STG Resilience Papers

Improving Health Resilience Through Better Procurement of Medical Supplies: Lessons from the Covid-19 Pandemic

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Summary

- Bias for procuring domestically ("home bias") stands in the way of an integrated Single Market in procurement and can negatively affect efficiency of the procurement of medical supplies.
- The first infection wave of the Covid-19 pandemic in early 2020 coincided with an unprecedented surge in cross-border procurement.
- Comparison of regions with different infection rates shows that crisis emergency, measured by infection rates, spurred more cross-border procurement.
- Suspending rules that limit buyer discretion for Covid-19 related tenders caused more cross-border procurement as shown by a comparison with a control group of similar products that were not affected by the suspension of rules.
- Most cross-border awards were direct awards to firms rather than competitive tenders, indicating that home bias is not driven by ignorance of buyers about foreign firms.

1. Introduction

Procurement by the public sector accounts for a large part of the European economy, at 15-20 % of GDP. Economists have long warned of misallocation, especially through favouritism of public buyers towards firms from their own countries. Favouritism can emerge because buyers care not only about the purchase itself, but also about secondary goals, such as boosting local jobs or pursuing political goals, sometimes openly. The resulting home-country bias (or just "home bias") is not only an impediment to the EU policy goal of completing the Single Market. Home bias also prevents European companies from winning contracts across the continent to achieve greater scale. Therefore, tackling home bias will allow the European public to obtain better products at a lower cost.

[1] *This report is an update of an earlier version from May 2021 that was based on preliminary findings.*

Procurement of medical supplies, such as personal protective equipment, disinfectants, or reagents, during the Covid-19 pandemic is now under scrutiny. Public buyers lent their procurement competence to the health sector or took the lead in procuring urgently needed medical supplies. However, the success and efficiency of these measures is questionable. For example, in Germany, Austria and Switzerland, problems ranged from low-quality products, over failures to organize distribution and payment of deliveries, to even major irregularities in contract awards due to political influence-taking.

This policy paper draws on an empirical analysis of procurement of medical supplies that identifies the effect of emergency and buyer discretion on home bias. Beyond the context of the current pandemic, the purpose of this analysis is to uncover general mechanisms that drive misallocation in procurement. If policymakers address these mechanisms, they can improve European health resilience by reducing misallocation of procurement contracts for the European medical industry.

We present some established facts about misallocation in procurement, analyse our new and original data on procurement of medical supplies in the Covid-19 crisis, and provide descriptive evidence and regression analyses to identify the effects of emergency and buyer discretion on home bias. Our main finding is that buyer discretion was an important contributor to a temporary surge in cross-border procurement in early 2020, mitigating home bias. The effects go in the same direction as pressure from rising infection rates. This contrasts with the critical view of buyer discretion in the previous literature.

2. Purpose and background

The purpose of this policy paper is to identify mechanisms that are effective at reducing home bias and improving procurement of medical supplies in Europe. As the initial wave of infections hit, buyers across Europe directly awarded many contracts across borders, suggesting that home bias is not nearly as persistent as the long history of the research discussion suggests. However, buyer discretion is an aspect with a potentially large influence on purchasing decisions. We leverage a policy change as a natural experiment to draw conclusions for policies that can improve future procurement of medical supplies.

This policy paper presents preliminary results of ongoing research into home bias as a form of misallocation in procurement. Misallocation takes many forms, including outright corruption, but it can refer to any inefficient allocation of economic resources, for example due to state failure or market failure. Laffont and Tirole (1991) already noticed misallocation as an alarming problem for European procurement, prompting policy makers to look for ways of fostering fairer competition between domestic and foreign suppliers. Laffont and Tirole suggest examining the share of domestically awarded contracts as a simple screen for the extent of misallocation. Little changed in 30 years and home bias continues to persist in recent studies.

Economists have described how the incentives of the bureaucrats and agencies tasked with procurement may diverge from the public interest and may result in bad purchasing outcomes, inefficient auction design, or both. Empirical researchers have made use of increasing transparency in procurement to support theoretical economists with empirical evidence. Coviello et al. (2017) and Baltrunaite et al. (2020) study the impact of buyer discretion in Italy. The former find positive effects of buyer discretion on allocations in earlier data, while the latter find negative effects using more recent data. Carboni et al. (2018) present evidence for discrimination of foreign firms in procurement due to overt and hidden barriers to trade. Similar to our study, Kutlina-Dimitrova and Lakatos (2016) use data for contract awards in Europe and argue that strong product market regulation may act as a hidden anticompetitive barrier.

