

Methodological note

## ECA Special Report 28/2023

**Public Procurement in EU - less competition in awarding contracts for works, goods and services in the ten years up to 2021**

**Date:** 14-11-2023



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# Introduction

The purpose of this methodological note is to a) introduce the datasets used for the analysis and the Dashboard, b) summarise the SMSB indicators, c) introduce additional competition indicators, d) assess the robustness of country rankings by the datasets and filters used, and explain the e) single bidding analysis, and f) directive change assessment in detail. First, we introduce the two datasets used including any filtering steps. Second, we briefly introduce the Single Market Scoreboard (SMSB) indicators, including their level of observation and how and if they are expected to measure the level of procurement market competition. Third, we also introduce the additional indicators that we use for the analysis. Similarly, we report their level of observation and discuss their potential effect on competition. In the fourth section, we compare the two datasets that we have considered for the analysis; we show the absolute ranking difference of country level indicators calculated on the DIGIWHIST procurement dataset (that we use for most of the analysis) and that are calculated on the procurement datasets published by DG GROW (that were used for the original SMSB dashboard). In the fifth, we explain the steps and rationale of the single bidding analysis. Finally, we introduce the methodological explanation for the assessment of the 2014 EU Directive.

# Data

This section explains which datasets are used to calculate the figures behind the Dashboard tabs, the applied filters, and includes a few descriptive figures to show the scope of the data. The ultimate source of information behind all calculations are the procurement notices (XML) – such as contract notices, contract award notices - published at Tenders Electronic Daily (TED). However, these notices can be processed in several ways to construct a standardized analysable dataset. We use two dataset versions: a) DG GROW TED CSV<sup>1</sup>, b) DIGIWHIST TED CSV (as published at opentender.eu)<sup>2</sup>.

To recalculate the original Single Market Scoreboard<sup>3</sup> (SMSB) indicators (see SMSB tab on the Dashboard), we use the DG GROW TED datasets, whereas for all other tabs we use the DIGIWHIST TED dataset. As the DG GROW version was used to calculate the original Single Market Scoreboard, it is more adequate to recalculate the original results. Furthermore, we also apply the same filters used for the original SMSB for the recalculation.<sup>4</sup> The exact filter definitions can be found in the codes provided by DG GROW, that implement the filters explained on the original Single Market Scoreboard. However, the DIGIWHIST TED dataset is in a format, which allows us to calculate additional indicators and to perform a more in-depth single bidding analysis and the assessment of the 2014 European Directive on public procurement.

The main differences between these datasets are a) the scope of tenders included<sup>5</sup>, b) DG GROW version keeps information in separate data tables containing data from contract notices and contract awards, whereas the DIGIWHIST version standardises all notices related to a specific tender into one tender record<sup>6</sup>, c) data cleaning<sup>7</sup>.

By comparing the two datasets we found that ~4% of contracts are not included in the DIGIWHIST dataset but available in the DG GROW dataset, while ~2% of contracts that are not available in the DG GROW dataset but available in the DIGIWHIST dataset. However, these small differences do not considerably alter the results.

We apply different filters on the DIGIWHIST dataset to calculate the new indicators and the analytical tabs (i.e. the Directive assessment and the Policy Scenarios). First, while we recalculate all SMSB indicators without filtering any tenders that are below the EU threshold (in order to follow the original calculation logic), we present the additional indicators and do the analysis on

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<sup>1</sup> We use the 'Contract notices 2011-2020' and 'Contract award notices 2011-2020' datasets published by the Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs. Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (2022): [Tenders Electronic Daily \(TED\) \(csv subset\) – public procurement notices](#), TED - Contract notices 2011-2020 & TED - Contract award notices 2011-2020, data.europa.eu

<sup>2</sup> The DIGIWHIST TED dataset is maintained by regularly collecting and processing XML files from the Tender Electronic Daily. The data processing codes are available here: <https://github.com/digiwhist>, with a technical description of the data processing steps ([https://github.com/digiwhist/wp2\\_documents/blob/master/d2\\_8.pdf](https://github.com/digiwhist/wp2_documents/blob/master/d2_8.pdf)).

<sup>3</sup> European Commission (2020): [Single Market Scoreboard](#)

<sup>4</sup> The Indicator comparison section highlights the remaining differences between the original results and the recreated results and describes the potential source of any differences.

<sup>5</sup> On the one hand, DIGIWHIST data does not include concession and social service tenders, as originally, they were not covered by the directive. Concessions are different from public contracts in the sense that a public contract includes fix payment upon completing the contract, whereas in a concession, a company takes the risks of being able to run a service in a profitable way. On the other hand, we include awarded framework contracts (i.e. second stage) that represent actual committed spending.

<sup>6</sup> For technical details on the DIGIWHIST data processing, see: [https://github.com/digiwhist/wp2\\_documents/blob/master/d2\\_8.pdf](https://github.com/digiwhist/wp2_documents/blob/master/d2_8.pdf).

<sup>7</sup> For example, DG GROW applies several manual fixes on prices – for more details, see: [https://data.europa.eu/euodp/en/data/storage/f/2022-02-14T122429/TED%28csv%29\\_data\\_information\\_v3.4.pdf](https://data.europa.eu/euodp/en/data/storage/f/2022-02-14T122429/TED%28csv%29_data_information_v3.4.pdf).

There are several data cleaning steps applied in the DIGIWHIST TED dataset version. For example, dates are standardised into a common format, prices are cleaned from unnecessary punctuations and white spaces and standardised into EUR, procedure type names are cleaned into standard categories (such as open, restricted etc.). For more details on the processing, see [https://github.com/digiwhist/wp2\\_documents/blob/master/d2\\_8.pdf](https://github.com/digiwhist/wp2_documents/blob/master/d2_8.pdf).

above EU publication threshold<sup>8</sup> data.<sup>9</sup> We remove contracts that are below the EU publication value threshold as their publication is voluntary, hence their country level share mainly depends on country specific practices – such as contracting authorities’ dedication towards transparency. Therefore, it directly affects the observed sample size of contracts depending on the country leading to less comparable results.

Second, we removed any other, indicator specific, filters that were used for the SMSB but potentially affect comparability. For example, in the original SMSB analysis direct and negotiated procedure type contracts are removed from the single bidding rate calculation, because by definition those types of tenders are restricted and therefore more likely to lack any competition. However, we argue that it does not matter whether the lack of competition is caused by more nuanced anticompetitive practices (e.g. favouritism by tailored specifications) or by a high share of restrictive procedure types allowed by lax rules. Finally, we have filtered out contracts with extreme outlier prices and bid numbers (top 0.0001% and 0.015% respectively).<sup>10</sup> We also standardised buyers’ and bidder’s regional codes. NUTS codes, that are regional codes used in TED, are published in various formats. We standardised them into the 2021 version. We also imputed missing NUTS codes if a) postcodes were available in the data based on postcode – NUTS code correspondence tables<sup>11</sup>, and b) we carried forward NUTS codes within the same organization<sup>12</sup>.

Overall, the analysis includes 30 countries (27 EU member states plus Norway, Iceland and the UK) covering the time period between 2011 and 2021 (up to 2020 for recalculating the SMSB indicators). Table 1 summarises which of the two datasets were used for which tab.

**Table 1: Datasets**

| Dataset name  | Source         | Filters used                                                                                                                                        | Dashboard section for which it is used for                                                                                              |
|---------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| DG GROW TED   | data.europa.eu | Included in the DG GROW codes and in the <a href="#">Single Market Scoreboard</a> report                                                            | Scoreboard Indicators (original SMSB recreation)                                                                                        |
| DIGIWHIST TED | opentender.eu  | Below EU publication threshold contracts were removed; concession and social service contracts excluded; second-stage framework contracts included. | Competition Indicators; Country Competition; Tendering Practices; Data availability; Directive assessment and Policy Scenarios sections |

While the share of below threshold value tenders voluntarily published on TED is around 20% of the total contract value in some countries, such as Germany or Luxembourg, it is close to 0% in others, such as Italy or Portugal (Figure 1). In the Indicator Comparison section, we compare the original SMSB results with the indicators recalculated on the unfiltered DIGIWHIST dataset (including below threshold procurements) for comparability.

<sup>8</sup> [Yearly threshold value source](#)

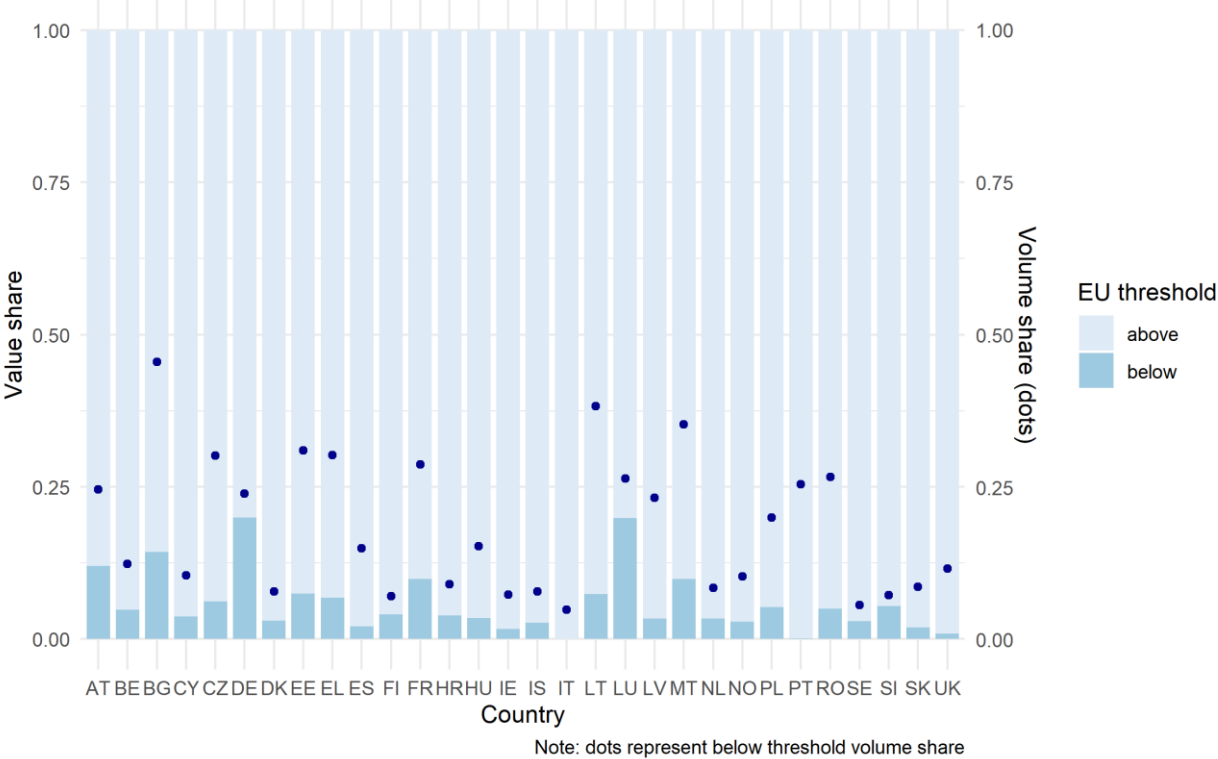
<sup>9</sup> The EU threshold regulations are complex; hence we implement a simplified version of filtering. We filter out supply and service tenders that are below the minimum thresholds regardless of buyer type based on the year of the contract award publication date by following the threshold changes for every two-year period. We filter out public work tenders with their respective bi-annually changing thresholds for all buyers as well. However, as a tender prices are missing for a significant share of tenders, we keep those in the analysis.

<sup>10</sup> Based on extreme bid prices we have excluded 369, while based on extreme bidder numbers, we have excluded 22,659 contracts from the total of 3,478,338.

<sup>11</sup> <https://gisco-services.ec.europa.eu/tercet/flat-files>

<sup>12</sup> For example, if Buyer A has regional codes for some of their contracts but not for others, we carry forward these codes onto the contracts without them.

Figure 1: Share of tender value published on TED below vs. above EU threshold by country (2011-2021)<sup>13</sup>

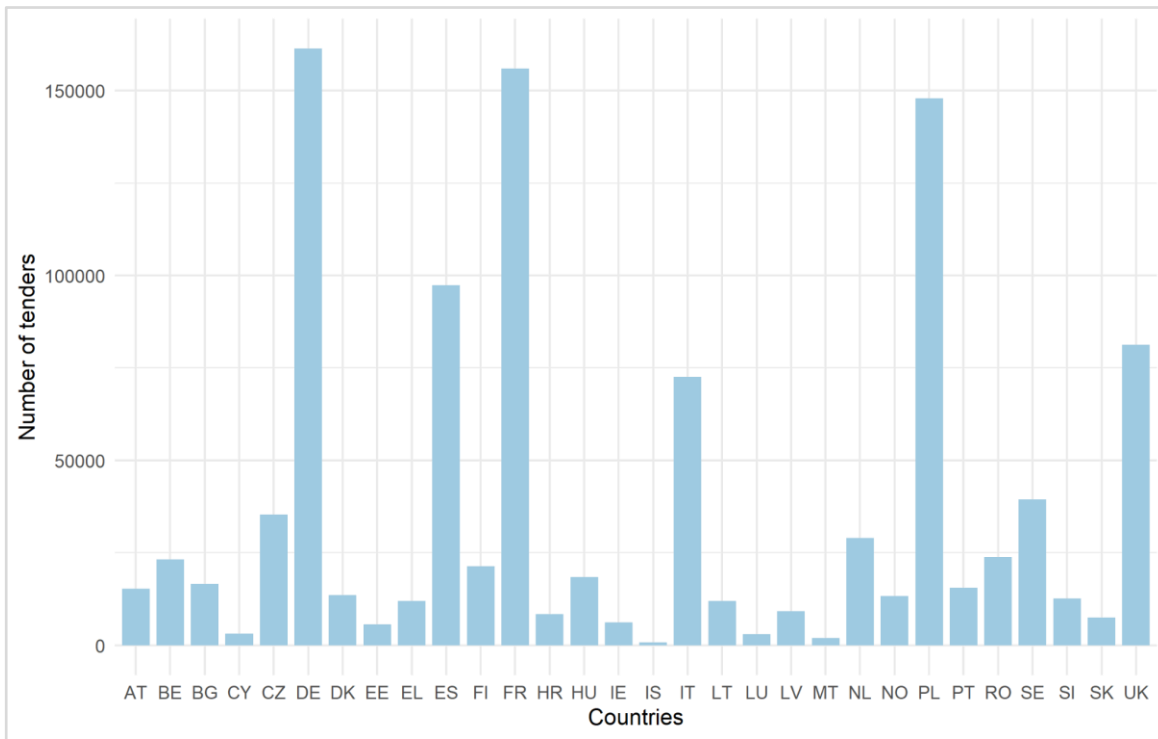


Source: DIGIWISHT TED

<sup>13</sup> The actual values are included in Table 5: in Appendix A.

Figure 2 shows that the number of published tenders varies significantly by country; the larger EU members such as Germany, France or Poland having close to, or more than 150,000 published tenders between 2011 and 2021, while smaller states such as Iceland, Cyprus or Malta only having a couple of thousands.

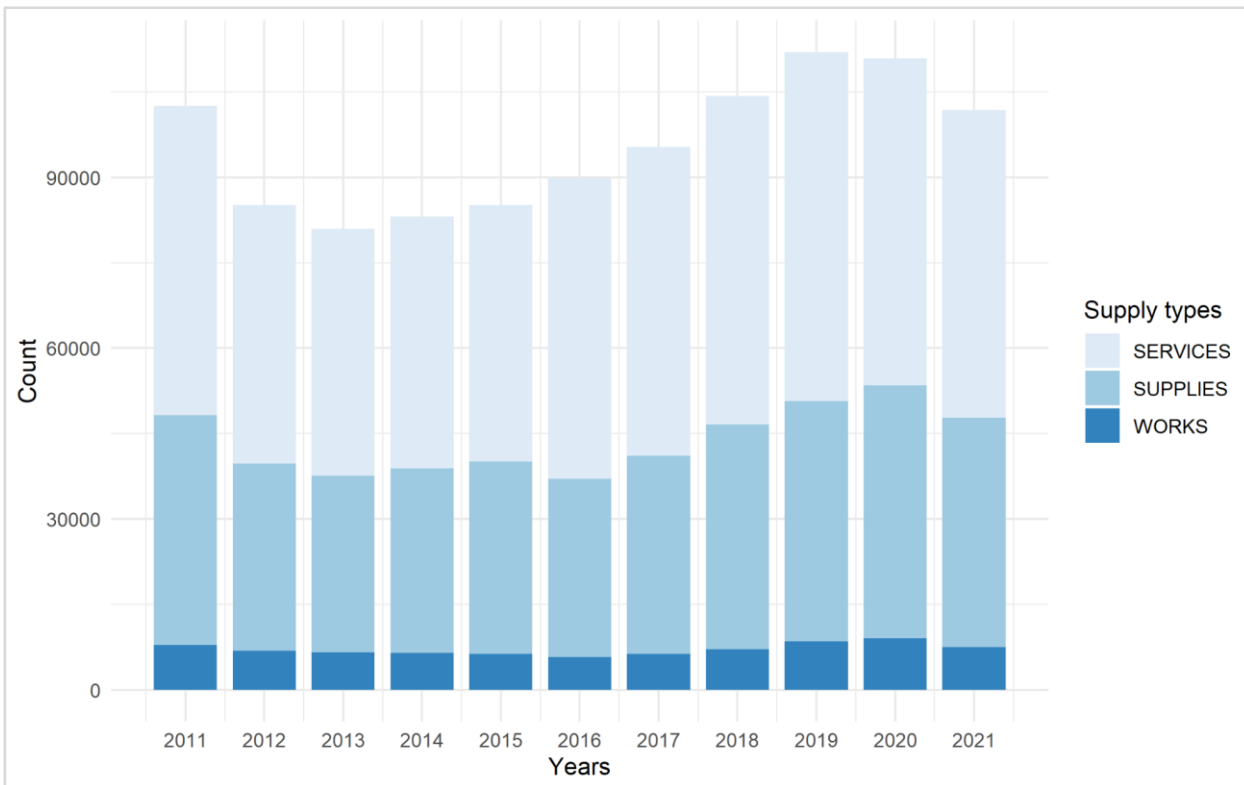
Figure 2: Number of tenders by country (2011-2021)



Source: DIGIWISHT TED

Figure 3 depicts the number of tenders by supply type throughout the years. The number of published tenders continuously grew from around 85,000 to 105,000 between 2012 and 2020. The number of work related tenders remained stable, but both the number of service and supply related publications increased steadily.

