

# incu

INTERNATIONAL NETWORK OF CUSTOMS UNIVERSITIES



WORLD CUSTOMS ORGANIZATION



## *World Customs Journal*

September 2017

Volume 11, Number 2

ISSN: 1834-6707 (Print)  
1834-6715 (Online)



---

# World Customs Journal

---

*September 2017*  
*Volume 11, Number 2*



WORLD CUSTOMS ORGANIZATION

**incu**

INTERNATIONAL NETWORK OF CUSTOMS UNIVERSITIES

## ***World Customs Journal***

Published by the Centre for Customs and Excise Studies (CCES), Charles Sturt University, Australia and the University of Münster, Germany in association with the International Network of Customs Universities (INCU) and the World Customs Organization (WCO).

The *World Customs Journal* is a peer-reviewed journal which provides a forum for customs professionals, academics, industry researchers, and research students to contribute items of interest and share research and experiences to enhance its readers' understanding of all aspects of the roles and responsibilities of Customs. The Journal is published twice a year. The website is at: [www.worldcustomsjournal.org](http://www.worldcustomsjournal.org).

Guidelines for Contributors are included at the end of each issue. More detailed guidance about style is available on the Journal's website.

Correspondence and all items submitted for publication should be sent in Microsoft Word or RTF, as email attachments, to the Editor-in-Chief: [editor@worldcustomsjournal.org](mailto:editor@worldcustomsjournal.org).

ISSN: 1834-6707 (Print) 1834-6715 (Online)

Volume 11, Number 2

Published September 2017

© 2017 CCES, Charles Sturt University, Australia and University of Münster, Germany

INCU ([www.incu.org](http://www.incu.org)) is an association that provides the WCO and other organisations with a single point of contact with universities and research institutes that are active in the field of customs research, education and training.

**Copyright.** All rights reserved. Permission to use the content of the *World Customs Journal* must be obtained from the copyright owner. Please apply to the Editor-in-Chief.

**Disclaimer.** The views expressed in the *World Customs Journal* are those of individual contributors and are not necessarily those of the Editorial Board, INCU, the WCO or its individual membership, or the publishers.

# Contents

Editorial.....	v
<b>SECTION 1 – ACADEMIC CONTRIBUTIONS .....</b>	
<b>The development of modern revenue controls on alcoholic beverages</b>	
<i>Doug Godden and Elizabeth (Liz) Allen .....</i>	3
<b>Trade facilitation and customs revenue collection: Is that a paradox?</b>	
<i>Cristiano Morini, Paulo Costacurta de Sá Porto and Edmundo Inácio Jr.....</i>	23
<b>Assessment of the performance of Russian customs authorities</b>	
<i>Anna Vladimirovna Bobrova .....</i>	37
<b>Simplified procedures for customs intellectual property rights enforcement</b>	
<i>Alan Towersey .....</i>	49
<b>Establishment of an international legal framework for cross-border electronic commerce rules: Dilemmas and solutions</b>	
<i>Min Wang .....</i>	61
<b>An analysis of prime determinants and constraints of Bangladesh's export market: Stochastic frontier gravity model approach</b>	
<i>Md Tariq Hassan .....</i>	77
<b>SECTION 2 – PRACTITIONER CONTRIBUTIONS .....</b>	
<b>Chemical laboratory support for Customs: Vegetable oils added to diesel fuel—a case study</b>	
<i>Vito Daniele, Paolo A Di Lorenzo, Adriano Francescangeli and Magda Franco .....</i>	95
<b>The role of information technologies in the development of customs control in the Republic of Bulgaria</b>	
<i>Momchil Antov .....</i>	101
<b>SECTION 3 – SPECIAL REPORT .....</b>	
<b>Trump just might be giving us the opportunity to make NAFTA even stronger</b>	
<i>Alan Bersin .....</i>	117
<b>SECTION 4 – REFERENCE MATERIAL .....</b>	
<b>Guidelines for Contributors .....</b>	
<i>.....</i>	121
<b>Editorial Board.....</b>	
<i>.....</i>	122



## Editorial



The entering into force of the World Trade Organization's (WTO) Trade Facilitation Agreement earlier this year was a welcome development that appeared to signal member states' realisation that cross-border trade is critical to global economic growth. At about the same time, however, the United States (US) formally withdrew from the Trans-Pacific Partnership (TPP) Agreement, potentially the world's broadest regional free trade agreement in terms of both its scope and ambition.

The decision to withdraw was made by President Trump who had also described NAFTA as the worst trade deal ever, and indicated that it would be scrapped. In this edition's Special Report, *Trump just might be giving us the opportunity to make NAFTA even stronger*, Alan Bersin provides an insightful commentary on the symbiotic relationship that NAFTA has nurtured between the US and Mexico, and the resultant interdependence that now exists. He points to the need to reinvent the North American security and trade role based on the guidance of those public and private sector entities who best understand the nature of its cross-border commerce.

Despite the US decision to withdraw from the TPP, the 11 countries that remain are continuing to pursue the long-term vision of an Asia-Pacific free trade area as a critical driver of regional economic integration. Importantly, once it comes into force, membership of the TPP will be open to other Asia-Pacific economies.

The message delivered by Alan Bersin about those who best understand the nature of cross-border commerce in the North American context is of equal relevance to the TPP: 'Their knowledge and experiences of what actually works for states, cities and communities on the border should drive the national debate about what "secure" and "smart" borders ought to look like in national policy terms'.

Hopefully, others in the process of negotiating or contemplating free trade agreements will heed this advice, and seek the guidance of those who fully understand the practicalities of the cross-border environment when formulating such arrangements. The academic community, particularly contributors to the *World Customs Journal*, are well placed to provide empirical evidence that can inform such policy decision-making.

A handwritten signature in blue ink, appearing to read "David Widdowson".

David Widdowson  
Editor-in-Chief



# incu

INTERNATIONAL NETWORK OF CUSTOMS UNIVERSITIES



WORLD CUSTOMS ORGANIZATION



## *Section 1*

### *Academic Contributions*



# The development of modern revenue controls on alcoholic beverages

*Doug Godden and Elizabeth (Liz) Allen*

## Executive summary

Tax stamps are used by regulators in approximately fifty countries globally in an attempt to protect alcohol tax revenues. This article assesses their effectiveness and takes a closer look at the factors critical to determining the overall success of tax stamps and related technologies. We show that, in isolation, tax stamps are a sub-optimal policy choice. Instead, the goals of curbing illicit trade in alcohol and protecting tax revenues require a much wider package of effective monitoring, control and enforcement measures. High and discriminatory rates of tax should also be avoided as these incentivise illicit trade.

At best, modern electronic stamps may make a positive contribution where they are an integral part of a much wider system of enforcement and deterrence, and where the tax system is well-designed. But it is also possible for stamp schemes to be counter-productive. The extra costs imposed on business can create upward pressure on prices, providing an incentive to avoid regulated channels. Stamps can also be susceptible to counterfeiting, and may act as a cover for other fraudulent practices, such as the refilling of stamped bottles with illicit alcohol.

Stamps embedded with a means of electronic communication may help the authorities identify legitimate product in the distribution chain and enable verification by consumers. In certain circumstances, they have been associated with reductions in illicit activity and an increase in tax revenue. However, this requires the development and maintenance of complex logistic and IT control networks in order to be effective.

Before introducing any anti-illicit alcohol strategy, authorities should ensure that they have a full understanding of the size and nature of the market. Successful anti-fraud strategies must be evidence-based and targeted to the nature of fraud, and implementation will depend heavily on well-designed and well-resourced surveillance, interception and deterrence activities. Indeed, if enforcement is sufficiently robust (and the tax system well designed), then potentially costly tax stamp schemes could be avoided altogether, with little revenue impact. By contrast, if enforcement is not sufficiently robust, then tax stamps may have little or no effect.