Legal scholars Lalliot and Yukins (2020) and Sanchez-Graells (2020) describe how the unique market circumstances in the context of the Covid-19 pandemic impacted procurement. Regulators yielded former red lines, such as no advance payment, and experimented with new policies such as joint procurement and stockpiling. These scholars caution that emergency measures must not be abused to pursue unrelated policy goals (such as expanding public spending), and that a return to normal can happen while learning from the crisis. Our paper seeks to draw some of the necessary lessons to move forward.

3. Presentation of the evidence

We begin by describing our data, then describe some aggregate facts, and finally discuss the results of two difference-in-differences analyses that distinguish the effects of buyer discretion and emergency.

We create a novel data set of contract awards for medical supplies from "TED Tenders electronic daily - Supplement to the Official Journal of the European Union" combined with data on regional Covid-19 infection rates from the European Centre for Disease Prevention and Control (ECDC). We investigate contract awards published between 2018 and 2020, studying awards (of contracts and contract lots) to firms, observing their value, the locations of the buyer and the seller, and other features. Our outcome of interest is whether a contract award was domestic (i.e., buyer and seller are located in the same country) or not. We consider circa 320,000 purchases from more than 16,300 successful tenders.

3.1. Descriptive evidence

At the start of the pandemic, we observe a sudden and dramatic increase in cross-border awards. Figure 1 describes the average monthly share of domestic procurement. The overall level of domestic

procurement before the pandemic[2] is consistent with findings of earlier authors about overall procurement in Europe. Before the pandemic, buyers awarded over 90 % of total contract value (or "volume") domestically. Over 99 % of all contracts are awarded domestically, which immediately implies that cross-border awards tend to be larger, on average. In a sudden reversal, the volume of domestic procurement dips in April 2020 and stays low until June 2020. Country-by-country analyses show that this is not an outlier: purchases in different European countries contribute to this dip. Home bias seems to have diminished promptly.

