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Universalistic rules- particularistic implementation: The EU's single market for government purchases

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Abstract

Open and fair access to government contracts has been a long-standing principle in many international trade agreements including the one on the EU's single public procurement market which is probably the most extensive among them with its long standing common regulatory and enforcement framework. However, the ostensibly low prevalence of cross-border trade in European public procurement represents a troubling puzzle: only about 5% of procurement contracts are awarded to non-domestic suppliers. This is in strike contrast with overall trade openness among these countries which surpasses 50% of GDP. The analysis uses country-level statistics as well as contract-level administrative data to investigate to what degree this gap results from governments' particularistic protectionism and what are its drivers. We found that much of it can be attributed to public bodies using particularistic means to favour domestic firms both when looking at it from a country-level or a market-level perspective. Using contract-level data, we estimate that about 17% of public procurement spending takes place on markets characterised by particularistic protectionism. While most countries resorting to particularistic means are among the least-well governed countries in Europe at least according to perception surveys, there are a number of surprising outliers: Denmark and Finland and to a lesser degree Norway and Sweden appear to close their domestic markets to foreign competition considerably more than their corruption-levels would suggest. Conversely, Romania and Poland close their domestic markets much less than expected based on their corruption levels. Taking the example of EU institutions, which have arguably much less reason to prefer domestic companies in whichever member state they are located, suggests that procurement openness could increase up to 10-times approximating member states' total trade openness. In order to foster greater cross-border procurement, the implementation of regulations should be monitored using Big Data analytical techniques and remedies systems should be improved.

Keywords: European Union, public procurement, single market, corruption, trade



1. INTRODUCTION

Open and fair access to government contracts has been a long-term principle in many international trade agreements including the World Trade Organisation's so-called plurilateral Agreement on Government Procurement (GPA)¹. Among these agreements, the one regulating the European single public procurement market² is probably the most extensive with its long standing common regulatory and enforcement framework preceding the GPA. Notably, it has a strong institutional backing both for punishing lack of rule transposition and inadequate implementation (e.g. Court of Justice of the European Union). Even in such a well-governed part of the world with strong safeguards for cross-border trade, qualitative evidence is ample about how universalistic rules of open and fair trade in government contracts are bent by national governments to favour companies with particularistic links (e.g. owned by political office-holders or donors to electoral campaigns). If the suspected market entry restrictions are systematic, the resulting efficiency losses are likely to be considerable as public procurement amounts to roughly 13% of GDP in the European Union (EU) (European Commission, 2016). Moreover, if the EU single market in public procurement fails to foster trade among EU and European Economic Area (EEA) members³ due to particularistic motives, we can reasonably assume that other trade agreements will fail to do so even more.

In spite of such salient economic role of procurement markets in Europe and globally as well as long standing regulatory action, no systematic study exists which would assess the effect of any such trade agreement on procurement markets and the potential links to particularism. In order to address this gap in the literature, this paper sets out to

- 1) measure the degree of particularistic protectionism in public procurement in the EU and EEA;
- 2) identify its drivers in terms of tender-level corrupt practices to separate particularistic favouritism from its other forms; and
- 3) explore its distribution across countries and time.

Particularistic protectionism in public procurement trade refers to the deliberate bending of universalistic rules of open and fair access to government contracts in order to benefit domestic companies with particularistic links established through friendship, kinship or the purchase of influence⁴ (throughout this paper particularism and corruption are used interchangeably).

In subsequent sections a number of key contributions are made: first, we identify a large gap in public procurement trade in Europe which persists in spite of the strong institutional framework. We estimate that at least 17% of total procurement spending happens on markets which are protected from foreign competition by corrupt means. Second, this gap is attributed mainly to national governments manipulating the way open and fair rules of public procurement are applied to particular tenders in order to favour their domestic firms. The degree and forms of such particularistic protectionism varies by country, but it is present all

¹ https://www.wto.org/english/tratop_e/gproc_e/overview_e.htm

² http://ec.europa.eu/growth/single-market/public-procurement/index_en.htm

³ <http://www.efta.int/eea/policy-areas/goods/competition-aid-procurement-ipr/procurement> (annex XVI)

⁴ For a wide-ranging discussion of conceptualizing corruption as particularism or partiality see: (Mungiu-Pippidi, 2015; North, Wallis, & Weingast, 2009; Rothstein & Teorell, 2008)

