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# Exploring the role of trade facilitation in supporting integrity in trade

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## OECD TRADE POLICY PAPER

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## EXPLORING THE ROLE OF TRADE FACILITATION IN SUPPORTING INTEGRITY IN TRADE

Evdokia Moïsé and Silvia Sorescu

Corruption at the border distorts resource allocation, undermines the level playing field for businesses, hampers the attractiveness of affected markets, and may result in significant revenue losses for developing countries. Trade facilitation policies could potentially reduce the incentives and the opportunities for corruption. This paper explores potential determinants of border-related corruption and trade facilitation policies most likely to address it. Countries with higher integrity at the border are found to also have more efficient border processes. Measures that appear to particularly support integrity at the border include transparency and predictability, streamlining of formalities – through simplification of documents, more automation of processes at different levels of complexity, or improved procedures along the border transaction chain – and coordinated border management.

**Keywords:** Customs, corruption, integrity, trade facilitation, transparency, simplification

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## Key messages

### What is the issue and why is it important?

- Corruption at the border distorts resource allocation and undermines the level playing field for businesses, hampers the attractiveness of affected markets, and may provide incentives to trade informally. Revenue losses due to corruption at the border can also be significant and developing countries seem to suffer the biggest losses in relative terms.
- Lack of border integrity is recognized as a challenge by both the public and private sectors.
- Trade facilitation policies could potentially reduce the incentives and the opportunities for corruption. Existing literature looks at corruption either as sand in the wheels or as greasing the wheels of trade, given a set of institutions and policies. Whether better trade facilitation environments are correlated with integrity is an empirical question.

### Identifying the links

- Exploration of the problem of corruption in border processes, and of the policies to address it, has been significantly hampered by data availability issues, relating both to the measurement of border-related corruption and its potential determinants.
- Countries with higher integrity at the border are found to also have more efficient border processes, while controlling for other factors such as level of development, tariff policy or broader good governance characteristics. Causality remains nevertheless difficult to establish due to data challenges and limitations.
- Specific trade facilitation policies also matter for supporting integrity at the border. Measures focusing on transparency and predictability, streamlining of formalities – through simplification of documents, more automation of processes at different levels of complexity, or improved procedures along the border transaction chain – and co-ordinated border management all present positive correlations with proxy measures of integrity at the border.

### Potential implications

- More comprehensive trade facilitation elements ought to be considered in the design and implementation of anti-corruption strategies aiming to support integrity at the border.
- The positive association between border agency co-operation and integrity underscores the importance of devising an approach that is inclusive of all agencies involved in the border process and not one solely targeted to Customs officials.

## *Executive summary*

In addition to direct and indirect trade transaction costs, traders, customs as well as other border agencies can also be faced with so-called “hidden costs”, often linked to issues of corruption, bribery, smuggling and insecurity at the border. However, exploration of the problem of corruption in border processes and of the policies to address it has been significantly hampered by data availability issues.

Private sector surveys have regularly signalled lack of integrity at the border as one of the key obstacles they encounter both when exporting and importing. At the same time, lack of integrity has also been acknowledged by Customs authorities and other border agencies as a critical challenge not only at the border but for the whole economy due to the risks of revenue leakage, the resulting disincentives to trade and foreign investment, and even the decline in public confidence in government institutions.

Existing literature linking international trade and corruption points to corruption at the border affecting international trade flows through two different lenses. The “sand in the wheels” lens highlights the detrimental effect of corruption on international trade and business opportunities: corruption may act as a barrier to trade by increasing transaction costs and inefficiencies in the trading system, an impact that is often similar to the establishment of a tariff. The “greasing the wheels” lens focuses on the bribes paid to “facilitate” trade in environments with high barriers or extreme bureaucracy.

The qualitative framework developed in the first part of the study highlights that under both the “sand in the wheels” and the “greasing the wheels” lenses, specific trade facilitation policies can be a powerful tool to support integrity, reducing both the incentives and the opportunities for corruption. On the one hand, an expedited border process, supported by efficient and effective border controls, clearly offers fewer incentives for firms to propose “speed money”, thanks to the shorter delays at the border and decreased handling and processing costs for traders. Considered in the context of the framework provided by the OECD Trade Facilitation Indicators (TFIs), this would concern in particular the simplification and harmonisation of documentary requirements; the simplification and rationalisation of border procedures, including the establishment of standard processing times and the availability of single submission points for all required documentation; the streamlining of fees and charges imposed on imports and exports; the use of automated systems; the co-operation and coordination between the various agencies present at the border; and advance rulings mechanisms.

On the other hand, trade facilitation provides a formidable toolkit for removing the opportunities for rent-seeking and corrupt behaviour. This first concerns the areas of transparency and predictability: clear rules and applicable fees and charges; a systematic, transparent and inclusive dialogue with the private sector; the availability of accessible, efficient and non-discriminatory appeal procedures, or advance rulings mechanisms to reduce the possibility of arbitrary interpretations and related requests for bribes. The simplification of trade documents and border procedures, in particular for vulnerable products, such as perishables, that could provide leverage for extortion, further reduce the possibilities for rent-seeking. Finally, the use of automated systems not only removes discretion from officials, but also minimises the physical opportunities for corrupt behaviour. In particular, the use of electronic declaration and payment procedures to abolish cash payments reduces direct encounters between Customs officials and traders during the clearance process.

Against this background, the analysis explores available data on border-related corruption as well as on its potential determinants. It thus looks at a set of factors identified through the existing literature in conjunction with the trade facilitation environment, as measured through the OECD TFIs.

The empirical exercise first shows that the overall efficiency of the border process matters. Using two proxies for the magnitude of corruption at the border – based on perception data for the World Economic Forum (WEF) Global Competitiveness Report (GCR) and firm-level data from the WEF GCR – the analysis reveals that higher integrity at the border is associated with more efficient border processes. The analysis also controls for other factors such as structural aspects (i.e. level of development), other trade policy aspects (i.e. tariffs) or broader good governance. While causality remains difficult to fully establish due to the limited number of cross-country and time observations, a better trade facilitation performance appears to be associated with a decrease in the opportunities for requesting bribes for trade-related processes.

Moreover, specific trade facilitation policies also matter for supporting integrity at the border. Measures focusing on transparency and predictability, streamlining of formalities – through simplification of documents, more automation of processes at different levels of complexity, or improved procedures along the border transaction chain – and co-ordinated border management all present robust correlations with the selected measures of corruption.

Through this empirical exercise, the study also identifies a series of key challenges and limitations relating to the quantitative assessment of policies able to support integrity at the border. First, limitations relating to the measures of corruption used mean that it is not possible to distinguish between corruption incentives versus opportunities and only licit trade transactions (but not illicit trade) are covered. Second, it is challenging to control for all relevant factors in the regression analysis. Aspects such as human resource management have been identified across case studies as an important factor linked to integrity in the border process, but here again the lack of cross-country and time data series stand in the way of properly including this in the analysis. Enhanced efforts at collecting data and compiling indicators in this area would be a welcome and useful complement to the existing information on the efficiency of the border process.

Lastly, the empirical exercise also underscores that the complexity of corruption at the border requires policy coherence in efforts to reduce it. A number of the key factors highlighted by the World Customs Organization (WCO) Revised Arusha Declaration and the G20 High Level Principles on Countering Corruption in Customs as effectively preventing and combating corruption in customs already correspond to basic tenets of worldwide trade facilitation endeavours and of the World Trade Organization (WTO) Trade Facilitation Agreement. Such links could be reinforced and additional trade facilitation elements could be considered in the design and implementation of anti-corruption strategies aiming to support integrity at the border. In addition, the significant correlation between border agency co-operation and integrity emphasises the importance of devising an approach that is inclusive of all agencies involved in the border process and not one solely targeted to Customs officials.



## 1. Introduction

The OECD Trade Committee has investigated trade cost factors in a large number of areas along the international trade chain, identifying their determinants, measuring and analysing their impact, and providing policy insights. A distinction is usually made between direct trade transaction costs (TTCs), indirect TTCs and ‘hidden’ TTCs. In addition to direct and indirect TTCs,<sup>1</sup> traders, customs and other border agencies are also often faced with ‘hidden’ costs, often linked to issues of corruption, bribery, smuggling and insecurity at the border (Moisé and Le Bris, 2013; OECD, 2017a). In spite of its potential economy-wide impacts, exploration of the problem of corruption in border processes and of the policies to address it has nevertheless been significantly hampered by data availability issues.

### 1.1. Why does this matter?

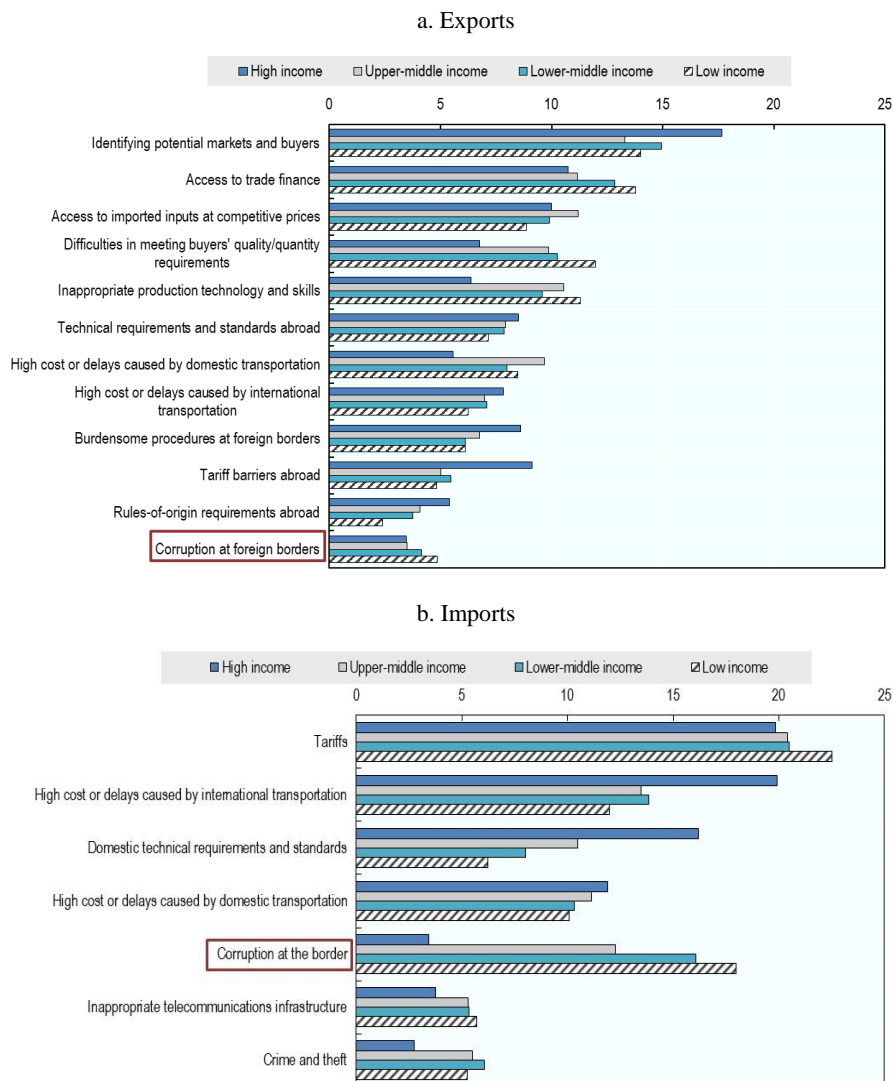
Corruption at the border distorts resource allocation and undermines the level playing field for businesses, hampers the attractiveness of affected markets and may provide incentives to trade informally (OECD, 2017a). Revenue losses due to corruption at the border can also be significant (Michael, 2012) reports an estimate of USD 2 billion lost trade taxes annually worldwide) and developing countries seem to endure the biggest losses in relative terms.

Recent surveys show that the private sector considers lack of integrity at the border to be one of the key obstacles they encounter both when exporting and importing, particularly to and from low and lower middle income countries (Figure 1) (OECD/WTO, 2015).