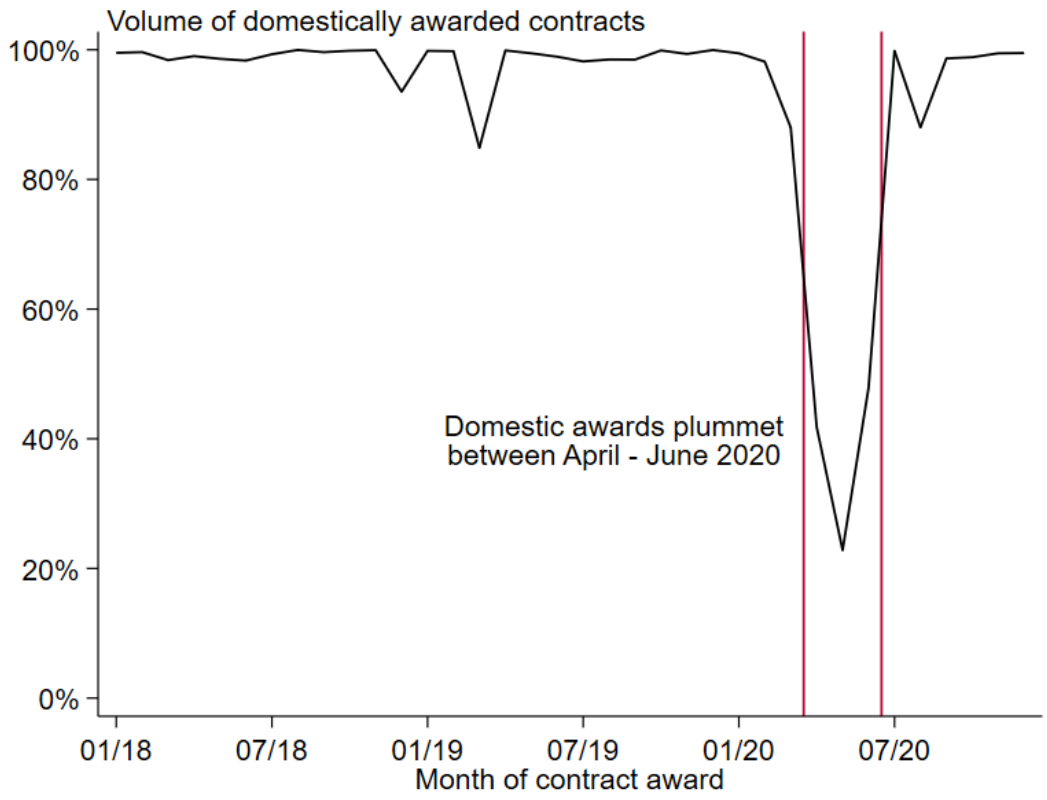

Figure 1 Volume of domestic contract awards

At the start of the pandemic, competition for contract awards was uniquely low. Figure 2 describes the share of the total value that buyers awarded "competitively" in each month. We define competitive contract awards as having several bidders and not being "Contract awards without prior publication" or "Negotiated without a prior call for competition". Buyers awarded over 90% of contract volume non-competitively in April and May 2020. Direct awards to foreign sellers represent 56.5% and 77.1% of the total observed contract volume in these two months. While the presence of many bidders does not guarantee a competitive auction, it is noteworthy that buyers placed many contracts directly

[2] The WHO declared the novel Coronavirus outbreak a public health emergency of international concern (PHEIC), WHO's highest level of alarm, on January 30, 2020.

with foreign sellers. This shows that home bias in normal times does not arise from a lack of awareness of foreign sellers.

3.2. Regression analysis

Deregulation that increased buyer discretion is, apart from rising infection rates, the major difference between the situation before and after April 2020. On April 1st, 2020, the European Commission published the "Guidance from the European Commission on using the public procurement framework in the emergency situation related to the COVID-19 crisis" (2020/C 108 I/01) which states, among other things, that

> "[F]or a situation such as the current COVID-19 crisis which presents an extreme and unforeseeable urgency, the EU directives do not contain procedural constraints […] [P]ublic buyers may negotiate directly with potential contractor(s) and **there are no publication requirements, no time limits, no minimum number of candidates to be consulted, or other procedural requirements.** […] [**A**]**uthorities can act as quickly as is technically/physically feasible** – and **the procedure may constitute a de facto direct award** only subject to physical/technical constraints […]" (emphasis added.)

From April onwards, buyers found themselves in a regulatory regime that set almost no limits to their discretion to award contracts at will, increasing flexibility, but also the possibility for misallocation. This setting provides a natural experiment that affects all buyers and therefore allows us to study the impact of buyer discretion on purchasing decisions. Did buyers award more contracts abroad because of deregulation? Or were buyers pushed by the spread of the virus to make better decisions, which happened to result in more cross-border awards?

Statistical analysis can answer these questions in a way that graphs of aggregate data cannot. We use difference-in-difference analyses, which compare changes in outcomes (here: the share of cross-border procurement) between two comparable groups. Only one group is exposed to the treatment. Under the assumption that the groups would have developed similar absent the treatment, a difference-in-difference analysis allows the researcher to identify the causal effect of the treatment. We conduct two analyses that study different treatments and use different control groups, correspondingly.