Governments considering the introduction of a new stamp scheme should carefully examine whether alternative policies could achieve the desired outcome at a lower cost. That may mean stricter controls on licensing, more sophisticated systems of surveillance and control, enhanced penalties for illicit activity, awareness campaigns aimed at potential suppliers and consumers of illegal alcohol, and/or more resources for the revenue, border and police authorities. Effective controls also require a partnership approach amongst national and international enforcement agencies, and can be enhanced by a partnership approach with the legitimate alcohol industry.

Whatever systems of enforcement and control are put in place, governments should also remember the potential for elevated tax rates to encourage informal activity at the expense of the formal tax-paying sector, thereby undermining revenues and encouraging the range of other problems associated with illicit trade, from irresponsible drinking to the funding of other crime. A simple tax structure will also foster compliance and transparency.

The seven case studies in this paper illustrate a number of the points referred to above:

- In Denmark, the government abolished tax stamps on spirits in 2015, having previously removed stamping requirements on wine in 2001. Stamps were widely considered to be outdated and unnecessarily burdensome and costly.
- Turkey's tax stamp scheme is partially credited with helping to reduce illicit trade. But more recently, illicit trade appears to have been recovering, with many blaming sharp rises in tax rates and tighter regulations affecting taxed products.
- In South Korea, a scheme involving radio frequency identification (RFID) tags now applies to whisky-based products. This has added considerably to costs for industry and the authorities and has not prevented legal sales and associated tax revenues declining.
- In the UK, illicit activity in the spirits market fell following the introduction of a scheme covering that category. But this was introduced as part of a much wider package of enforcement measures and views vary significantly on the role of the stamps.
- In Kenya, electronic stamps may have helped to combat some illicit trade, but costs to the industry are a concern. It is, however, too early to judge the effectiveness of the scheme's more recent extension to beer, which has exacerbated the cost impact.
- In Colombia, despite a longstanding system of tax stamps for spirits, use of smuggled and artisanal products has remained stubbornly high, with legal spirits use falling.
- In Morocco, the introduction of an advanced tracking system is credited by some with containing illicit activity in general, but it is not possible to detect a positive impact in relation to alcohol. With the cost of formal alcoholic products very high relative to artisanal and smuggled products, legal alcohol use, and taxes, have recently declined.

Overall, our review shows that tax stamps make a limited contribution to achieving their intended policy goals. To work well, the evidence base first needs to be established on the illicit market, and tax stamps should only be considered alongside key policy levers, including tax policy and the regulatory and enforcement framework. Success in curbing illicit trade and ensuring tax compliance will be assisted, and to a large extent facilitated, by:

- Ensuring that the excise duty system is well designed—simple, non-discriminatory and with rates not set so high as to incentivise a shift into the informal market
- Ensuring that the strategy to tackle fraud involves a robust understanding of the illicit market, credible and comprehensive data, a well-resourced monitoring and enforcement regime, and sufficient penalties to deter illicit trade
- Ensuring that tax stamps, if used, are difficult to counterfeit and not overly costly, and that procedures are in place to prevent other potential abuses of the stamp system.

## **1. Introduction**

The sale of alcohol has long been subject to excise taxation, charged on the production or sale of specific products. Unlike customs duty, which is charged at the border when products are imported, excise duties are charged 'inland', typically on the sale or production for sale of the relevant good. Products which are subject to excise duties tend to be characterised by their inelastic consumer demand—when price goes up, demand for the product falls less than proportionately—as this makes them good candidates for raising revenue. To maximise that revenue, governments have often set high rates of excise duty for such goods.

Though overall demand may remain high in face of higher prices, reflecting the inelasticity, such policies very often lead to an increase in illicit trade as consumers seek cheaper sources of supply. In this way, setting excise rates excessively high will likely result in unintended fiscal and social consequences. For example, without effective forms of control, high rates of tax can result in a greater incidence of smuggling, non-declared domestic production, and greater use of counterfeit goods and illicit goods. As well as fuelling crime, this can have negative health implications (as counterfeit alcohol can be hazardous to public health, for example), higher enforcement costs, and a reduction in the revenues collected.

The term ‘illicit alcohol’ covers a range of situations including smuggling, tax evasion, and counterfeiting, and the problem will vary from market to market. It follows that a generic approach is unlikely to be effective. A guiding principle in introducing a tax stamp system should be that it is targeted to the problem, is effective and proportionate, and avoids significant disruption to legitimate business.

Governments have adopted a range of measures designed to ensure that taxes are paid and that illicit trade is minimised. More recently, governments have sought mechanisms that can also authenticate the goods and enable better tracking, to safeguard health and intellectual property rights, and ensure the provenance of products. In some jurisdictions tax stamps have been implemented to meet these multiple objectives—but with varying degrees of success.

This paper seeks to provide an assessment of the relative merits of tax stamps, drawing on the experience of a select group of countries. We regard the research as necessary as little if any research has been undertaken in this field, and hope that it will act as a spur to further, more extensive investigations. Due to the sparse nature of official data bearing on the study, and the need to distinguish cause and effect where data is available, some of the data and information had to be provided by industry sources, and some of the findings are based on interviews with industry experts based on the ground in the countries concerned.

We begin by reviewing the varying types and technologies of tax stamps, before providing an empirical assessment of their effectiveness via a case study approach. Finally, we provide an assessment of alternative and/or complementary means of tax and enforcement that can help to minimise tax evasion on excisable products.

## 2. Tax stamp types and technologies

### 2.1 What are tax stamps?

The use of tax stamps became widespread in the 19th century to collect taxes and fees. Stamps are issued by official bodies to indicate that a tax, duty or fee has been paid or pre-paid (or in some cases that tax is due). Usually, a producer will buy stamps from the government to the value of the duty owed, which are then affixed to each bottle to show that excise tax has been paid. The stamps come in many sizes and forms—e.g. gummed, perforated, printed or embossed—and may be fixed across a seal, so as to be destroyed when the bottle is opened.

### 2.2 Effectiveness of tax stamps

The design of the tax stamp and overall system can make an important difference to the effectiveness of the regime. In some circumstances a tax stamp system may actually increase the scope for alcohol-related fraud. The stamps themselves might be easily counterfeited, or it may be possible to re-fill genuinely-stamped bottles with illicit product. Any stamping and/or associated production processes therefore need to guard against these possibilities.

It follows that most paper tax stamps use highly specialised design features to guard against counterfeiting, along the same lines as for bank notes and using the same type of paper and ink. Regrettably, our case

studies find that even modern versions of paper tax stamps can be counterfeited, sometimes within weeks of their issue. To keep ahead of potential counterfeiters, stamps are regularly updated with technological improvements, including multiple security devices intended to prevent counterfeiting. The downside to this approach is that costs can be high for administration and enforcement agencies, as well as for industry.

Achieving the right balance between robustness and cost is therefore important. A costly system undermines the revenue-raising effectiveness of stamps, and/or increases the price of legitimate products. In the UK, production costs have been kept down by allowing stamps to be incorporated into the bottle's normal label, but this does nothing to prevent illicit re-filling, so other aspects of the enforcement and monitoring system are used to guard against that. Further, the rise of computerisation and the ability to track payments accurately have made the use of tax stamps as a revenue collection mechanism in developed countries less common.

### **3. Case studies: The effectiveness of tax stamps**

A major difficulty for assessing the impact of tax stamps is the lack of available information, including that on the size of the legitimate alcohol market, on tax revenues, and on the size and nature of the illicit alcohol market. Typically, a robust post-implementation assessment of the system will not have been undertaken, as it would have been, ideally. Despite this, the following case studies attempt to examine and evaluate different tax stamp regimes based on the best available data. The profiles are informed by industry information and data, interviews with industry representatives on the ground, and information and data in the public domain. This includes data from the World Health Organization (WHO), for which the standard measure is pure litres of alcohol consumed by resident individuals aged 15 and over.<sup>1</sup>

#### **Note on choice of case studies and data sources**

The countries were selected to ensure a variety of geographic locations and stages of economic development. In most cases, the schemes were introduced in the fairly recent past (2006-2012), to allow comparison between a 'before' and 'after' period. The two exceptions to this are Colombia, chosen as an example of a country with a longstanding scheme, and Denmark, which is pertinent as its scheme was abolished. The studies also encompass a range of different stamp features, stamp systems and wider anti-illicit strategies.