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<sup>1</sup> Direct TTCs refer to expenses entailed in completing border and customs procedures; indirect TTCs are the procedural delays, inventory and opportunity costs induced by lengthy and cumbersome trade procedures at the border.

**Figure 1. Business perspective: The most problematic factors for trade, by income group (2014)**



*Note:* Aggregate scores correspond to the average scores of each factor across all economies belonging to the income group. Respondents select from a list of 19 factors the five most problematic ones for their economy; the lists consists of 12 factors for exporting and 7 for importing. They choose five factors from the list and rank them from 1 (the most problematic) to 5 (the least problematic). A score was assigned for each answer based on the rank, from five points for the first-ranked factor to one point for the fifth-ranked factor. A weighted score was computed by summing the points of each factor and dividing the sum by the total points of all factors. Classification adapted from the World Bank's income-group classification (situation as of July 2014). Number of economies by income group: high (50), upper-middle (37), lower-middle (35) and low (21). Factors sorted in descending order according to global average.

*Source:* OECD/WTO (2015) based on the World Economic Forum 2014 Executive Opinion Survey.

## 1.2. The connection to trade facilitation policies

Lack of integrity is considered to be a critical challenge not only at the border, but for the whole economy, because of the risks of revenue leakage, increased costs of trade and resulting disincentives to foreign investment and economic growth, and reduction in public confidence in government institutions (WCO, 2008). This acknowledgement led in 1993 to the adoption of the World Customs Organization (WCO) Arusha Declaration on Integrity in Customs, subsequently revised in 2003<sup>2</sup>. The issue of integrity in trade and customs also attracted the attention of the G20 Anti-Corruption Working Group (ACWG), leading in 2017 to the elaboration of an “OECD Compendium on G20 Members Practices on Integrity in Customs” (OECD, 2017b) and the adoption of the G20 High Level Principles on Countering Corruption in Customs.

The WCO Integrity Development Guide outlines the factors that make Customs<sup>3</sup> “particularly susceptible to corruption”, including

- *Monopoly power* over clients
- *Discretion* in the treatment of goods and services crossing the border
- The low level of *supervision* and *accountability*
- The *time sensitivity* of border processes
- The *volume and complexity* of applicable regulatory frameworks

The key elements identified by the WCO Revised Arusha Declaration and the G20 High Level Principles on Countering Corruption in Customs for effectively preventing and combating corruption in customs generally aim to address the above factors. A number of these elements correspond to basic tenets of worldwide trade facilitation endeavours and of the WTO Trade Facilitation Agreement, and point to a mutually supportive relationship between integrity and trade facilitation, including:<sup>4</sup>

- *Transparency* – customs procedures applied in a predictable, consistent and transparent manner, taking into account international standards and good practices; and accessible appeal and administrative review mechanisms;
- *Automation* – electronic systems accessible to customs users, configured in such a way as to increase efficiency, remove opportunities for corruption and increase the level of accountability;
- *Reform and modernisation* – periodic reviews of customs systems and procedures, aiming to streamline outdated and burdensome practices and procedures;
- *Relationship with the private sector* – open, transparent and productive relationships between customs administrations and the private sector;

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<sup>2</sup> The Arusha Declaration aims at enhancing the efficiency of WCO member states’ administrations in the elimination of risks and opportunities for corruption. The 2003 Revised Arusha Declaration included an *Integrity Development Guide* (further revised in 2012 - WCO 2012), that serves as a comprehensive integrity toolset to address the adverse effects of corruption.

<sup>3</sup> Though most of these reasons also apply to border agencies more generally.

<sup>4</sup> G20 High Level Principles.

- *Audit and reporting* – strategies to prevent, detect and reduce corruption in customs, including the implementation of appropriate monitoring and control mechanisms such as internal and external auditing, as well as effective investigation and prosecution regimes.

The other principles included in the G20 Declaration are important tools for promoting integrity in the public sector and have been extensively elaborated in the 2017 OECD Recommendation of the Council on Public Integrity.<sup>5</sup> They are:

- *Leading by example*, in accordance with the national anti-corruption framework and based on a culture of integrity through transparent internal decision-making, integrity awareness-raising and training activities, as well as an open organizational culture that is responsive to integrity concerns.
- *Implementing appropriate integrity standards*, which encourage high standards of conduct, good governance, and adherence to public service values, and with a view to providing a clear basis for disciplinary, administrative, and criminal sanctions based on appropriate law enforcement processes.
- *Human resource management*, based on principles of fair and transparent systems for recruitment, hiring, retention, promotion and retirement of customs officials in accordance with their merits, equity and aptitude, as well as on organisational and ethical standards among customs officials and adequate benefits to retain qualified and high performing individuals.

The principal focus of this paper is corruption at the border that directly or indirectly impacts international trade. This does not include illicit trade, the motivations and characteristics of which are different from licit trade.<sup>6</sup> The key objective of the proposed study is to conceptualise the relationship between the trade facilitation policy environment – as reflected in the efficiency of administrative procedures at the border – and integrity, as well as to highlight which specific trade facilitation policy actions could help remove both the incentives and the opportunities for corruption at the border. The analysis exploits the OECD Trade Facilitation Indicators (TFIs) database to provide a more data-driven analysis of these concepts.

Section 2 provides a brief overview of existing approaches to understanding the relationship between international trade and integrity, including those focusing on trade facilitation aspects. Section 3 goes deeper into linking trade facilitation policies – as captured by the OECD TFIs – to proxy measures of border-related corruption. It details the approach for assessing such linkages and presents key results for specific trade facilitation policies. Section 4 concludes.

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<sup>5</sup> <http://www.oecd.org/gov/ethics/recommendation-public-integrity/>

<sup>6</sup> That said, the enhanced effectiveness of border processes from trade facilitation is likely to support efforts to clamp down on illicit trade.

## 2. Existing empirical evidence on the international trade - integrity link

The relationship between integrity and trade has largely been examined empirically through the trade gravity model<sup>7</sup>, building on work exploring the impact of the quality of institutions on international trade (Anderson and Marcouiller, 2002; Levchenko, 2007). By considering gross trade flows as a function of various trade costs – including indicators assessing the extent of good governance or perception measures of corruption – a wide range of studies shows that corruption is detrimental to international trade, lending support to the “sand in the wheels” hypothesis (including Pomfret and Sourdin, 2010; Masila and Sigue, 2010; De Jong and Bogmans, 2011; Thede and Gustafson, 2012; Gil-Pareja et al., 2017). In particular, Thede and Gustafson (2012) show that the different characteristics of corruption can influence the degree to which it affects international trade; that is: the significance of corrupt conduct (if the corruption is severe it can limit or even prevent transactions); its prevalence (which increases the costs of searching for an honest partner); its function (obstruction of market competition) and its predictability (the more predictable it is, the lower the costs). Gil-Pareja et al. (2017) also show that the impact of corruption on bilateral trade flows is likely to be lower when two economies are part of the same preferential trade agreement.<sup>8</sup>

Empirical analysis has also explored the reverse question, i.e. how cross-border trade intensity could affect levels of corruption. Available studies generally find that international trade and market openness promote good governance and support integrity in the economy as a whole. Wei (2000) argues that economies that are smaller in size and have a “natural” propensity to trade invest more in improving institutions and thus, have lower levels of corruption. Ades and Di Tella (1999) argue that competition from foreign firms limits rent seeking possibilities for domestic firms and can thus reduce corrupt behaviour by government officials. Majeed (2014) highlights that trade openness can reduce corruption only in conjunction with complementary domestic policies focused on improving the rule of law and the quality of financial markets.

Two issues stand out when exploring the two-way relationship between integrity and trade (i.e. the impact of corruption on trade and the impact of trade on the level of corruption). The first relates to data availability issues with respect to measures of corruption. The use of proxies for corruption is in most analyses the best solution available, but their choice naturally influences the results, which have to be read with this caveat in mind. The second is that increased trade may be the result of enhanced integrity at the border, or it may be its cause, thanks to the reduction in rent-seeking possibilities arising from increased competition, and the effect of trade on improving institutions described above. The issue of causality is thus a significant challenge for economic analysis seeking to properly quantify the relationship between trade and integrity.<sup>9</sup>

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<sup>7</sup> The gravity model (Head and Mayer, 2013) is the most commonly used model for assessing not just the structural characteristics of trade, but also for identifying the implications of various policy measures.

<sup>8</sup> The authors interact their measure of corruption with a binary variable accounting for whether two trading partners are part of the same preferential trade agreement. However, there is no distinction made regarding whether or not the agreements contain specific anti-corruption or trade facilitation provisions.

<sup>9</sup> Due to potential reverse causality issues (i.e. the direction of cause-and-effect in assessing the link between corruption and trade), the main hurdle has been to find efficient instrumental variables that would be exogenous in nature and eliminate the bias resulting from reverse causality (i.e. when exploring the impact of trade openness on corruption, identifying an instrumental variable that would be correlated to trade openness but uncorrelated to corruption).

An additional strand of literature has focused on the impact of trade-related integrity on business opportunities (Baughn et al., 2010; Sequeira and Djankov, 2010). For instance, Sequeira and Djankov (2010) investigate how corruption affects firm behaviour. Using a dataset on bribe payments at selected African ports matched to firm-level data, the authors observe how firms respond to “collusive” or “coercive” corruption by adjusting their shipping and sourcing strategies: “collusive” corruption is associated with higher usage of the corrupt port, while “coercive” corruption is associated with reduced demand for port services. The study also suggests that “collusive” corruption – in which the firm will pay bribes in order to reduce its overall trading costs – is associated with a higher proportion of imported inputs, whereas cost-increasing “coercive” corruption is associated with a higher proportion of domestically sourced inputs.

Empirical analysis has also specifically focused on the relationship between the trade facilitation policy environment and various dimensions of trade-related corruption. For instance, Shepherd (2010) shows that longer trade times – considered a proxy for low levels of trade facilitation – are associated with higher levels of border corruption<sup>10</sup>, consistent with a theoretical framework in which “fast” producers earn higher profits than “slow” ones, but may have to pay “speed money” to corrupt customs officials.<sup>11</sup>

Other analyses use a different dimension of trade-related corruption – tariff evasion – in relation to selected aspects of the trade facilitation policy environment. For example, Jean and Mitaritonna (2010) proxy tariff evasion as the difference between the value of exports of a product to a country as reported by exporters and the value of imports of the product reported by that country. The authors link this to investments made by economies in ASYCUDA systems of automatised customs data treatment and highlight the latter as a potentially powerful leverage to fight tariff evasion, particularly in low income economies.

Recent work by Beverelli and Ticku (2016) is the first to use the OECD Trade Facilitation Indicators (TFIs) as a measure of the trade facilitation policy environment. Employing a similar proxy of “missing imports” in a dataset covering more than 150 countries and the whole set of Harmonised System (HS) 6-digit product categories over two periods, the study shows that action under measures covered by a subset of the TFIs helps attenuate tariff evasion. Tariff evasion appears to be particularly reduced by measures dealing with the ex-ante provision of information and by measures streamlining legal procedures.

In sum, empirical work to date has analysed how corruption at the border affects international trade flows through two different lenses: “sand in the wheels” versus “greasing the wheels”. The “sand in the wheels” lens highlights the detrimental effect of corruption on international trade and business opportunities: corruption may act as a barrier to trade, by increasing transaction costs and inefficiencies in the trading system, an impact that is often similar to the establishment of a tariff (Anderson and Marcouiller, 2002). The “greasing the wheels” lens focuses on the bribes paid to “facilitate” trade in environments with high barriers or extreme bureaucracy (Egger and Winner,

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<sup>10</sup> Using data from the World Economic Forum Global Competitiveness Survey and the World Bank Enterprise Survey.

<sup>11</sup> The theoretical framework in Shepherd (2010) assesses trade-related corruption as a function of the set of incentives facing customs agents and traders, which are directly linked to trade times, governance, and cultural attitudes towards corruption. The theoretical model combines the “lean retailing” framework of Evans and Harrigan (2005) with a simple rent-sharing model of bribery. The ability to produce and ship goods more quickly is commercially valuable to firms, since it enables them to respond more fully to demand shocks. However, customs agents play a gatekeeper role because they control the speed with which goods can move from producers to consumers. Corrupt customs agents can extract a “gift” from firms looking to use fast track, reflecting the commercial value of speed to producers.