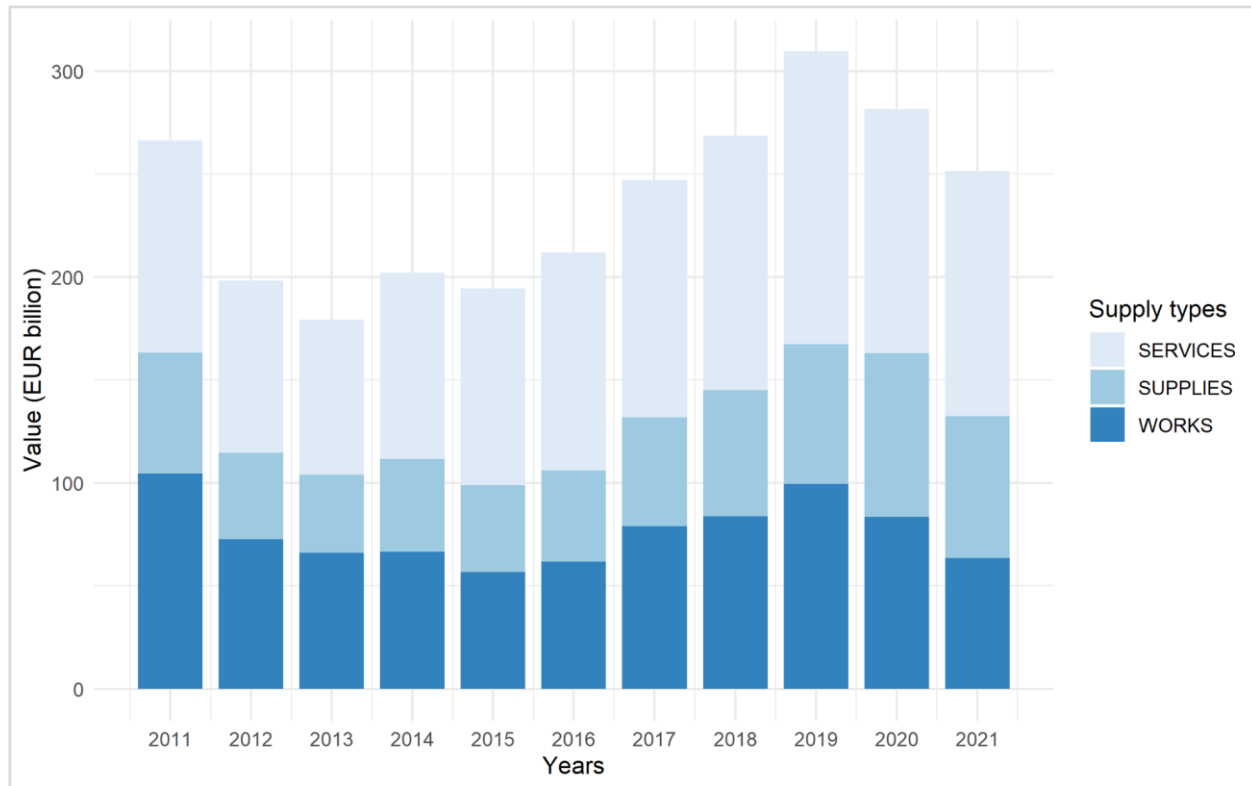
Figure 3: Number of tenders by supply type



Source: DIGIWISHT TED

The published contract value also increased during most of the period from around EUR 150-200 million to around EUR 250-300 million (Figure 4). Work related contracts had a significantly higher value share compared to their volume share, while the value share of supply related contracts was lower than their volume share would suggest. The average value of work related contracts was EUR 9,053,725, while it was only EUR 1,486,628 and EUR 377,242 for supplies and services respectively.

Figure 4: Value of contracts by supply type



Source: DIGIWISHT TED



# Single market scoreboard indicators

This section introduces the SMSB indicators including their definition and level of observation.<sup>14</sup> We also highlight if an indicator measures the level of competition or rather a proxy for other tendering dimensions such as data quality. The indicator explanations are all based on the information available on the Single Market Scoreboard<sup>15</sup> or DG GROW's algorithms that are used for calculating the SMSB indicators.

## Individual SMSB indicators

### 1. Single Bidding

**Level of observation:** *contract level*

Single bidding indicates whether a lot had only one or multiple bidders, therefore it measures the de facto level of competition.

Following the definition of the original Single Market Scoreboard, it is calculated after excluding framework agreements and direct awards i.e. negotiated without a call for competition/award without prior publication of a contract notice, since the legislator did not foresee competition for such procedures.

### 2. No calls for bids

**Level of observation:** *tender level*

The no call for bids indicator indicates if a tender was negotiated with a company without any call for bids. This indicator is based on tenders that have negotiated procedure without competition<sup>16</sup>. It is an adequate measure of competition as it can significantly restrict the number of companies that can compete for a contract.

This indicator is calculated after excluding framework agreements.

### 3. Publication rate

**Level of observation:** *country level*

The Publication rate is the ratio of the total contract value published on TED to the total gross domestic product (GDP) of a country. It is calculated by dividing the aggregate contract values by the annual GDPs. To mitigate the risks of faulty contract values, the average contract value between EUR 4,500 and EUR 100,000,000 is calculated and assigned to the ones that are outside of this value interval.<sup>17</sup> Furthermore, missing contract values of legitimate awards are also replaced by this average contract value. The resulting indicator measures the value of national public procurement advertised to businesses. Its biggest limitation is that it only measures the publication rate of above EU threshold contracts (and all voluntary publications) published on TED, but not below threshold procedures. While it is indeed a proxy of accessibility and openness of public procurement markets, it does not measure the level of competition per se.

Furthermore, this indicator is also imperfect as both public procurement expenditure and GDP can change differently across countries over time. Countries differ significantly in terms of the size of the state, and in terms of which part of public services, supplies and works are actually go through procurement. Hence, this indicator will by definition reward those countries that have

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<sup>14</sup> European Commission (2020): [Single Market Scoreboard](#)

<sup>15</sup> [https://single-market-scoreboard.ec.europa.eu/policy\\_areas/public-procurement\\_en](https://single-market-scoreboard.ec.europa.eu/policy_areas/public-procurement_en)

<sup>16</sup> Negotiated without publication of contract notice; award without prior publication, negotiated without competition.

<sup>17</sup> See Table 6 in Appendix.

a bigger state budget compared to GDP, and the ones that spend a significant share of the budget through procurement (i.e. instead of paying high wages in the public sector). Therefore, we also calculate an alternative Publication rate that is based on country level public procurement spending data. The definition of this alternative indicator and the comparison with the GDP based indicator is in Appendix B1.

#### 4. Cooperative procurement

*Level of observation: tender level*

Cooperative procurement indicates if a tender was published in cooperation between several contracting authorities. A tender is considered to be a cooperative procurement if it is a) a joint procurement or a b) central procurement.<sup>18</sup>

While it can indicate some tendering efficiencies as buying in bulk can lead to better prices, it is not a direct measure of competition, rather a potentially good procurement practice.

#### 5. Award criteria

*Level of observation: lot level*

It indicates whether a given lot is awarded solely because the offer was the cheapest one available. While the choice of criteria depends on what is being purchased, over-reliance on price could suggest that better criteria could have been applied, so a better purchase could have been made<sup>19</sup>. On the other hand, using a subjective criteria can be misused to favour a pre-selected winner.

#### 6. Decision speed/period

*Level of observation: contract level*

The decision speed measures the decision-making period for a given contract. It is defined as the period between the deadline for receiving offers and the date the contract is awarded. Very long decision periods can cause uncertainty for both buyers and bidding companies. However, extremely short ones can imply the presence of favouritism - i.e. a pre-selected supplier. In either case, an outlier decision speed can signal potential competition issues of the tendering process.

To ensure cross-country comparability, it is calculated after excluding framework agreements and only keeping only open procedures.

#### 7. SME contractors

*Level of observation: contract level*

The indicator shows whether the winning bidder is a small or medium sized enterprise (SME). As most of the European firms fall into the SME category<sup>20</sup>, the low share of these companies in the procurement market can indicate barriers preventing smaller firms from participating in procurement procedures. It measures a specific quality of competition, that is whether SMEs can participate easily. Unfortunately, this data is often lacking from tenders published on TED, therefore its usability is limited.

#### 8. SME bids

*Level of observation: contract level*

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<sup>18</sup> We have also used the number of buyers listed in the publication to complement missing information.

<sup>19</sup> European Commission (2020): [Single Market Scoreboard](#)

<sup>20</sup> See Figure 19 in Appendix A.

It measures the share of SME bidders of a given contract. It is calculated by dividing the number of SME bidders by the total number of bidders per contract. Similarly to the SME contractors indicator it measures the size of SMEs presence on the procurement market.

## 9. Procedures divided into lots

*Level of observation: tender level*

It indicates whether a tender is divided into lots. Tenders not divided into lots can potentially lead to large, more complex contracts that are out of reach for smaller companies. Low percentages show that large companies are more easily able to bid for public contracts. While more tenders divided into lots are more accessible for smaller suppliers, it measures competitiveness only indirectly<sup>21</sup>.

## 10. Missing calls for bids

*Level of observation: contract level*

According to the original SMBS definition the indicator indicates whether a contract is awarded after a call for tender whose name and conditions were not clear. In practice it is calculated as the share of contracts with an available reference number for a contract notice. A missing contract notice publication implies that potential bidders had no ex ante information about the public tender which can significantly reduce the level of competition.

## 11. Missing seller registration numbers

*Level of observation: contract level*

It indicates whether the winning bidder registration number is available (national registration id, tax id etc.). A high share of missing registration numbers leads to a less transparent procurement system as it is harder to measure the presence of companies across different procurement procedures. This indicator measures the quality of information collected and published in contract award publications and is not a measure of competition.

## 12. Missing buyer registration numbers

*Level of observation: tender level*

It indicates whether the contracting authority's registration number is available (national registration id, tax id etc.). Similarly to the missing seller registration number a high share of missing buyer registration numbers lead to a less transparent procurement system as it is harder to measure the presence of contracting authorities across different procurement procedures. This indicator cannot measure or affect the level of competition on the procurement market.

## Composite indicator

The SMSB also calculates a country level overall performance measure. This is based on a weighted average of the individual indicators<sup>22</sup>. Single bidding, no call for bids and publication rate is triple weighted, whereas SME contractors, SME bids, procedures divided into lots, missing call for bids, missing seller registration numbers and missing buyer registration numbers are one-third weighted as they all measure a) participation of small companies, and b) data quality. Each indicator has a score of 1, 0 or -1, depending on the country's performance based on a set of thresholds (Table 2). For example, if the share of single bidder contracts is 25% in a country in a given year, then they get a score of -3, whereas if the share of cooperative procurement is 12%, they get

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<sup>21</sup> The average bid count is 3.678055 for multi-lot tenders and only slightly lower, 3.57559 for one lot tenders.

<sup>22</sup> For more detail, see: [https://single-market-scoreboard.ec.europa.eu/policy\\_areas/public-procurement\\_en](https://single-market-scoreboard.ec.europa.eu/policy_areas/public-procurement_en).

a score of +1. We recalculate these scores for each year based on the DG GROW TED data applying the same SMSB filters. The recalculation is discussed in the Indicator comparison section.

**Table 2: SMSB indicator thresholds**

| Nr | Indicator                           | Green      | Red        |
|----|-------------------------------------|------------|------------|
| 1  | Single bidder                       | ≤ 10%      | > 20%      |
| 2  | No calls for bids                   | ≤ 5%       | ≥ 10%      |
| 3  | Publication rate                    | > 5%       | < 2.5%     |
| 4  | Cooperative procurement             | ≥ 10%      | < 10%      |
| 5  | Award criteria                      | ≤ 80%      | > 80%      |
| 6  | Decision speed                      | ≤ 120 days | > 120 days |
| 7  | SME contractors                     | > 60%      | < 45%      |
| 8  | SME bids                            | > 80%      | < 60%      |
| 9  | Procedures divided into lots        | > 40%      | < 25%      |
| 10 | Missing calls for bids              | ≤ 3%       | > 3%       |
| 11 | Missing seller registration numbers | ≤ 3%       | > 3%       |
| 12 | Missing buyer registration numbers  | ≤ 3%       | > 3%       |

# Additional indicators

We calculate a number of additional indicators that can also measure the level of competition or a tendering practice affecting competition of a given procurement market. The definition and level of observation of these indicators is introduced below.

## 13. Market Concentration

**Level of observation:** *bidder source id/year/market/locality level*

The market concentration indicator used by Adam et al. (2021)<sup>23</sup> is calculated at the bidder level, per market (CPV division), per year, per locality (NUTS2). Market concentration is therefore the share of a bidder's contract value from the total contract value in a given market, in a given locality and in a given year. High market concentration shows that a high percentage of total value was awarded to a given bidder. Aggregated at the country level, it can measure the level of competition within the country's procurement market. A high market concentration indicates a low level of competition. While it is a practical indicator of competition, it depends on the availability of seller specific unique IDs (published on source), which has a high missing share in TED publications. Therefore, its use is currently limited, however improving seller registration number collection standards can improve its adoption.

## 14. Local winner

**Level of observation:** *contract level*

The local winner indicator shows whether the contracting authority is registered in the same location (NUTS2 region) as the winning bidder. A high share of winners from the same region can indicate insufficient level of competition (for example, it might indicate favouritism of familiar local companies)<sup>24</sup>. As shown by Coviello & Gagliarducci (2017)<sup>25</sup>, an increase in a mayor's tenure can lead to a high share of local winners along with fewer bidders per auction, a higher cost of procurement and a higher probability that the same firm is awarded repeated auctions.

## 15. Bidder number

**Level of observation:** *contract level*

This indicator shows the bidder number for contracts. It can measure the level of competition for each contract. It is similar to the single bidding indicator, however, instead of measuring the presence of competition it is equipped to measure its exact level.

## 16. New Market Entry

**Level of observation:** *bidder source id/year/market/region level*

New market entry indicates whether a supplier in a given year in a given market and region appears as a new entrant. A bidder is considered a new entrant in a given year, market and region if it has not previously won a contract before (2011-2021). Therefore, each bidder can only appear once as a new entrant in a given year, market and region between 2012 and 2021 (2011 cannot be used because each bidder would be considered as a new entrant). The limitation of this indicator is that it has a downward bias,

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<sup>23</sup> Adam, Isabelle - Sanchez, Alfredo Hernandez - Fazekas, Mihály (2021): [Global Public Procurement Open Competition Index](#), Government Transparency Institute, Working Paper Series: GTI-WP/2021:02

<sup>24</sup> We illustrate that even at a country level, there is a slight positive relationship between single bidding and the share of local suppliers (

Figure 20 in Appendix A)

<sup>25</sup> Coviello, Decio - Gagliarducci, Stefano (2017): [Tenure in Office and Public Procurement](#), CEP Discussion Paper No 1465

which means that in the first years of the 2010s, due to the shorter observation period, a bidder is more likely to be classified as a new entrant.

As highlighted by Adam et al. (2021), a low share of new entrants can be a sign of limited competition and indicate significant barriers to market entry. Similarly to the market concentration indicator, it is highly dependent on the availability of seller specific unique IDs, therefore its usability is currently limited.

## 17. Advertisement period

*Level of observation: contract level*

The advertisement period measures the length of the time period between the tender publication and deadline for receiving offers. As highlighted by Fazekas - Kocsis (2020)<sup>26</sup> “a too-short advertisement period can inhibit non-connected bidders in preparing adequate bids while the buyer informally notifies the favoured bidder about the opportunity ahead of time. Alternatively, the advertisement period may become lengthy due to legal challenges, which may also signal corruption risks”. Therefore, both a too-short and a too-long advertisement period can lead to less competition.

## 18. Non-open procedure type

*Level of observation: tender level*

We also calculate a simple measure capturing procedural openness, which is simply whether a tender has an open procedure or not. As most procedures that are not open have some additional restrictive rules on bidding, this measure simply captures if tendering is done in the most open way from the average bidder’s point of view.

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<sup>26</sup> Fazekas, Mihály - Kocsis, Gábor (2020): Uncovering High-Level Corruption: Cross-National Objective Corruption Risk Indicators Using Public Procurement Data, British Journal of Political Science , Volume 50 , Issue 1, pp. 155-164.

# Indicator comparison

As described in the Data section, the analysis uses two datasets from different sources. For most of the analysis we use the DIGIWHIST TED dataset, however, we use the DG GROW TED dataset to recalculate the original SMSB results. Using the DIGIWHIST dataset allows us to calculate additional indicators and to perform a more in-depth single bidding analysis and the assessment of the 2014 European Directive on public procurement. Furthermore, while we apply - close to - identical filters to recreate the original SMSB indicators with the DG GROW dataset, we apply different filters for the rest of the analysis using the DIGIWHIST dataset - as explained in more detail in the Data section.

In this section we compare country rankings based on different indicators by different datasets and filters to show how they affect country rankings. First, we use selected indicators to compare the absolute rank differences between the original SMSB values and our recalculated version based on the DG GROW dataset. For this comparison we apply the same filters used for the original SMSB analysis as close as possible to get similar results for a longer time period (we calculate all indicators for 2011 to 2020 as displayed on the recalculated SMSB dashboard).

Second, we compare the absolute rank differences between the original SMSB results and our calculation based on the DIGIWHIST TED dataset. We apply different filters for our analysis that we find more adequate (see Data section), therefore, the results of this comparison show how the different filters applied on the data affect rank differences of different EU countries.

Third, we compare the absolute rank differences between the filtered (below threshold contracts removed) and unfiltered DIGIWHIST TED results. This allows us to measure the approximate effect of voluntary publication on ranking.

Fourth, we show a map with the recalculated overall country rankings to illustrate how robust the recalculation is that is based on DG GROW TED data and the filters applied on the original SMSB.