While some official estimates concerned with legal and illicit alcohol use, tax revenues, and tax shortfalls resulting from illicit activity, are available, the data is sparse. And we are unaware of any official or independent studies specifically investigating this subject. In some cases, we have had to rely on data supplied by industry sources—well-established, significant alcohol distributors based in the countries concerned—as no official or other information was available. The data so provided was checked by Oxford Economics for consistency with the wider economic, industry and fiscal data in the public domain and/or built into the company's suite of economic models.

Furthermore, hard data alone is insufficient to prove or disprove the usefulness of tax stamp schemes. Where an increase in revenues follows the introduction of stamps, that could be the result of the new scheme, but other explanations are also possible. For example, it may be that the scheme was introduced as part of a much wider package of anti-evasion measures, and that other elements of that strategy were the key to success.

The case studies also, therefore, relied on interviews with key figures in the countries concerned, to better understand the full picture and distinguish between cause and effect, and gather additional information such as that on business compliance costs. The interviewees included many with experience of working in the alcohol industry, but also some previously involved in government treasury functions. It is worth highlighting here that the legitimate drinks industry has a significant vested interest in the success of governments' anti-illicit alcohol strategies, and should therefore be expected to look favourably on any scheme able to counter illicit activity at a reasonable cost.

### 3.1 Denmark

#### 3.1.1 Background

Tax stamps for wine and spirits had been a longstanding feature of the Danish system. But they were abolished in the case of wine in 2001, and eventually ceased to apply to spirits in 2015. Prior to that, two types of stamp had been operational—a paper strip stamp applied over the top and one side of the bottle, and a specially stamped ‘fiscal cap’. In practice, the bespoke complexities of operating the ‘fiscal capping’ machinery meant that the vast majority of imported products used the paper strip versions.

The decision to phase out tax stamps altogether followed a proposal by the Business Forum for Better Regulation (an independent body set up to advise the Danish Business Authority), motivated by a feeling that the system had become antiquated and imposed an unnecessary, material administrative burden on manufacturers and importers. Most member associations of the European Spirits Organisation supported the removal of strip stamps, reflecting concerns that they contravened the spirit of the European Single Market, their perceived ineffectiveness as a means of control, and the additional costs associated with their implementation.<sup>2</sup>

#### 3.1.2 Cost impact for the industry

By general consensus, the introduction of tax stamps raised costs for producers, with a disproportionate impact on small firms. The Scotch Whisky Association (2011) paper pointed out that the requirement to apply strip stamps (of the type used in Denmark) reduced the efficiency of bottling line machinery by between 8 and 30 per cent and raised the overall cost of operating standard bottling processes on automated lines by between 7 and 10 per cent.

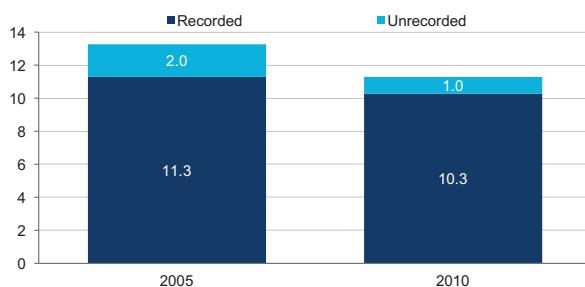
On top of this, firms were required to incur a significant capital expenditure cost with the price of stamping machines ranging between €50,000 and €235,000. Moreover, there was evidence to suggest that the per unit operational cost of implementing tax stamps fell with production volumes, so that the stamps imposed a relatively more damaging impact on smaller producers—a potentially anti-competitive effect.

#### 3.1.3 Effectiveness in curbing illicit trade and impact on legal alcohol consumption

According to WHO data, there was a significant drop in unrecorded alcohol consumption between 2005 and 2010. But this was part of a wider decline in alcohol consumption over that period, with recorded consumption also declining, so the precise contribution of the tax stamp regime to the reduction in illicit use (if any) is unclear. In fact, WHO data point to a 9 per cent decline in recorded consumption volumes per head during that five-year period, led by a 19 per cent drop in legal spirits—the only type of drink covered by the stamp regime at the time.

#### Recorded and unrecorded consumption of alcohol in Denmark

Pure litres of alcohol consumed per person aged 15 and over

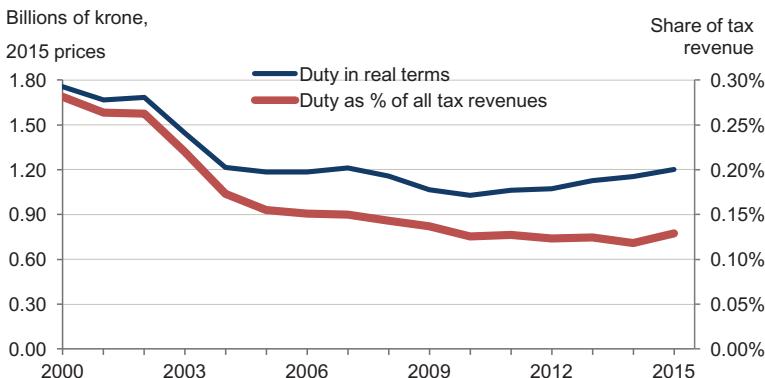


Source: World Health Organization

### 3.1.4 Impact on government revenues

While illicit trade fell significantly when the tax stamps were in operation, recorded use also eased back and there was no positive impact for tax revenues. Indeed, spirits duty revenues fell in inflation-adjusted terms, although that largely reflected a 45 per cent cut in duty rates in 2003. While the resulting 25 per cent drop in consumer prices was initially followed by a sharp rise in the level of recorded consumption per capita, this trend subsequently reversed. After 2004, excise duty revenues held steady. The most recent official data suggests that revenues from spirits duties were virtually unchanged in real terms in 2016, thereby holding above the levels achieved between 2009 and 2014, despite the abolition of the stamps.<sup>3</sup>

#### Excise duty revenues from spirits



Source: Oxford Economics/Eurostat

## 3.2 Turkey

### 3.2.1 Background

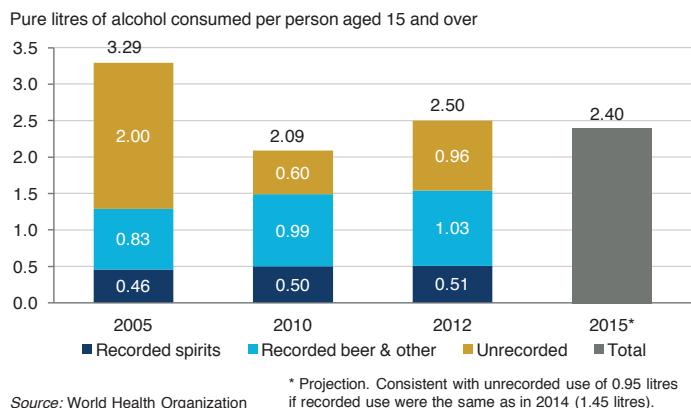
Strip stamps were introduced for all alcoholic drinks in Turkey in 2006, when illicit use was high as a share of total alcohol use (though not in absolute terms, by global standards). They were replaced by ‘next generation’ stamps in 2015—offering information to consumers via a mobile phone application. Once the stamps are activated, the Ministry of Finance and relevant Regulatory Board can monitor the movement of the products through the distribution chain.

The stamps appear to have been successful in reducing illicit trade and unpaid taxes in the years immediately following their introduction, but more recently illicit activity is reported to have been on the increase in response to significant increases in tax rates. This underscores the point that, at best, tax stamps will only ever form a part of an effective tax and regulatory structure designed to minimise illicit consumption and maximise revenues.