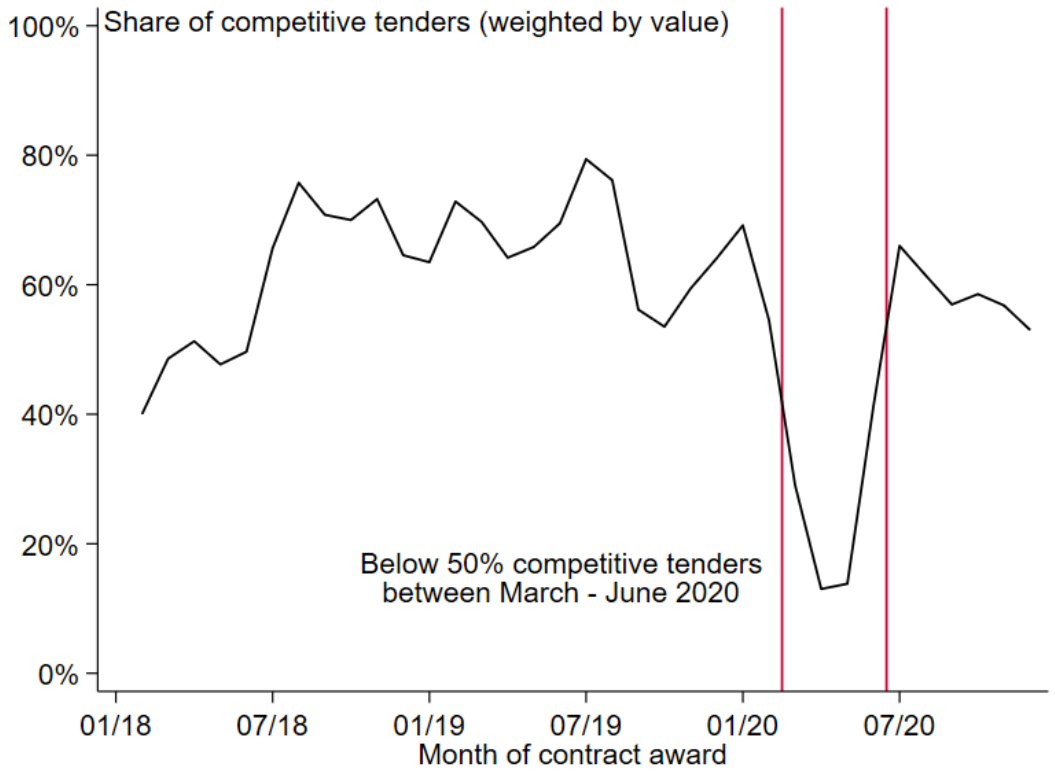

Figure 2 Share of competitive tenders (moving average)

Our first analysis investigates the impact of differential infection rates in different European regions. The infection rate is interpreted as a measure of treatment intensity: the higher the infection rate, the greater the emergency effect. We hypothesize that an increase in this emergency effect should spur more cross-border procurement. Indeed, we find that an increase in infection rates by one standard deviation leads to an increase in the share of cross-border procurement by more than 19 percentage points (over a baseline of merely 1.5 percent). Our control group are other European regions that simultaneously experience lower or no infections. We control for important related factors, such as infection rates at the seller location or country-specific effects. Other possible confounding factors might be spill-overs between neighbouring regions, which we control for and exclude as a possible explanation for our findings.

The likelihood of domestic awards decreases when the infection rate increases. Thus, as the infection rates rise, home bias declines. This effect is economically large and statistically significant. We interpret this as an emergency effect: Secondary goals of procurement, such as promoting local jobs, take a backseat in an emergency, leading to more cross-border contract awards. It seems that this emergency effect motivated cross-border procurement only temporarily. However, the effect was strong and sudden enough to result in an unprecedented amount of cross-border country awards.

Surprisingly, the likelihood of domestic awards decreases drastically also in response to deregulation of buyer discretion. To analyse the effect of the deregulation action cited above, we construct a control group of similar goods based on the Common Procurement Vocabulary. We compare demand trends pre- and post-pandemic: among the control group of goods for which the normal restrictions on buyer discretion continue to apply, we observe a demand increase during the pandemic relative to the pre-pandemic period. Goods in the control and treatment group are therefore comparable both in supply and demand conditions.

Figure 3 shows then that the share of domestic awards plummets only in the group experiencing deregulation. We estimate a 35-percentage point higher share of cross-border procurement in response to the deregulation. The effect is, however, only temporary and after about 3 months, are back to pre-pandemic levels, even though the deregulation act persisted at least until the end of 2020.