## 1. SMSB recalculation VS SMSB original

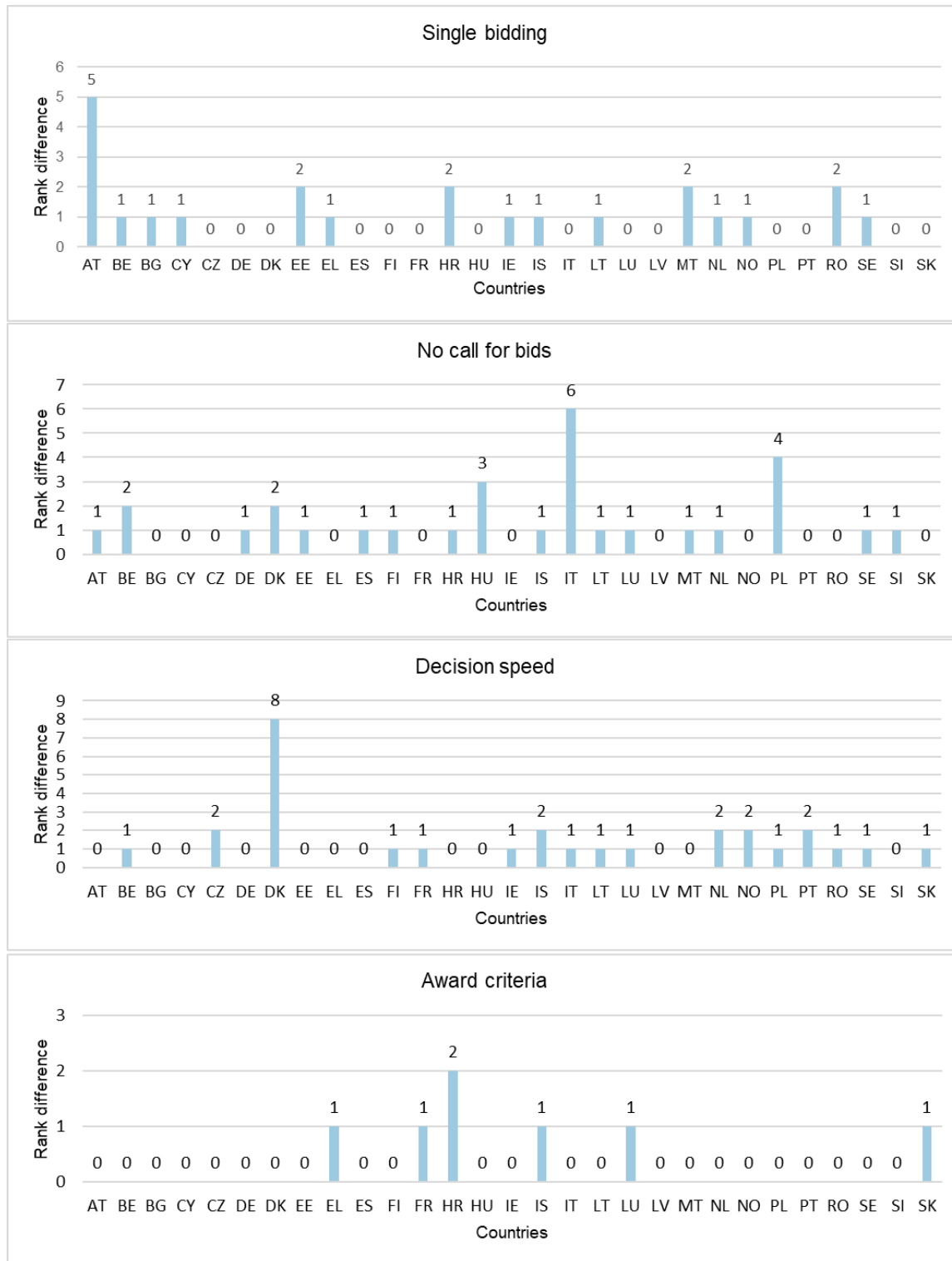
In this section we compare the original SMSB indicators, and the ones recalculated from DG GROW's TED data, applying the same filters based on four indicators for the sake of brevity, that are single bidding, no call for bids, decision speed and award criteria.

The analysis of the absolute rank difference between indicators calculated based on the DG GROW data versus the original SMSB results published on the Single Market Scoreboard shows that most countries have a 0 or 1 rank difference for all the indicators (Figure 5).

Therefore, reproducing the original values is largely possible using the same data and applying the same set of filters on the included tenders and contracts. This is also highlighted by Figure 25 in Appendix B, which shows absolute % point differences in the selected indicators.

The outstanding few bigger differences can be attributed most likely to manual cleaning of the data in the original SMSB analysis that we could not recreate for this report. However, there are only a few considerable rank differences such as the single bidding share of Austria; in our recalculation it had a 17% single bidding rate for 2020, while in the original SMSB report it had a 22% single bidding rate leading to a rank difference of 5. Except for these few outliers all other rank differences are insignificant.

Figure 5: Country level rank difference for selected indicators (2020)

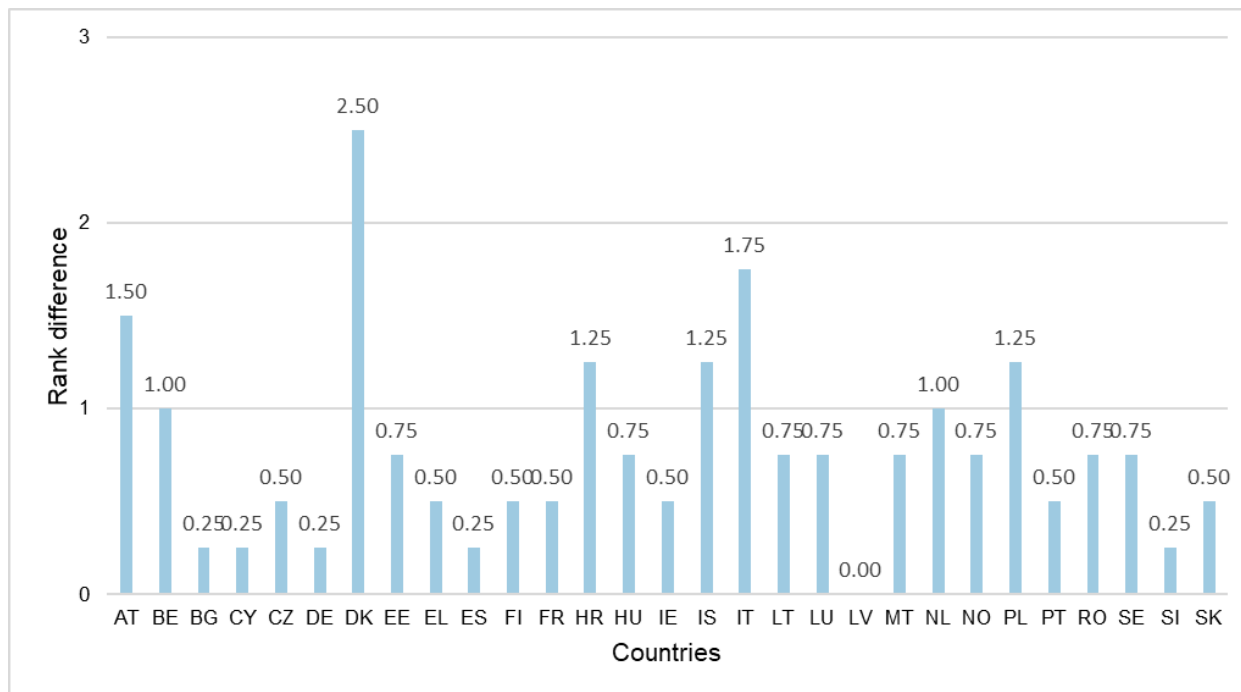


Source: DIGIWISHT TED & European Commission (2020): Single Market Scoreboard



Combining all four indicators shows that only Denmark has an average absolute rank difference larger than 2, which is driven by its outlier rank difference in Decision speed. In general, all the larger combined rank differences can be attributed to outliers. More than 75% of the countries have a smaller than one average rank difference.

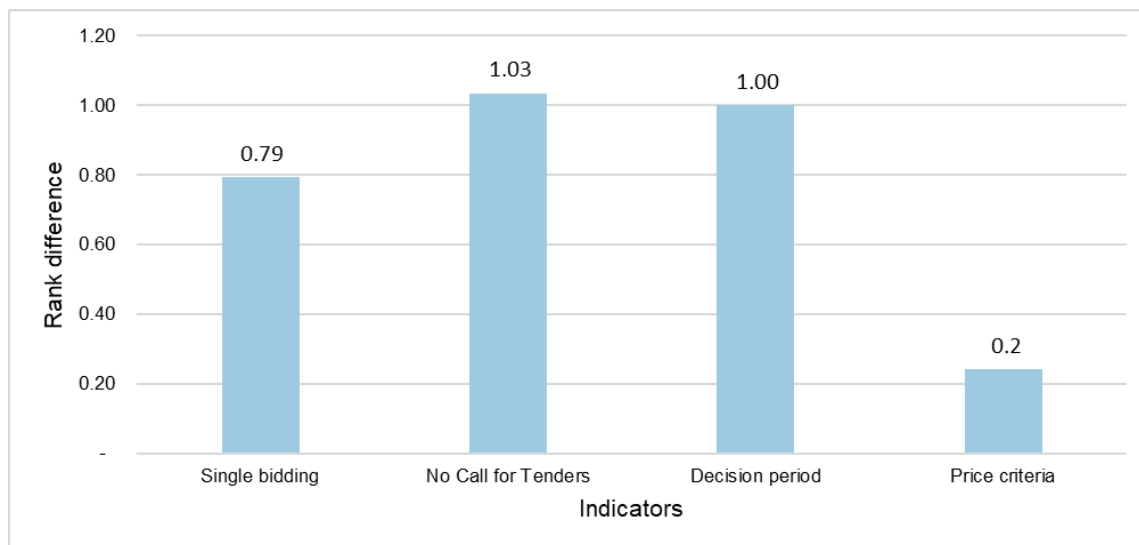
Figure 6: Country level combined average rank difference (2020)



Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard

Overall, all the selected indicators have an average absolute rank difference of one or less.

Figure 7: Indicator level average rank difference (2020)



Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard

## 2. Comparison of SMSB vs. DIGIWHIST TED results with updated filters

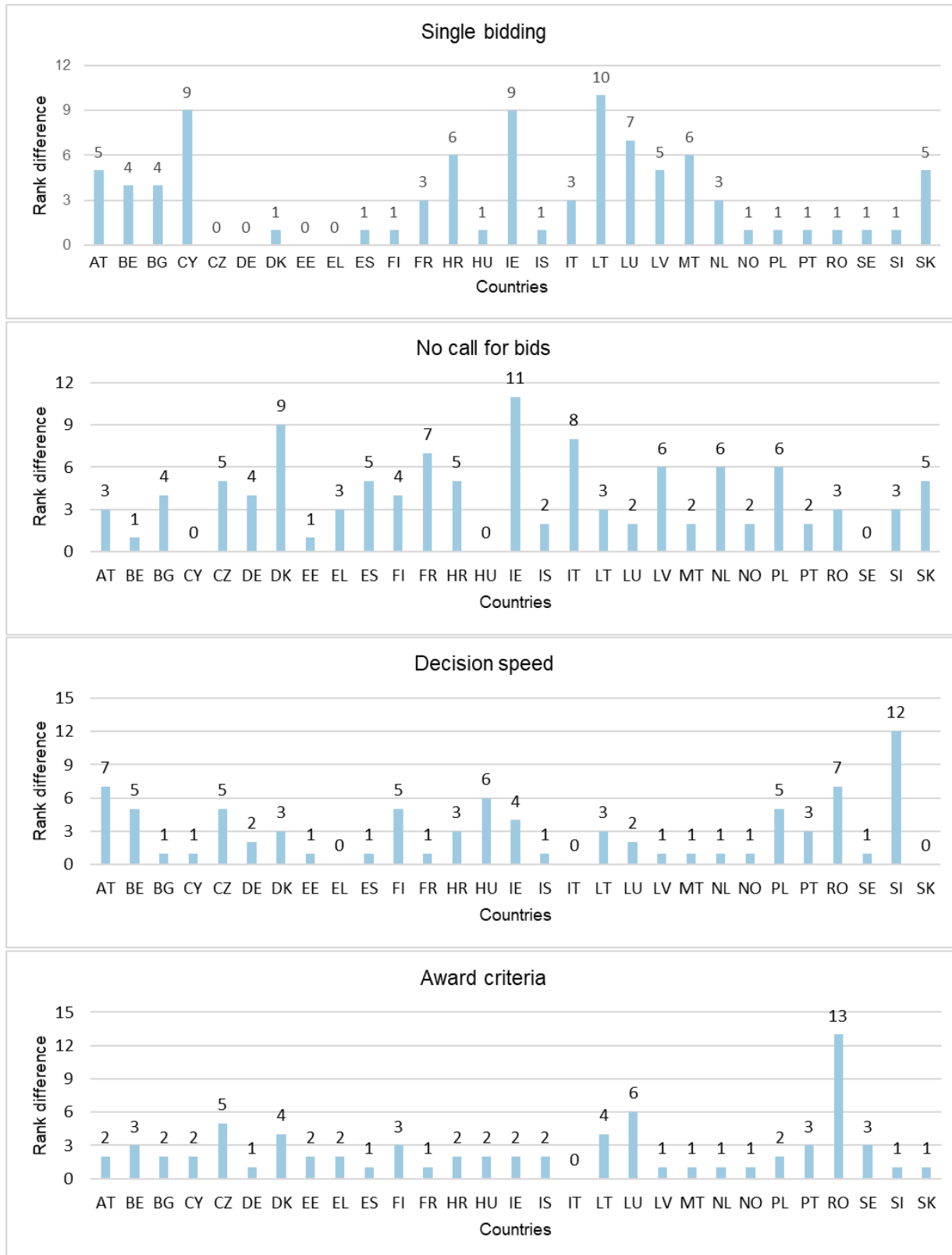
In this section we compare the absolute rank difference of countries based on the indicators calculated on the DIGIWHIST TED dataset to the original SMSB indicators. As in the previous section, the comparison is based on the same four indicators for the sake of brevity, that are single bidding, no call for bids, decision speed and award criteria.

While there are some quality differences between the DIGIWHIST dataset and the DG GROW dataset used for the original SMSB report, we argue that the below differences are due to the differences in filtering (see Data section). Specifically, they are due to exclusion of concession and social service contracts in the DIGIWHIST TED dataset, but inclusion of all procedure types, the second-stage results of framework agreements and filtering out below-threshold tenders.

Figure 8 shows that the above data filtering practices can lead to considerable absolute rank differences. There are multiple cases where a country moves to the bottom third from the upper third of the rank distribution (or vice versa). The single bidding and no call for bids indicators are especially sensitive to filtering as for those indicators the indicator value differences were smaller between countries, hence smaller changes translate to bigger jumps in ranking.

Figure 26 in Appendix B shows that, for each indicator, there are at least a few countries that have a larger than 10 percentage point difference using the new filters.

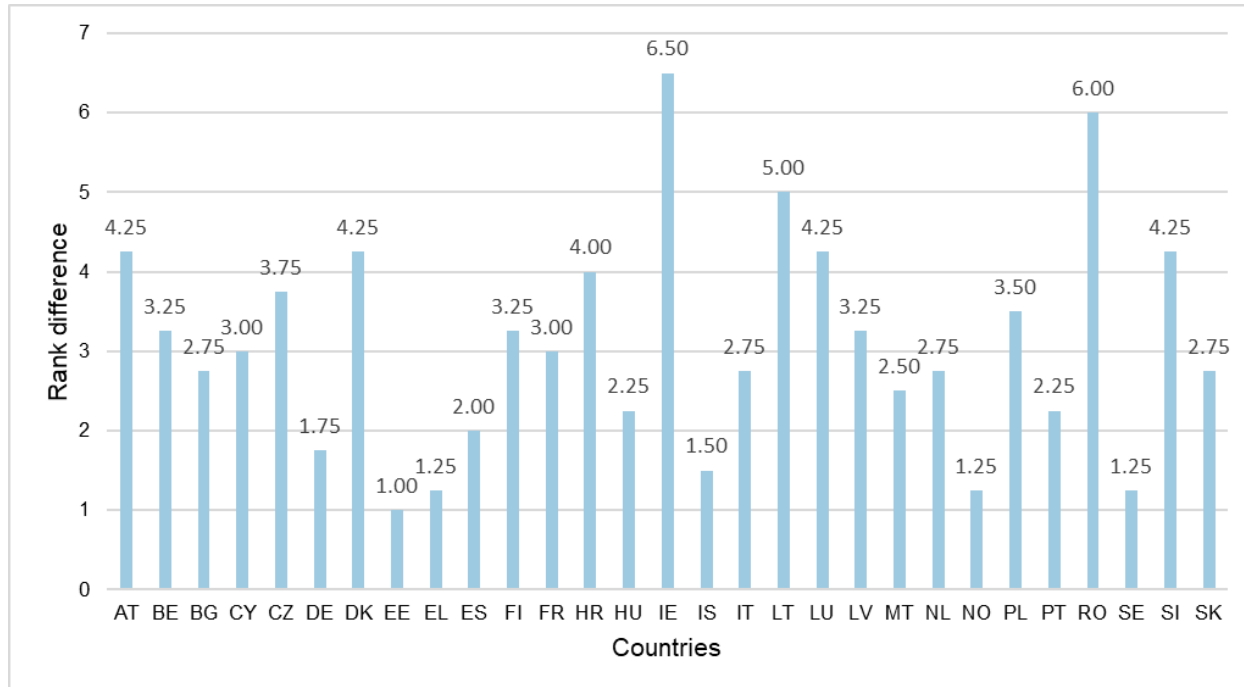
Figure 8: Country level rank difference for selected indicators (2020)



Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard

Figure 9 shows that more than half of the countries have an average rank difference of more than 3 and there are no countries that have a rank difference less than 1. This further illustrates that filtering can lead to considerably different results.

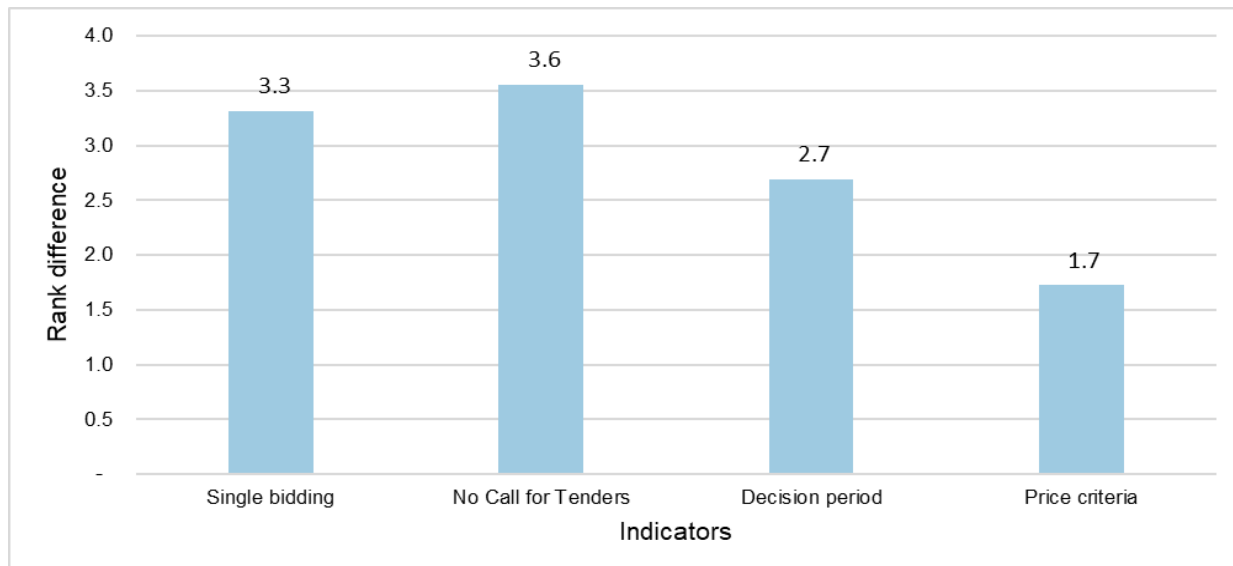
Figure 9: Country level average combined rank difference (2020)



Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard

Overall, single bidding and the no call for tender indicator had a larger than three absolute rank difference on average. However, most of these differences are not significant in a sense that countries’ ranking does not change from a top one quartile position to the last quartile.