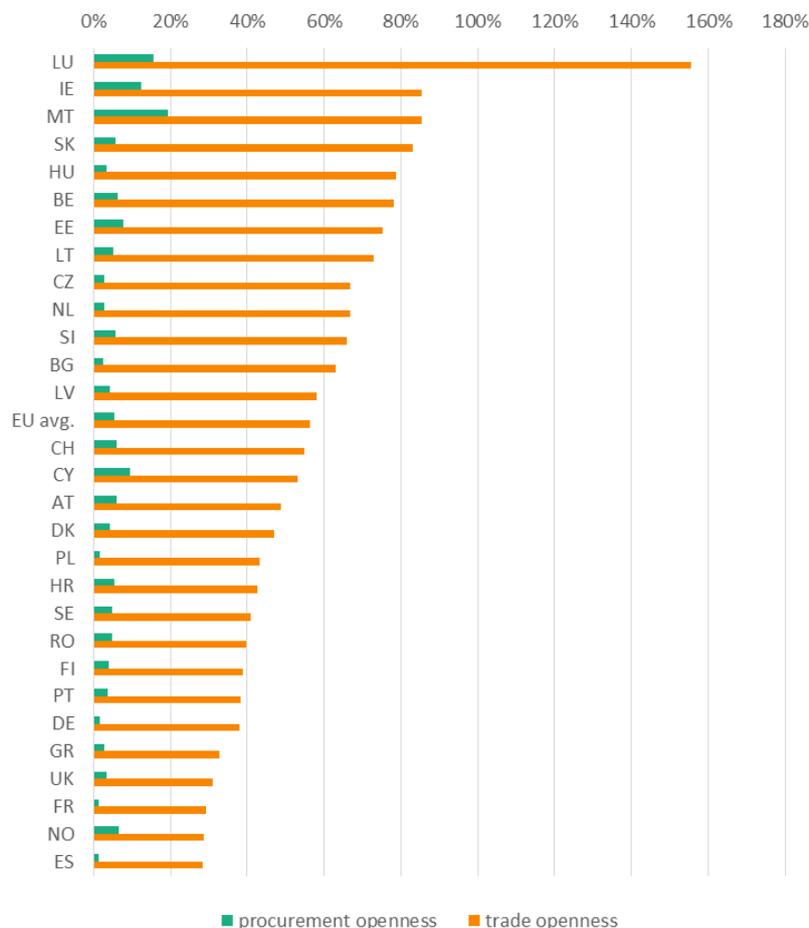


across the EU and EEA. Surprisingly, some well-governed countries such as Denmark and Finland appear to protect their procurement markets to a comparatively high degree; while some traditionally considered as more corrupt such as Poland and Romania protect their procurement markets from foreign competition relatively less. Third, using institutions of the European Union as a set of possibly least protectionist institutions regardless of the country they reside in, we suggest that intra-EU public procurement trade could increase tenfold, that is from 5% currently to roughly 50% approximating total trade openness in Europe.

1.1 The puzzle

The subsequent analysis tries to explain two striking features of European public procurement trade: its absence and its lack of responsiveness to the EU institutional framework. First, while most if not all EU and EEA countries are highly open economies when it comes to private to private trade, they are extremely closed when it comes to government contracts (Figure 1). On average, member states' trade openness is roughly 10-times their procurement openness (56.6% and 5.9% respectively). Furthermore, trade and procurement openness are by far not following the same patterns for each country.

FIGURE 1. CONTRASTING TRADE OPENNESS WITH PUBLIC PROCUREMENT OPENNESS, EU+EEA, 2009-2014 AVERAGES





Second, on the face of it, EU and EEA countries import more public procurement products from each other than from outside of the block: on average, the share of procurement imports from member states was 0.08% higher than from non-member states for all possible importer-exporter country pairs in 2013 (significant at the 0.1% level). While this is a very small difference (around one-quarter standard deviation), when taking into account the total trade in each relation, it turns into practically zero and insignificant. This simple calculation raises the possibility that the EU/EEA public procurement regulatory framework fails to lift intra-European procurement trade compared to procurement trade with third countries.

2. CONCEPTUAL FRAMEWORK

Protectionism in public procurement means that trade is missing, it could have taken place but it didn't. Measuring how much procurement trade is missing requires a suitable benchmark representing open, fair, and corruption free trade. It is established in two different ways reflecting macro as well as micro perspectives: a) comparing procurement trade to total trade (i.e. predominantly business-to-business trade) and b) comparing member state' procurement markets to the most open member state's markets. The so-identified missing procurement trade is attributed to particularism in public procurement as long as more corrupt countries have bigger such trade gap (macro view) *and* corruption risks in the tendering process accompany missing procurement trade (micro view). Each of these identification strategies are unpacked briefly below.

Identifying particularistic public procurement from a macro perspective rests on three pre-suppositions: First, within the EU and EEA, total trade is not or only marginally susceptible for government manipulation due to strict EU single market regulations, effective oversight, and the predominantly business-to-business nature of contracting. Second, within the EU and the EEA public procurement trade is susceptible for government manipulation (i.e. by central govt., municipalities, State-owned enterprises, etc.) as the implementation and monitoring of the Public Procurement Directives are largely controlled by member states and they are also the main buyers. Third, some public procurement sectors are inherently more open to trade than others as typically goods are more easily transported to other countries than services or construction works. These three arguments together suggest that public procurement trade openness is determined by total trade openness and procurement spending structure under a corruption free scenario, in short public procurement trade is like any other trade if governments follow universalistic rules. By implication,

H_1 : Public procurement openness' deviation from total trade openness and public procurement spending structure is likely to be due to particularistic protectionism.

However, the deviation of public procurement openness from what total trade openness and public procurement spending structure predicts can not only be due to particularism, but also the associated higher administrative costs of contracting a foreign supplier such as obtaining translations, working across greater distances. Furthermore, governments as buyers may have such specific requirements which make it hard for foreign companies to successfully bid even in the absence of particularistic motivations. Hence, the natural counter-hypothesis is:



H₂: Public procurement openness' deviation from total trade openness and public procurement spending structure is likely to be due to administrative costs and product specificity.

Identifying particularistic public procurement from a micro perspective follows a similar logic to that of the macro approach while also complementing it by offering more precise theoretical backing for identifying product specificities and particularistic motivations. The macro view evoked the average relationship between procurement trade, total trade, and procurement spending structure; the micro view, instead, hypothesizes that at least one member state for each product market approximates the optimal openness, hence can serve as a benchmark. Then member state markets' deviations from this benchmark if also associated with micro-level corruption risks can be attributed to particularistic protectionism. Deviations are defined along the two cardinal dimensions: difference in the given market's openness from the benchmark and the difference in contract-level corruption risks compared to the benchmark for each product market (i.e. comparisons are made between member states on the level of product markets). These two dimensions allow for identifying 4 market-types⁵ (Table 1). Two types represent the two extremes of the most interest to us - universalistic procurement trade and particularistic protectionism:

1. Member state **markets open to procurement trade** are characterised by no to very little deviation from the benchmark both in terms of procurement trade openness and corruption risks. This is where procurement trade takes place as we would expect in a corruption-free world.
2. **Particularistic protectionism** is identified in member state markets where the deviation from the benchmark is high both in terms of procurement trade openness and corruption risks. These are the markets where not only a lot more trade could have taken place, but they are also ripe with signals of corruption which are typically used to restrict market access of non-connected firms.

The remaining two types represent mixed combinations of openness and corruption risks:

3. **Product specificity** characterises those member state markets where there is a high degree of missing procurement trade compared to the benchmark while micro-level corruption risks are low. In these member state markets, it is possible that predominantly country-specific products are purchased, hence the high degree of missing foreign suppliers compared to the benchmark. The lack of micro-level corruption risks suggest that it is not government manipulation of the procurement process which is causing the trade gap.
4. **Particularistic trade** characterises those member state markets where there is a low degree of missing procurement trade compared to the benchmark while micro-level corruption risks are widespread. These member state markets are close to being as open as the benchmark, but they are of considerably higher corruption risks which suggest that there are mixed dynamics going on in them: on the one hand foreign companies are granted access, on the other hand they are most likely accommodated to a high corruption risk environment.