### 3.2.2 Cost impact for the industry

Stamps are fixed to each bottle either on site by local manufacturers, or by importers at the border. The costs of the machinery needed to attach stamps are covered by the company to whom the scheme is outsourced (although this is effectively incorporated into the cost of the stamp). The cost impact for domestic manufacturers is lower as the process of fixing the stamps can be integrated into the wider production process. However, importers face higher costs as they need to unpack and repack bottles in order to fix the stamps.

## Recorded and unrecorded consumption of alcohol in Turkey



### 3.2.3 Effectiveness in curbing illicit trade

The period since 2006 has two distinct phases, with a pattern of improvement and then reversal reflected in the WHO figures. Untaxed use declined between 2005 and 2010, and the Turkish alcohol industry credits the introduction of tax stamps with reducing illicit activity at that time, not least because no other anti-illicit trade measures were introduced around the same time. More recently, however, illicit trade appears to have been increasing, with a clear rise in unrecorded consumption between 2010 and 2012.<sup>4</sup> This picture is reinforced by anecdotal evidence of a more recent and ongoing increase in illicit trade in alcohol.

The most likely explanation for this reversal, and a view shared by both industry insiders and independent journalists in Turkey, is the set of stark policy changes made in recent years. Alcohol tax rates have risen at a sharp pace, such that in 2015 the price of a popular brand of Scotch whisky was 52 per cent higher than five years earlier (compared with a rise in general consumer prices of only 46 per cent).<sup>5</sup> In addition, new restrictions on when, and where, alcohol can be sold, alongside a ban on all advertising and promotion of alcohol within the country's borders, were introduced in 2013. This suggests that any positive impacts of the stamp scheme in curbing illicit activity may have been offset by the negative impact of the wider tax and policy environment.

### 3.2.4 Impact on legal alcohol sales and on government revenues

The fall in untaxed use between 2005 and 2010 was accompanied by a modest rise in taxed use per head. International Wine and Spirits Research (ISWR) data show legal beer sales rising by 13 per cent in that time, with spirits up by 10 per cent and wine by 6 per cent. But since 2010, legal sales have fallen, with beer sales down by 10 per cent by 2015. Although sales of taxed spirits edged up by 4 per cent, and wine by 7 per cent, the overall impact is consistent with taxed alcohol per head (on the WHO basis) falling by 6 per cent over the five years. The initial increase in legitimate alcohol sales was followed by a rise in revenues from the 'special consumption tax' on beverages, from 0.21 per cent of GDP in 2008 to 0.33 per cent in 2012. But despite the sharp increase in tax rates since, this ratio had only edged up to 0.35 per cent by 2015.

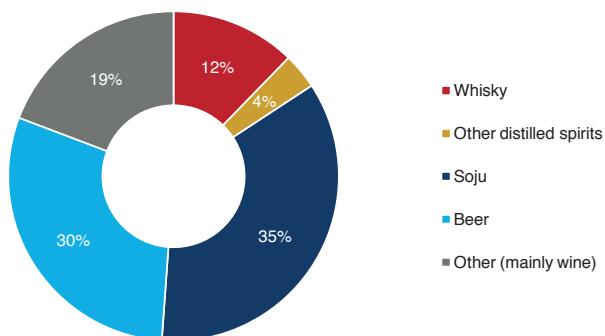
### 3.3 South Korea

#### 3.3.1 Background

No stamp scheme existed in Korea until 2010, when a scheme consisting of RFID tags fitted to bottles was introduced to counter illicit trade in whisky products. The scheme was phased in gradually for whisky between 2010 and 2013, and extended to lower-alcohol whisky-based products in early 2016. It remains confined to these drinks only. As whisky accounts for only 4 per cent of recorded pure alcohol use, and for broadly 12 per cent of taxed sales by value, the impact on the overall alcohol market has been limited. There is no data relating specifically to the illicit whisky trade, but insights from industry players suggest that the scheme had helped to curb such trade—though with significant costs to business.

#### Breakdown of the market for alcohol in Korea

Approximate share of sales by value in 2015



Source: Oxford Economics estimates based on IWSR data and other industry sources

#### 3.3.2 Cost impact for the industry

Tags are fixed by the manufacturer or importer and scanned by a reader through a labour-intensive process that also uses costly machinery—with imports having to be unpacked, tagged and re-packed. Some players see an upside, with the tags providing data on sales, making the market more transparent, and fostering cooperation between the authorities and legitimate business. But smaller firms typically take a less positive view. For them, the proportionate cost of fixing the stamps is higher as they often have to resort to contracting out the process.

#### 3.3.3 Effectiveness in curbing illicit trade

Prior to the scheme, counterfeiting of whisky was not seen as a major problem. But illicit trade in genuine products was believed to exist, and industry insiders believe that the scheme has helped to counter this. The tags transmit information to the central authorities when the tags are fitted, and at the wholesale and retail stages. Counterfeiting is more difficult than for traditional tax stamps, and refilling tagged bottles with illicit product is difficult. Consumers are familiar with the scheme, and can read the tags using special scanners installed at outlets.

#### 3.3.4 Impact on legal alcohol sales and government revenues

Despite the view that illicit trade has been curbed, legal sales of whisky fell from 22.6 million litres in 2010 to 15.8 million litres in 2015.<sup>6</sup> However, this is simply a continuation of a longer-term trend, with sales having peaked at 31.8 million litres in 2002. Prices have been relatively stable, with the price of the most popular brand of Scotch rising by just 9 per cent over the last five years, which was only slightly below the 10 per cent rise in consumer prices generally.

Liquor tax revenues relating specifically to whisky declined from 265 billion Won in 2010 (0.15 per cent of central government tax revenue) to 171 billion Won in 2013 (0.08 per cent). This absolute decline was halted in 2014, as revenues increased marginally to 172 billion Won. However, without later time series data on the evolution of volumes or turnover it is not possible to gauge what effect the RFID system has had on whisky related tax revenues.

### **3.4 United Kingdom**

#### **3.4.1 Background**

The UK tax stamp scheme came into effect in late 2006 in response to concerns about undeclared imports of genuine brands. The implementation of the technology was subject to an EU tender process, with the supplier supervised by the Her Majesty's Revenue and Customs (HMRC). Use of tax stamps by individual manufacturers is subject to a highly complex set of arrangements,<sup>7</sup> with both regular and unannounced physical checks carried out.

The scheme applies only to beverages with an alcohol content of 30 per cent or more—so, in practice, almost exclusively spirits—and only to bottles of 35 cl or more. Since the scheme's introduction, illicit consumption of spirits has fallen, while legal sales of spirits, and associated duty revenues, have risen. But the precise contribution made by the tax stamps to this picture is unclear, as a wider set of enforcement policies has been introduced during the past decade.

#### **3.4.2 Cost impact for the industry**

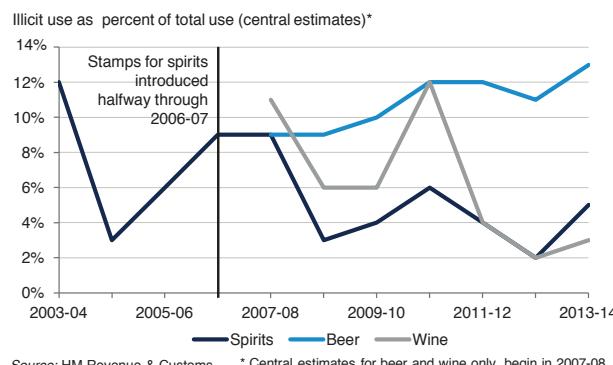
In some cases, the manufacturers or importers have the choice of incorporating the tax stamp into the bottle's main label, keeping costs lower than otherwise. But set-up costs were still regarded by the industry as significant, with ongoing costs still seen as such by smaller manufacturers. A further consequence of the incorporation of stamps into bottle labels is that stamped products cannot be exported, reducing the flexibility of producers in managing stock.