2005; Dreher and Gassebner, 2013). Both approaches equally encompass “coercive” corruption, where border officials extract bribes from companies or individuals for performing regular processes, as well as “collusive” corruption, where bribes are paid in order to evade tariffs, taxes or other regulatory requirements.

### 3. Identifying the links between trade facilitation policies and integrity

#### 3.1. Trade facilitation policies can reduce both incentives and opportunities for corruption

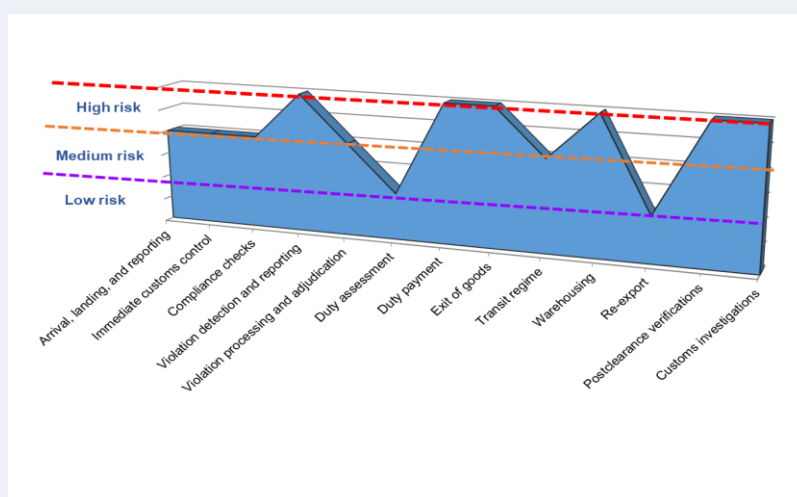
Most steps in customs and other border agencies’ processes are vulnerable to corruption incentives and opportunities (Box 1). Under both the “sand in the wheels” and the “greasing the wheels” lenses, the transparency, predictability and simplification of trade procedures – fostered by trade facilitation – have the potential not only to reduce trade costs and promote economic efficiency, but also to address both corruption incentives and opportunities. The section provides a conceptual framework for the types and channels through which specific trade facilitation policies can support integrity at the border.

#### Box 1. Where do vulnerabilities lie with respect to border processes?

Almost every function performed by Customs and other agencies involved in border processes can be vulnerable to corruption. In order to map corruption risks for each function as low, medium and high, the World Bank (2011) broke the border processing chain down into the simple steps that are generally encountered globally – even if they may vary by country, point of entry or means of transport (Figure 2). For each step and its corresponding sub-steps, the corruption risk was calculated as the product of a corruption impact rating and a corruption probability rating, based on expert opinion.

The lowest risk level includes functions such as duty assessment or re-exporting. Most functions, including arrival, landing and reporting; immediate customs control; compliance checks; or transit regime are within a medium risk level range. Functions such as violation detection and reporting; duty payment; exit of goods; warehousing; or post-clearance are considered to be of high risk.

Figure 2. Corruption risk mapping



Note: The figure is for illustrative purposes and not meant to be exhaustive.

Source: Based on World Bank (2011).

### Box 2. OECD Trade Facilitation Indicators

The eleven OECD TFIs were developed in 2012 to support governments in their efforts to improve their border procedures, reduce trade costs and reap greater benefits from international trade. They currently cover the full spectrum of administrative procedures at the border for more than 160 countries across income levels, geographical regions and development stages. The TFIs are currently available for 2012, 2015 and 2017 (OECD, 2018).

They follow closely the structure of the WTO TFA, but the families of measures in the TFA have been re-organised, in order to take into account similarities between measures, underlying shared components, as well as areas where further distinctions were warranted (TFIs (a) to (j)). An additional indicator going beyond the scope of the TFA was added to capture elements of good governance and impartiality of border administrations (TFI (k)).

The TFIs are composed of a set of variables seeking to reflect not only the regulatory framework in the concerned countries, but delve, to the extent possible, into the state of implementation of various trade facilitation measures. Overall, the indicators measure the actual extent to which countries have introduced and implemented trade facilitation measures in absolute terms, but also their performance relative to others, using a series of quantitative measures on key areas of the border process. The TFIs take values from 0 to 2, where 2 designates the best performance that can be achieved.

**Table 1. OECD TFIs: Overview of key dimensions and measures**

Indicator	Key components
TFI (a) Information availability	<ul style="list-style-type: none"> <li>▪ publication of Customs and trade-related regulations and information, including through webpages on the Internet</li> <li>▪ the existence and functioning of enquiry points</li> <li>▪ specific functions for businesses (dedicated webpages/portals, manuals etc.)</li> </ul>
TFI (b) Involvement of the Trade Community (Consultations)	<ul style="list-style-type: none"> <li>▪ structures for consultations</li> <li>▪ established guidelines for consultations</li> <li>▪ publications of drafts</li> <li>▪ existence of notice-and-comment frameworks</li> </ul>
TFI (c) Advance rulings	<ul style="list-style-type: none"> <li>▪ prior statements by the administration to requesting traders concerning the classification, origin, valuation method, etc., applied to specific goods at the time of importation</li> <li>▪ the rules and process applied to such statements</li> </ul>
TFI (d) Appeal procedures	<ul style="list-style-type: none"> <li>▪ the possibility and modalities to appeal administrative decisions by border agencies</li> </ul>
TFI (e) Fees and charges	<ul style="list-style-type: none"> <li>▪ disciplines on the fees and charges imposed on imports and exports</li> <li>▪ disciplines on penalties</li> </ul>
TFI (f) Formalities – documents	<ul style="list-style-type: none"> <li>▪ acceptance of copies</li> <li>▪ simplification of trade documents</li> <li>▪ harmonisation in accordance with international standards</li> </ul>
TFI (g) Formalities – automation	<ul style="list-style-type: none"> <li>▪ electronic exchange of data</li> <li>▪ use of automated risk management</li> <li>▪ automated border procedures</li> </ul>
TFI (h) Formalities – procedures	<ul style="list-style-type: none"> <li>▪ streamlining of border controls (inspections, clearance)</li> <li>▪ separation of release for clearance</li> <li>▪ single submission points for all required documentation (single windows)</li> <li>▪ post-clearance audits</li> <li>▪ the existence and functioning of Authorised Operators (AOs) programmes</li> </ul>
TFI (i) Internal border agency co-operation	<ul style="list-style-type: none"> <li>▪ control delegation to Customs authorities</li> <li>▪ co-operation between various border agencies of the country</li> </ul>
TFI (j) External border agency co-operation	<ul style="list-style-type: none"> <li>▪ co-operation with neighbouring and third countries</li> </ul>
TFI (k) Governance and impartiality	<ul style="list-style-type: none"> <li>▪ transparency of customs structures and functions</li> <li>▪ accountability and ethics policy</li> </ul>



Regulatory burden and red tape have often been viewed by economic literature and highlighted in businesses surveys as important incentives for offering bribes to officials in charge, so as to overcome regulatory and procedural hurdles at and beyond the border. Regulatory burdens and delays seem to incite firms to pay bribes in order to cut through red tape, although Kaufman and Wei (1999) show that companies that pay bribes create perverse incentives for government officials to expand bureaucratic hurdles even more, in order to cash in on additional bribery payments.

An expedited border process, supported by efficient and effective border controls, clearly offers fewer incentives for firms to propose “speed money”, thanks to the shorter delays at the border and decreased handling and processing costs for traders.<sup>12</sup> Considered in the context of the framework provided by the OECD Trade Facilitation Indicators (Box 2), this would concern in particular the simplification and harmonisation of documentary requirements – TFI (f); the simplification and rationalisation of border procedures, including the establishment of standard processing times and the availability of single submission points for all required documentation – TFI (h); the streamlining of fees and charges imposed on imports and exports and the transparency of penalties – TFI (e); the use of automated systems – TFI (g); and the co-operation and coordination between the various agencies present at the border – TFIs (i) and (j). The predictability offered by these measures or by advance rulings mechanisms (TFI (c)) would also reduce the overall burden supported by traders.

More importantly, however, trade facilitation provides a formidable toolkit for removing the opportunities for rent-seeking and corrupt behaviour. Customs work can yield significant opportunities to seek illicit rents due to the officials’ control over the international flow of goods combined with discretionary powers in the application of rules and procedures. While obviously not a cure-all for the wide variety of corrupt transactions taking place in many economies, trade facilitation can nonetheless be of considerable help in dealing with corruption at the border.

*Transparency*, including with respect to the applicable *fees and charges* is considered as one of the most important tools for reducing opportunities for corruption. The possibilities of corrupt officials to request “speed money” thrive where rules, procedures and delays are not clear, and where interpretations are entirely in the hands of the official handling a case or a shipment. For instance, corrupt officials may threaten firms with misclassification of goods into more heavily taxed categories unless a bribe is paid. Potential recourse of users against a dishonest decision is also seriously compromised if the regulatory framework, criteria and reasoning behind such a decision remain opaque.

Transparency will further make it more difficult for corrupt firms to evade tariffs, bypass health and safety regulations, avoid required licensing, or otherwise connive with customs officials to evade applicable regulations by paying bribes. It will generally facilitate the detection and pursuit of illicit activities undertaken in collusion between border agencies and firms.

Customs and other border administrations can shield users from rent-seeking by reinforcing accountability in border procedures through a systematic, transparent and inclusive *dialogue with the private sector*<sup>13</sup>, large public awareness campaigns about the main applicable rules, procedures and tariffs; appropriate guidance regarding discretionary powers; and by guaranteeing the security

<sup>12</sup> Border efficiency may also reduce some incentives for smuggling, as regular processes are not overly burdensome, although it will clearly not affect incentives for illicit trade. However, border effectiveness can decrease the opportunities for both smuggling and illicit trade, as it will facilitate detection and pursuit of such activities (OECD, 2017b).

<sup>13</sup> Non-transparent and unduly selective consultation procedures carry their own risks of corruption and capture.

and confidentiality of commercial and personal information of customs users. They can further assist users in resisting calls for bribes through the availability of accessible, efficient and non-discriminatory *appeal procedures*. These aspects are extensively covered under TFIs (a), (b), (c) and (e).

*Advance rulings* – TFI (c) – are particularly critical in enhancing the predictability and accountability of customs procedures, as they significantly reduce the scope for discretion by individual officers, promote uniform interpretation and treatment irrespective of the point of entry in a country and, under specific circumstances, provide more generally applicable guidance about the classification, origin or value of certain types of products. Provisions in the WTO TFA to ensure the publication of information about advance ruling application requirements and the time period by which they will be issued, as well as encouragement to make publicly available information about advance rulings of significant interest to other interested parties further promote the accountability-enhancing potential of advance rulings.

Disciplines on the administrative penalties imposed by Customs, covered in TFI (e) are also particularly important in reducing customs officers' discretion and in avoiding conflicts of interest. Provisions in the TFA Article 6.3 aim to ensure that penalties are assessed and applied in a transparent manner through the provision of written explanations of penalties imposed and of the applicable legal provisions.

The simplification of trade *documents* and that of border *procedures*, in particular for “vulnerable” products, such as perishables, that could provide leverage for extortion, further reduce the possibilities for rent-seeking. When documentary and procedural requirements are straightforward, it is more difficult for corrupt officials to arbitrarily detain shipments of goods until firms “grease the wheels” with bribes. Provisions limiting discretion, including the TFA requirement for common procedures and uniform documentation requirements throughout the territory of members, or the use of risk management to avoid arbitrary discrimination, are important safeguards for honest trade.

