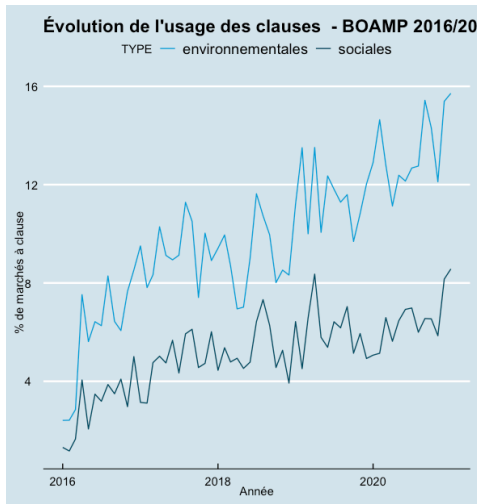
This is confirmed by practice

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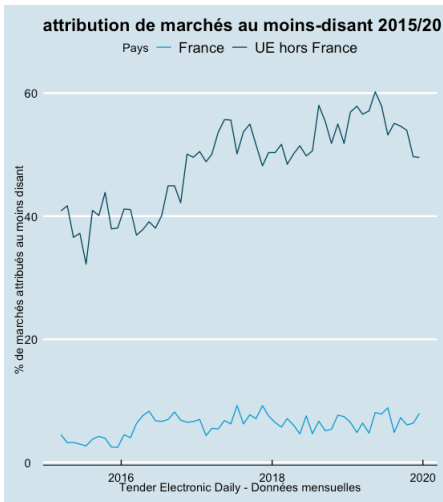
Only a minority of French contracts are awarded according to the sole criterion of price, whereas this is still the case for the majority of the rest of the EU

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- Cost objectives
- Social and environmental objectives...

⇒ The PB maximizes the “welfare”

- 2 remarks on multi-criteria awarding

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- 2 remarks on multi-criteria awarding
 - Is public procurement the right instrument to achieve such objectives? According to Saussier and Tirole (2015) :
 - This increases the risks of reducing competition and favoritism
 - Such objectives would be better achieved with taxes, subventions...

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- 2 remarks on multi-criteria awarding
 - Is public procurement the right instrument to achieve such objectives? According to Saussier and Tirole (2015) :
 - This increases the risks of reducing competition and favoritism
 - Such objectives would be better achieved with taxes, subventions...
 - This introduces a real complexity into the bid selection process (source of legal uncertainty for the PB)

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Analysis of administrative litigation
 (administrative courts, administrative courts of appeal,
 and Council of State)

Cases over the period 2010-2020	%
Irregular criteria or sub-criteria	4.83
Lack of knowledge of bid selection criteria	3.45
Irregular scoring method	6.67
Failure to provide information to candidates (criteria or sub-criteria)	7.59
(weight)	5.29

Decree 2016 : *all the criteria (with their weights) must be announced in the RfP*

In practice :

- **Criteria other than price** : PB generally assigns a score in a **discretionary** manner (i.e., without using a specific formula)

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- **Price criterion**
 - The PB most often uses “*relative*” scoring methods, i.e. a bidder’s score depends on both its offer and the most competitive offer and/or the least competitive offer or a combination of both.

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 - The PB is *partially free* to choose the scoring method (framed by jurisprudence)
 - The PB is generally *not required to announce* the method used

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We address a broad public (not necessarily economists)

- Analyze, with the help of examples, the properties of several relative scoring methods used in French public procurement

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We address a broad public (not necessarily economists)

- Analyze, with the help of examples, the properties of several relative scoring methods used in French public procurement
- Detail the steps involved in deriving an (absolute) scoring rule and some weights that
 - Reflect the public buyer's preferences
 - Allow suppliers to compete in a fair and transparent manner

Award of a public procurement contract

- 3 bidders (firms A,B, and C)
- 2 criteria
 - Quality (weight = 60%)
 - Price (weight = 40%)

	Firm A	Firm B	Firm C
Score (/20) on quality	18	17	16
Bid on price (€)	217 000	200 000	240 000

Which firm is the winner ?

A simple example

	Firm A	Firm B	Firm C
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- C cannot win (lowest quality and highest price)

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It is impossible to know....:- (

In other words, the disclosure in advance of just the evaluation criteria and their relative weights does not inform the bidders in the objective of the PB

In practice, the PB mainly uses scoring rules to select a firm

The PB has to

- Turn the bids into scores for each criteria (/20 in our example)
- Compute the global score of each firm using the *Weighted Factor Score method*

$$0.6 \times \text{“score on quality”} + 0.4 \times \text{“score on price”}$$

In order to turn the bids on price into scores, 2 **relative methods** are mainly used in French procurement contracts

- Method 1 (M1) : the firm gets a score (/20) equal to

$$20 \times \frac{\text{Min}}{\text{Offer}}$$

Method most often used by PB (recommended by the “*Direction des Affaires Juridiques*”)

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- Method 2 (M2) : the firm gets a score (/20) equal to

$$20 \times \frac{\text{Min} + \text{Max} - \text{Offer}}{\text{Max}}$$

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Score on price with M1	18.43	20	13.33
Score on price with M2	18.87	20	13.33
Global score with M1	18.17	18.2	14.93
Global score with M2	18.35	18.2	14.93