⁵ Markets where no member state has any foreign suppliers are most likely closed to procurement trade by nature, hence they are excluded from the analysis.



TABLE 1. TYPOLOGY OF MARKETS ACCORDING TO OPENNESS TO TRADE AND CORRUPTION RISKS

		Corruption risk difference	
		Low	High
Market trade openness difference	Low	Open trade	Particularistic trade
	High	Product specificity	Particularistic protectionism

Countries generally characterised by universalistic rule implementation in public procurement are expected to refrain from particularistic protectionism according to the above market-level definition, while countries characterised by particularism generally are more likely to engage in particularistic protectionism. Hence, we can combine the above market-level theory with our general expectations of how governance regimes work, to hypothesize:

H₃: High corruption risk countries are more prone to spending on markets characterised by micro-level particularistic protectionism.

3. DATA AND METHODS, INCLUDING INDICATORS

3.1 Data and indicators

The analysis makes use of country-level statistical data as well as contract-level administrative data serving the macro and micro analyses. On the country-level, international trade as well as corruption-perceptions data are drawn from the World Bank Databank⁶. On the contract-level, public procurement data derives from public procurement announcements in 2009-2015 in the EU and EEA. Announcements appear in the so-called Tenders Electronic Daily (TED), which is the online version of the 'Supplement to the Official Journal of the EU', dedicated to European public procurement (DG GROWTH, 2015). The data represent a complete database of all public procurement procedures conducted under the EU Public Procurement Directive in the EU and EEA regardless of the funding source (e.g. national, EU funded). The database was released by the European Commission - DG GROWTH⁷ which also has conducted some data quality checks and enhancements. TED contains variables appearing in 1) calls for tenders, and 2) contract award notices. All the countries' public procurement legislation is within the framework of the EU Public Procurement Directives, hence the national datasets are therefore directly comparable (European Commission, 2014). The source TED database contains over 3 million contracts, while contracts below mandatory reporting thresholds⁸ were dropped. This database directly reflects the policy goal of opening up domestic public procurement markets as it intentionally contains all those tenders which are of interest for exporter companies. The database used in this analysis, including corruption risk indicators can be downloaded from <http://digiwhist.eu/resources/data/>.

⁶ <http://data.worldbank.org/>

⁷ Source data can be downloaded from: <https://open-data.europa.eu/en/data/dataset/ted-csv>

⁸ <http://www.ojec.com/threshholds.aspx>



Unfortunately, some data errors necessitate data corrections and careful use of some variables. The distribution of price data is suspect, with some outliers ranging from zero to values surpassing countries full GDP, which might potentially cause flaws in our results. We thus more typically use contract counts rather than value sums of tenders. If sums are used, these follow from prices Winsorised at 99.5th percentile, that is with prices effectively capped by value of 23.3 mil. EUR. Moreover, country identifiers were subject to corrections such as re-labelling French dependent territories Réunion and Martinique as parts of France.

Key indicators used in the analysis were the following:

- *Procurement openness* is calculated from procurement data for its part where country of both contracting authority and supplier is identified. For those, the openness is simply calculated as share of tenders with non-domestic suppliers on the total count of tenders.
- *Total trade openness* is calculated from World Bank macro-data taking the indicator „Imports of goods and services (% of GDP)“ directly.
- *Procurement spending structure* is measured using the TED database, by classifying main sectors⁹ into low, medium, and high openness procurement sectors according to their Europe-wide average procurement openness score. In order to get 3 groups with equal number of sectors, we applied two thresholds: 1.75% and 4.5%.
- *Corruption-perceptions* indicator is also drawn from World Bank data, where indicator „Control of Corruption: Estimate“ is directly used.
- *Contract-level corruption risks* are calculated using the TED database taking the so-called Corruption Risk Index (CRI) as the best proxy available at such a micro level (Fazekas & Kocsis, 2015). CRI directly reflects the techniques of potentially deliberate restrictions of competition such as single bid submitted on otherwise competitive markets and excessively short advertisement periods making it hard for bidders to prepare their bids unless they were informed informally ahead of the official publication.

3.2 Methodology

Two types of analyses have been carried out: country-level panel regressions and market-level hierarchical clustering. Each are introduced briefly without extensive discussion of the technical details.

In the country-panel analysis, the following regression equation was estimated (using fixed as well as random effects specifications):

$$\begin{aligned} \text{Procurement openness}_{i,t} \\ = \alpha_i + \beta_1 \text{Trade openness}_{i,t} + \beta_2 \text{Procurement spending structure}_{i,t} + \varepsilon_{i,t} \end{aligned}$$

The country and period-specific residual $\varepsilon_{i,t}$ represents the amount of procurement trade which is unexplained by total trade openness and procurement spending structure. In as much as it is correlated with corruption perceptions and objective corruption proxies it is identified as the estimate of particularistic protectionism.

⁹ Sectors are defined using 2-digit CPV categories, see: <http://simap.ted.europa.eu/en/web/simap/cpv>



For the market-level hierarchical cluster analysis, markets were identified by three categorical variables characterising each market: i) product market (3-digit CPV code¹⁰), ii) border region (NUTS-2 region¹¹ bordering with another member state or not); and iii) contract size (above or below product market average). This approach led to 1634 different markets, some of which are present (i.e. actually spending taking place) in all member states some are only in a handful of them. Most open member state markets were simply identified by selecting the member state with highest procurement openness in each of the 1634 markets. Hierarchical clustering¹² was carried out using two dimensions: member state market's deviation from the benchmark in terms of procurement openness and Corruption Risk Index. Member state markets identified as ridden with particularistic protectionism are then verified using country-level corruption indicators reflecting our expectation that more corrupt countries would spend more on particularistic protectionist markets.