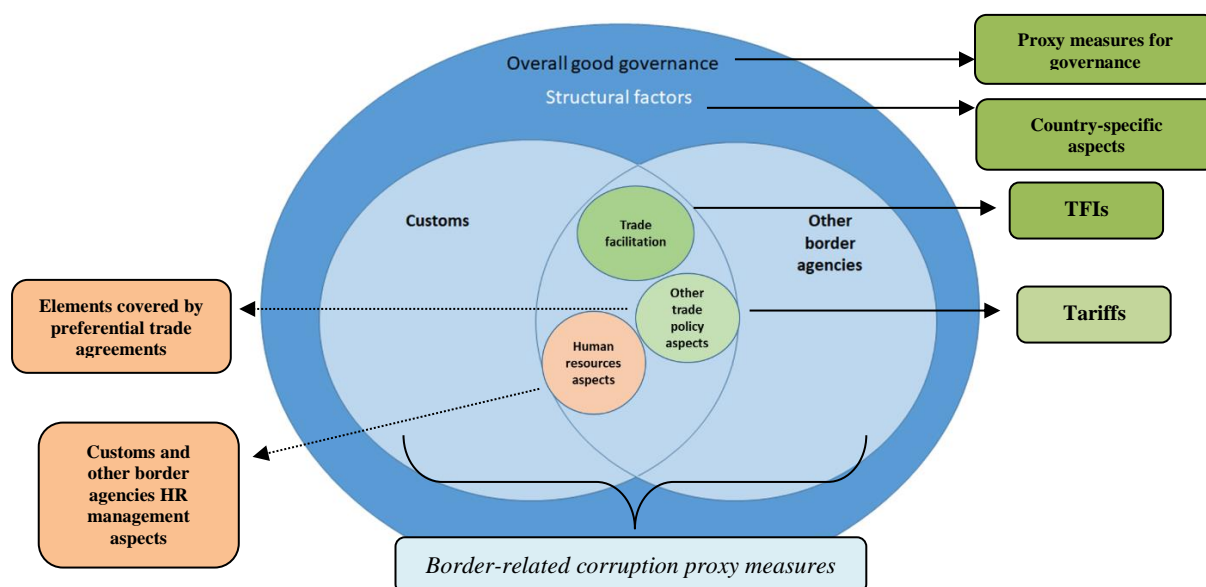
Finally, the use of *automated* systems not only reduces officials' discretion, but also minimises the physical opportunities for corrupt behaviour. In particular, the use of electronic declaration and payment procedures to abolish cash payments, reduces direct encounters between Customs officials and traders during the clearance process.

### 3.2. Using a quantitative approach to identify links

While trade facilitation policies have the potential to be an important element supporting border-related integrity, existing qualitative and quantitative literature also identifies additional aspects that could have a supporting effect. These relate to overall good governance, structural factors (as identified in Shepherd, 2010), as well as other aspects of trade policy (i.e. tariffs in Shepherd (2010) or elements of preferential trade agreements in Gil-Pareja et al. (2017)) or related to Customs and other border agencies' human resource management (OECD, 2017b).

Figure 3 highlights these different elements. However, data limitations make it very challenging to explore via the analysis in this paper the relationship between all of these and border-related corruption. The extent to which these different elements can be captured in the quantitative assessment indeed differs greatly, as discussed in the following sections.

Figure 3. Identifying the links between trade facilitation policies and border-related corruption



Note: Areas highlighted in green denote aspects which can be captured in the empirical analysis within the paper.

Source: Authors' compilation.

### ***“Mapping” border-related corruption: Many underlying challenges***

With border-related corruption generally concealed, it is virtually impossible to obtain precise and objective measures. Moreover, a number of different elements would be needed in order to fully grasp its extent and impacts. Ideally, these would include: frequency of occurrence; actors involved; specific risks and associated costs; and contributing factors. At the same time, border-related corruption is also an evolving phenomenon affected by various factors, which include country-specific social and cultural settings, institutional and organisational structures, political environments, and economic and public policies. Another major issue is the “global” versus “local”, or more precisely, the measurement of national-level corruption for cross-country comparative purposes versus the assessment of local-level contexts (i.e. a specific border agency or border post) that can provide insights into the concrete reality of corruption, and allow for the development of targeted policy interventions. All this makes it extremely complex to capture and ultimately measure border-related corruption with confidence and accuracy, on a cross-country and time comparative basis.

In spite of these challenges, there has been progress in the collection of information approximating border-related corruption on a cross-country basis. Such information includes both aspects of perceptions and experience that – with all caveats considered – can be used as proxies for border-related corruption and allow for some broad comparisons of country environments in this area. Two such measures are used for the analysis undertaken in this paper, including a perception-based composite measure as well as experiential data based on firm-level information.

First, perception-based data draw on information collected for the World Economic Forum (WEF) Global Competitiveness Report (GCR). This composite measure aims to identify how common it is for firms in a specific country to make undocumented extra payments or bribes connected with

imports and exports.<sup>14</sup> Second, experiential data based on firm-level information draws from the World Bank’s Enterprise Survey (WBES). The WBES dataset includes several integrity-related indicators. One of the specific indicators focuses on bribes to obtain specific import licenses or permits, and shows the share of firms that are expected to make informal payments to secure import and operating licenses. Other indicators capture the share of firms expected to make informal payments or give gifts to public officials to “get things done” with regard to customs, taxes, licenses, regulations, or services.<sup>15</sup> The WBES firm-level information on trade-related corruption can be aggregated at an individual country level. The data can also be used to explore more in-depth the prevalence of border corruption at the level of individual enterprises.

For the purposes of the analysis, both perception and experiential measures are considered to proxy for “routine” corruption at the border. “Routine” corruption can occur when private operators pay bribes to customs or other border agency officials in order to receive a normal or accelerated completion of border procedures. Another expression of routine corruption can occur when officials create or threaten to create unwarranted complications in the clearance process.

Two main caveats apply to the linkages that these data sources are able to capture between the policy environment and border-related corruption. First, neither is able to precisely distinguish between corruption incentives versus opportunities. Second, the corruption aspects that the indicators refer to cover only licit trade transactions. The corruption measures described above are thus not able to cover the acceptance of bribes in return for the ‘facilitation’ of unlawful activities relating to illicit goods.

### *Border-related corruption as a function of trade facilitation*

Until better data on border-related corruption become more readily available, identifying the links between integrity and trade facilitation has to be approached piecemeal, focusing on what can currently be quantified. One useful starting point is to draw correlations between trade facilitation measures and border-related corruption. Box 3 briefly highlights approaches in previous studies assessing the relationship between trade facilitation aspects and proxy measures for border integrity.

However, it is also important to note that correlations do not identify the presence of causation nor the possible direction of causation – whether certain integrity outcomes arise as a result of, or as a consequence of, better trade facilitation. Such correlations do not provide either in-depth insights into the specific channels through which trade facilitation policies remove corruption incentives and opportunities. While they would warrant further analysis when data on border corruption permits, such correlations can nevertheless highlight the presence of some noticeable patterns.

Building on the framework developed in Shepherd (2010), border process corruption is examined as a function of the trade facilitation policy environment – measured here through the TFIs – together with additional control variables aiming to capture, to the extent possible, wider elements of good governance, country characteristics, or policy settings. As described above, the dependant variable for border-related corruption is alternatively proxied through the WEF and WBES

<sup>14</sup> The indicator ranges between 1 and 7, where 7 represents the least requests for bribes in relation to import and export processes.

<sup>15</sup> The word “bribe” is not used, so as to limit the effects of different cultural perceptions and legal norms. The questions take place in the middle of the survey, after confidence has been established. Participants are also reminded about the confidentiality of results.

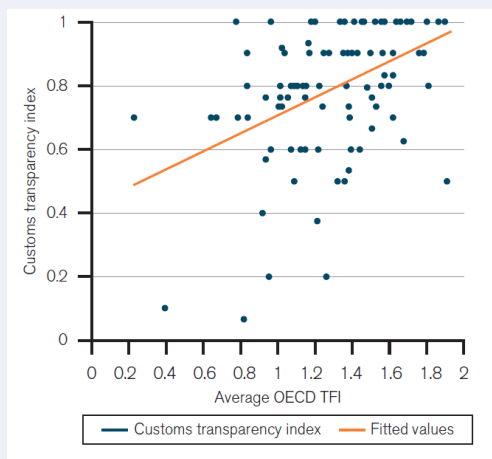
corruption-related measures (Annex 1 provides details on the approaches taken for the different datasets).

### Box 3. Associations in previous studies between trade facilitation aspects and proxy measures for border integrity

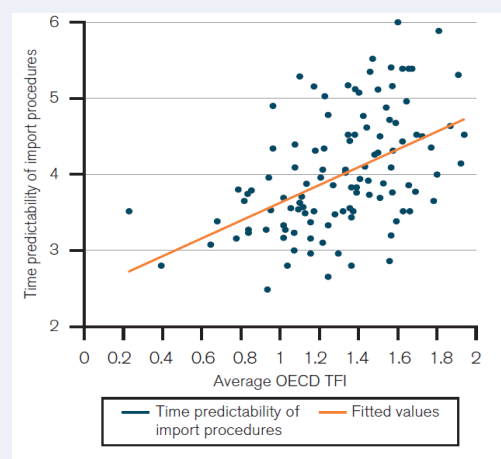
The WTO 2015 World Trade Report provides evidence on a positive correlation between the OECD TFIs and two measures of transparency (customs transparency and time predictability of import procedures). The positive correlation is significant after controlling for GDP per capita (Figure 4).

**Figure 4. Correlation between TFIs, customs transparency and time predictability of import procedures**

a. Trade facilitation and customs transparency



b. Trade facilitation and time predictability



*Note:* WTO (2015) analysis is based on the 2012 TFIs series.

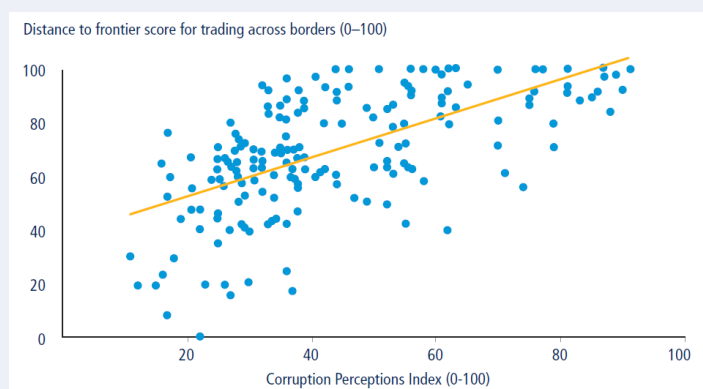
*Source:* WTO (2015).

The World Bank (2018) analysis based on Doing Business data shows that economies which perform well on the trading across borders indicators tend to have lower levels of corruption (Figure 5). For example, there is a strong positive association between the economies' performance in trading across borders (measured by the distance to frontier score) and their integrity performance (measured by the score in Transparency International's Corruption Perceptions Index). Similarly, the performance in trading across borders is strongly and negatively correlated with the percentage of firms that are expected to give gifts to obtain an import licence. The distance to frontier score tends to be higher in economies where fewer firms need to offer a bribe to get things done. The results are significant at the 1% level after controlling for income per capita.

./.

**Figure 5. Performance on the trading across borders indicators and selected measures of integrity**

a. Trading across borders and integrity (corruption perceptions index)



b. Trading across borders and corruption (bribes paid by firms for import licenses)



*Note:* A higher score on Transparency International's Corruption Perceptions Index indicates a lower level of perceived corruption.

*Source:* World Bank (2018).

*Capturing broader elements of the policy and institutional environment in the empirical assessment: some elements can be incorporated...*

As mentioned above, a country's wider governance characteristics can also have a role to play in influencing corruption at the border. While accountability for corruption by their officers lies with the customs agency or other relevant border agencies, the wider governance environment can play a key role in determining the overall level of corruption in a customs service. Corruption in customs does not exist in isolation: to some extent, it is a manifestation of the prevailing ethical standards in the public sector (Willems et al., 2016). An increased probability of detection and punishment can be associated with less prevalent corruption. Different aspects of this linkage can be tested with data from the World Governance Indicators (WGI) dataset. This analysis uses two WGI Indicators: first, government effectiveness, which refers to stronger bureaucratic controls and improved law enforcement; second, voice and accountability of office holders, which makes denunciation of corrupt activity more likely.