- With M1, the winner is **B**

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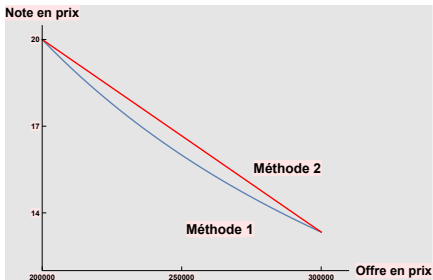
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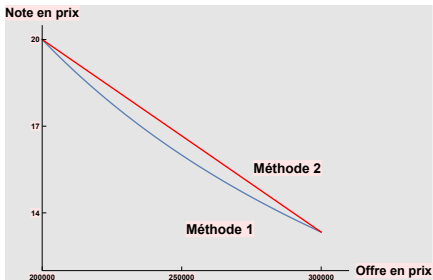
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- With M1, the winner is **B**
- With M2, the winner is **A**



M1 and M2 reflect quite different PB's preferences :

- With M2, the score is **linear** in the firm's offer
⇔ the PB evaluates a reduction of the offer in the same way, whether the offer is rather high or rather low



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- With M2, the score is **linear** in the firm's offer
 \Leftrightarrow the PB evaluates a reduction of the offer in the same way, whether the offer is rather high or rather low
- With M1, the score is a **convex** function of the firm's offer
 \Leftrightarrow a reduction in supply by the same amount will result in a larger score increase when supply is low than when it is high

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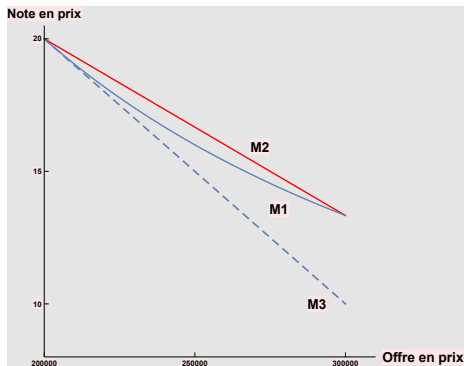
Conclusion

- Obviously, C cannot win
 - With M1, C's bid on price does not change the scores of A and B
 - However, with M2, it does!
 - If C's bid $< 226\,667$, the winner is **A**
 - If C's bid $> 226\,667$, the winner is **B**
- violation of the principle of independence of irrelevant alternatives
- ⇒ Risk of collusion between A and C or between B and C

Let us now use a *linear* method which *does not depend* on the highest bid :

- Method 3 (M3) : the firm gets a score (/20) equal to

$$20 - 20 \times \frac{\text{Offre} - \text{Min}}{\text{Min}}$$



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- The *slope* of M3 is higher than M1 and M2
This means that (with an equal weighting of the criteria), M3 gives a **greater relative weight to the price criterion** than M1 and M2

Jurisprudence : The PB may (*but is not obliged to*) choose a method that automatically awards the **maximum number** of points to the candidate with the best offer

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Given the weights, the best offer in terms of price is worth 40 points (out of 100 possible points). The best offer in terms of quality is worth $(18 \times \frac{100}{20}) \times 60\% = 54$ points.

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 \Rightarrow Price finally represents $40/(40 + 54) \simeq 42,6\%$ of the final score and quality **57,4%**.

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⇒ Price finally represents $40/(40 + 54) \simeq 42,6\%$ of the final score and quality **57,4%**.

⇒ By using a relative scoring method that does not systematically award the highest score to the most competitive offer, the PB *modifies the initial weights*.

- Weights often chosen according to the relative importance of the criteria.

With a scoring rule

$$0.6 \times \text{“score on quality”} + 0.4 \times \text{“score on price”},$$

the PB thinks he is sending the signal that *quality is more important than price*.

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The weights chosen in the example indicates that a 5 point decrease in the quality score ($60\% \times (-5) = -3$) can be offset by a 7,5 point increase in the price score ($40\% \times 7,5 = 3$).

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- It is easy to see here that the level of substitutability between the criteria depends on the score obtained (and therefore on the formula chosen) on each criterion

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- It is easy to see here that the level of substitutability between the criteria depends on the score obtained (and therefore on the formula chosen) on each criterion
- The weights and the scoring method must therefore be determined jointly in order to reflect the PB's preferences (cf. e.g. Telgen et al. (2010))

- *The mere announcement of the criteria and their weights does not inform at all on the preferences of the PB*

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- *A multitude of possible scoring rules would give quite different results for an equivalent initial weighting of the criteria*

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⇒ *Selection of offers :*

- **Subjective**
- Sensitive to **collusion** among bidders
- Likely to be tainted by **favoritism**

⇒ *So, relative scoring rules should not be used!*

⇒ *If used, it should at least be **announced**! Otherwise, the announcement of weights makes no sense!!!*

The empirical literature (Albano et al. (2008)) has shown that **absolute scoring rules** perform better than relative ones

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 - Then by asking questions to the PB about his preferences

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- For a firm, the scoring rule for each criteria only depends on its bid
- It is determined by
 - Assessing a value to a given level of a bid
 - Then by asking questions to the PB about his preferences
- Only absolute scoring rules can :
 - Reflect the PB's preferences
 - Ensure an effective competitive process (firms can then determine their offer by making an optimal trade-off between the different criteria)

In our example, the global score for a bid (on price) = p would be

$$\frac{15}{17} \times \text{“score on quality”} + \frac{2}{17} \times \left(-\frac{1}{2000}p + 200 \right).$$

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Scoring rules must be properly designed

- The scoring rule must be announced in the RfP
- Absolute scoring rule must be preferred
- Weights and scores on each criteria must be jointly determined to reflect the preferences of the PB
- Relative scoring rules may be used when the PB is unable to describe his preferences