Figure 10: Indicator level average rank difference (2020)



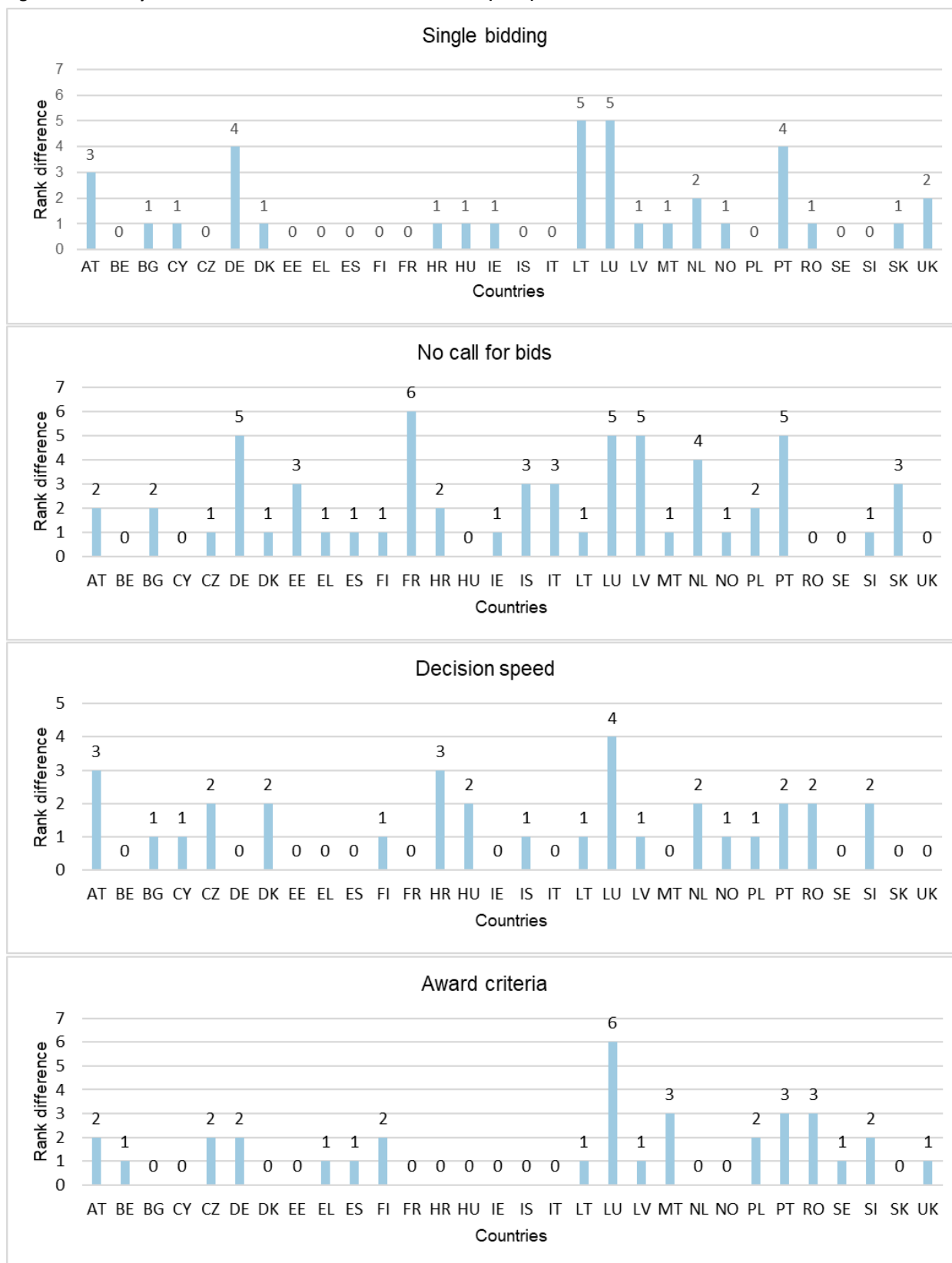
Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard

### 3. DIGIWHIST filtered vs. non-filtered data

As a final comparison we compare results which are both based on the DIGIWHIST TED dataset. For the first group of indicators we used the below threshold filters explained above, however, for the second calculation we use the unfiltered data for which voluntarily published below EU-threshold tenders are included. With this comparison we show the effects of below threshold publication on the selected indicators.

Figure 11 illustrates that for some countries there are relatively larger rank differences, such as Austria, Germany or Lithuania, however, the overall effects are mostly muted, especially compared to the differences caused by the indicator level filters as highlighted by the previous section. Furthermore, Figure 27 in the Appendix shows that - not surprisingly - the differences on the filtered and unfiltered data are larger for countries for which the below threshold tender publication share is higher (see Figure 1).

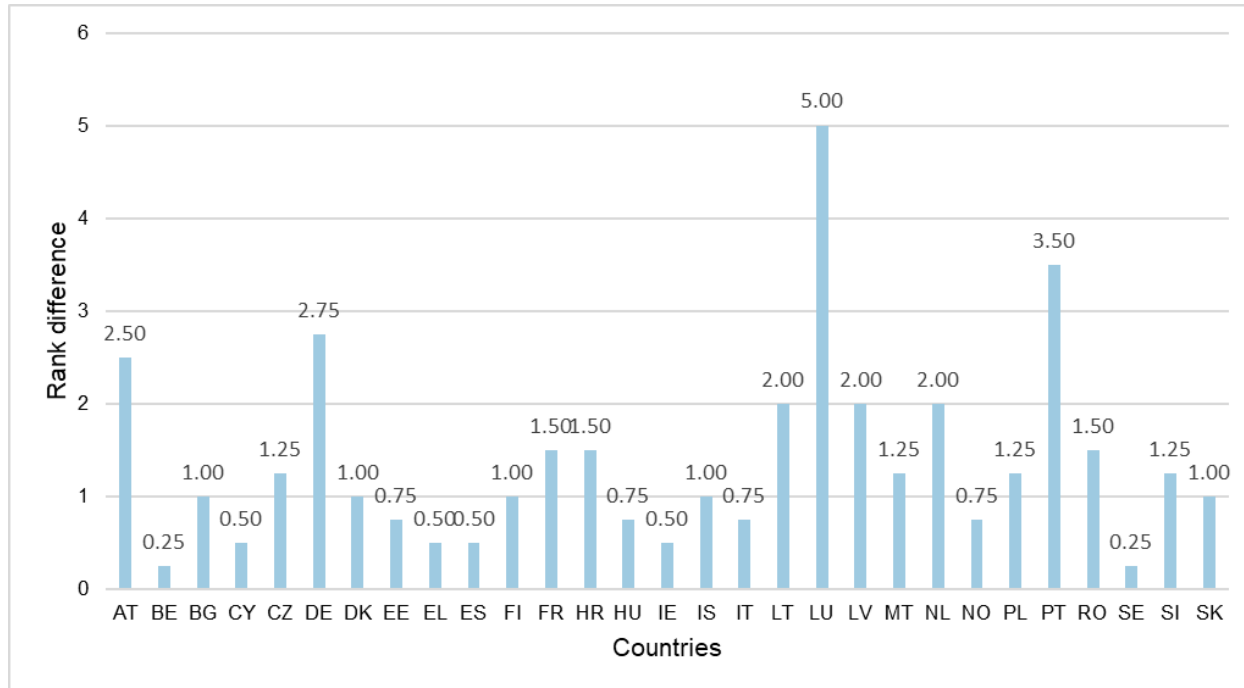
Figure 11: Country level rank difference for selected indicators (2020)



Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard

Figure 12 shows that usually for countries with larger below threshold publication rate, such as Austria, Germany and Lithuania the average absolute rank difference is larger. However, it is not always the case. For example, despite the small below threshold publication rate in Portugal, the rank difference is the second highest, while Bulgaria has a high publication rate, but a relatively low rank difference. This indicates that while in some countries the voluntarily published below EU-threshold tenders are significantly different compared to the above EU-threshold ones, in others they are rather similar.

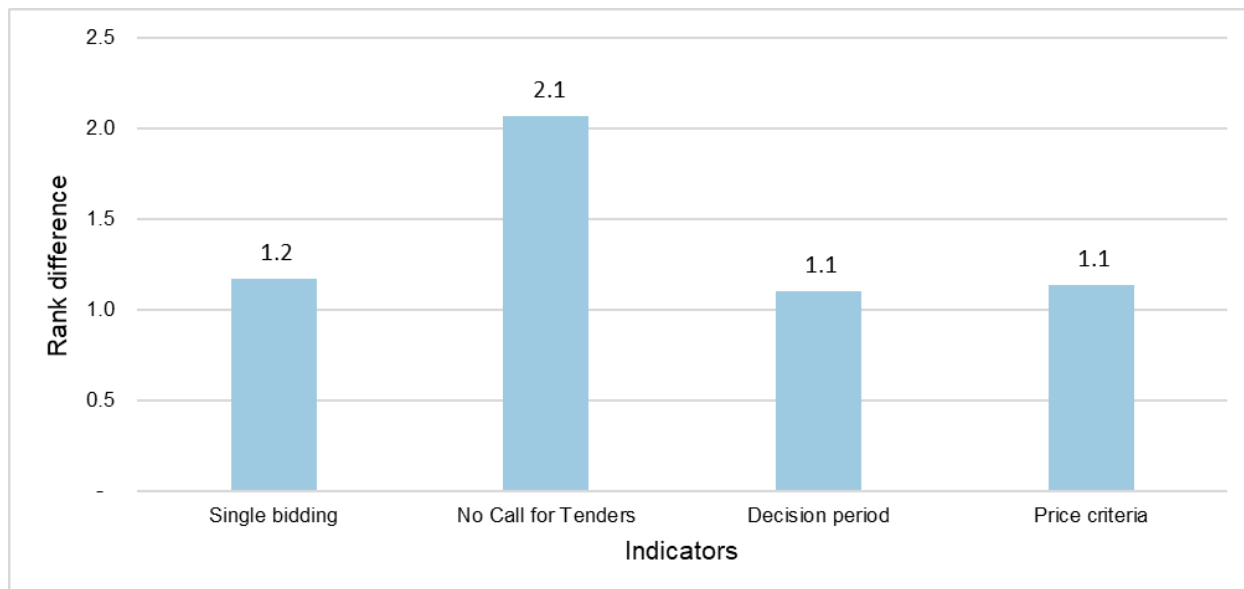
Figure 12: Country level combined rank difference (2020)



Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard

Figure 13 highlights that the overall effect of below threshold filters is relatively small. Nonetheless, the results indicate that below threshold tenders might be significantly different from above threshold procedures, which drives the differences for countries where below threshold publication is more common. Second, until below threshold publication remains scarce the filtering will not affect the result considerably, however, as below threshold publication grows it becomes important to handle these tenders differently.

Figure 13: Indicator level average rank difference (2020)



Source: DIGIWISHT dataset & European Commission (2020): Single Market Scoreboard



#### 4. Composite indicator

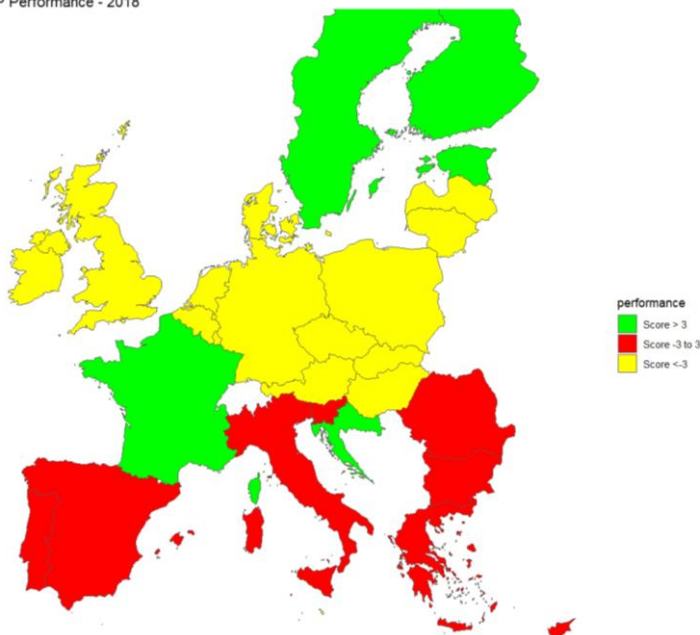
In this section we present the recalculated overall performance scores. If all indicators are based on 2018 data (as that is the last year the publication rate was calculated on the SMSB page), then Austria, Croatia, Estonia scores a category better, whereas Denmark and Latvia become one category worse. The same recalculation based on 2020 indicator values (except for the publication rate) shows that only Denmark and Slovakia gets one category worse than what is shown on the SMSB.

By removing the publication rate from the composite score Austria and Italy becomes yellow from red, whereas Estonia and the Czech Republic becomes red from yellow (3<sup>rd</sup> graph of Figure 14). This means that the relatively high publication shares in Estonia and the Czech Republic keep these countries in the yellow category.

Using an alternative measure of publication share, that is based on government expenditure (see Appendix for more details)<sup>27</sup>, leads to Portugal and Slovakia becoming yellow from the red category, and Denmark becoming green from the yellow category – hence these countries seem to publish in the mid- and top third most publishing countries.

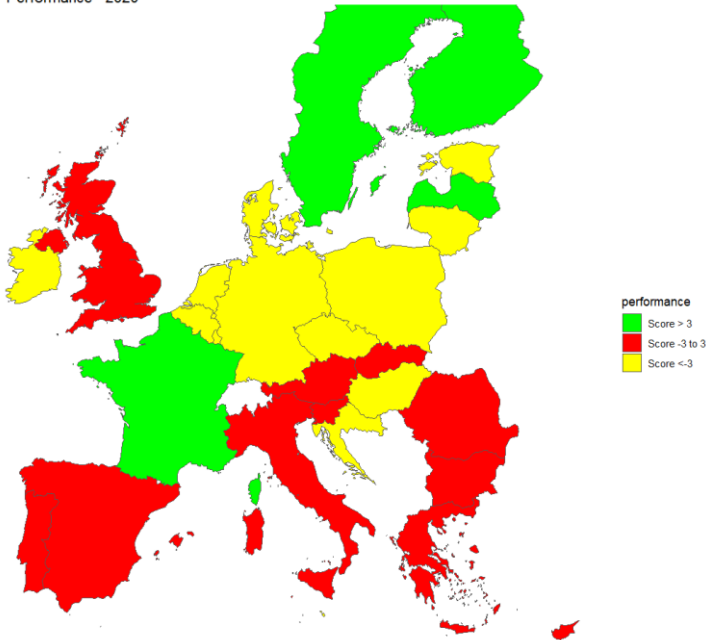
**Figure 14: Recalculated overall performance scores**

PP Performance - 2018

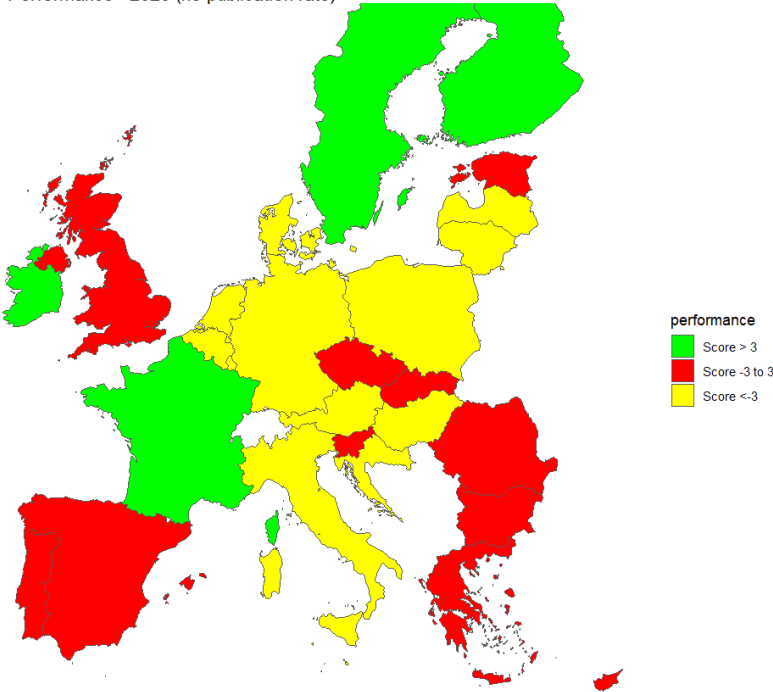


<sup>27</sup> We use the publication thresholds of 17% and 24%, that are splitting the countries roughly into thirds. We made these assumptions based on the original publication rate thresholds (2.5% and 5%) also splitting countries roughly into 3 equal categories based on the 2020 indicator values.

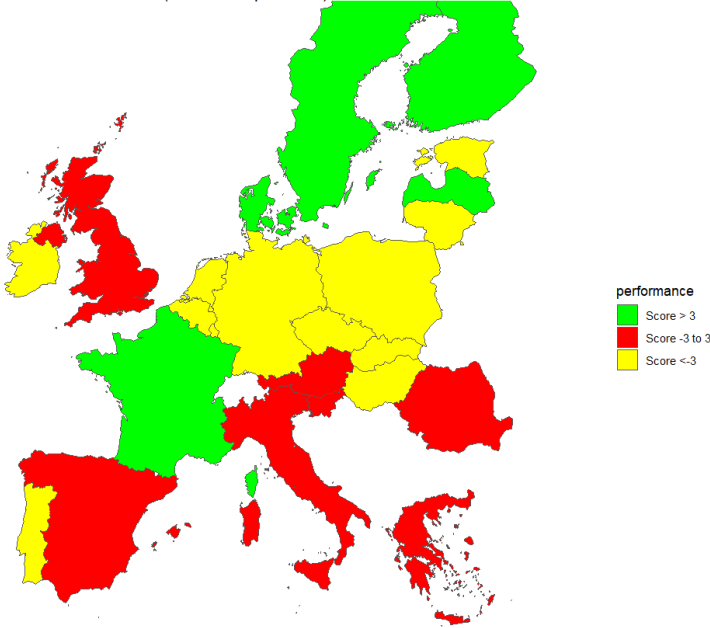
PP Performance - 2020



PP Performance - 2020 (no publication rate)



PP Performance - 2020 (alter. PP expenditure)



# Single bidding scenario analysis

This section sums up the methodology of the single bidding scenario analysis. The goal of this analysis is to show the predicted hypothetical increase or decrease of a competition determinant on single bidding - which indicates the lack of competition.