While combining a macro and micro analysis with different benchmarks and different data sources provide a robust analytical framework for identifying particularistic protectionism, there are three sets of limitations to our approach. First, there is no guarantee that either the European average or the European best performer benchmarks truly approximate optimal procurement openness. It cannot be rejected that even the most open country is applying a degree of particularistic protectionism. In addition, governments typically procure final goods, while most of private-to-private trade takes place in raw and intermediary goods making the total trade openness benchmark potentially problematic. Second, some of the key variables are almost certainly prone to measurement error. Proxying corruption with contract-level red flags such as single bidding most likely underestimates corruption risks as many complex strategies of evading detection go undetected (which may be more widely used in well-governed countries with stronger oversight bodies). This would lead to over-estimating the prevalence of markets characterised by product specificity as 'true' corruption risks are underestimated. Moreover, procurement openness is defined as cross-border procurement contracts; however, many companies may find it beneficial to establish foreign subsidiaries for doing procurement trade given the ease of setting up companies across the EU and EEA. While this can certainly lead to an underestimation of procurement trade, the policy goal enshrined in the Public Procurement Directives is to increase cross-border procurement rather than encourage companies to establish foreign subsidiaries. Third, it is also conceivable that governments have truly unique requirements when they procure, making the comparison with private-to-private trade misleading. Taken together the biases could go upwards or downwards, leaving us with no clear conclusion other than the need for further work and the strong sense of caution when using the results presented in this paper.

¹⁰ For full description of the Common Procurement Vocabulary (CPV) nomenclature, see: <http://simap.ted.europa.eu/en/web/simap/cpv>

¹¹ For more information on the Nomenclature of Territorial Units for Statistics (NUTS), see: http://epp.eurostat.ec.europa.eu/portal/page/portal/nuts_nomenclature/introduction

¹² We used Stata 13.1 cluster algorithm with average linkage method and Euclidian distance measure.



4. RESULTS

4.1 Particularistic protectionism on the country-level

Following the macro-level theoretical expectations and the regression specification outlined above, 5 different fixed-effects panel regression models are reported in Table 2¹³. As expected, increasing the spending share on highly open procurement markets increases procurement openness: 1% higher spending results in 0.2% increase. The effect of trade openness on procurement openness is largely insignificant which is due to strong path-dependence of each country (i.e. low time-series variance of trade openness). Nevertheless, strongly correlated with trade openness, total log GDP is a significant predictor in line with expectations: increasing the size of the economy by 1% roughly decreases procurement openness by 5% according to model 5.

TABLE 2. FIXED-EFFECTS PANEL REGRESSIONS EXPLAINING PROCUREMENT OPENNESS, 2009-2014, EU+EEA

	(1) procurement openness	(2) procurement openness	(3) procurement openness	(4) procurement openness	(5) procurement openness
trade openness	-0.0101 (0.659)		-0.0217 (0.288)	0.000628 (0.979)	0.00131 (0.957)
spending share of med. open procurement mar- kets		0.0877** (0.002)	0.0663* (0.016)	0.0746** (0.007)	0.0743** (0.007)
spending share of highly open procurement mar- kets		0.179*** (0.000)	0.196*** (0.000)	0.207*** (0.000)	0.204*** (0.000)
log GDP (PPP, constant 2011 USD)					-0.0564 (0.090)
log GDP per capita (PPP, constant 2011 USD)				-0.0574 (0.064)	
N	173	176	173	173	173
N_g	30	30	30	30	30
r2_o	0.396	0.0734	0.00198	0.0320	0.410

p-values in parentheses: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In order to shed some light on whether H_1 or H_2 is supported by the data, i.e. the missing procurement trade is due to particularism or other phenomena such as administrative costs,

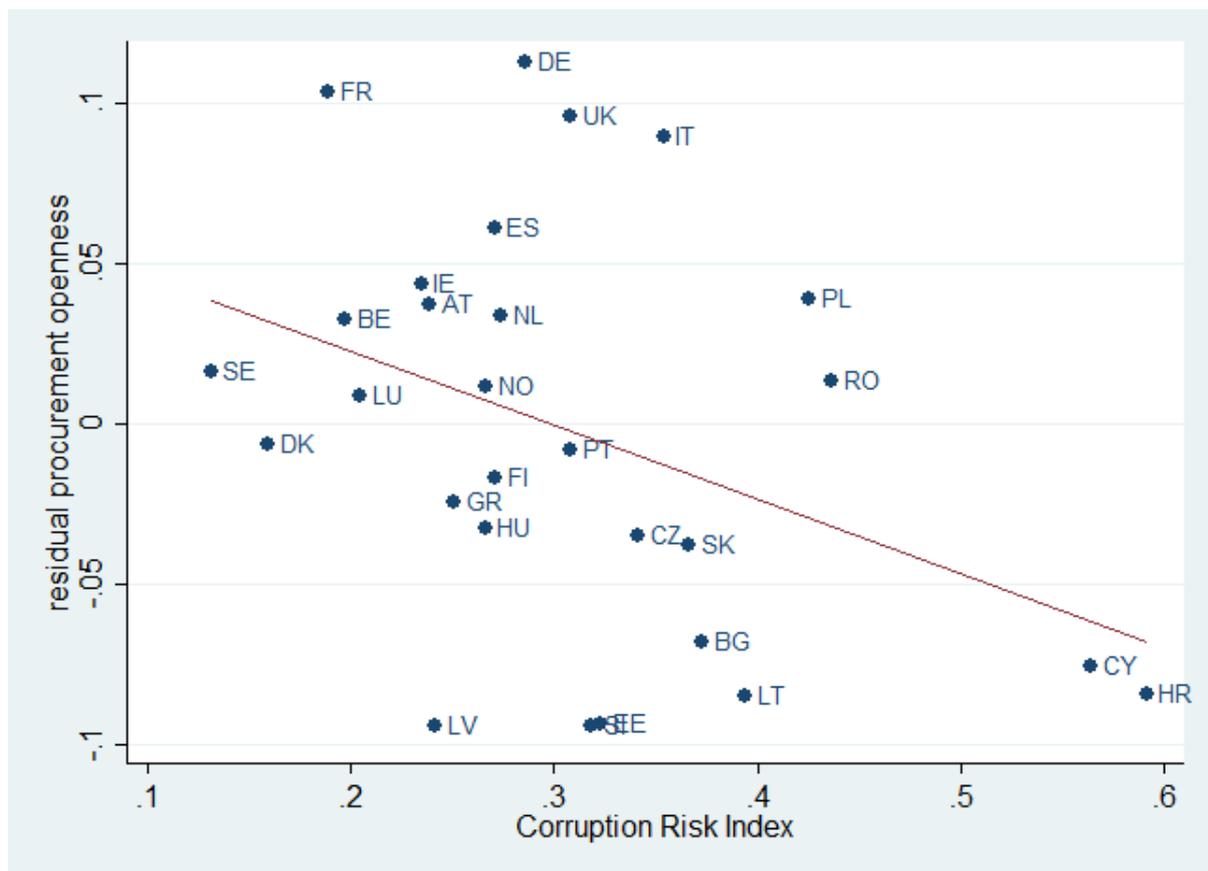
¹³ Hausman tests indicate that fixed effects regressions fit the data structure better than random-effects.