#### **3.4.3 Effectiveness in curbing illicit trade**

HMRC produces estimates of illicit consumption of spirits, beer and wine, and associated tax shortfalls. These suggest that the anti-illicit strategy has been successful for spirits, with illicit trade falling from 10.5 per cent of the market in the six full fiscal years prior to the scheme's introduction, to 4.7 per cent in the seven subsequent full years. But it is unclear how much of this fall can be attributed to the stamps, which have no kind of electronic feature. Many industry insiders argue that strip stamps have in fact made little, if any, contribution, and would prefer the system to be ended due to its costs. And the decline in illicit spirits has been broadly matched by a decline in illicit wine, to which stamps do not apply.

Success in bearing down on illicit use of spirits and wine is likely, instead, to be directly related to wider anti-fraud strategy. This includes the digitisation of warehousing declarations and alcohol movement records; use of due diligence and the Alcohol Wholesaler Registration Scheme to tackle criminal threats; liaison between the authorities and firms to make legitimate supply chains more secure; regulatory tightening to reduce fraud opportunities; co-ordinated sector working with police, health and local consumer protection authorities and more resources for fraud detection activity. More than 330,000 litres of illegal spirits were seized in 2015-16, with a revenue value (duty plus VAT) of £4.3 million. Although that is small compared with the remaining tax gap (£250 million for spirits duty plus VAT, for 2013-14), the fall in illicit activity is consistent with activities of this kind having a considerable deterrent effect.

## Illicit consumption of alcohol in the UK



Source: HM Revenue & Customs \* Central estimates for beer and wine only begin in 2007-08.

Finally, it is worth noting the recent rise in illicit trade in beer, which is mainly smuggled or diverted (within the EU) genuine product, rather than counterfeit product. As a result, the shortfall in beer, wine and spirits duty revenues together fell only from 10.3 per cent in 2007-08 to 7.6 per cent in 2013-14, whereas that for spirits and wine alone dropped from 9.6 per cent to 4.2 per cent. Estimates and projections published by WHO, meanwhile, show that total unrecorded alcohol use in the UK fell from 9.7 per cent of the market in 2005 to 8.6 per cent in 2012, but nudged back up to above 11 per cent by 2015. Some industry experts have therefore suggested that the policy of applying the scheme to spirits, but not to beer, is inconsistent.

### 3.4.4 Impact on legal alcohol sales and government revenues

Legal sales of spirits rose by 16 per cent in volume terms between 2005 and 2015, compared with growth in the adult population of 9 per cent. That was achieved despite significant price rises, partly related to increases in duty. The cost of the most popular brand of vodka increased by 57 per cent over the 10 years, compared with a rise in the general consumer price level of only 25 per cent. HMRC's estimates of the percentage shortfall in excise duty closely follow the share of illicit consumption in the market. Helped by the downward shift in the latter, spirits duty revenues increased by a cumulative 36 per cent in real terms between 2005-06 and 2015-16, to £3.15 billion, ahead of the 18 per cent rise in the relevant rate of excise duty.

## 3.5 Kenya

### 3.5.1 Background

The history of tax stamps for alcohol in Kenya falls into three phases. The system was extended from tobacco to spirits in 2006, in an attempt to curb significant illicit use and tax losses. But the stamps had no electronic function and were easy to counterfeit, and illicit trade remained widespread. This prompted the introduction of new electronic stamps in early 2013, as part of the wider Excisable Goods Management System enabling stamped products to be tracked and validated. But the effectiveness of that system remains unclear and disputed. Finally, in early 2016 the system was extended to cover all alcoholic drinks including beer.

### 3.5.2 Cost impact for the industry

The tax stamp and tracking systems have added significantly to costs, taking into account the installation of stamp fixing equipment, the fixing process, the cost of the stamps themselves (which are charged for on top of excise duty), machine downtimes associated with the system, system management, and meetings with officials. The costs are borne by the industry with no help from the government, but in practice they are passed on to the final consumer.

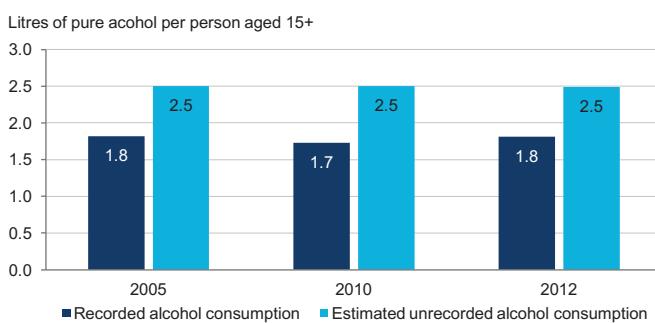
The industry's concerns about costs were compounded by the extension of the scheme to beer. In the six months following this move, the cost to a key industry player is put at one billion shillings (USD10 million). This includes the cost of stamps for drinks of all types, and losses associated with significant machine downtimes, but it mostly relates to beer. Beer production in Kenya is currently running at around one billion bottles per year (400 million litres, mostly in 0.5 and 0.3 litre containers). With each stamp charged at 1.5 shillings, the annual cost of the stamps alone, for Kenyan beer manufacturing operations, will amount to 1.5 billion shillings (USD15 million). Consequent price rises are then magnified by the impact of VAT.

### 3.5.3 Effectiveness in curbing illicit trade

According to the WHO, untaxed consumption accounted for the majority of alcohol use in 2005, with the picture remaining similar in 2010 and 2012.<sup>8</sup> Continued illicit use at that time involved undeclared production, inward smuggling, 'flow back exports', and counterfeiting. The fact that the original tax stamps were 'mute' made them less effective, while counterfeiting of stamps, and the fixing of genuine stamps to counterfeit products, are believed to have exacerbated the problem. This illicit activity is believed to have centred on spirits rather than beer.

The system introduced in 2013 will have made it easier to identify and deter illicit activity. The new stamps have enhanced security features and electronic function. A track and trace system is now in place enabling licenced manufacturers and importers to order, pay for and activate the stamps, and the Kenya Revenue Authority (KRA) to approve orders and analyse activity. The KRA also set up the Market Surveillance Unit, with 100 officers recruited in 2014, on the way to a target of 300. New devices enable these officers, as well as manufacturers, distributors and retailers, to validate stamps, and tens of millions of shillings-worth of illicit products, including spirits, have since been seized and destroyed. Advertising campaigns are run, and consumers can validate stamps using smartphones, and report suspicious products via a hotline.

### Recorded and unrecorded alcohol consumption in Kenya



Source: World Health Organization

Even so, the practical impact on illicit trade is as yet unclear, and disputed. No WHO data on untaxed use is available post-2012, and while the KRA points to a sharp rise in revenue collection, industry insiders do not believe that the system has been effective in curbing illicit trade. Illegal and potentially dangerous home-brewed alcohol, consumed on site in 'secret dens', is believed to have remained common. Illegal imports of spirits may continue to be encouraged by the existence of lower-priced products elsewhere in the East African customs union. And there is also a view that it is only a matter of time before the new stamps are counterfeited. Industry officials believe that, while there is an unregulated supply of

traditional or artisanal beer, illicit trade in genuine or counterfeit products was never a problem for beer, and that extending stamps to these products has simply pushed up costs and prices for no good reason.

### **3.5.4 Impact on legal alcohol sales and on government revenues**

According to the WHO dataset, taxed consumption remained steady, at close to 1.8 litres of pure alcohol per head, throughout 2005-2013. That is consistent with tax stamps doing little to encourage switching from illicit and informal consumption to formal use at that time. More recent ISWR data is consistent with legal use of spirits picking up on a per capita basis between 2013 and 2015, and with beer and spirits sales holding up at historically high levels in 2016.<sup>9</sup>

However, the industry does not believe that the stamp system has contributed to recent buoyancy—indeed, it is thought that sales would have been higher still had it not been for stamp—and excise-driven price increases, especially for beer. Instead, it is put down to wider economic growth, investment in the market by international stakeholders, and a review of tax on alternative alcoholic drinks made from sorghum. To the extent that some spirits consumption may have switched from the illicit to the legal market in 2015 and 2016, this is put down to increased anti-illicit activity, rather than the use of the new tax stamps.