First, we estimate a logistic regression to predict the country specific yearly single bidding rates using the competition determinant indicators and control variables:

$$\beta p(\text{singleb}) = 1 * \text{competition determinants} + \beta 2 * \text{controls} + \varepsilon$$

Where *controls* include the contract's supply type (services, supplies, works), the tender's CPV division, the contract value decile, the contract date (quarter), the contracting authority's location and the supplier's location. Table 1 defines all the competition determinants used for the baseline prediction. Competition indicators are selected so each takes the value of 1 if it has a negative effect on competition (single bidding) and 0 otherwise.

Note that the relationship between decision and advertisement period with single bidding is often not linear. This means that both extremely long and short advertisement and decision periods can be related to lower levels of competition. Furthermore, the length that can be considered as risky (i.e. related to increased single bidding) differs by country - due to country specific characteristics of the procurement market. Therefore, we use separate regressions for each country to create advertisement and decision period thresholds based on how they are related to single bidding. The country specific thresholds are shown in Table 7 in Appendix C.

**Table 3: Competition determinants used in the single bidding model**

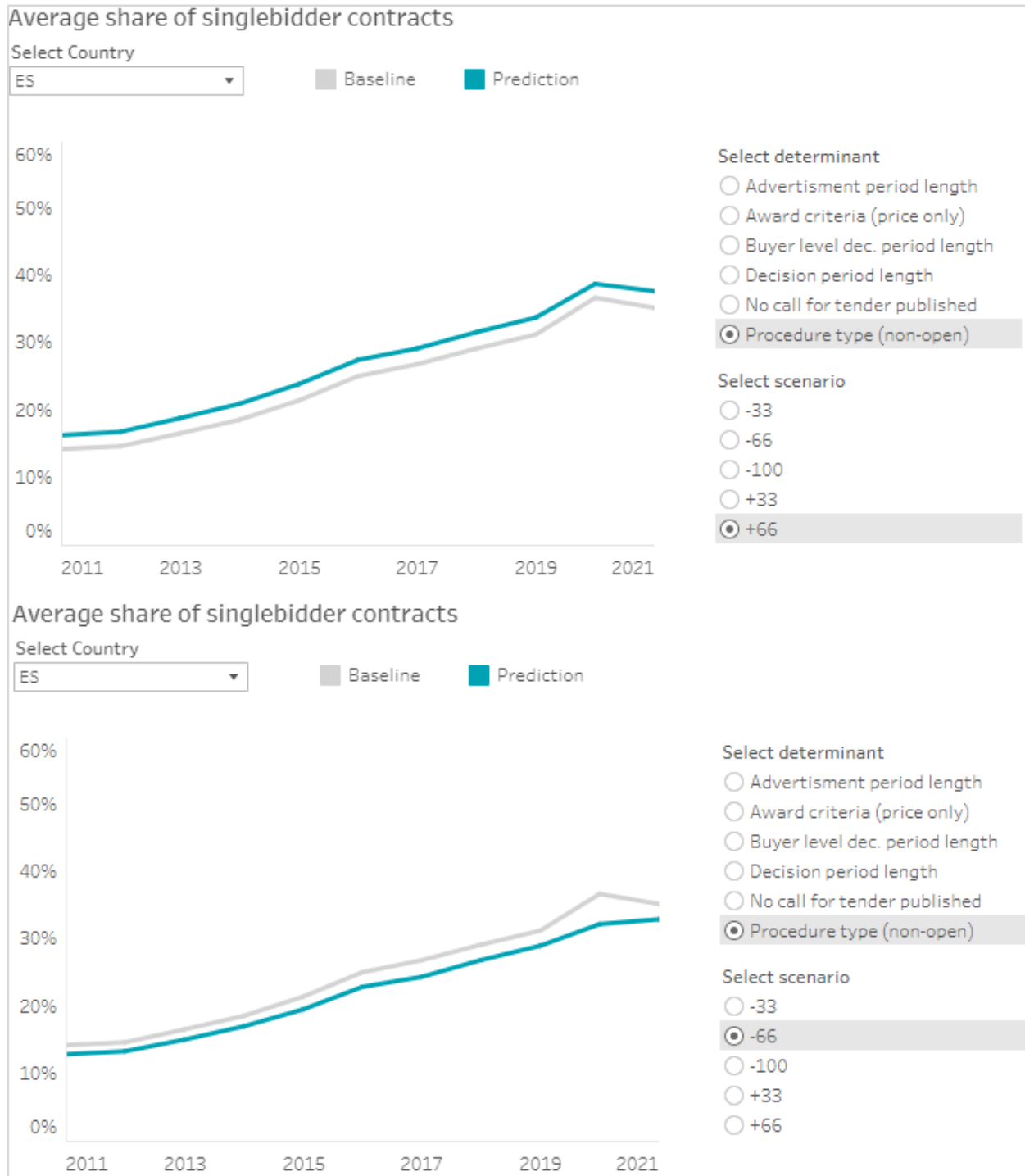
| Determinant name                                     | Values                                                                                                                          |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Missing call for bids (No call for tender published) | 0 if call for bids published<br>1 if call for bids not published                                                                |
| Procedure type                                       | 0 if open procedure type<br>1 if non-open procedure type                                                                        |
| Award criteria                                       | 0 if price plus quality<br>1 if price only                                                                                      |
| Decision period/speed (country specific)             | 0 if positive effect on competition<br>0.5 if small negative effect on competition<br>1 if large negative effect on competition |
| Advertisement period                                 | 0 if positive effect on competition<br>0.5 if small negative effect on competition<br>1 if large negative effect on competition |

Once yearly single bidding rates are predicted using the baseline model, we artificially change the share of 'risky' indicators in the data as a next step. This means that we respectively increase or decrease the share of high-risk indicator values in the data by 33%, by 66% or by 100%. For example, when we increase the share of high-risk procedure types by 33%, we switch a random 33% of tenders that had open procedure type (had an indicator value of 0) to have non-open procedure type (gets a value of 1). For each hypothetical scenario we predict the share of single bidding on the altered data. This allows us to predict how single bidding would change in a given country in a given year, if the share of competition restrictive indicators were 33%, 66% or 100% higher or lower.

The two graphs from the dashboard in Figure 15 show the yearly baseline prediction (grey) of single bidding for Spain and the theoretical shares of single bidding when the share of non-open procedure type is increased by 66% (top) or decreased by 66% (bottom). The results indicate that both increasing and decreasing the share of non-open procedures could affect the level of

competition. By selecting different competition determinants and scenarios, their respective predicted effect on competition can be viewed for each country considered in the report<sup>28</sup>. Overall, these scenario predictions can be useful to see how a policy targeting a specific competition determinant could affect overall competition in the local procurement market.

Figure 15: Predicted share of single bidding contracts



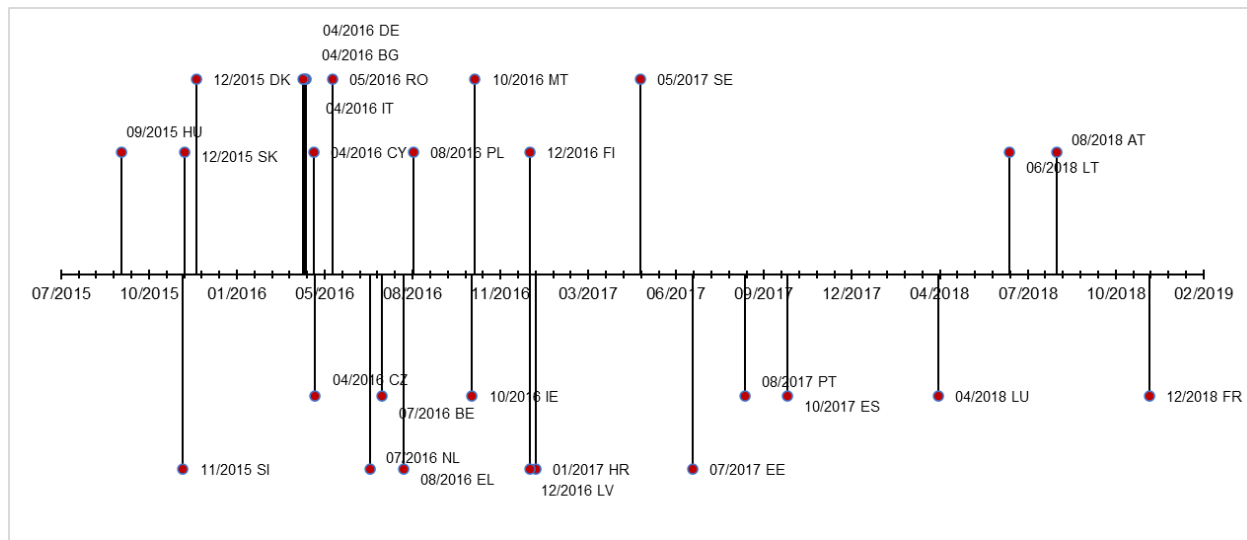
Source: Dashboard

<sup>28</sup> Note that some country-determinant-scenario combinations are unavailable due to either missing data or counterintuitive results (the predicted effect of the missing call for tender publication can be negligible or insignificant as, in some countries, it measures a similar effect as the non-open procedure type).

# Directive assessment

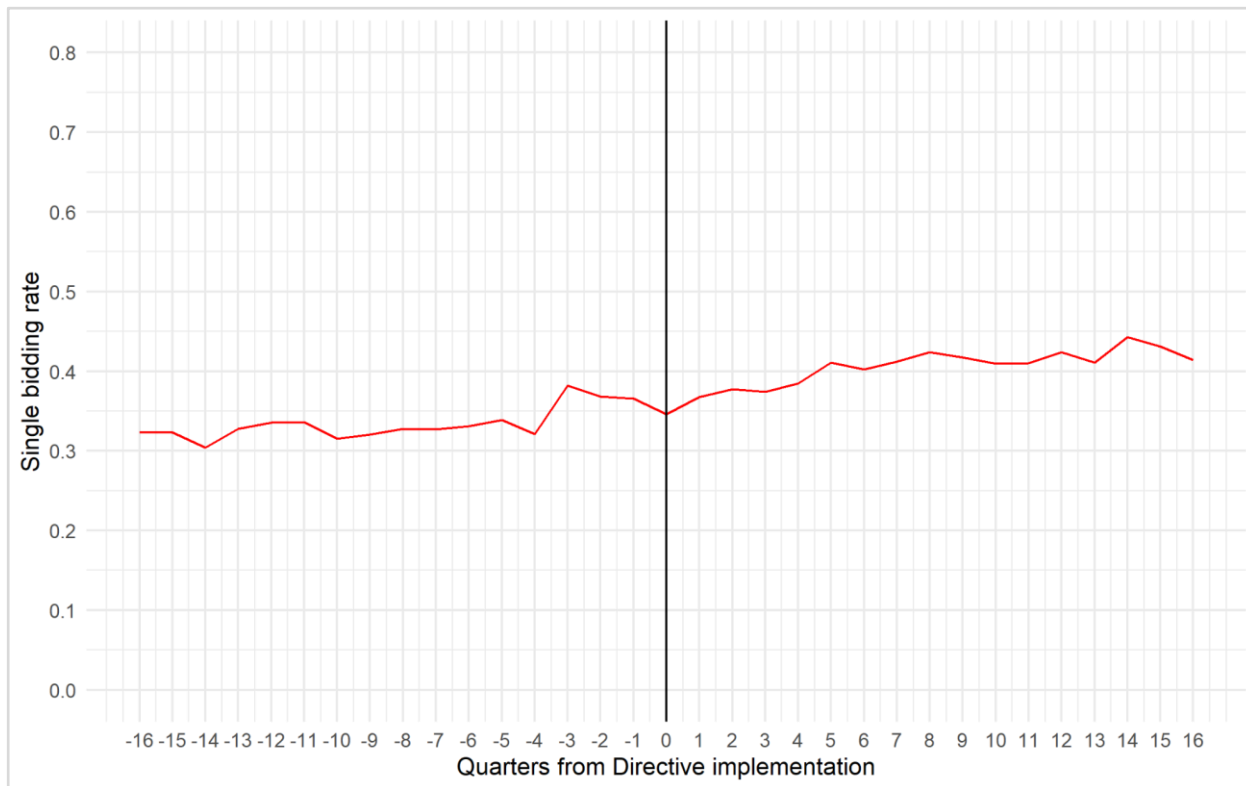
This section explains the assessment of the 2014 EU Directive. The goal of this analysis is to show any changes in the level of selected competition and competition determinant indicators before and after the Directive was implemented in European countries. This is not a causal analysis of the effect of the Directive, as we cannot control for several global, EU- and country-level factors that could have also influenced the trend of these indicators. Nevertheless, we try to show whether any significant change in the indicator values can be seen around the introduction of the legislation.

**Figure 16: Public procurement directive implementation date by country**



As shown by Figure 16, European countries implemented the Directive at different times during a more than three-year long period. Therefore, as a first step we had to create a running variable showing the relative distance of each contract from the implementation of the Directive in each country. Therefore, we measure the number of days between the contract award date and the Directive implementation date in the country where the contract was awarded. Figure 17 shows the running variable using the average single bidding indicator as an example.

Figure 17: Illustration of the running variable using average single bidding rate (all countries)



Source: DIGIWISHT dataset

Second, to further standardise the distance from implementation, we have created a binary variable from the running variable where 0 implies that the contract was awarded before the Directive implementation and 1 indicates that it was awarded afterwards. Using this binary variable we were able to calculate the country specific averages of selected competition indicators and determinants during a two-year period before and after the Directive implementation. Table 4 shows the indicators considered.

Table 4: Selected indicators for Directive assessment

| Competition indicator/Competition determinant        | Unit of measurement |
|------------------------------------------------------|---------------------|
| Single bidding                                       | binary              |
| Procedure type                                       | binary              |
| Missing call for bids (No call for tender published) | binary              |
| Award criteria                                       | binary              |
| Local winner                                         | binary              |
| Decision period/speed                                | days                |
| Advertisement period                                 | days                |
| Bidder number                                        | number              |

The difference of these 'raw' averages however do not control for the effects of over-time composite changes in the national procurement markets, nor for the longer term trends in these indicators. Therefore, first we performed a Coarsened Exact Matching (CEM) on the country level datasets. This means that we have weighted the datasets so that the share of same contract supply types, tender's CPV divisions, contract value deciles, and contracting authority locations is similar in the data samples before and after the Directive implementation.

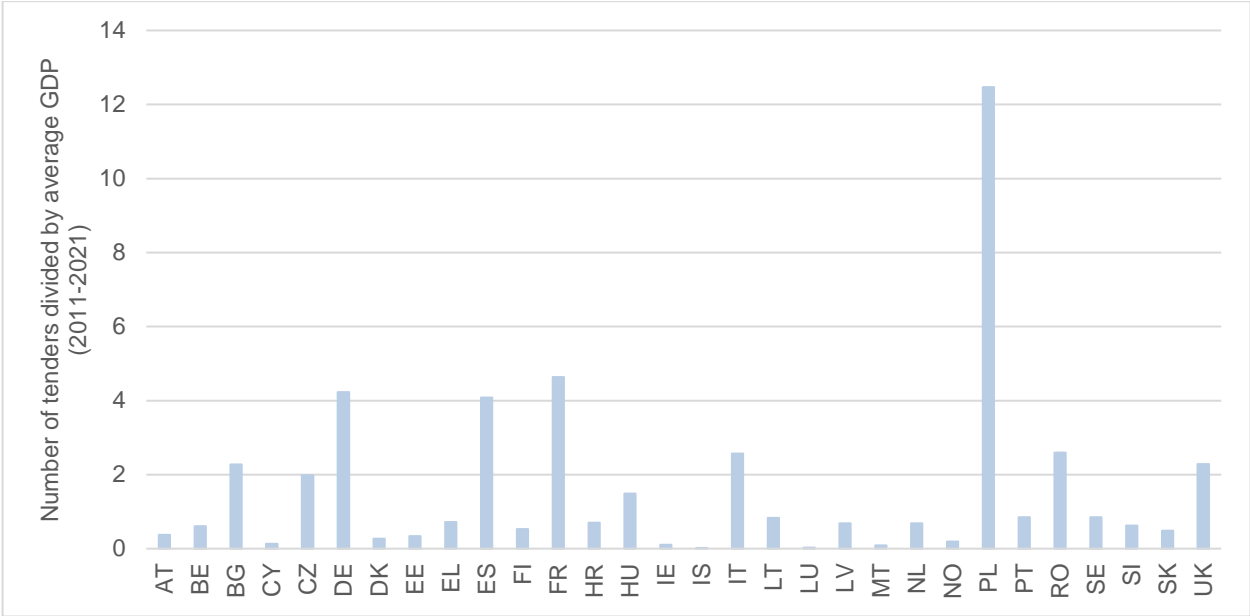
As an additional step we have also detrended the indicators. This means, that - by using the coefficients obtained by regressing the contract award year on the selected indicators - we have subtracted the part from the yearly average indicators that is explained by the award decision year. This allows us to show a change in indicator averages that are neither influenced by composite changes nor by long-term trends. In the Dashboard we report 'raw' before-after averages, CEM weighted averages and CEM weighted and detrended averages of each selected indicator for each country.

Overall, while the analysis is not sufficient to draw causal conclusions, a significantly large difference between before and after averages would imply that the 2014 EU Directive had potentially an effect on a specific competition indicator or competition determinant. However, looking at all countries at once, the lack of differences in the detrended averages indicate that the Directive change had no tangible effect neither on competition nor on tendering practices for most indicators. However, countries vary. For example, in the Czech Republic, single bidding is estimated to be 5% points higher, as well as lowest price award criteria decreasing and non-open procedure types increasing after the regulatory change even after filtering and detrending. On the other hand, single bidding, non-open procedure types, missing call for tenders are all lower in the filtered and detrended version in Portugal.



# Appendix A: Data

Figure 18: Number of tenders published divided by average GDP (2011-2021)<sup>29</sup>



<sup>29</sup> Source: Eurostat, <https://ec.europa.eu/eurostat/databrowser/view/tec00001/default/table?lang=en>.