Other factors can also matter. Drawing on information from available international databases, the analysis thus includes the GDP per capita to control for a country's level of development as well

as other aspects of trade policy such as tariffs. Existing studies have highlighted that higher and more variable tariffs can be associated with more prevalent corruption (Fisman and Wei, 2004; Dutt and Traca, 2010; Shepherd, 2010). While higher rates could be associated with evasion behaviour, necessitating the payment of bribes to customs officials, highly variable tariff rates could provide an incentive for traders to seek the re-classification of goods according either to product type or origin, so as to benefit from a lower tax rate (Shepherd, 2010).

When the analysis is conducted at the firm level using WBES data, other firm-level control variables can also be included, such as firm profitability or foreign ownership, following Shepherd (2010). On the one hand, firms that are more productive could be expected to earn higher profits. To the extent that border agents can differentiate between more and less productive firms, they are likely to focus on the former, since there is the possibility of extracting a higher level of “speed money”. On the other hand, foreign owned firms can be subject to anti-bribery obligations and additional accounting controls in their home countries (Shepherd, 2010).

... *while other dimensions are much more challenging to cover*

Dimensions relating to the organisation and management of Customs and other border agencies can be important determinants of border-related corruption. These can include, for instance: the organisational structure (e.g. number and hierarchy of border agency units); aspects of human resource management (e.g. the compensation packages for officials, which can affect the incentives for corruption at the border; the rules and processes relating to recruitment, promotion, transfers and postings, performance evaluation and incentives; training); or the functioning of internal control systems (OECD, 2017b). However, cross-country, time-series data on such aspects are currently not available.

Other aspects of trade policy can also have a positive impact on integrity at the border, for example, anti-corruption provisions in preferential trade agreements (Lejarraga, 2014). It is however very challenging to match related data samples against border-related corruption and other variables covered by the present quantitative assessment.

Anti-corruption and anti-bribery commitments form an integral part of transparency chapters in an increasing number of preferential trade agreements. Some international trade and investment agreements formulate articles focusing on fighting and preventing corruption and bribery on a best endeavours basis, while in others those are legally enforceable and increasingly covered by dispute settlement systems (Table 2). Countries often agree to work jointly to support international initiatives on anti-corruption. Anti-corruption measures are an integral element of the transparency chapters in agreements concluded by the United States or Canada,<sup>16</sup> which contain the most far-reaching and comprehensive anti-corruption and anti-bribery disciplines, as highlighted by past OECD research (Lejarraga, 2014). In recent years, trade agreements concluded by the European Union have also embedded the fight against corruption and bribery as one of the key elements of bilateral co-operation. Numerous other countries or regional blocks, including Japan, Chile, Korea and the European Free Trade Association (EFTA), similarly include provisions in their agreements recognising the challenges set by corruption and endeavouring to address such issues. Many agreements reaffirm the commitments to implement anti-corruption measures ratified under relevant multilateral and regional conventions. Recent agreements have also included provisions to mandate the criminalisation of corruption, establish sanctions regimes and enforcement

<sup>16</sup> These include: US-Australia FTA; US-Bahrain FTA; US-Chile FTA; US-Colombia FTA; US-Dominica Republic-Central America FTA; US-Korea FTA; US-Morocco FTA; US-Oman FTA; US-Panama FTA; US-Peru FTA; US-Singapore FTA; Canada-Colombia FTA; Canada-Jordan FTA; Canada-Panama FTA; Canada-Peru FTA (as identified in Lejaragga (2014)).

mechanisms, as well as to ensure protection for whistle-blowers (Lejarraga, 2014). In other agreements (e.g. bilateral agreement between Israel and Colombia), provisions focusing on anti-corruption can also be covered as part of customs co-operation chapters.

**Table 2. Inclusion of anti-corruption provisions in preferential trade agreements**

Agreement	Year of entry into force	Included	Anti-corruption provisions	
			Legally enforceable, not covered by dispute settlement	Legally enforceable, covered by dispute settlement
Dominican Republic - Central America	2001	x		
US-Singapore	2004	x		
EC-Algeria	2005	x		
US-Australia	2005	x		
CAFTA-DR	2006	x	x	x
Trans-Pacific Strategic Economic Partnership	2006	x		
US-Bahrain	2006	x	x	x
US-Morocco	2006	x	x	x
Japan-Thailand	2007	x		
Japan-Philippines	2008	x		
Nicaragua - Chinese Taipei	2008	x	x	x
Canada-Peru	2009	x		
Chile - Colombia	2009	x		
Colombia - Northern Triangle (El Salvador, Guatemala, Honduras)	2009	x		
US-Oman	2009	x	x	x
US-Peru	2009	x	x	x
Hong Kong, China - New Zealand	2011	x		
India-Japan	2011	x	x	x
India-Malaysia	2011	x	x	x
Canada - Jordan	2012	x	x	x
Japan - Peru	2012	x		
Korea, Republic of - US	2012	x		
US - Colombia	2012	x	x	X
US - Panama	2012	x	x	x
Canada - Panama	2013	x	x	x
EU - Central America	2013	x		
New Zealand - Chinese Taipei	2013	x		
Canada - Honduras	2014	x	x	
EU - Republic of Moldova	2014	x	x	
Canada - Rep. of Korea	2015	x		
Japan - Australia	2015	x		
EU - Georgia	2016	x	x	
EU - Mexico	Agreement in principle [2018]	x	x	x

*Note:* The World Bank dataset on the content of preferential trade agreements maps 52 provisions categories across 279 agreements notified at the WTO, signed between 1958 and 2015. It includes information about the legal enforceability of each provision.

*Source:* Hofmann, Osnago and Ruta (2017), “Horizontal Depth: A New Database on the Content of Preferential Trade Agreements”, <https://datacatalog.worldbank.org/dataset/content-deep-trade-agreements>; European Commission (2018), EU negotiations and agreements <http://ec.europa.eu/trade/policy/countries-and-regions/negotiations-and-agreements/>.



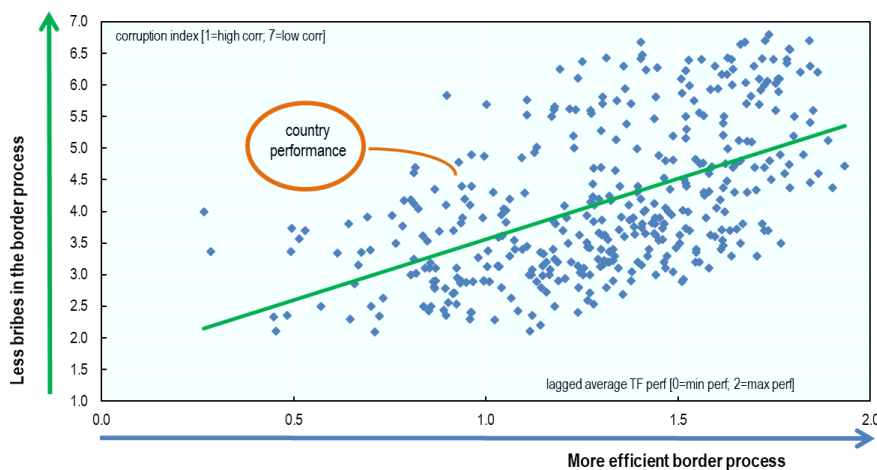
### 3.3. What is the impact of trade facilitation measures on border-related corruption?

Following the approach described in the previous section, the empirical assessment first looks at the link between the overall trade facilitation environment and the various measures of border-related corruption. Then, the analysis takes a deeper dive into the specific trade facilitation measures and their potential to address corruption incentives and opportunities at the border.

#### *Overall trade facilitation environment*

Correlating overall trade facilitation performance<sup>17</sup> with border-related corruption – proxied either by perception-based data or firm-level experiential data – reveals that higher integrity at the border does appear to be associated to more efficient border processes (Figures 6 and 7). While causality remains difficult to fully establish due to a limited number of cross-country and time observations, the relationship appears to hold under various robustness checks. These account for a series of control variables – such as level of development, the percentage of tariffs that can be regarded as “peaks” or other unobserved country characteristics – as well as for the potential for corruption and trade facilitation measures to affect each other.<sup>18</sup>

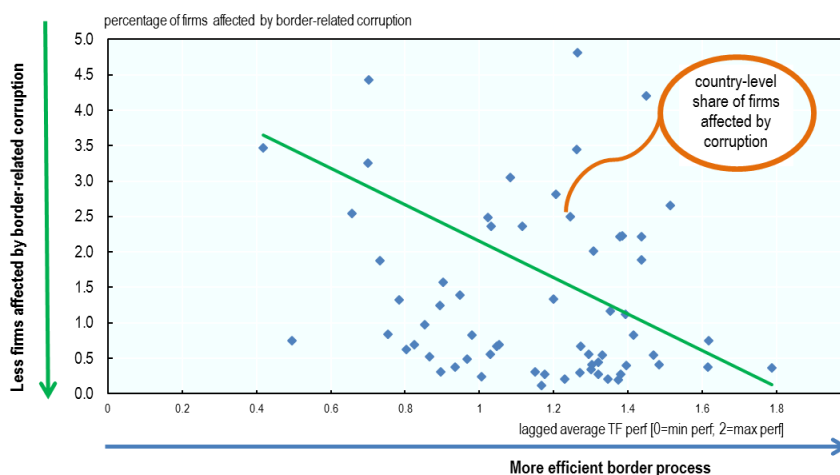
**Figure 6. Corruption perception and trade facilitation**



*Note:* The figure presents the fitted values. Data covers 2012-18.  
*Source:* Authors’ estimations using World Economic Forum data.

<sup>17</sup> This is expressed as the average of the eleven TFI policy areas.

<sup>18</sup> By lagging the trade facilitation performance variable when conducting the analysis with the WEF data.

**Figure 7. Firm-level experiential corruption data and trade facilitation**

*Note:* The figure presents the fitted values. Data covers 2010-16.

*Source:* Authors' estimations using World Bank Enterprise Survey data.

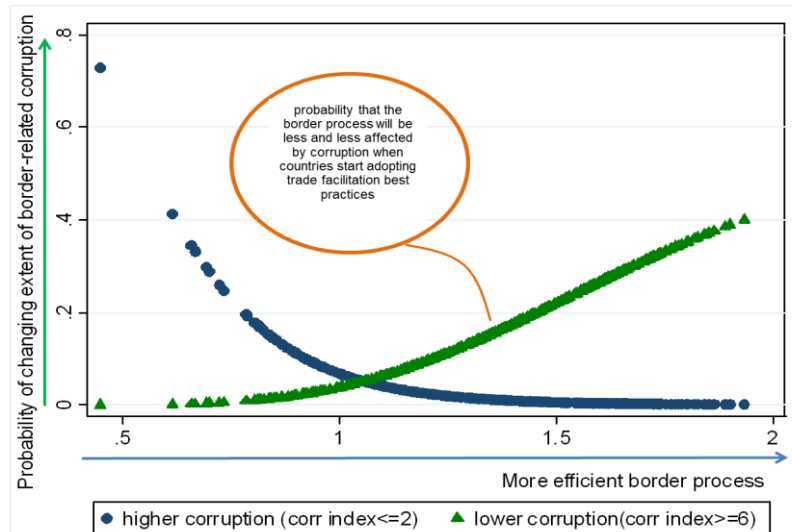
Looking at the relationship through a complementary lens, comprehensive trade facilitation reforms – expressed as an increase in an economy's overall trade facilitation performance – appear to be associated to a higher probability of recording lower corruption at the border. Drawing on the WEF border-corruption data, the probability of being a low corruption country (considering, for instance, a value of at least 6 for the corruption index) increases from 20% to 40% as the sample of countries adopting trade facilitation best practices increases from 1.5 to 2 (Figure 8).<sup>19</sup>

When testing correlations between border-related corruption and the overall trade facilitation policy environment by different groups of countries according to their income per capita<sup>20</sup>, these appear to be more robust across specifications at lower income levels compared to some of the middle and higher-income levels (quintiles 3 and 4 in Figure 9). The middle-income groups considered in quintiles 3 and 4 include several economies for which both levels of corruption and trade facilitation performance are close to the average. The fact that such correlations appear less robust across specifications for these groups could relate to what Michael and Popov (2012) document as the existence of a “tipping point” effect. This effect refers to countries that could “tip over” into either lower or higher corruption levels depending on whether they will invest enough in trade facilitation measures or not (Michael and Popov, 2012). Further connections could also exist to human resource management aspects, which as described in section 3.2, remain very difficult to capture in the present analysis.