we correlated the residual from model 5 above with the country-level corruption indicators, the variant using the Corruption Risk Index is depicted in Figure 2. Partial support to our preferred interpretation in line with H_1 , all measures of corruption correlate with the residual to the magnitude of 0.39-0.44. Figure 2 already reveals interesting insights regarding the structure of suspected particularistic protectionism: on the one hand a number of surprising countries lie under the 0 horizontal line representing the EU+EEA average, most notably two well-governed countries: Denmark and Finland seem to be considerably less open than their structural characteristics, i.e. total trade openness, and procurement spending structure, would predict. On the other hand, some countries are far above the red regression line representing the average relationship between residual procurement openness and overall corruption in the country. For example, Poland and Romania, two high risk countries, appear to purport considerably more procurement trade than their corruption levels would suggest.

Even though we could gather some supportive evidence, the market-level analysis should corroborate the finding that there is considerable particularistic protectionism going on in Europe in spite of the extensive regulations and monitoring efforts against it.

FIGURE 2. COUNTRY-LEVEL RESIDUAL PROCUREMENT OPENNESS (HIGHER VALUES INDICATE ABOVE PREDICTION OPENNESS) AND CORRUPTION RISK INDEX (CRI), 2009-2014, EU+EEA





4.2 Particularistic protectionism on the market-level

In this section we turn to micro-level identification of particularistic protectionism by directly clustering member state markets as outlined in section 3.2 according to their deviation from the best performing benchmark in terms of market openness and corruption risks. The theoretical expectation of four clusters is supported by the data (for details of optimal cluster numbers see Appendix A). While the exact boundaries of clusters are ambiguous to some degree, the overall typology fits the data well.

Quite in line with the initial puzzle of large amount of missing procurement trade (Figure 1), the open trade cluster is small in size and represents the exception rather than the rule, whereas the particularistic protectionism cluster encompasses a substantial portion of all spending analysed: 17% (Table 3). The fact that the particularistic trade cluster captures the overwhelming majority of procurement spending across Europe suggests that trade is far from promoting integrity uniformly, rather it often has to accommodate to the receiving country's corruption environment.

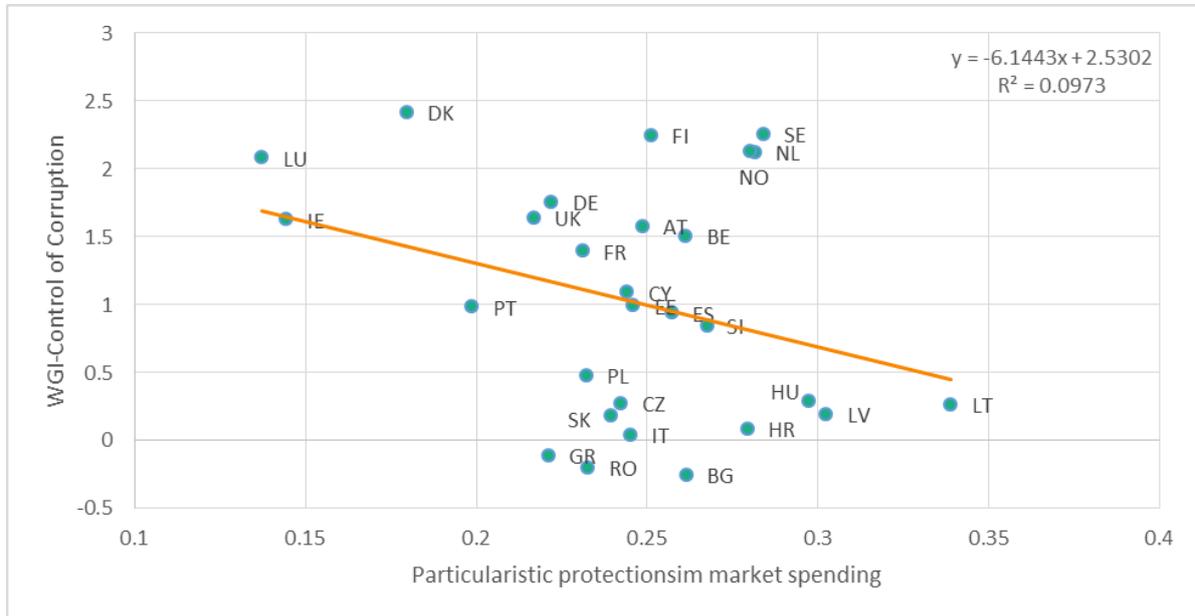
TABLE 3. KEY CHARACTERISTICS OF THE IDENTIFIED CLUSTERS

	Billion EUR total spend	Spend- ing share	N_{mar-} kets	Missing procure- ment trade	Corrup- tion risk (CRI) dif- ference
Particularistic trade	1,620.0	79%	5,530	-0.83	0.02
Particularistic protection- ism	350.0	17%	1,975	-0.05	-0.01
Product specificity	66.0	3%	652	0.89	-0.11
Open trade	4.7	0%	58	-0.40	-0.62
Total	2,040.0	100%	8,215	-0.50	0.00

In order to further verify the validity of these findings, the share of spending on markets characterised by particularistic protectionism is correlated with country-level corruption indicators expecting that more corrupt countries would spend more on such markets. The test is confirmatory with linear correlation coefficients of the magnitude 0.21-0.39 depending on the corruption measure used. Nevertheless, there are a number of surprising outliers, most notably, Denmark, Finland, Norway, the Netherlands, and Sweden (Figure 3). Removing these countries would make correlations jump to above 0.5 signalling a much stronger relationship. Comparing these results with the macro-analysis identifies a common set of outlier countries: Denmark and Finland on the more particularistic than expected and Romania and Poland on the less particularistic than expected end of the scale.