It is widely accepted that the original ‘mute’ tax stamp system did little to curb illicit activity. Indeed, total excise duty revenues declined from a peak of 3.2 per cent of GDP in 2005-06 to 2.0 per cent in 2011-2012.<sup>10</sup> The position since the introduction of the track and trace system is unclear. The KRA state that revenues relating to tobacco, spirits and wine jumped by 40 percent after the system’s introduction. But while total excise duties rose from 79 billion shillings in 2011-12 to 140 billion in 2015-16, as a share of GDP they have only risen to 2.1 percent. Most recently, increased rates of duty for beer and soft drinks are expected by the authorities to bring in 17 billion shillings per year, with a further 30 per cent boost to revenues from these items due to the extension of tax stamps to them. But whether these revenues are realised, or sustained, remains to be seen, given the potential for higher prices to suppress beer sales.

## **3.6 Colombia**

### **3.6.1 Background**

Colombia has a longstanding system of tax stamps. All imported and domestically-produced spirits, spirits-based ready-to-drink products (RTDs), and wines, require a tax stamp specific to the department (regional authority area) in which the drink is to be sold. Despite this, the illicit share of total alcohol use has remained stubbornly high, with growth in the legal market subdued in recent years and associated tax revenues depressed as a consequence. The federal authorities have announced an intention to introduce a national ‘track and trace’ system in response, but the timeline for implementation, and other key details, have yet to be confirmed.

### **3.6.2 Cost impact for the industry**

While the stamps themselves do not have to be paid for, over and above the excise duty payment that they signify, the wider system nevertheless involves significant costs. The stamps must be affixed over the closure of each bottle, with one international company running 20 warehouses across the country where manual fixing takes place. Payments must be made for legal documents allowing the transportation of imported alcoholic products, and the company pays a logistics partner to undertake the significant amount of paperwork associated with the payment of excise duty. No financial help is given by the authorities. Taking other costs into account too, Colombia is regarded by the industry as one of the most expensive

countries in the world in which to operate. And while the cost of complying with the legal framework is not significant on a per bottle basis for large scale operations, it can be for smaller legitimate firms.

### **3.6.3 Effectiveness in curbing illicit trade**

Despite the tax stamp system, illicit trade is fairly widespread. This is encouraged by the poor affordability of legal products, taking local earnings into account, and the availability of lower-priced alcohol in neighbouring countries. High rates of excise duty, the system of departmental-run monopoly alcohol retailers (“licoreras”), and the associated restricted availability of legally-imported products, are all blamed for contributing to this picture. Total alcohol use is estimated by WHO to have been close to the global average, at just over six litres of pure alcohol per head, in 2010 and 2012. But the proportion accounted for by unrecorded use was around 30 per cent, which was little changed on 2005 and clearly above the global average of 24 per cent. Euromonitor International (2015) also finds the illicit share of the total to be fairly high by global standards.

Illicit alcohol trade is reported to mostly involve spirits rather than beer or wine, and to include smuggled imports (such as from Venezuela, Panama and Aruba), counterfeiting, and the manufacture of illegal and potentially dangerous adulterated spirits. Smuggled products are often channelled through the La Guajira special customs zone, while some counterfeiting involves adulterated spirits being bottled in recycled, originally-genuine containers. Organised criminal gangs are reported to be heavily involved in all of these activities. Euromonitor suggests that counterfeit alcohol accounted in 2014 for 46 per cent of the illegal market by volume, and contraband (i.e. illegal imports) for 36 per cent, with drink not intended for human consumption (10 per cent), illegal artisanal products (5 per cent), and evasion of duty by otherwise legal products (3 per cent) making up the remainder.

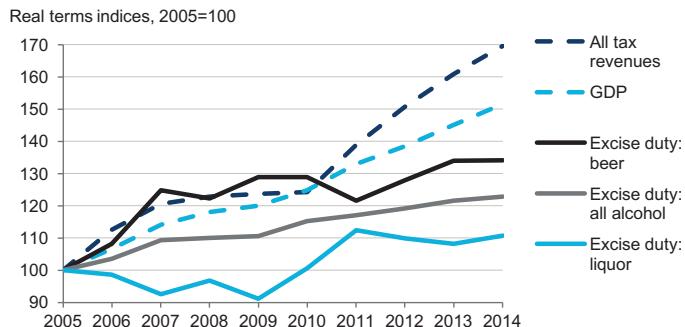
The tax stamps are regarded by the industry as easy to counterfeit. In addition, the industry concurs with journalists’ reports suggesting that a black market exists allowing smugglers and counterfeiters to get hold of genuine stamps, and that genuine original bottles, bearing genuine stamps, have been found to have been refilled. So, while consumers can check the validity of stamps by visiting a website, this is not sufficient to guarantee the legitimacy of a product. The legitimate industry believes that government enforcement activities could and should be stepped up, with the penalties for illicit activities strengthened. Implementation of the proposed federal tracking system would be welcomed as part of wider enforcement efforts.

### **3.6.4 Impact on legal alcohol sales and on government revenues**

Recorded alcohol sales are reported by the WHO to have been fairly steady on a per capita basis, at around 4.5 litres of pure alcohol per head, throughout the period 2000-2014. The market mainly comprises beer and spirits, with legal beer consumption rising over that time but legal use of spirits—the subject of the tax stamps regime—declining. The Euromonitor report suggests that legal sales volumes grew more slowly than illicit volumes between 2012 and 2014, while ISWR-based estimates point to subdued growth in legal sales between 2012 and 2015, with legal spirits consumption dropping in the latest year.

The Colombian authorities suffer significant tax losses as a result of contraband and counterfeit alcohol, with the same Euromonitor study for example putting fiscal losses at USD423 million in 2014. As alcohol-related excise duties collected in that year amounted to just over USD1,500 million, this loss is clearly significant in proportionate terms.

## Trends in tax revenues relative to GDP



Source: OECD/Haver Analytics/Oxford Economics

With growth in the legal market constrained, alcohol-related taxes have fallen as a share of total tax revenues and GDP. Between 2005 and 2014, OECD data show the total of all tax revenues in Colombia increasing by a cumulative 70 per cent in inflation-adjusted terms, ahead of the rise in real GDP of 50 per cent. But alcohol-related excise duties grew by a comparatively modest 23 per cent on that basis, only just ahead of the 19 per cent rise in the adult population. Beer-related duty revenues rose by 34 per cent in real terms in that time, while liquor-related revenues were up by just 11 per cent, with no growth at all after 2011. Alcohol duties fell from 2.7 per cent of all tax revenues in 2005 to 2.0 per cent in 2014, having accounted for 4.0 per cent as recently as 1999. For departments owning and running “licoreras”, high levels of illicit spirits use, at the expense of legal spirits purchases, will also depress non-tax state revenues.

## 3.7 Morocco

### 3.7.1 Background

Morocco introduced a new sophisticated tracking system in 2012, aimed at countering illicit trade in excisable goods of all kinds and shoring up associated tax revenues. Alcoholic drinks are covered amongst a much wider range of products.

While the country has a comparatively low level of alcohol consumption, WHO estimates point to the share of illicit use in that total still being comparatively high in 2012, despite a clear drop compared with 2005. Since 2012, the new tracking system is credited by some experts with reducing illicit trade, and associated tax avoidance, for excisable products in general. But for alcohol specifically, the formal industry nevertheless remains concerned about both smuggling and artisanal production. Tracking system-related costs, as well as tax rises, are blamed for pushing up the price of taxed and regulated drinks, relative to their informal counterparts, resulting in a fall in the consumption of formal products and alcohol-related tax revenues.