<sup>19</sup> In turn, the probability of being a high corruption country – thus considering a corruption index lower than 4 – decreases below 20% over the same range of high trade facilitation performance.

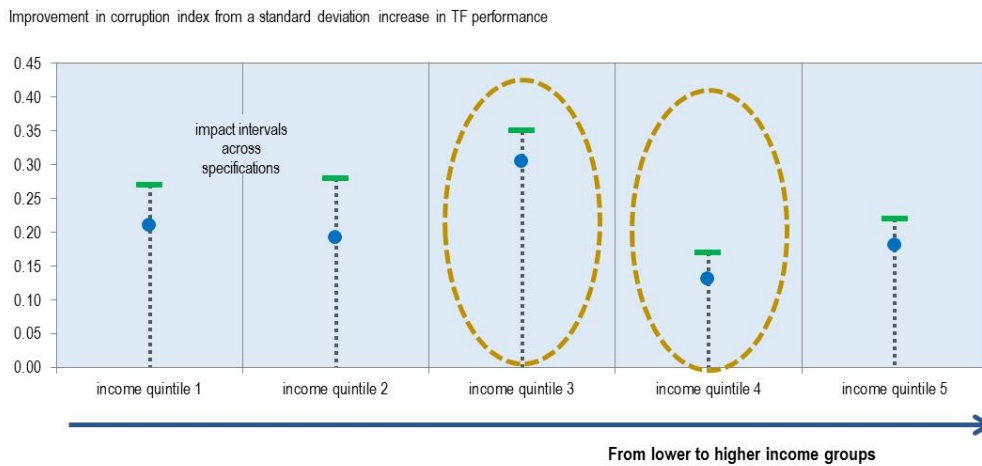
<sup>20</sup> This accounts for five income per capita quintiles or groups of countries covered in the WEF dataset of border-corruption measures.

**Figure 8. Predicted probability of border-related corruption changes when border processes become more efficient**



*Note:* The figure shows predicted cumulative probabilities associated with different values for trade facilitation performance, holding all other variables constant at their median values. The green line shows the predicted probability of being a relatively low corruption country (WEF index score of 6 or more), while the blue line shows the predicted probability of being a relatively high corruption country (WEF index score of 2 or less).  
*Source:* Authors’ estimations based on World Economic Forum corruption data.

**Figure 9. Potential impacts of TFI performance on integrity across selected country groups according to their income per capita**



*Note:* The figure presents the impact intervals across specifications (lower to upper bound, depending on the control variables in the specification). Data covers 2012-18. The dotted yellow circles indicate the income groups for which the results are less robust in terms of significance of the trade facilitation variable coefficients across specifications.  
*Source:* Authors’ estimations based on World Economic Forum corruption data.

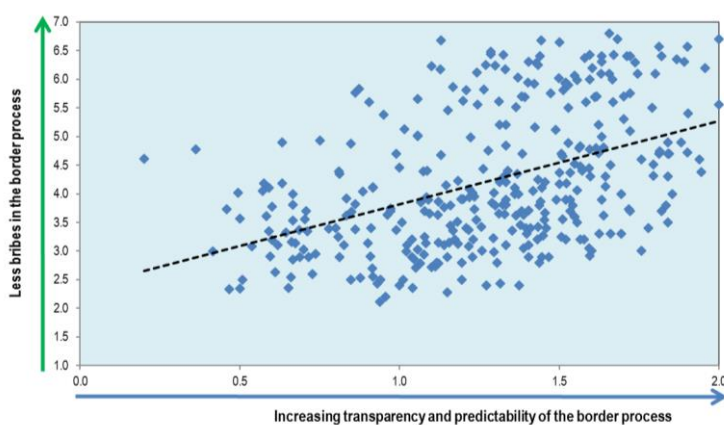
### *Addressing border-related corruption incentives and opportunities through specific trade facilitation measures*

In addition to the impact of the overall trade facilitation policy environment, specific trade facilitation policies may influence corruption incentives and opportunities in particular ways. This influence can be explored using the corresponding individual TFIs.

#### *Transparency and predictability measures*

The empirical exercise confirms the practitioners' view that transparency and predictability measures, - including information availability, consultations with traders, advance rulings, appeal procedures, and fees and charges — contribute significantly to removing corruption incentives and opportunities (Figure 10).

**Figure 10. Border-related corruption and average performance on transparency and predictability**



*Note:* ‘Transparency and predictability’ as a whole considers an average of indicators for information availability, consultations with traders, advance rulings, appeal procedures, and fees and charges. The figure presents the fitted values. Data covers 2012-18.

*Source:* Authors’ estimations based on World Economic Forum corruption data.

#### *Simplification and streamlining of formalities*

Likewise, the simplification and harmonisation of documents present robust correlations to the corruption measures, highlighting the potential of simplified and harmonised documentation to support integrity at the border. TFI variables relating to documentation requirements refer to the extent that trade documents are harmonised with international standards and that documentation requirements are simplified, through use of copies and reduction in the number and complexity of required documents.

On the other hand, the associations between border-related corruption and the automation and procedures indicators across different specifications appear weaker.<sup>21</sup> This is not particularly surprising, given that these indicators correspond to a number of border process functions that do not necessarily share the same characteristics, either in terms of the opportunities they offer for rent-seeking, or of the potential impact corrupt behaviour could have on them (see the discussion on corruption risk mapping in Box 1 above). For this reason, an exploration distinguishing among the more specific elements composing these two areas would be more coherent with experience on the ground (World Bank, 2011). Trade facilitation measures which correspond to processes considered more vulnerable to corruption were thus attributed higher weights in the analysis.

Automation, for instance, covers aspects such as the electronic processing of documents and the electronic clearance of export and import declarations. By dematerialising and standardising the processing of declarations, they allow to reduce the discretion of Customs officers in the treatment of goods and services crossing the border, thus bearing a low to medium potential for addressing corruption risks. They are attributed as a whole a weight of 20%.<sup>22</sup> The possibility to lodge documents in advance in electronic form and to pay for duties, taxes, fees and charges electronically go a step further, since they reduce the opportunities for face-to-face contact between border officers and traders and the physical handing and transfer of funds, limiting both the discretion and the monopoly powers that could be exercised over traders. They are deemed to bear a medium to high potential for addressing corruption risks and are attributed as whole a weight of 30%. Finally, electronic payment systems integrated with the automated declaration/cargo processing systems, or Single Windows operating in an automated environment, which reduce monopoly and discretionary powers even further, increase accountability and provide an audit trail for later monitoring and review of administrative decisions bear a high potential for addressing corruption risks.<sup>23</sup> The same can be said for risk management, in particular when operating in an automated environment, since it offers valuable tools for detecting smuggling, fraud and other illicit activities at the border. All three groups of measures are attributed as a whole a weight of 50%.

The analysis reveals that by assigning higher weights to automation level II and III measures, the association between automation and border-related corruption appears more robust. The WCO emphasises the need for automated systems to be designed in such a way so as to “ensure that the most vulnerable points in the manual system are not replicated and that the new system does not simply shift the point of corruption to a part of the process that is not being automated” (WCO, 2012).

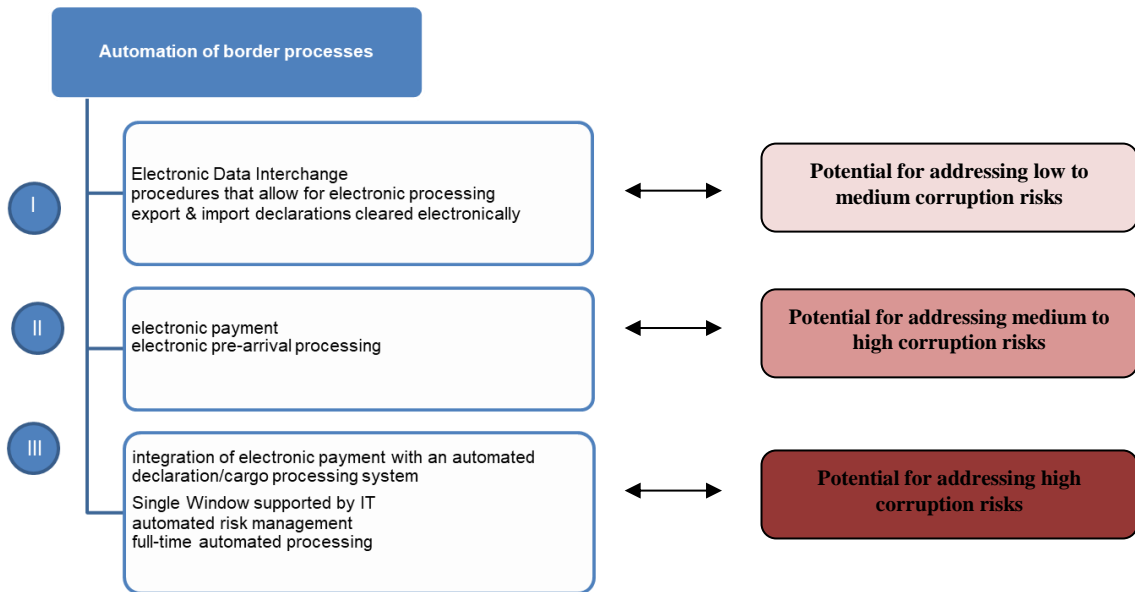
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<sup>21</sup> This relates to the significance levels of regression coefficients.

<sup>22</sup> The weights assigned roughly correspond to the corruption probabilities attributed by experts’ opinion and literature (World Bank, 2011) for the border functions in a specific risk level (namely, low to medium, medium to high, and high).

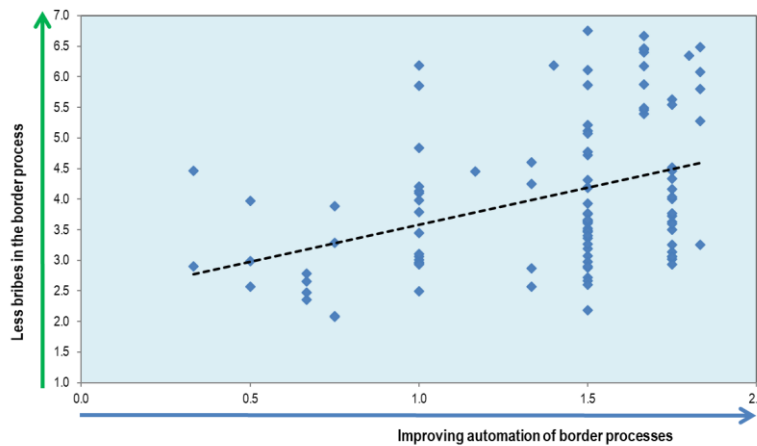
<sup>23</sup> ICT tools such as crowdsourcing platforms, whistle-blower platforms, or distributed ledger technology (DLT) and blockchain are not covered by the indicator and are beyond the scope of this paper.

**Figure 11. Automation measures and their potential links to corruption risks at the border**



*Note:* Each level (from I to III) denotes a potential to address different types of risks relating to border processes (as mapped in Box 1). The levels are defined based on expert opinion and existing literature highlighting experience on the ground (World Bank, 2011).  
*Source:* Authors’ compilation.

**Figure 12. Border-related corruption and automation measures**



*Note:* Automation measures covered include the measures highlighted in levels I-III of Figure 11. The above figure presents the fitted values. Data covers 2017-18.  
*Source:* Authors’ estimations based on World Economic Forum corruption data.