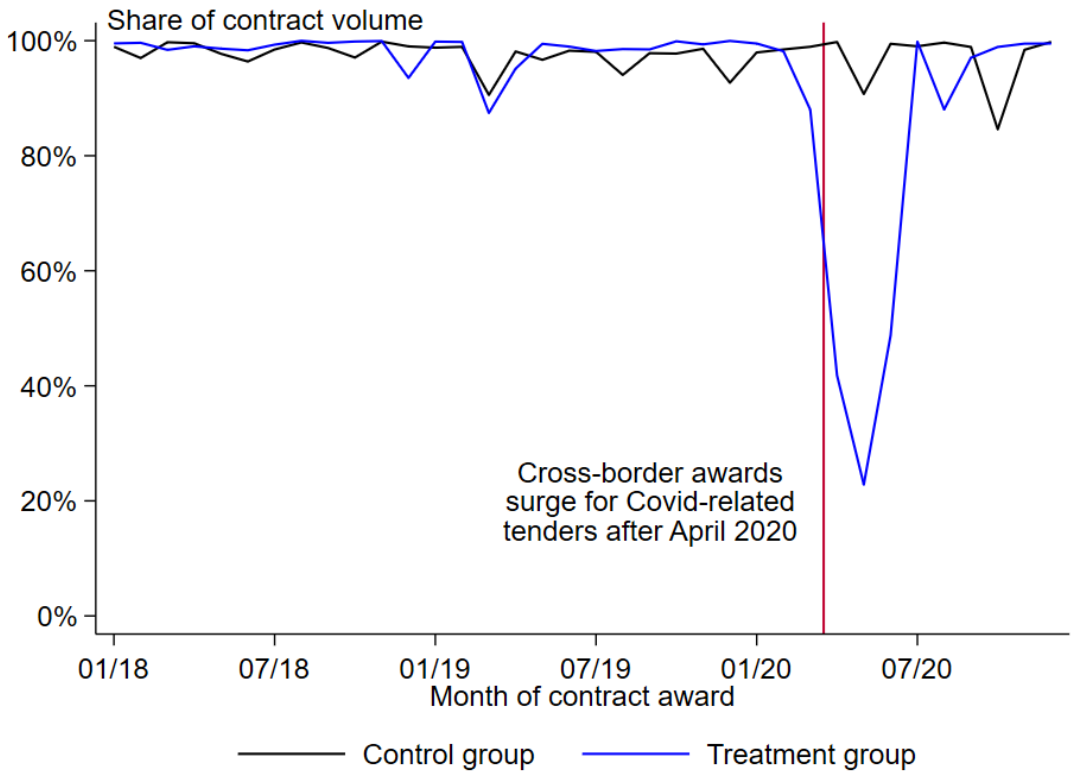

Figure 3 The share of domestic awards for medical goods affected by deregulation (treatment group) and a control group of similar goods

Our findings are robust to alternative measures of emergency, such as the national death rate and infection rates of other regions of the same country, mitigating concerns of reverse causality. We also conduct a leave-one-out analysis at a country level that finds still-sizeable lower bounds on the effect sizes.

4. Conclusions and recommendations

We draw two main conclusions from our data. First, in emergencies buyers can rapidly adjust their purchasing behaviour. Despite decades of economic policy wrangling with the low share of cross-border procurement, we see a sudden surge at the onset of the Covid-19 pandemic. Both the local extent of emergency, measured through infection rates, and increased buyer discretion, contribute to this surge. In the full paper, we rationalize our finding through a game-theoretical model in which the extent of misallocation is determined by the costs of monitoring buyers and the extent of their informational advantage. While the former might decrease due to heightened media attention, the latter increased as procuring well for medical supplies is of heightened interest during a medical emergency.

Second, in normal times as well as during emergencies, buyer incentives and regulatory constraints are important. The prevalence of direct awards and non-competitive tenders in Spring 2020 suggests that buyers and sellers are aware of each other. Search frictions, such as mutual unawareness of buyers and sellers, are then likely not an important cause of the low volume of cross-border contracts absent the pandemic. To the contrary, buyers seem capable of selecting foreign sellers if they wish to do so. This suggests that simply making it easier for sellers to enter their bids into foreign procurement tenders, for example by reducing language barriers, is likely not the most effective remedy against home bias. This does not mean that existing regulation in this direction, such as Europe-wide publication requirements for large tenders, are not helpful for market integration. For example, they might have built up existing mutual awareness of buyers and sellers that enabled cross-country procurement in the pandemic. An interesting question for follow-up research would then be a network analysis of buyer-seller decisions following the pandemic to study the long-term effects on the buyer-seller relationships in Europe. The results also do not suggest that lifting the regulations was wrong in 2020, in spite of the transitory nature of the effect. The net effect of the Covid-19 pandemic and resulting policies was an increase in cross-border purchases during the first peak of the emergency.

The question is which takeaways we can draw for procurement in general. Future policy may build upon the encouraging findings of the international response to the pandemic and foster international supply relationships to diminish home bias consistently. European legislators might standardize the review process for tenders across Europe to make it easier, cheaper, and faster for companies to appeal tender decisions without overburdening the review system. When market forces decide winners, the most efficient companies will reshape the European medical industry, and its production and distribution network, leaving European countries well prepared for the next medical emergency.

Market integration is a major EU policy goal because it allows the most efficient companies to prevail and grow to a much larger scale than companies in 27 fragmented markets could. In many cases, we expect lower prices, higher quality, and more innovation as a result of competition. When it comes to medical supplies, the Covid-19 pandemic shows that the stakes may be even higher than that. Reducing home bias to improve market integration for medical supplies can help to improve European health resilience.

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