FIGURE 3. SPENDING ON MARKETS CHARACTERISED BY PARTICULARISTIC PROTECTIONISM AND WGI-CONTROL OF CORRUPTION SCORES, 2009-2014

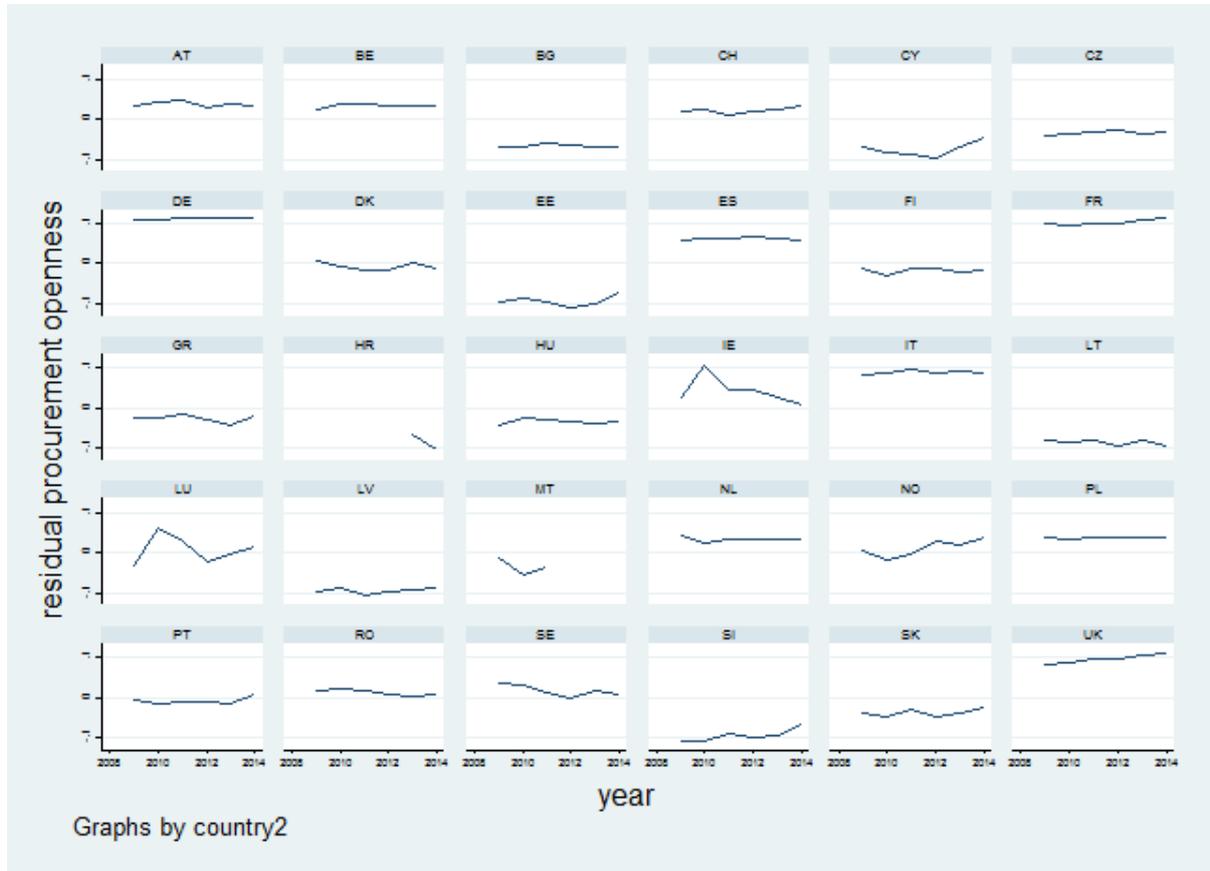


4.3 Patterns of particularistic protectionism

While the above results are only preliminary and need further investigation and testing, they warrant some exploratory analysis across countries and over time. First, taking the residual procurement openness, that is procurement trade not explained by total trade openness and procurement spending structure, reveals that while most countries have been consistent throughout 2009-2014, some changed their performance markedly. Some countries like Ireland or Sweden have managed to deteriorate their performance making them increasingly closed; while others went in the opposite direction improving their performance such as Norway or Slovenia (Figure 4).



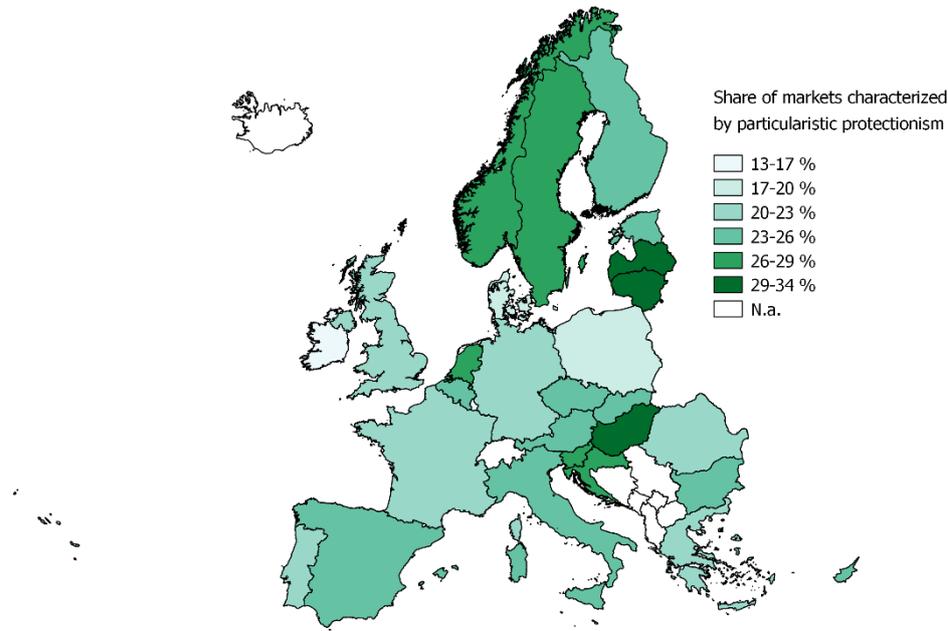
FIGURE 4. RESIDUAL PROCUREMENT OPENNESS OVER TIME IN EU AND EEA COUNTRIES, 2009-2014



Second, further reinforcing the earlier findings, well-governed Nordic countries most notably Norway, Sweden, and Finland as well as Denmark appear to use particularistic means to protect their markets much more than widely held corruption perceptions would suggest (Figure 5). Contrary to claims that it is due to the small markets these countries have, other similarly small countries such as Ireland or Portugal fare much better.