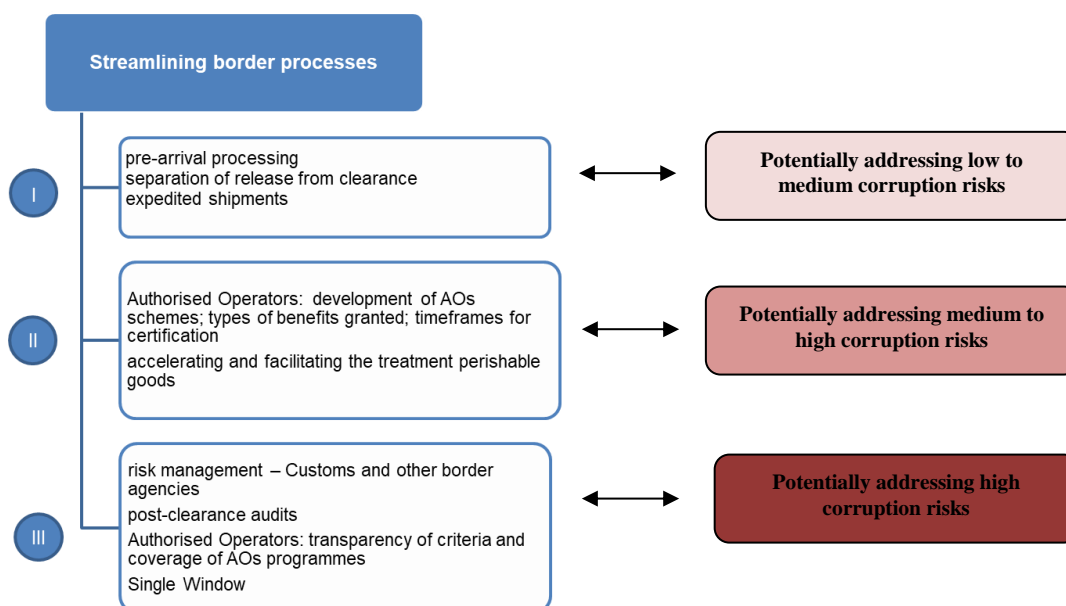
A similar approach to automation is tested for the measures related to the streamlining of border procedures. Measures such as the procedures allowing for the pre-arrival processing of goods, the separation of the release of goods from the final determination and payment of Customs duties, or the procedures allowing for the rapid release of expedited shipments decrease the complexity of the border process and reduce the discretion in the treatment of goods and services crossing the border. They are deemed to bear a low to medium potential for addressing corruption risks and are attributed as a whole a weight of 20%. The provisions that aim to accelerate and facilitate the

treatment of perishable goods and the programmes providing additional facilitation measures to authorised operators, are expected to further reduce the complexity of the applicable framework and limit the vulnerability of the concerned processes by offering an additional means to address time sensitivity. They are considered to bear a medium to high potential for addressing corruption risks and are attributed as a whole a weight of 30%. Provisions that establish clear and accountable criteria for attributing authorised operator status and a wide coverage of related programmes, as well as the operation of post-clearance audit mechanisms are considered to have the highest potential for addressing corruption risks, both in terms of reducing incentives and opportunities for bribes and in terms of detecting and pursuing fraud and other illicit activities. Together with provisions on risk management (covering both Customs and other border agencies) and Single Windows they are attributed as a whole a weight of 50%.

As for automation, the analysis reveals that by assigning higher weights to measures covered in level II and III, the association between procedures and border-related corruption appears more robust.

Both in the case of automation and in the case of streamlined procedures, some of the trade facilitation measures with the highest potential to address corruption risks include complex and sophisticated aspects that could raise capacity challenges for the concerned administrations. The complexity of those elements needs to be taken into account in the context of both trade facilitation reforms and of integrity strategies at the border.

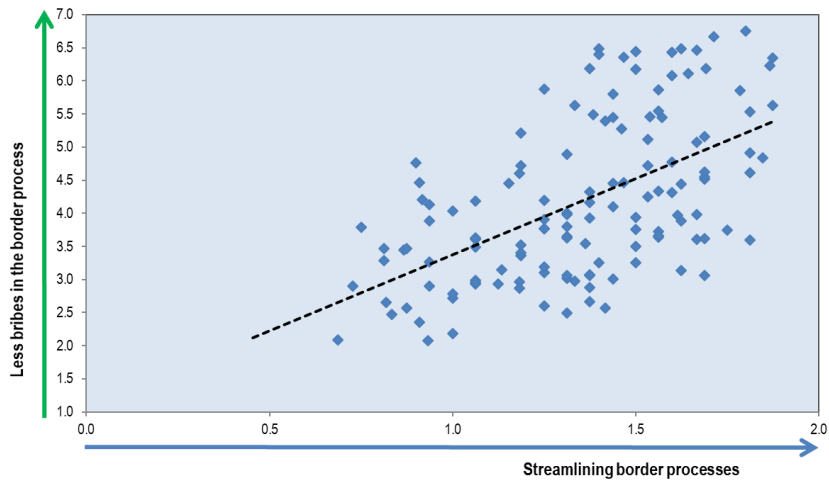
**Figure 13. Streamlining procedures and the potential links to corruption risks at the border**



*Note:* Each level (from I to III) denotes a potential to address different types of risks relating to border processes (as mapped in Box 1). The levels are defined based on expert opinion and existing literature highlighting experience on the ground (World Bank, 2011).

*Source:* Authors' compilation.

**Figure 14. Border-related corruption and streamlining of border processes**



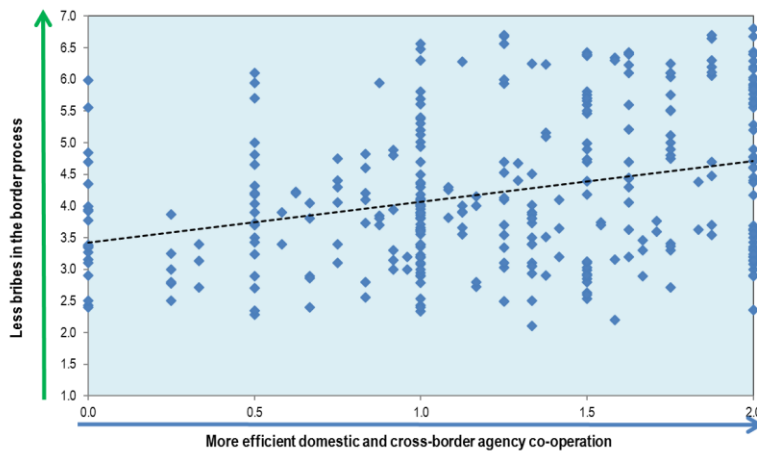
*Note:* Measures covered include the measures highlighted in levels I-III of Figure 13. The figure presents the fitted values. Data covers 2017-18.

*Source:* Authors’ estimations based on World Economic Forum corruption data.

*Border agency co-operation and governance aspects*

The two border agency co-operation indices (internal and external) together present robust correlations in relation to the corruption indices, highlighting the potential of such measures to support integrity at the border (Figure 15).

**Figure 15. Corruption levels and border agency co-operation**



*Note:* Border agency co-operation is defined as the average of domestic and cross-border agency co-operation. The corruption measures is the WEF index. The figure presents the fitted values. Data covers 2012-18.

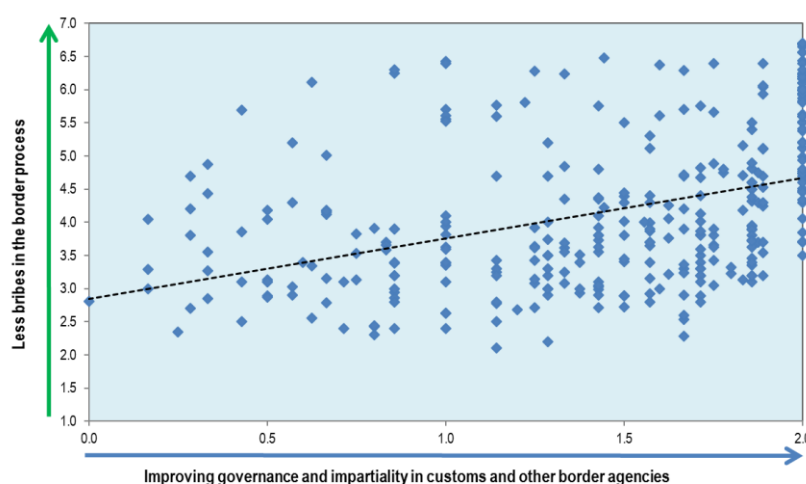
*Source:* Authors’ estimations based on World Economic Forum corruption data.



A cross-section using the 2017 fine-tuned structure for the domestic and cross-border agency co-operation and the WEF data also shows a significant association. The 2017 fine-tuned information on co-operation among various border agencies within the same country but also cross-border explores more in-depth areas such as: the institutional and legal and regulatory frameworks; the procedures and systems for co-operation; communication and information exchange; and infrastructure and equipment; co-ordination/harmonisation of data requirements and documentary controls.

The indicator on governance and impartiality also presents robust correlations in relation to the corruption measures, highlighting the potential of such measures to support integrity at the border (Figure 16).

**Figure 16. Border-related corruption and border governance**



*Note:* The corruption measures is the WEF index. The figure presents the fitted values. Data covers 2012-18.

*Source:* Authors' estimations based on World Economic Forum corruption data.

## 4. Conclusions and policy implications

The analysis in this paper tries to take a deeper dive into the relationship between border-related corruption and trade facilitation policies. While the OECD Trade Committee has investigated trade cost factors in a large number of areas along the international trade chain, the exploration of ‘hidden’ trade transactions costs, their links to corruption in border processes and of the policies to address it have been considerably hampered by data availability issues.

Existing literature linking international trade and corruption points to corruption at the border affecting international trade flows through two different lenses. The “sand in the wheels” lens highlights the detrimental effect of corruption on international trade and business opportunities: corruption may act as a barrier to trade, by increasing transaction costs and inefficiencies in the trading system, an impact that is often similar to the establishment of a tariff. The “greasing the wheels” lens focuses on the bribes paid to “facilitate” trade in environments with high barriers or extreme bureaucracy. The qualitative framework developed in the first part of the study highlights that under both the “sand in the wheels” and the “greasing the wheels” lenses, specific trade facilitation policies can be a powerful tool to support integrity.

Against this background, the analysis delves deeper into the available data on border-related corruption, as well as on its potential determinants. It thus looks at a set of factors identified through the existing literature in conjunction with the trade facilitation environment, as measured through the OECD TFIs.

The empirical exercise first shows that the overall efficiency of the border process matters. Using two proxies for the magnitude of corruption at the border – based on perception data for the WEF Global Competitiveness Report (GCR) and firm-level data from the WEF GCR – reveals that higher integrity at the border does appear to be associated with more efficient border processes. The analysis also controls for other factors such as structural aspects (i.e. level of development), other trade policy aspects (i.e. tariffs) or broader good governance aspects. While causality remains difficult to fully establish due to the limited number of cross-country and time observations, better trade facilitation performance appears to be associated with a decrease in the incentives for and opportunities to request bribes for trade-related processes.

Moreover, specific trade facilitation policies also matter in supporting integrity at the border. Measures focusing on transparency and predictability, streamlining of formalities – through simplification of documents, more automation of processes at different levels of complexity, or improved process along the border transaction chain – and coordinated border management all present significant correlations with the selected measures of corruption.

Through this empirical exercise, the study also identifies a series of key challenges relating to the quantitative assessment of policies able to support integrity at the border. First, the measures of corruption used are not able to distinguish between corruption incentives versus opportunities and only cover licit trade transactions. Second, controlling for relevant factors in the regression analysis, such as human resource management which has been identified across case studies as an important factor linked to integrity in the border process, is difficult given the lack of cross-country and time data series. Efforts of collecting data and compiling indicators in this area would be warranted and thus be an insightful complement to the existing information on the efficiency of the border process.

Lastly, the empirical exercise also stresses that the complexity of corruption at the border calls for policy coherence when acting to reduce it. As identified in the analysis, number of the key factors identified by the WCO Revised Arusha Declaration and the G20 High Level Principles on Countering Corruption in Customs for effectively preventing and combating corruption in customs do correspond already to basic tenets of worldwide trade facilitation endeavours and of the WTO Trade Facilitation Agreement. Such links could be reinforced and additional trade facilitation elements could be considered in the design and implementation of anti-corruption strategies aiming to support integrity at the border. In addition, the result showing a significant correlation between border agency co-operation and integrity emphasises the importance of devising an approach that is inclusive of all agencies involved in the border process and not solely targeted to Customs officials.