Table 5: Estimated share of below EU threshold contracts and spending volume published on TED

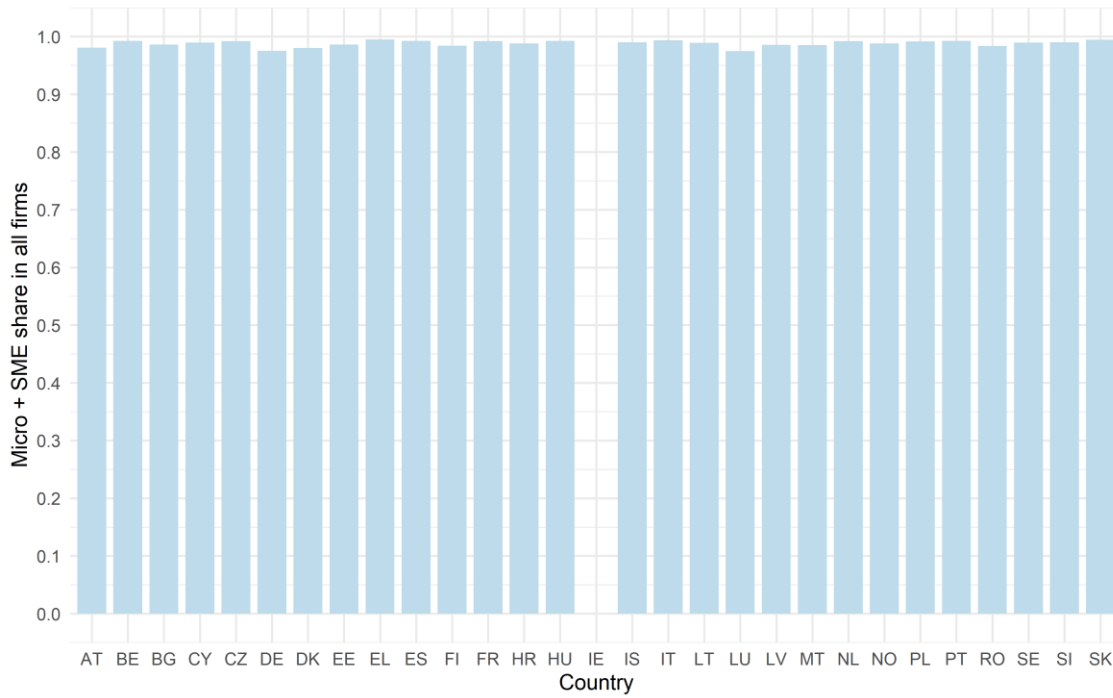
| Country | Share               |          |
|---------|---------------------|----------|
|         | Number of contracts | Spending |
| AT      | 24.53%              | 12.01%   |
| BE      | 12.37%              | 4.86%    |
| BG      | 45.50%              | 14.28%   |
| CY      | 10.46%              | 3.71%    |
| CZ      | 30.15%              | 6.22%    |
| DE      | 23.92%              | 19.99%   |
| DK      | 7.79%               | 3.02%    |
| EE      | 31.02%              | 7.48%    |
| EL      | 30.25%              | 6.77%    |
| ES      | 14.90%              | 2.07%    |
| FI      | 7.04%               | 4.03%    |
| FR      | 28.65%              | 9.84%    |
| HR      | 8.98%               | 3.84%    |
| HU      | 15.21%              | 3.48%    |
| IE      | 7.33%               | 1.68%    |
| IS      | 7.84%               | 2.65%    |
| IT      | 4.79%               | 0.00%    |
| LT      | 38.28%              | 7.37%    |
| LU      | 26.36%              | 19.86%   |
| LV      | 23.21%              | 3.35%    |
| MT      | 35.22%              | 9.85%    |
| NL      | 8.42%               | 3.39%    |
| NO      | 10.30%              | 2.81%    |
| PL      | 19.93%              | 5.29%    |
| PT      | 25.46%              | 0.12%    |
| RO      | 26.60%              | 4.98%    |
| SE      | 5.62%               | 2.93%    |
| SI      | 7.25%               | 5.41%    |
| SK      | 8.59%               | 1.90%    |
| UK      | 11.58%              | 0.88%    |

Table 6: Number of contracts per country with replaced prices (missing price and below EUR 4,500 or above EUR 100,000,000)

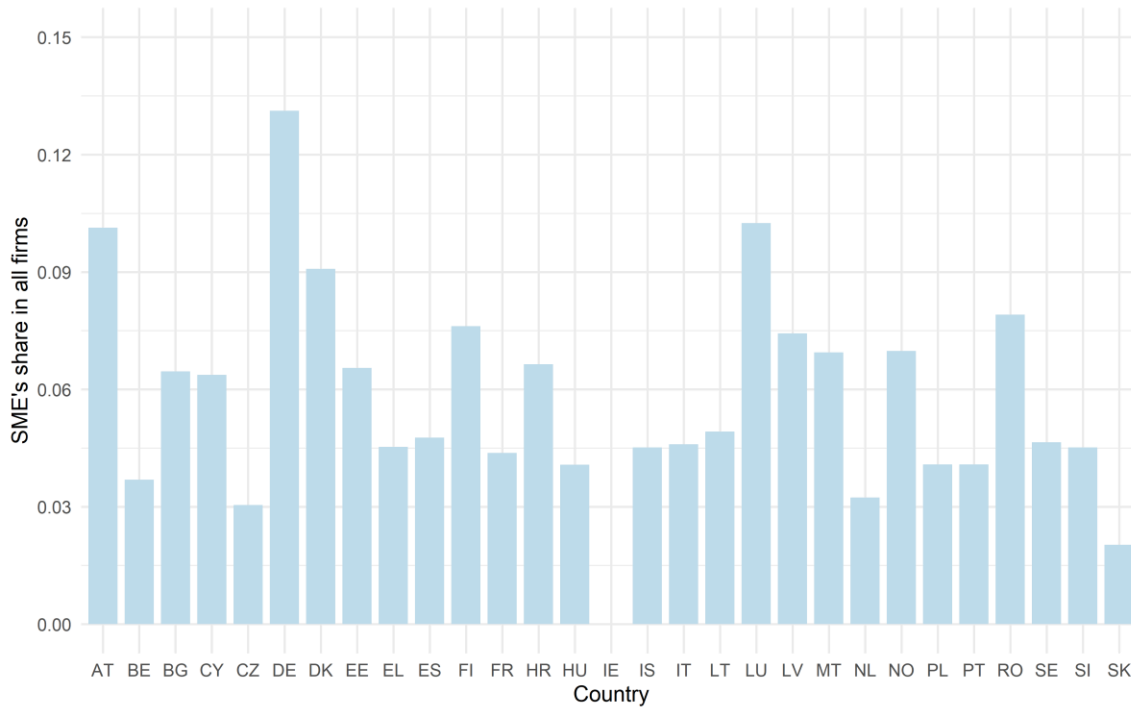
| Country | Average contract value | Total contract number | Contract value replaced | Contract value replaced (share of total) |
|---------|------------------------|-----------------------|-------------------------|------------------------------------------|
| AT      | 2,141,654              | 25769                 | 6805                    | 26%                                      |
| BE      | 2,174,148              | 31919                 | 6973                    | 22%                                      |
| BG      | 728,544                | 57050                 | 9016                    | 16%                                      |
| CY      | 1,201,459              | 3400                  | 113                     | 3%                                       |
| CZ      | 1,145,217              | 72938                 | 7038                    | 10%                                      |
| DE      | 1,225,112              | 280505                | 99335                   | 35%                                      |
| DK      | 4,296,704              | 23128                 | 6937                    | 30%                                      |
| EE      | 1,255,114              | 13043                 | 811                     | 6%                                       |
| EL      | 1,035,274              | 22555                 | 1043                    | 5%                                       |
| ES      | 1,764,693              | 115519                | 7849                    | 7%                                       |
| FI      | 2,539,474              | 28030                 | 1204                    | 4%                                       |
| FR      | 1,830,342              | 339297                | 92000                   | 27%                                      |
| HR      | 1,605,840              | 12721                 | 150                     | 1%                                       |
| HU      | 2,516,058              | 22747                 | 1026                    | 5%                                       |
| IE      | 2,959,768              | 9177                  | 2929                    | 32%                                      |
| IS      | 3,893,524              | 847                   | 275                     | 32%                                      |
| IT      | 3,316,443              | 79317                 | 6030                    | 8%                                       |
| LT      | 772,688                | 25451                 | 1987                    | 8%                                       |
| LU      | 1,841,804              | 3804                  | 840                     | 22%                                      |
| LV      | 1,430,408              | 16261                 | 1435                    | 9%                                       |
| MT      | 935,942                | 3146                  | 355                     | 11%                                      |
| NL      | 2,701,141              | 46840                 | 24273                   | 52%                                      |
| NO      | 3,467,298              | 23442                 | 4521                    | 19%                                      |
| PL      | 1,152,002              | 226994                | 13927                   | 6%                                       |
| PT      | 1,083,247              | 23840                 | 2425                    | 10%                                      |
| RO      | 2,130,588              | 59731                 | 2344                    | 4%                                       |
| SE      | 3,001,724              | 50154                 | 24971                   | 50%                                      |
| SI      | 785,093                | 31945                 | 3794                    | 12%                                      |
| SK      | 2,448,205              | 12741                 | 727                     | 6%                                       |
| UK      | 4,813,468              | 128744                | 50952                   | 40%                                      |

Figure 19. Share of micro and SME companies across Europe<sup>30</sup>

Panel A: Share of micro and SME companies



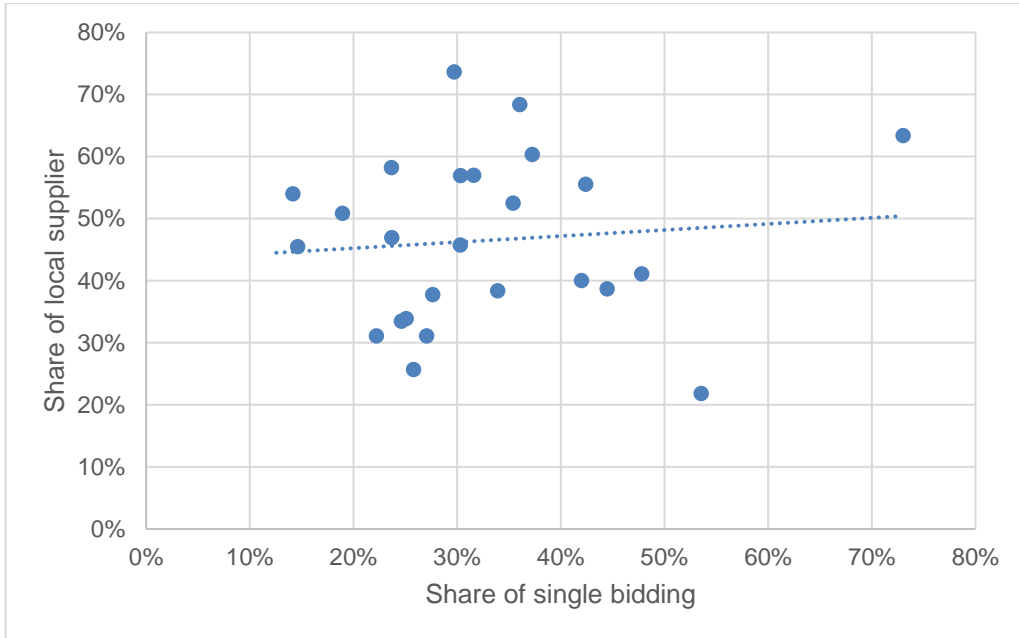
Panel A: Share of SME companies



<sup>30</sup> Source: Eurostat's Annual enterprise statistics. [https://ec.europa.eu/eurostat/databrowser/view/SBS\\_SC\\_SCA\\_R2\\$DV\\_342/default/table?lang=en](https://ec.europa.eu/eurostat/databrowser/view/SBS_SC_SCA_R2$DV_342/default/table?lang=en)

Figure 20: Relationship between the share of single bidding and local suppliers at a country level

Panel A: 2021



Panel B: 2020

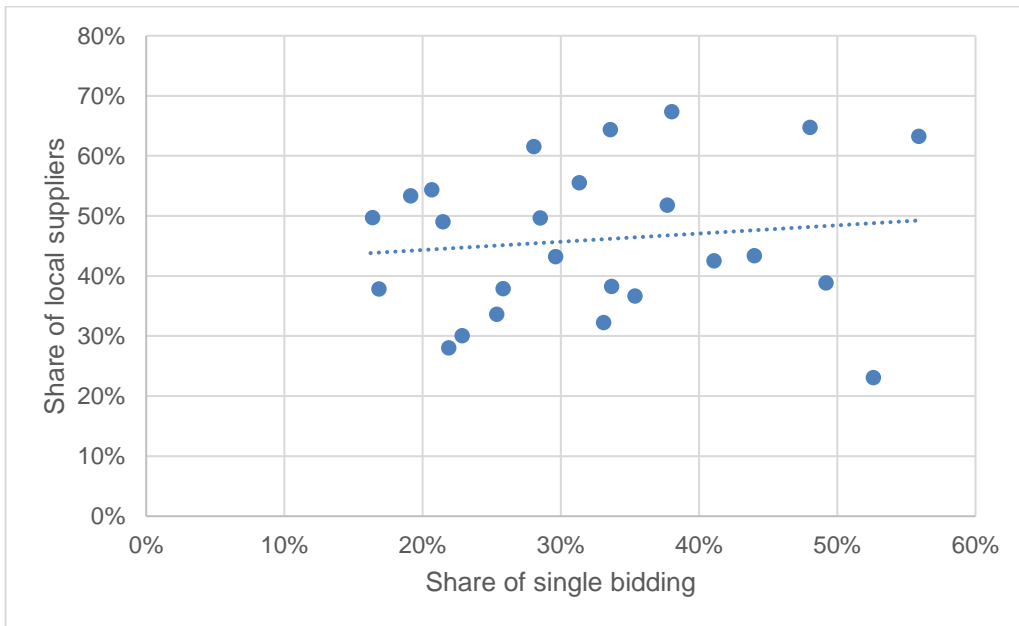


Figure 21: Share of single bidder contracts around the PP Directive implementation (by quarters) per country

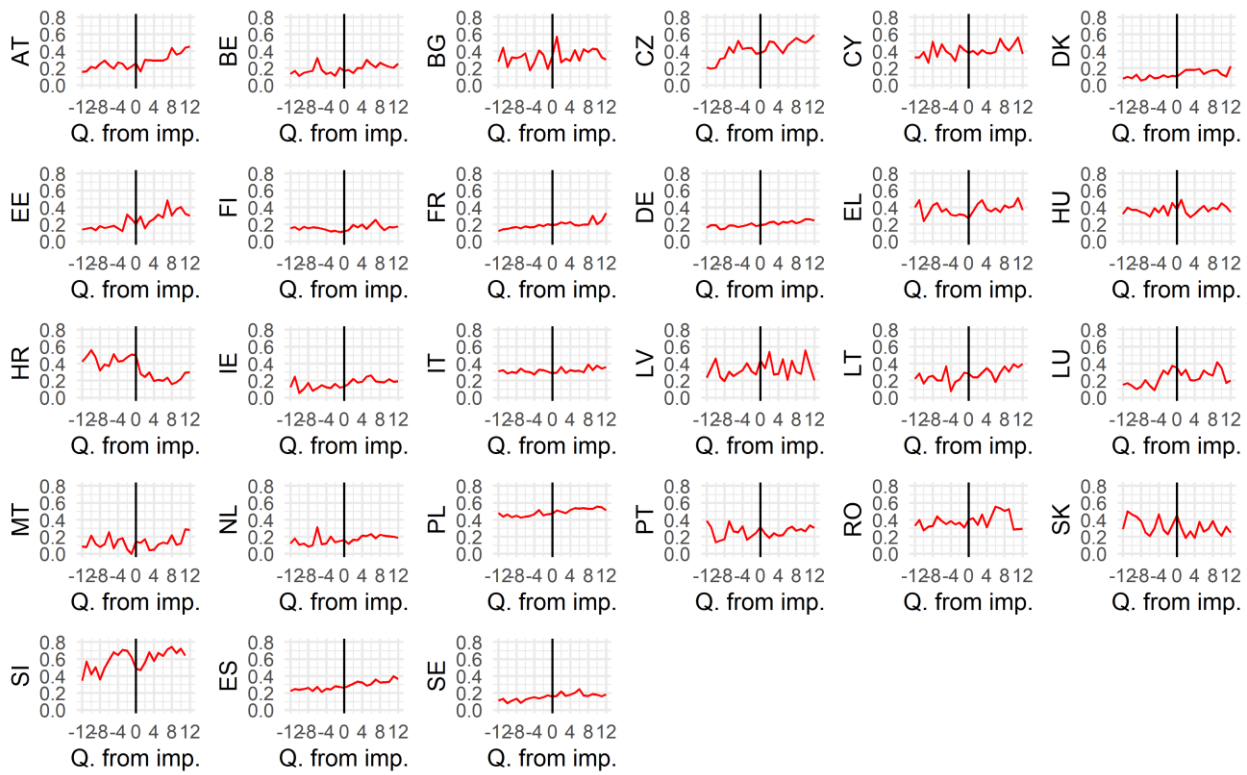
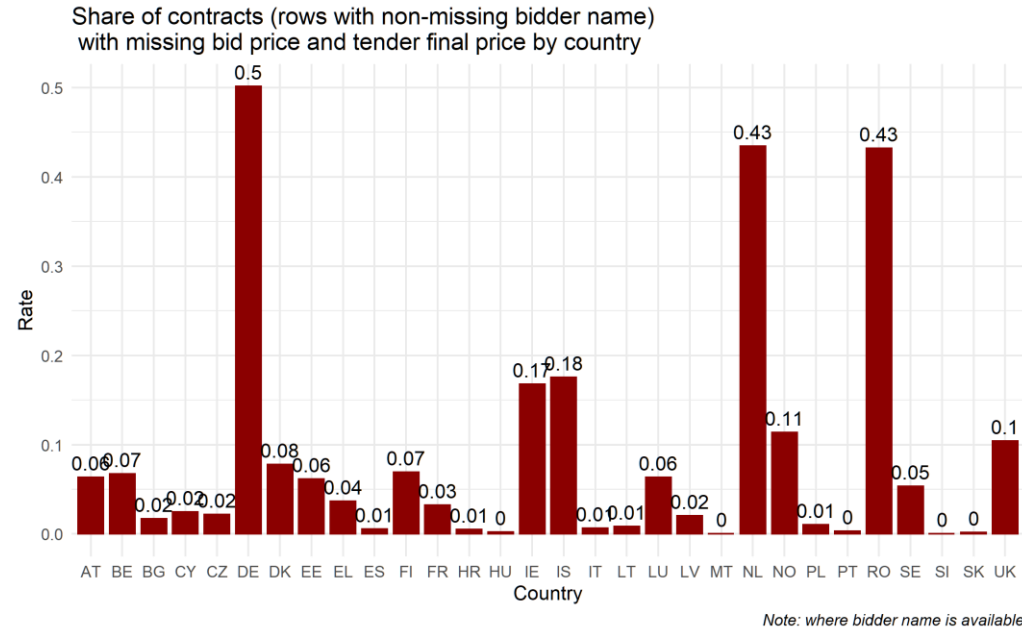
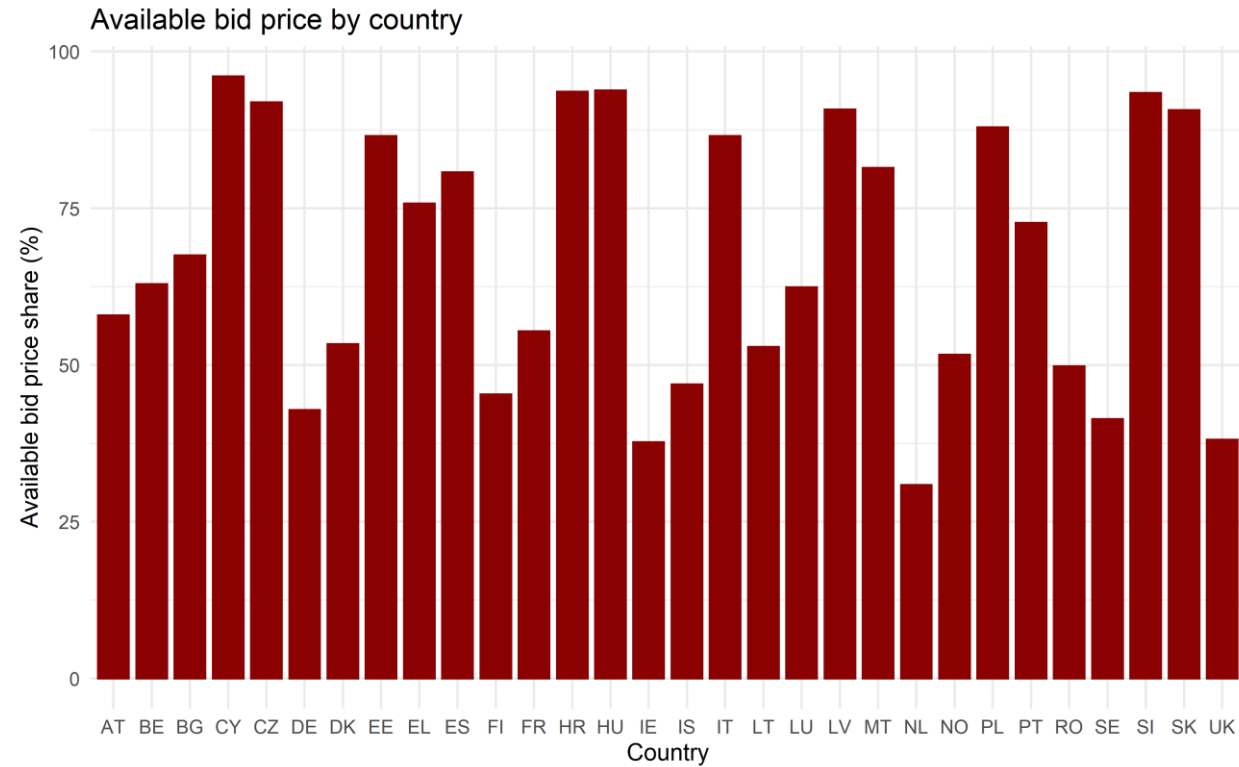