FIGURE 5. MAP OF EUROPE ACCORDING TO NATIONAL SHARE OF SPENDING ON MARKETS CHARACTERISED BY PARTICULARISTIC PROTECTIONISM



5. CONCLUSIONS AND POLICY CONSEQUENCES

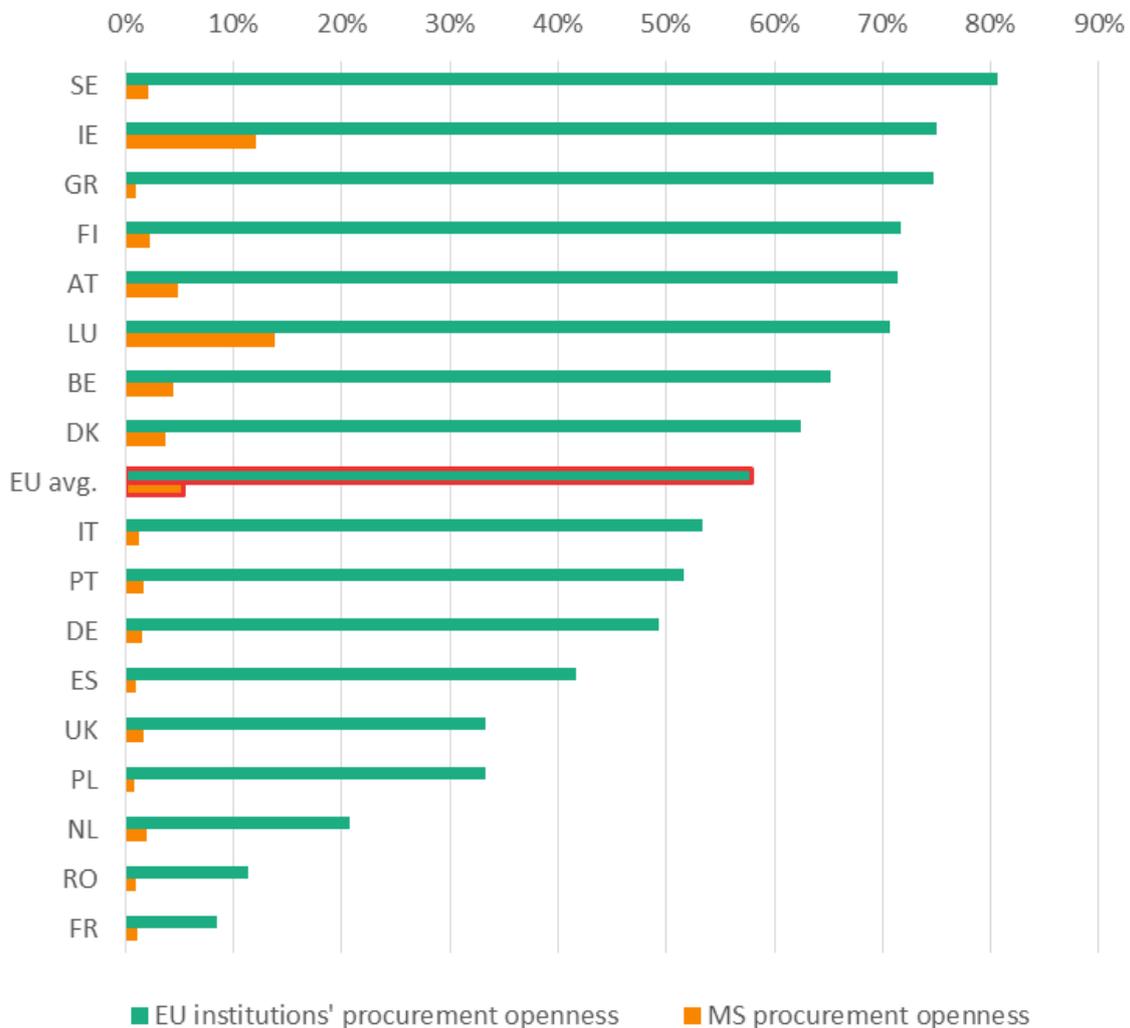
The analysis has established that there is a considerable amount of missing public procurement trade which could have taken place, but for various reasons didn't. Much of this gap can be attributed to public bodies using particularistic means to favour domestic firms both when looking at it from a country-level or a market-level perspective. Using contract-level data, we estimate that about 17% of public procurement spending is made on markets characterised by particularistic protectionism. While most countries resorting to particularistic means are among the least-well governed countries in Europe at least according to perception surveys, there are a number of surprising outliers: Denmark and Finland and to a lesser degree Norway and Sweden appear to close their domestic markets to foreign competition considerably more than their corruption levels would suggest. Conversely, Romania and Poland close their domestic markets much less than expected based on their corruption levels.

The benchmarks used so far are likely to underestimate the overall amount of particularistic protectionism as it is quite possible that even the most universalistic public sector would apply some degree of domestic preference maybe even linked to particularistic ties between public and private actors. However, EU institutions are not bound to any national economy to the same degree as domestic public institutions are, hence they may provide a pointer as to how much public procurement trade could take place in the absence of domestic preferences.



The comparison between member state procurement openness and EU institutions' procurement openness in the member states they reside in reveals a striking picture: EU institutions are about 10-times more open than their host countries with only moderate relationship between member state openness and EU institutions openness (linear correlation coefficient=0.47) (Figure 6). Interestingly, EU institutions in the Netherlands, Romania, and France are the only ones which are closer to their host nation's average counterparts rather than other EU institutions' mean. Nevertheless, the comparison with EU institutions suggests that increasing openness and fairness of international trade in government contracts is feasible potentially increasing intra-EU and EEA procurement trade up to 10-times.