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## Annex 1. Framework for the empirical analysis

### (a) Perception-based border-related corruption data

Building on the framework in Shepherd (2010) and drawing on the WEF corruption measure, border-related corruption is treated as a function of trade facilitation measures together with a set of other controls:

- The wider governance environment (using alternatively the World Bank governance effectiveness and accountability indices) (*govenv*).
- The GDP per capita (World Development Indicators) (*incomecapita*).
- Tariffs – using alternatively from the TRAINS database the share of tariff lines with international “peaks” for all products, which account for the national tariff lines greater than 15% *ad valorem* (%), and the WEF Enabling Trade Index pillar for domestic market access (*tariffpol*).

The WEF GCR perception-based corruption indices are simple averages of survey responses on a 1 to 7 scale (where 1 refers to the highest level of border-related corruption, while 7 attributes the lowest level of border-related corruption). An OLS estimation is first applied for:

$$corr_{it} = f(TFI_{i,t-1}^*, govens_{it}, incomecapita_{it}, tariffpol_{it}, \rho_i, \gamma_t) \quad (i)$$

The analysis is conducted for 151 countries where there is an overlap with the TFIs dataset, across a pseudo-panel for 2012-18. The time-varying WEF data also allows the analysis to account for the potential fact that corruption and trade facilitation could “feedback” each other. The TFIs are available for 2012, 2015 and 2017 and are introduced lagged in the regression (alternatively) in order to control for potential endogeneity concerns. The regression also includes country and time fixed effects to control for unobserved country and time characteristics.

As the WEF GCR perception-based corruption indices are simple averages of survey responses on a 1 to 7 scale, the reported figures can also be rounded off to the nearest integer following Shepherd (2010). This thus allows employing an ordered probit estimator, as a robustness check.

**Table A.1. Perception-based border-related corruption:  
Summary of trade facilitation effects**

Dep. Variable: WEF measure of corruption (index ranging from 1=high corruption to 7=low corruption)		
	OLS	Ordered probit
TFI (a)	0.311*** (0.102)	0.813*** (0.223)
TFI (b)	0.405*** (0.117)	0.925*** (0.254)
TFI (c)	0.334*** (0.123)	0.885*** (0.241)
TFI (d)	0.297*** (0.105)	0.741*** (0.225)
TFI (e)	0.299*** (0.135)	0.759*** (0.238)
TFI_transparency & predictability	0.328*** (0.134)	0.872*** (0.234)
TFI (f)	0.314*** (0.122)	0.846*** (0.255)
TFI (g)	0.309* (0.108)	0.791* (0.299)
TFI (g)_adjusted <sup>1</sup>	0.353*** (0.148)	0.812*** (0.253)
TFI (h)	0.372* (0.288)	0.871* (0.301)
TFI (h)_adjusted <sup>1</sup>	0.419*** (0.156)	0.901*** (0.257)
TFI (i)	0.157*** (0.103)	0.682*** (0.243)
TFI (j)	0.122*** (0.101)	0.648** (0.254)
TFI_bord management	0.139*** (0.104)	0.662*** (0.244)
TFI (k)	0.308*** (0.131)	0.770*** (0.272)
average TFI performance	0.358*** (0.144)	0.891*** (0.241)
Country controls <sup>2</sup>	Yes	Yes
Country and time fixed effects	Yes	Yes

*Note:* The 11 TFI indicators are alternatively introduced in the regression analysis. Regressions apply an OLS estimator and an ordered probit estimator as robustness check and include country and time fixed effects. The number of observations ranges from 134 to 347. Robust standard errors clustered by country reported in parentheses. \*\*\*, \*\*, \* significant at the 1%, 5% and 10% level respectively.

<sup>1</sup>The adjusted indices TFI (g)\_adjusted and TFI (h)\_adjusted are based on 2017 data only. The other specifications cover 2012-18.

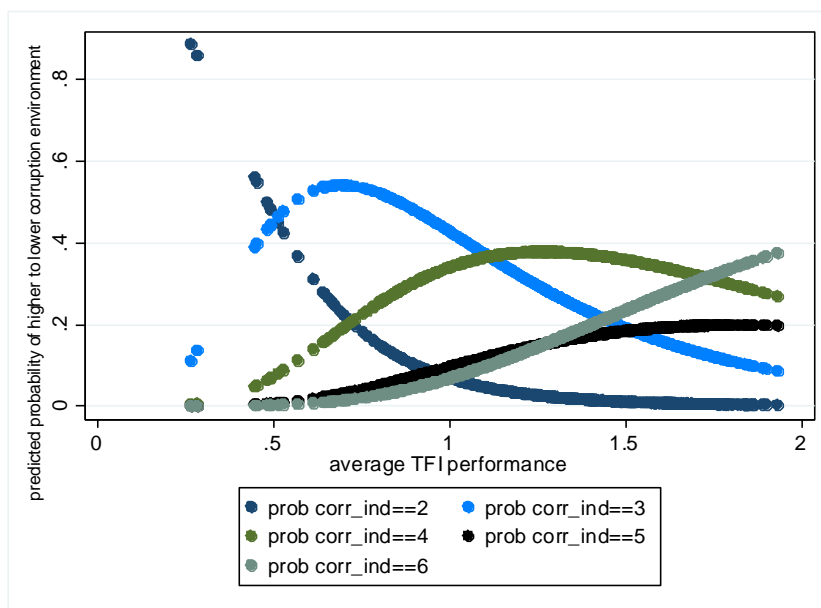
<sup>2</sup>The variables on governance effectiveness and accountability are alternatively introduced in the regressions but are dropped due to multicollinearity. Independent variables are in logarithms.

\* Conducting the regression analysis using the 11 indicators alternatively (plus an index of the average performance), which includes the different control variables and additional robustness checks regressions, yields a very large set of regression results. For ease of reference, the key results for trade facilitation measures are reported in this current version of the paper. Other results can be made available on request

*Source:* Authors' estimations based on WEF perception-based corruption indices.

Probit coefficients are difficult to be directly interpreted in terms of elasticities, it is more meaningful to examine the changes in predicted probabilities associated with changes in the average trade facilitation performance (following the method in Shepherd (2010)). Figure A1 below highlights the predicted probabilities associated with different values for trade facilitation, holding all other control variables constant at their median values. The different line indicates the probability of having a corruption index between 2 and 6 (i.e. being a relatively high corruption country versus a relatively low corruption country). Moving from left to right on the graph, it appears that better trade facilitation performance can exert an economically meaningful effect on border-related corruption, with the probability of recording a relatively low corruption score increasing as the overall trade facilitation policy environment improves.

**Figure A.1. Predicted probability of border-related corruption changing when border processes become more efficient**



Source: Authors' estimations based on WEF perception-based corruption indices.

### (b) Firm-level experiential data

#### (b1) Aggregate country experiential data

When drawing on the WBES firm-level experiential data, the dependent variable is the percentage of firms surveyed reporting that a gift or unofficial payment was asked for or expected to obtain an import license or permit. Also building on the framework in Shepherd (2010), the corruption measure can be seen as a function of trade facilitation performance and the same set of control variables as in (a). As the percentage is a share bounded by 0 and 1, a fractional logit estimator is applied to:

$$pc\_corr_i = f(TFI_i^*, govwider_i, incomecapita_i, tariffpol_i) \text{ (ii)}$$

The analysis is conducted for 64 countries where there is an overlap with the TFIs dataset, across a cross-section with averaged values over 2010-16. A PPML estimator is employed as robustness check, as it helps provide unbiased estimates in the presence of heteroscedasticity.

**Table A.2. Experiential border-related corruption:  
Summary of trade facilitation effects**

Dep. Variable: WBES share of firms not affected by border-related corruption (%)		
	Fractional logit	PPML
TFI (a)	0.171*** (0.042)	0.155*** (0.058)
TFI (b)	0.185*** (0.047)	0.162*** (0.051)
TFI (c)	0.181*** (0.039)	0.177*** (0.048)
TFI (d)	0.152*** (0.095)	0.144*** (0.070)
TFI (e)	0.143*** (0.088)	0.135*** (0.080)
TFI_transparency & predictability	0.184*** (0.084)	0.141*** (0.080)
TFI (f)	0.174*** (0.081)	0.151*** (0.077)
TFI (g) <sup>2</sup>	0.165* (0.144)	0.161* (0.107)
TFI (h)	0.177* (0.193)	0.198* (0.114)
TFI (i)	0.083*** (0.059)	0.068*** (0.040)
TFI (j)	0.075*** (0.060)	0.059*** (0.058)
TFI_bord management	0.080*** (0.059)	0.065*** (0.047)
TFI (k)	0.121*** (0.051)	0.113*** (0.044)
average TFI perf	0.188*** (0.084)	0.157*** (0.080)
Country controls <sup>1</sup>	Yes	Yes

*Note:* The 11 TFI indicators are alternatively introduced in the regression analysis. The dependant variable was rescaled from the share of firms affected by border-related corruption to account for the share of firms not affected by border-related corruption. Regressions apply a fractional logit estimator and include country and time fixed effects. PPML estimation as robustness check. Country or time fixed effects cannot be included. Robust standard errors clustered by country reported in parentheses. \*\*\*, \*\*, \* significant at the 1%, 5% and 10% level respectively.

<sup>1</sup> The variables on governance effectiveness and accountability are alternatively introduced in the regressions but are dropped due to multicollinearity.

<sup>2</sup> Due to the limited number of observations here, it is not possible to test the regression with TFI (g)\_adjusted and TFI (h)\_adjusted as in (a) above.

*Source:* Authors' estimations based on WBES experiential corruption measure.

### (b2) Firm-level regressions with experiential data

A complementary identification strategy is to use the actual WBES firm-level data, accounting for the responses of firms reporting whether a gift or unofficial payment was or not asked for or expected to obtain an import license or permit. This allows applying a conditional fixed effects logit to the equation below:

$$\text{prob}(\text{corr}_{fikt} = 1) = f(\text{TFI}_{it}^*, \text{govwider}_{it}, \text{incomecapita}_{it}, \text{tariffpol}_{it}, \text{fprod}_{fikt}, \text{forown}_{fikt}, \rho_i, S_k, \gamma_t) \text{ (iii)}$$



This analysis is conducted on pooled data covering 2010-16. This approach makes it possible to introduce fixed effects to control for unobservable heterogeneity by country, sector and time. It also includes the following firm-level control variables: (I) firm productivity and (II) foreign ownership.

**Table A.3. Experiential border-related corruption at firm-level:  
Summary of trade facilitation effects**

Dep. Variable: WBES probability of being affected by corruption	
	Conditional FE Logit
TFI (a)	0.163*** (0.012)
TFI (b)	0.171*** (0.017)
TFI (c)	0.177*** (0.019)
TFI (d)	0.143*** (0.024)
TFI (e)	0.149*** (0.019)
TFI_transparency & predictability	0.161*** (0.015)
TFI (f)	0.168*** (0.009)
TFI (g)	0.177* (0.104)
TFI (g)_adjusted <sup>1</sup>	0.185*** (0.019)
TFI (h)	0.183* (0.115)
TFI (h)_adjusted <sup>1</sup>	0.197*** (0.023)
TFI (i)	0.093*** (0.019)
TFI (j)	0.081*** (0.016)
TFI_bord management	0.084*** (0.016)
TFI (k)	0.133*** (0.014)
average TFI perf	0.175*** (0.012)
Country and firm-level controls	Yes
Fixed effects	Yes

*Note:* The 11 TFI indicators are alternatively introduced in the regression analysis. The probability of being affected by corruption is translated into a dummy indicating firms that have been asked for a gift or informal payment in connection with obtaining an import license. The dependant variable is rescaled so as to show when a firm is not asked for an informal payment. Estimation is by conditional fixed effects logit, with country, time and firm fixed effects. Robust standard errors clustered by country reported in parentheses. \*\*\*, \*\*, \* significant at the 1%, 5% and 10% level respectively.

<sup>1</sup>The adjusted indices TFI (g)\_adjusted and TFI (h)\_adjusted are based on 2017 data only. The other specifications cover 2010-17.

*Source:* Authors' estimations based on WBES experiential corruption measure.