Figure 22: Estimated rate of missing prices in TED data in rows with available bidder names (i.e. an approximation of awarded contracts)

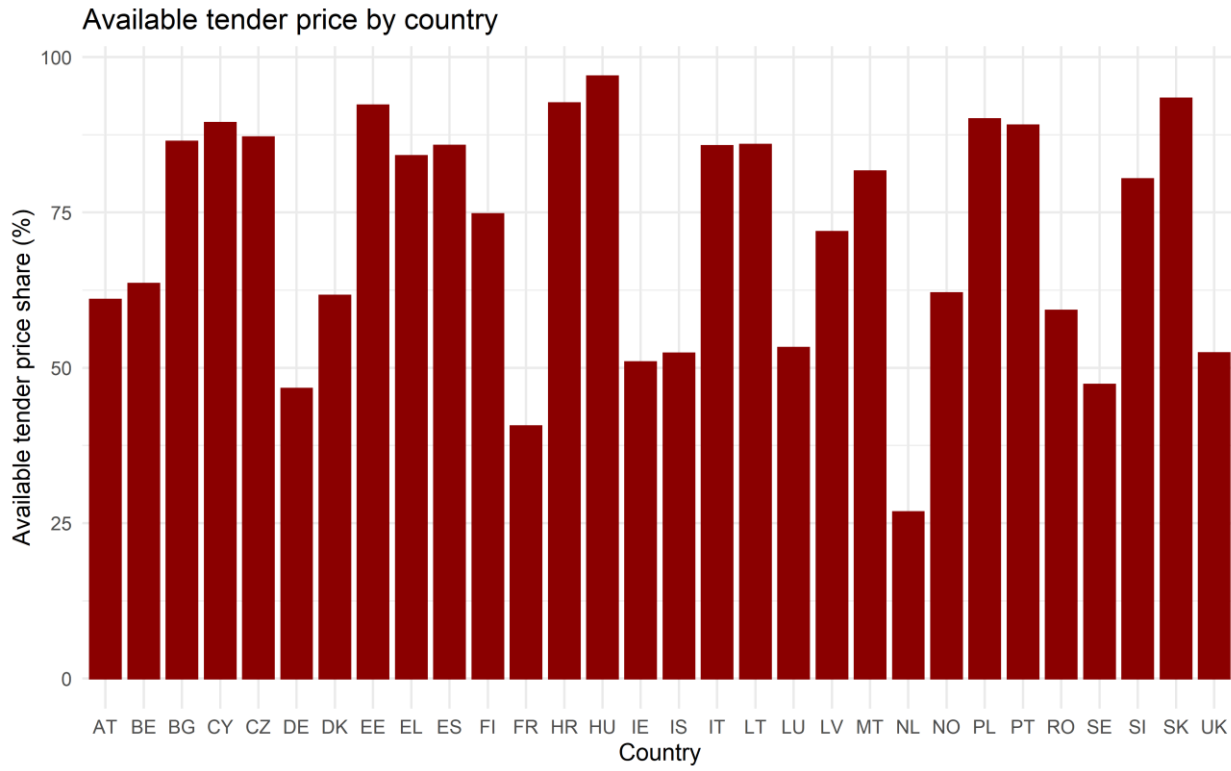
Panel A: Rate of contracts with missing bid and tender level final prices



Panel B: Rate of available bid price over the whole time period (2011-2021)



Panel C: Rate of available tender final price over the whole time period (2011-2021)





# Appendix B: Indicator comparisons

## B1. Rank comparison between Publication rate based on GDP data and Publication rate based on Public Procurement Spending data

Instead of using the national GDP as denominator, we propose an alternative approach to calculate the public procurement publication rates of EU countries. The OECD publishes annual public procurement shares as a percentage of the GDP in its Government at a Glance publication. Based on this statistic, we can estimate the absolute value of yearly public procurement expenditure and an alternative Publication rate indicator. Therefore, instead of using the more indirect GDP based share, we can directly observe the ratios of national public procurement expenditures that are publicly advertised to businesses on the TED platform.

Figure 23 shows the trends in the original and alternative Publication rate definitions. It shows that overtime variation in the alternative measure is much larger, indicating that it is better equipped to measure periodic change. The above 100% values of Latvia and Romania in certain years show that the sum of awarded contract values in specific years can be higher than the estimated actual spending in a given year. Note, that while the nominator of the ratio is essentially an agreement on a payment or set of payments in the future (i.e. certain contracts take several years), the denominator is an estimation of all procurement payment in a given year.

**Figure 23: Trend in GDP based publication rate (black line, right axis) and the alternative publication rate (red line, left axis) using public procurement spending as the denominator**

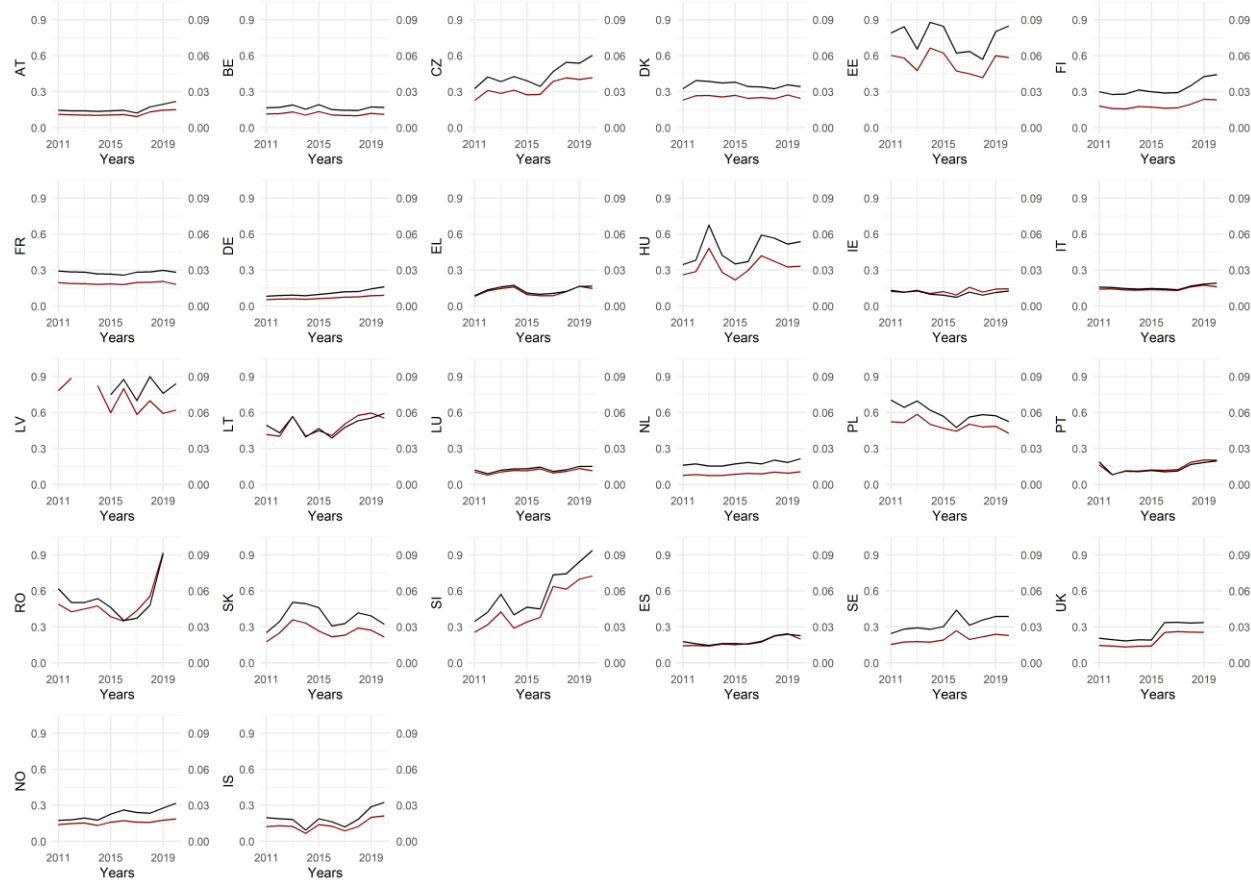
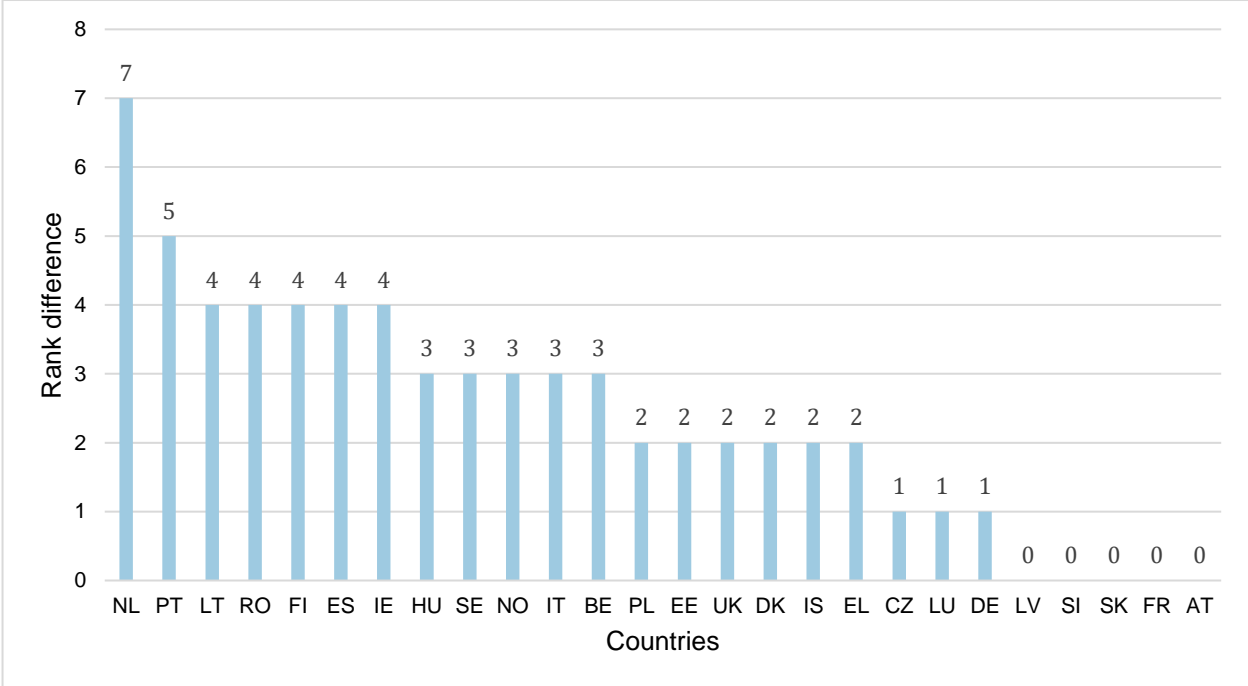


Figure 24 shows the difference in relative ranks (compared to the other countries) of each country based on the two publication rate definitions. While for a few countries the GDP and the procurement spending based indicators lead to the same rank relative to the others, such as Latvia, Germany or the Czech Republic, there are large differences for other countries. This indicates that whether we account for the size of individual state budgets and more specifically for the share of procurement spending in those budgets can lead to considerably different results.

Figure 24: Rank difference by country between the original Publication rate and the alternative Publication rate (2018) <sup>31</sup>



<sup>31</sup> Note, that negative values mean that the share of published procurement spending is relatively smaller if the denominator is the procurement expenditure. For example, while the Netherlands ranked 17<sup>th</sup> based on the share of published procurement contracts compared to GDP, if the denominator is their estimated procurement spending, they only rank 24<sup>th</sup> (hence the 7-rank difference). It means that as if we take into consideration that they spend relatively high amounts through procurement compared to other countries, hence the actual share they publish is smaller.

B2. Comparison between original and recalculated SMSB indicators

Figure 25: Country level absolute percentage-point difference for selected indicators (2020), DG GROW vs. SMSB Original comparison

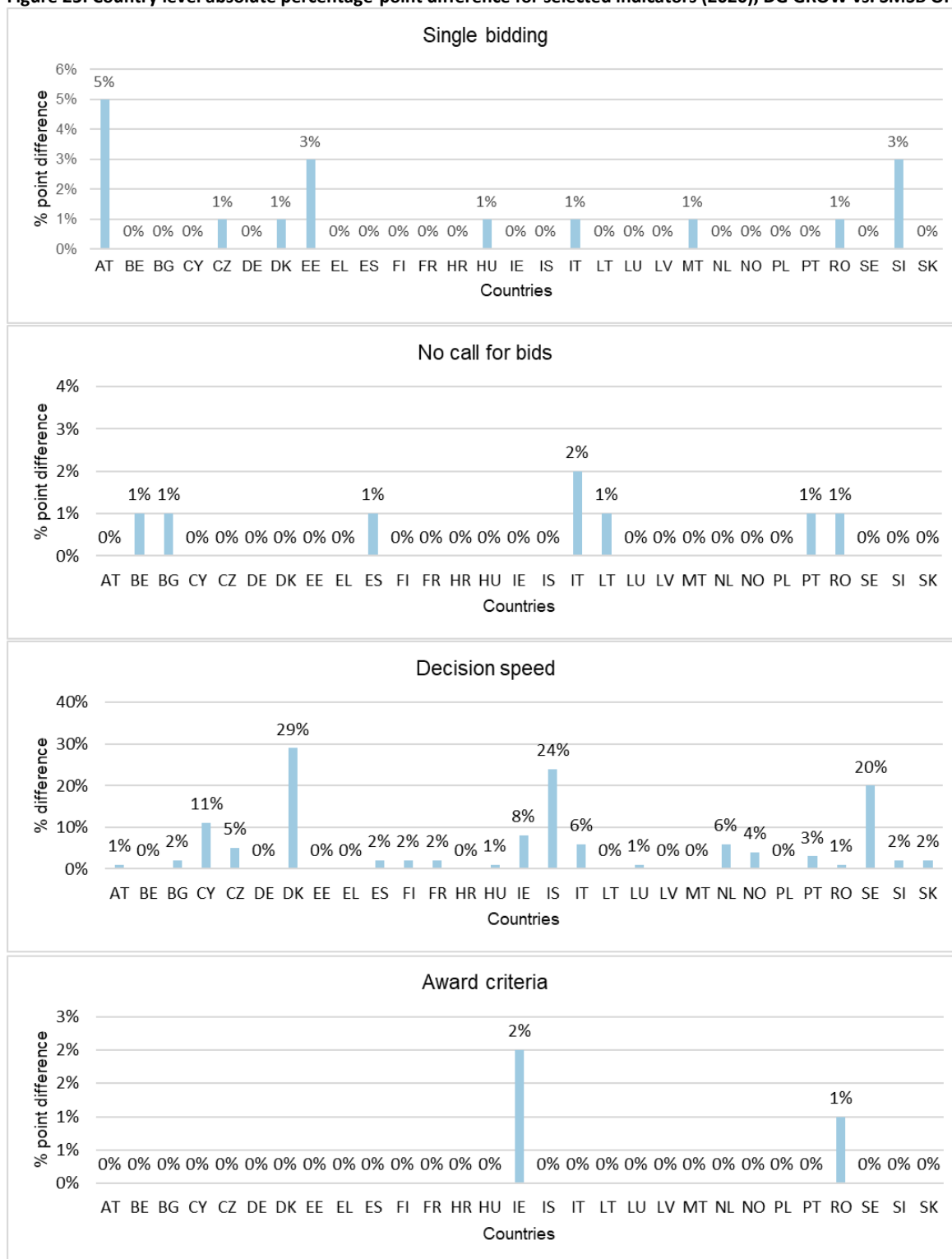


Figure 26: Country level absolute percentage-point difference for selected indicators (2020), DIGIWHIST filters vs SMSB Original comparison