### 3.7.2 Cost impact for the industry

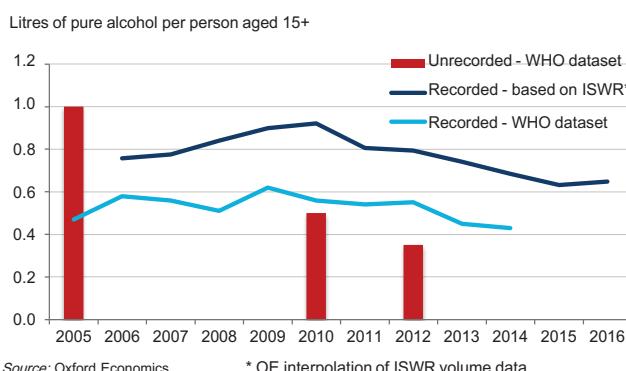
Industry sources suggest that the combined cost of recent tax rises and implementation of the secure tagging system forced local beer manufacturers to raise selling prices by between 12 and 25 per cent. Taking into account information on recent tax rises and selling prices, the tax element appears to account for around half of this extra cost, suggesting that the cost of implementing the tagging system alone has added some 6-12 per cent to the prices charged.

### 3.7.3 Effectiveness in curbing illicit trade

WHO estimates show that unrecorded use fell significantly between 2005 and 2010, but that the share of the total market still remained high by global standards in that year, and in 2012.<sup>11</sup> The tracking system introduced since is well regarded by experts in the revenue protection field, and credited with pushing illicit trade down and holding revenues up, at least for excisable goods in total.<sup>12</sup> But despite this, the formal alcohol industry remains concerned about both smuggling and artisanal production. Smuggling is reported by industry sources to be rife in Northern Morocco, with reports of 70,000-100,000 smugglers travelling daily to and from the Spanish enclaves of Ceuta and Melilla. Illicit imports are also reportedly sourced from Gibraltar and the Canary Islands. Smuggled product is estimated by the industry to be in the region of 4-5 million litres per annum—equivalent to as much as 4 per cent of legal market volumes.

Artisanal production meanwhile is reported to be a substantial 50 million litres per annum, which could be as high as 40 per cent of total legal alcohol sales volumes. These products are very attractive in terms of price, with a typical 70cl bottle of spirits-strength alcohol costing around 4 dirhams or less, compared with over 70 dirhams for an equivalent bottle produced by the taxed and regulated sector. As well as avoiding tax, suppliers of these products also avoid the cost of complying with regulated production and bottling standards, and the labelling is often misleading. Artisanal products sold in the more remote regions typically bear counterfeit tax stamps, but those sold in shopping malls tend to bear genuine stamps.

#### Estimates of recorded and unrecorded alcohol use in Morocco



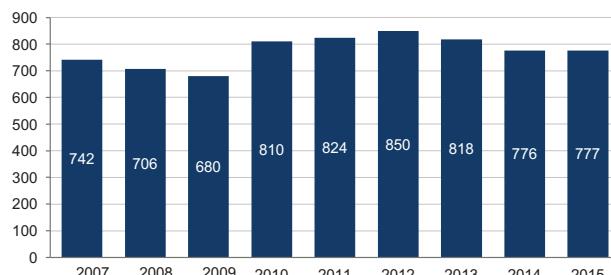
### 3.7.4 Impact on legal alcohol sales and on government revenues

While the impact of the new tracking system on illicit trade may be open to debate, it has not prevented a decline in legal alcohol consumption, of more than 20 per cent between 2010 and 2016—or around 30 per cent on a per capita basis. During that time, tracking system-related costs, as well as tax rises in 2010 and 2013, will have exacerbated the cost differential between stamped products on the one hand and artisanal and smuggled products on the other.

Industry sources suggest that the amount of domestic consumption tax paid in relation to beer increased by 14 per cent in real terms between 2007 and 2012, but that these revenues fell by 9 per cent on the same basis over the following three years, as sales volumes for taxed products declined. Partial data also point to a steep drop in tax revenues from wine sales between 2014 and 2015. These sources also suggest that beer – and wine-related tax revenues lost as a result of artisanal and smuggled products may be in the region of 100-200 million dirhams (USD10-20 million), equivalent to 10-20 per cent of beer and wine-related tax receipts.

### Inflation-adjusted consumption tax revenues from beer

Millions of dirhams at 2015 prices



Source: Industry sources; Oxford Economics

## 4. Are tax stamps effective?

The case studies suggest that tax stamps play only a limited role in revenue protection and illicit trade containment. They also show that their efficacy depends on a wider system of regulatory oversight, enforcement and deterrence, and on the tax and regulatory system not being so onerous as to stifle legitimate trade. At worst, tax stamps can lead to unintended consequences by acting as a cover for illicit trade (e.g. through counterfeited stamps or refilled stamped bottles), and/or by exacerbating the price differentials between taxed and informal products.

Of the limited advantages of tax stamps, the case studies highlighted the following:

- As shown in the Turkish example, tax stamps were, briefly, effective in reducing illicit activity, by deterring retailers and consumers from purchasing unstamped products.
- As demonstrated in South Korea, more sophisticated implementation has made it more challenging, if not impossible, to counterfeit products. However, this is an expensive option that is unlikely to be suitable for high volume or low cost alcohol products.
- Modern tax stamp systems can aid consumer awareness and engagement about quality standards and provenance, as seen in the studies of South Korea and Turkey, particularly when integrated with mobile application use.

Despite these benefits, the case studies and wider literature highlight a number of difficulties:

- Before introducing a tax stamp system, the authorities should undertake a robust analysis of the size and shape of the illicit market, and assess whether tax stamps will have any impact on the problem.
- Post-implementation assessment should be part of a tax stamp regime, both to correctly assess the impact, and to identify whether the scheme is operating as envisaged.
- Stamps will only be effective in combination with robust enforcement mechanisms to identify missing or false stamps, or where consumer awareness is sufficient.
- Enforcement can also be costly; for some schemes the authorities need to be equipped with special handheld readers to enable them to detect illegal products. These extra costs are usually passed to consumers in higher prices, fuelling demand for illegal products.

- Technological advance means that tax stamps are quickly susceptible to counterfeiting, so regular and sophisticated updates may be needed to secure long-term benefits.
- Initial implementation and updates can be costly. Affected businesses may have to redesign bottling lines, manage the receipt and use of stamps, and pre-pay taxes when buying the stamps. This may deter new firms from entering the legal market.
- Typically, tax stamp schemes will be subject to a tender process and supplied by an external contractor. This takes time and government resources to administer, and officials may or may not have the necessary skills, experience or understanding of the technology. Likewise, the rigidity of tender processes can mean that, once a supplier has been accepted and a contract is in place, that particular type of stamp is used for several years even if it becomes out-dated or subject to significant counterfeiting. And even if delivery is outsourced, revenue authorities will usually be responsible for controlling both products and stamps, using up human and fiscal resources.
- Tax stamps can only ever be part of a broader solution to illicit activity. Their effectiveness can be undermined either by the particular design or technology, or by wider considerations or policies that affect demand. The robustness of the wider anti-illicit strategy will be significant, as will the relative affordability of taxed and stamped products, which will be affected by the tax regime as well as tax stamp-related costs.

## 5. Alternative or complementary measures to combat tax evasion

In many jurisdictions, tax stamps have been introduced as a mechanism of revenue control, intended to reduce illicit activity and tax evasion. But as the review also demonstrated, tax stamps will not work in isolation. In particular, their effectiveness relies on two things: a carefully considered and well-structured wider tax policy; and the existence of a credible and well-resourced information and enforcement regime. Indeed, if the tax is well-designed and enforcement is sufficiently robust, then potentially costly tax stamp schemes could easily be avoided altogether, with little revenue impact. It follows that governments considering introducing a new stamp scheme should examine whether alternative policies could achieve the same aims at a lower cost. Here, we explore the various alternative or complementary measures that could be used instead of or alongside tax stamps.