FIGURE 6. PROCUREMENT OPENNESS OF MEMBER STATES AND THE EU INSTITUTIONS RESIDING THEM, MEMBER STATES WITH EU INSTITUTIONS AWARDING AT LEAST 50 CONTRACTS IN 2009-2014





5.1 Policy recommendations

This preliminary analysis has provided ample evidence that particularistic protectionism is substantial and persistent in high as well as low integrity countries of Europe. This seems to be true in spite of extensive regulations supporting open and fair trade pointing at the bending of universalistic rules at the implementation stage, that is when administering tenders. Hence, policy reform should tackle particularism more effectively within the existing institutional framework:

- Monitor the implementation of the Public Procurement Directives on the tender-level rather than focusing on the proofing of regulations and the institutional setup. Big Data analytical tools offer real-time intelligence on the risk of corruption and anticompetitive behaviour which can be made part of everyday policy making¹⁴.
- Improve member states' remedies systems and give greater powers to the Court of Justice of the European Union as it has been effective in striking down anti-competitive practices by member state authorities (Fazekas & Gamir, 2015).

¹⁴ For an overview of available tools see: <http://digiwhist.eu/resources/research-and-policy-papers/>



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APPENDIX A – IDENTIFYING THE OPTIMAL CLUSTERS

TABLE 4. CALINSKI/HARABASZ PSEUDO-F MEASURE OF OPTIMAL CLUSTER NUMBERS

Number of clusters	Calinski/Harabasz pseudo-F
2	6878.03
3	12726.8
4	8798.04
5	7378.79
6	6137.32
7	5237.16
8	5471.67
9	4936.79
10	4396.97
11	5199.94
12	5257.52
13	5014.21
14	4629.75
15	4309.09

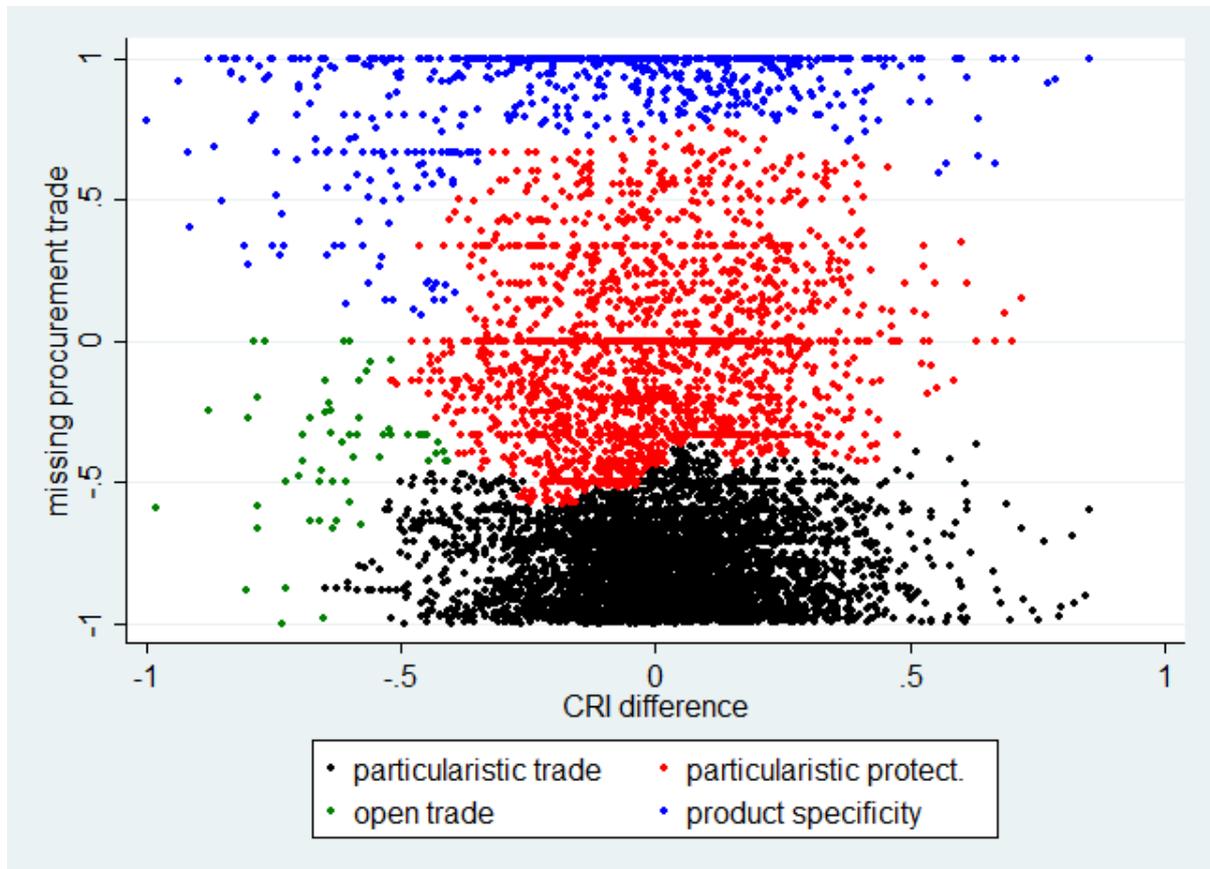
TABLE 5. DUDA/HART MEASURES OF OPTIMAL CLUSTER NUMBERS

Number of clusters	Duda/Hart	
	Je(2)/Je(1)	pseudo T-squared
1	0.5442	6878.03
2	0.4066	11033.35
3	0.951	304.37
4	0.4847	690.97
5	0.9489	316.74



6	0.4077	241.14
7	0.5617	1284.52
8	0.6256	288.45
9	0.527	29.62
10	0.7075	2408.06
11	0.5529	912.11
12	0.6542	272.73
13	0.8725	4.24
14	0.6004	25.29
15	0.4148	177.73

FIGURE 7. DISTRIBUTION OF MARKETS ACCORDING TO CLUSTER FORMING DIMENSIONS AND CLUSTER MEMBERSHIP, MARKETS WITH MORE THAN 5 CONTRACTS AWARDED IN 2009-2014



Note: missing openness is rescaled to [-1;+1] interval in order to make it fully commensurate with CRI differences.