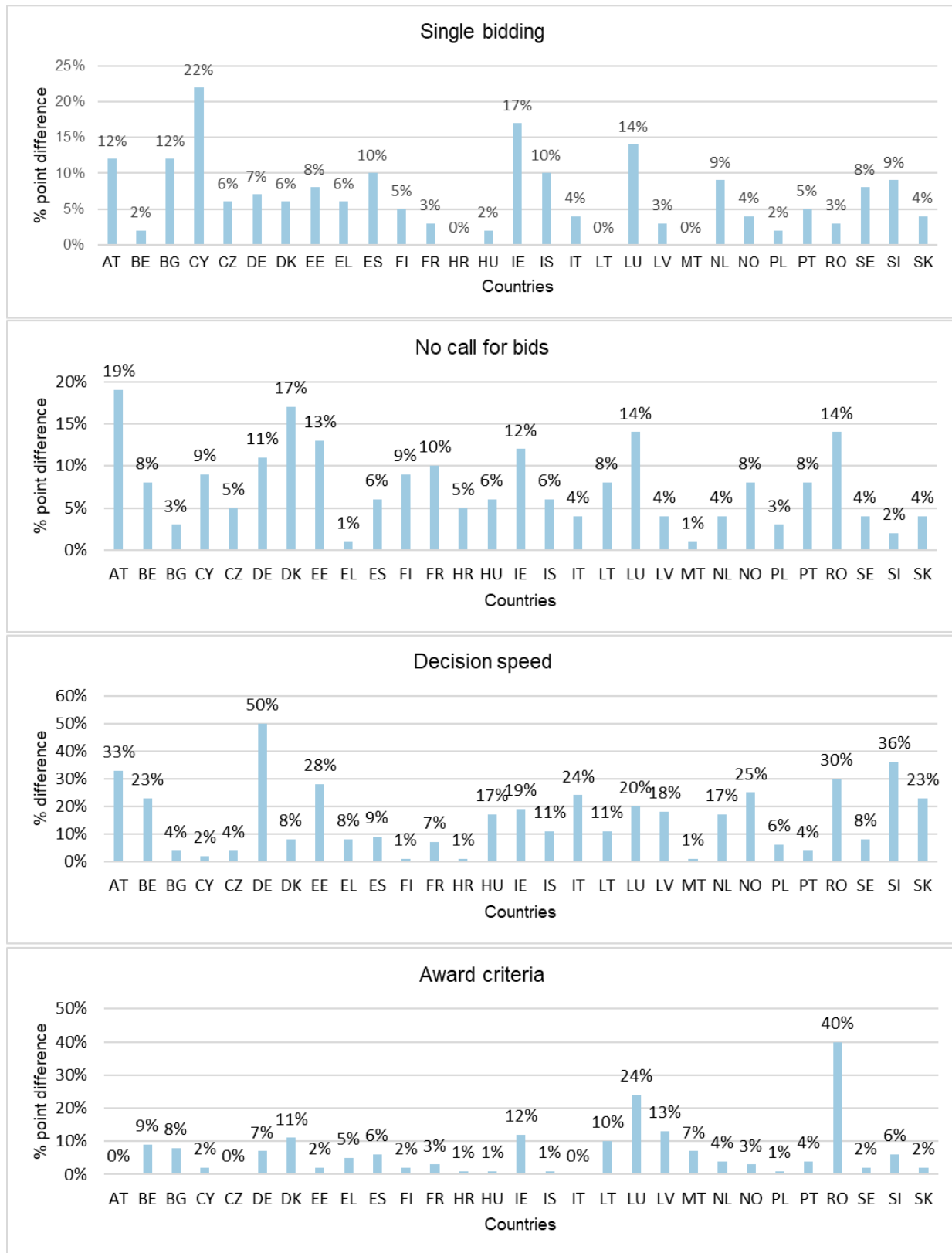
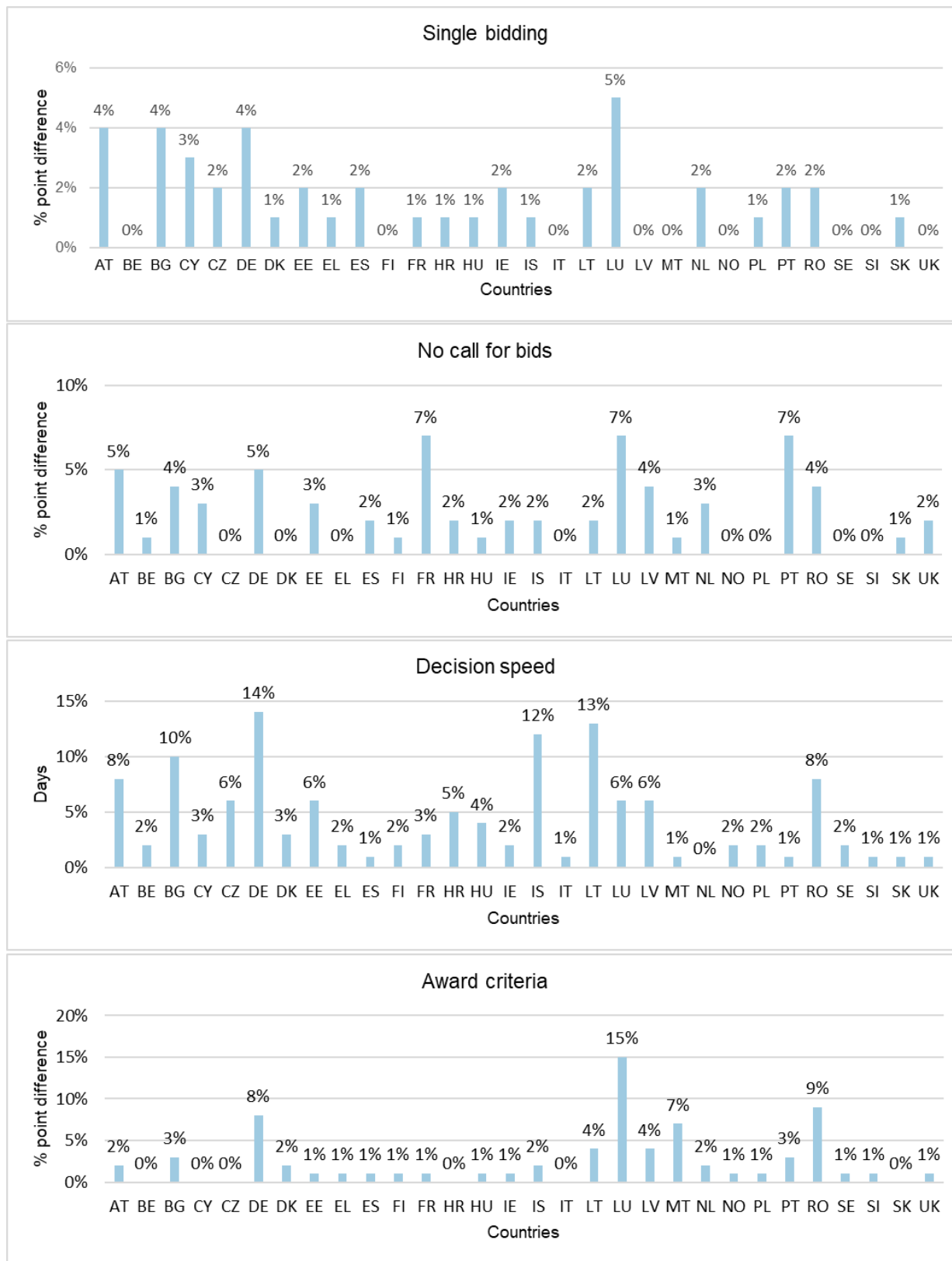


Figure 27: Country level absolute percentage-point difference for selected indicators (2020), DIGIWHIST with and without filters.



# Appendix C: Risk indicator categories

Table 7: Country specific risk levels for the advertisement period and the decision speed indicators

| Country | Competition determinant | Period start | Period end | Risk level | Missing is risk? |
|---------|-------------------------|--------------|------------|------------|------------------|
| CY      | Advertisement period    | 44           | 277        | 0          | No               |
| CY      | Advertisement period    | 378          | 9999       | 0.5        |                  |
| CY      | Advertisement period    | 0            | 43         | 1          |                  |
| DE      | Advertisement period    | 20           | 9999       | 0          | Yes              |
| DE      | Advertisement period    | 0            | 19         | 1          |                  |
| DK      | Advertisement period    | 52           | 9999       | 0          | Yes              |
| DK      | Advertisement period    | 0            | 51         | 1          |                  |
| FI      | Advertisement period    | 31           | 9999       | 0          | Yes              |
| FI      | Advertisement period    | 0            | 30         | 1          |                  |
| EL      | Advertisement period    | 48           | 9999       | 0          | Yes              |
| EL      | Advertisement period    | 0            | 47         | 1          |                  |
| LU      | Advertisement period    | 41           | 9999       | 0          | Yes              |
| LU      | Advertisement period    | 0            | 40         | 1          |                  |
| MT      | Advertisement period    | 42           | 252        | 0          | No               |
| MT      | Advertisement period    | 0            | 41         | 1          |                  |
| MT      | Advertisement period    | 253          | 9999       | 1          |                  |
| SE      | Advertisement period    | 35           | 9999       | 0          | No               |
| SE      | Advertisement period    | 0            | 34         | 1          |                  |
| AT      | Advertisement period    | 29           | 9999       | 0          | Yes              |
| AT      | Advertisement period    | 0            | 28         | 1          |                  |
| BG      | Advertisement period    | 36           | 9999       | 0          | No               |
| BG      | Advertisement period    | 0            | 35         | 1          |                  |
| CZ      | Advertisement period    | 37           | 9999       | 0          | Yes              |
| CZ      | Advertisement period    | 1            | 36         | 1          |                  |
| EE      | Advertisement period    | 30           | 42         | 0          | No               |
| EE      | Advertisement period    | 43           | 9999       | 1          |                  |
| EE      | Advertisement period    | 0            | 29         | 1          |                  |
| HR      | Advertisement period    | 34           | 43         | 0          | Yes              |

|    |                      |     |      |     |     |
|----|----------------------|-----|------|-----|-----|
| HR | Advertisement period | 44  | 9999 | 1   |     |
| HR | Advertisement period | 0   | 35   | 1   |     |
| IT | Advertisement period | 48  | 9999 | 0   | No  |
| IT | Advertisement period | 38  | 47   | 0.5 |     |
| IT | Advertisement period | 1   | 37   | 1   |     |
| LT | Advertisement period | 56  | 9999 | 0   | No  |
| LT | Advertisement period | 0   | 55   | 1   |     |
| LV | Advertisement period | 31  | 47   | 0   | No  |
| LV | Advertisement period | 48  | 9999 | 1   |     |
| LV | Advertisement period | 0   | 30   | 1   |     |
| FR | Advertisement period | 44  | 9999 | 0   | Yes |
| FR | Advertisement period | 28  | 43   | 0.5 |     |
| FR | Advertisement period | 1   | 27   | 1   |     |
| NL | Advertisement period | 31  | 9999 | 0   | Yes |
| NL | Advertisement period | 0   | 30   | 1   |     |
| NO | Advertisement period | 30  | 9999 | 0   | No  |
| NO | Advertisement period | 0   | 29   | 1   |     |
| PL | Advertisement period | 29  | 44   | 0   | Yes |
| PL | Advertisement period | 0   | 28   | 1   |     |
| PL | Advertisement period | 45  | 9999 | 1   |     |
| RO | Advertisement period | 32  | 44   | 0   | Yes |
| RO | Advertisement period | 45  | 9999 | 1   |     |
| RO | Advertisement period | 0   | 31   | 1   |     |
| SK | Advertisement period | 36  | 9999 | 0   | No  |
| SK | Advertisement period | 0   | 35   | 1   |     |
| UK | Advertisement period | 28  | 135  | 0   | Yes |
| UK | Advertisement period | 136 | 9999 | 1   |     |
| UK | Advertisement period | 0   | 27   | 1   |     |
| IE | Advertisement period | 19  | 9999 | 0   | No  |
| IE | Advertisement period | 0   | 18   | 1   |     |
| MK | Advertisement period | 20  | 44   | 0   | Yes |
| MK | Advertisement period | 45  | 9999 | 1   |     |

|    |                      |     |      |     |     |
|----|----------------------|-----|------|-----|-----|
| MK | Advertisement period | 0   | 19   | 1   |     |
| SI | Advertisement period | 38  | 9999 | 0   | Yes |
| SI | Advertisement period | 0   | 37   | 1   |     |
| HU | Advertisement period | 38  | 9999 | 0   | Yes |
| HU | Advertisement period | 0   | 37   | 1   |     |
| BE | Decision period      | 91  | 9999 | 0   | No  |
| BE | Decision period      | 59  | 91   | 0.5 |     |
| BE | Decision period      | 0   | 58   | 1   |     |
| CY | Decision period      | 63  | 9999 | 0   | No  |
| CY | Decision period      | 53  | 63   | 0.5 |     |
| CY | Decision period      | 0   | 52   | 1   |     |
| DE | Decision period      | 56  | 9999 | 0   | No  |
| DE | Decision period      | 22  | 55   | 0.5 |     |
| DE | Decision period      | 0   | 21   | 1   |     |
| DK | Decision period      | 76  | 9999 | 0   | No  |
| DK | Decision period      | 17  | 75   | 0.5 |     |
| DK | Decision period      | 0   | 16   | 1   |     |
| FI | Decision period      | 100 | 9999 | 0   | No  |
| FI | Decision period      | 37  | 99   | 0.5 |     |
| FI | Decision period      | 0   | 36   | 1   |     |
| EL | Decision period      | 163 | 9999 | 0   | No  |
| EL | Decision period      | 117 | 162  | 0.5 |     |
| EL | Decision period      | 0   | 116  | 1   |     |
| IS | Decision period      | 28  | 113  | 0   | Yes |
| IS | Decision period      | 0   | 27   | 1   |     |
| IS | Decision period      | 114 | 9999 | 1   |     |
| LU | Decision period      | 102 | 9999 | 0   |     |
| LU | Decision period      | 35  | 101  | 0.5 | Yes |
| LU | Decision period      | 0   | 34   | 1   |     |
| MT | Decision period      | 70  | 9999 | 0   | No  |
| MT | Decision period      | 0   | 69   | 1   |     |
| SE | Decision period      | 43  | 9999 | 0   | No  |



|    |                 |     |      |     |     |
|----|-----------------|-----|------|-----|-----|
| SE | Decision period | 18  | 42   | 0.5 |     |
| SE | Decision period | 0   | 17   | 1   |     |
| AT | Decision period | 54  | 9999 | 0   | No  |
| AT | Decision period | 26  | 53   | 0.5 |     |
| AT | Decision period | 0   | 25   | 1   |     |
| BG | Decision period | 82  | 392  | 0   | No  |
| BG | Decision period | 393 | 9999 | 0.5 |     |
| BG | Decision period | 46  | 81   | 0.5 |     |
| BG | Decision period | 0   | 45   | 1   |     |
| CH | Decision period | 54  | 157  | 0   | No  |
| CH | Decision period | 25  | 53   | 0.5 |     |
| CH | Decision period | 158 | 9999 | 0.5 |     |
| CH | Decision period | 0   | 24   | 1   |     |
| CZ | Decision period | 59  | 427  | 0   | Yes |
| CZ | Decision period | 428 | 9999 | 0.5 |     |
| CZ | Decision period | 34  | 58   | 0.5 |     |
| CZ | Decision period | 0   | 33   | 1   |     |
| EE | Decision period | 32  | 9999 | 0   | No  |
| EE | Decision period | 0   | 31   | 1   |     |
| ES | Decision period | 114 | 9999 | 0   | No  |
| ES | Decision period | 83  | 113  | 0.5 |     |
| ES | Decision period | 0   | 82   | 1   |     |
| HR | Decision period | 77  | 9999 | 0   | No  |
| HR | Decision period | 40  | 76   | 0.5 |     |
| HR | Decision period | 0   | 39   | 1   |     |
| HU | Decision period | 80  | 9999 | 0   | Yes |
| HU | Decision period | 21  | 79   | 0.5 |     |
| HU | Decision period | 0   | 20   | 1   |     |
| IT | Decision period | 81  | 469  | 0   | No  |
| IT | Decision period | 470 | 9999 | 1   |     |
| IT | Decision period | 0   | 80   | 1   |     |
| LT | Decision period | 64  | 9999 | 0   | No  |

|    |                 |     |      |     |     |
|----|-----------------|-----|------|-----|-----|
| LT | Decision period | 25  | 63   | 0.5 |     |
| LT | Decision period | 0   | 24   | 1   |     |
| LV | Decision period | 35  | 158  | 0   | Yes |
| LV | Decision period | 159 | 299  | 0.5 |     |
| LV | Decision period | 22  | 34   | 0.5 |     |
| LV | Decision period | 300 | 9999 | 1   |     |
| LV | Decision period | 0   | 21   | 1   |     |
| FR | Decision period | 54  | 9999 | 0   | No  |
| FR | Decision period | 29  | 53   | 0.5 |     |
| FR | Decision period | 0   | 28   | 1   |     |
| NL | Decision period | 36  | 9999 | 0   | No  |
| NL | Decision period | 999 | 999  | 0.5 |     |
| NL | Decision period | 0   | 35   | 1   |     |
| NO | Decision period | 30  | 9999 | 0   | No  |
| NO | Decision period | 0   | 29   | 1   |     |
| PL | Decision period | 93  | 9999 | 0   | Yes |
| PL | Decision period | 53  | 92   | 0.5 |     |
| PL | Decision period | 0   | 52   | 1   |     |
| PT | Decision period | 57  | 9999 | 0   | No  |
| PT | Decision period | 33  | 56   | 0.5 |     |
| PT | Decision period | 0   | 32   | 1   |     |
| RO | Decision period | 77  | 9999 | 0   | No  |
| RO | Decision period | 25  | 76   | 0.5 |     |
| RO | Decision period | 0   | 24   | 1   |     |
| SI | Decision period | 83  | 210  | 0   | Yes |
| SI | Decision period | 39  | 83   | 0.5 |     |
| SI | Decision period | 0   | 38   | 1   |     |
| SI | Decision period | 211 | 9999 | 1   |     |
| SK | Decision period | 158 | 9999 | 0   | No  |
| SK | Decision period | 0   | 157  | 1   |     |
| UK | Decision period | 54  | 9999 | 0   | Yes |
| UK | Decision period | 0   | 53   | 1   |     |

|    |                 |    |      |     |    |
|----|-----------------|----|------|-----|----|
| IE | Decision period | 53 | 9999 | 0   | No |
| IE | Decision period | 34 | 52   | 0.5 |    |
| IE | Decision period | 0  | 33   | 1   |    |
| MD | Decision period | 30 | 9999 | 0   | No |
| MD | Decision period | 0  | 29   | 1   |    |
| MK | Decision period | 41 | 9999 | 0   | No |
| MK | Decision period | 27 | 40   | 0.5 |    |
| MK | Decision period | 0  | 26   | 1   |    |