In terms of wider tax policy, it is possible to establish a set of guiding principles or structural requirements that will help create an environment that encourages tax compliance. Effective responses to tax evasion and illegal trade rely on the establishment of comprehensive cross-cutting strategies to reduce both the supply of and demand for illegal products, and must recognise certain basic determinants of success. For example, it is critical that policy makers implement alcohol tax regimes that are simple to administer, non-discriminatory and impose reasonable tax rates to reduce incentives for illicit trade, protect revenue and encourage responsible drinking decisions for those that choose to drink.

Any system of effective revenue control will also rely on good licensing practice, high quality and timely information capture and well-resourced authorities. An excise operator's licence should be a privilege not a right and it is essential that 'rogue' operators are not allowed to enter the trade. This requires a system of strict controls on licensing and the maintenance of a national electronic database of all excise operators that contains risk and compliance data and can be analysed to identify trends across trade segments—for instance, by volume of production or region—and enable resources to be deployed according to compliance risk.

Where possible, integration of excise databases with import and export data should be sought, to obtain a full picture of the trading activities. Effective controls also require robust supply chain controls and policy makers should consider licensing of wholesalers, retailers, and transporters of alcohol tax-free

under bond, as the most effective system. However, although ‘Know Your Supplier’ and ‘Know Your Customer’ are good business practices, the licensing of wholesalers and retailers will only be successful if there are sufficient resources to administer and enforce controls on such a large number of traders.

Successful anti-fraud strategies also depend heavily on well-designed and well-resourced surveillance, interception and deterrence activities. Enforcement systems should combine thorough audit, credibility controls and unannounced physical checks to cover all possibilities of tax evasion and avoidance. Effective national controls are also usually characterised by a partnership approach across all enforcement agencies nationally and internationally to tackle illegal trade. Development of a partnership approach with legitimate businesses and trade associations to tackle illegal trade is also an integral part of modern revenue controls. Further information is available in ‘Guidebook to the Successful Introduction of a Specific Excise Tax on Alcohol Beverages’ published by the International Tax and Investment Center in 2011.

## **6. Conclusion**

The effectiveness of any tax stamp system will depend on both the wider anti-illicit strategy and the scheme detail. The affordability of taxed and stamped products (taking into account the impact of taxes and the cost of the stamping process) will also play a central role. Tax stamp schemes can only be effective as a means of curbing illicit consumption and protecting tax revenues if effective monitoring, control and enforcement measures are also put in place, and if tax rates and business costs are not so high as to incentivise illicit consumption at the expense of the legitimate industry.

While it is possible for tax stamps to help contain illicit trade in alcohol, and associated tax losses, this is far from guaranteed without considering a multitude of other factors including careful design, implementation and consideration of the specifics of a market and its influences. Success in curbing illicit trade and ensuring tax compliance will be assisted, and to a large extent facilitated, by:

- Ensuring that the excise duty system is well designed—simple, non-discriminatory and with rates set at levels that are not so high as to provide a significant incentive to shift into the informal market;
- Ensuring that the strategy to tackle fraud involves a robust understanding of the illicit market, credible and comprehensive data, a well-resourced monitoring and enforcement regime, and sufficient penalties to deter illicit trade;
- Ensuring that Revenue Authorities work closely with other enforcement authorities such as Customs, the Police and consumer protection agencies as well as with health authorities to impact on public awareness and on local sales of illicit products across the country; and
- Ensuring that tax stamps, if used, are difficult to counterfeit, and that procedures are in place to prevent other potential abuses of the stamp system. The system must be balanced so that unnecessary costs are minimised for legitimate industry players.

## References

- Euromonitor International. (2015). *The illegal alcoholic beverages market in six Latin American countries 2014*. Report commissioned for SAB Miller.
- HM Revenue and Customs. (2016). *Measuring tax gaps 2016*. See also previous annual editions.
- House of Commons Scottish Affairs Committee. (2004). *The Proposed Whisky Strip Stamp*. Third Report of [UK Parliamentary] Session 2003–04.
- Kenya Revenue Authority. (2013). *The new Kenya tax stamp programme; the conceptual framework*. Presentation to the Tax Stamp Forum, Vienna, June 2013.
- Kenya Revenue Authority. (2014). *The tax stamp; beyond the stamp.*, Presentation to the Tax Stamp Forum, Dubai, September 2014.
- Norgrove, M. (2014). *The quest for quality data requires hard and radical solutions*. WCO News No. 75, October, Brussels: World Customs Organization.
- Scotch Whisky Association. (2011). *Position paper outlining scotch whisky sector concerns regarding the duty and tax stamp regimes applicable to scotch whisky and other spirits in EU member states*. October.
- US Department of Agriculture. (2015). *Alcohol legislation and taxes in Turkey*. GAIN report, number TR5049, July.
- US Department of Agriculture. (2016). *Alcohol taxes ring in the New Year in Turkey*. GAIN report, number TR6001, May.
- World Health Organization (WHO). (2014). *Global status report on alcohol and health 2014*. Geneva: World Health Organization.

## Notes

- 1 In the WHO dataset, ‘recorded consumption’ is that known about through trade, production, and distribution records, which will have attracted tax in the country. ‘Unrecorded consumption’ will not have borne tax there. This category includes home-produced alcohol and personal imports, whether legal or illegal, as well as all forms of smuggled, bootlegged and illegally-produced drink, and any other instances in which licensed distribution channels have been avoided. WHO data and projections, and projected estimates for some recent years, can be found at: <http://apps.who.int/gho/data/node.main.A1022?lang=en>.
- 2 See Scotch Whisky Association (2011) as an example. The European Spirits Organization has since merged with another trade association to become Spirits Europe.
- 3 Nominal revenue figures can be found at: <http://www.statistikbanken.dk/Statbank5a>SelectVarVal/Define.asp?MainTable=SKAT&PLanguage=1&PXSId=0&wsid=cftree>, table 5.3.17. These are adjusted by the Danish GDP deflator to arrive at the real-terms figures quoted.
- 4 It should be stressed that while the industry accepts that the pattern shown in the WHO data is accurate, it regards the absolute level of illicit trade portrayed in that dataset to be vastly overestimated. The 2012 figures combine the WHO projected estimate for total consumption in that year with actual WHO data on recorded consumption.
- 5 Prices and volumes are based on Oxford Economics analysis of International Wine and Spirits Research (ISWR) data.
- 6 Oxford Economics analysis of International Wine and Spirits Research (ISWR) data.
- 7 See <https://www.gov.uk/government/publications/excise-notice-ds5-uk-duty-stamps-scheme> for more detail.
- 8 The 2012 figures are based on WHO’s projected estimate for total use in that year and the actual WHO data for recorded use.
- 9 Oxford Economics analysis of International Wine and Spirits Research (ISWR) data.
- 10 Including tobacco as well as spirits and beer—no breakdown is available. The fiscal year runs from July to June.
- 11 The 2012 figures are based on WHO’s projected estimate for total use in that year and the actual WHO data for recorded use.
- 12 See Norgrove (2014), for example.

## **Doug Godden**



Doug Godden is Lead Economist at Oxford Economics, based in London, England, and adviser to International Tax & Investment Center (ITIC). He undertakes impact study and other economic consultancy work for a wide range of clients, with many projects having a taxation or other public policy dimension.

Prior to joining Oxford Economics in 2009, Doug worked for 21 years in economics-related roles at the Confederation of British Industry (CBI), culminating in spells as Head of Economic Analysis (2001-2007) and Head of Economic and Fiscal Policy (2007-2009). Throughout that decade, he was heavily involved in preparing the organisation's representations to the UK government on budgetary matters.

He holds bachelor's and master's degrees in economics, having studied at University College London, and Brasenose College, Oxford.

## **Elizabeth Allen**



Elizabeth (Liz) Allen, a Bristol University graduate, has over 35 years of management, operational and policy experience with UK's Her Majesty's Revenue and Customs (HMRC).

As an independent consultant, Liz reviewed illicit trade in excisable products in the Southern African Development Community (SADC) in 2010-11. She advised the Nigeria Customs Service on strategic organisational planning in 2012. Between 2013 and 2017, she delivered five missions for the World Customs Organization (WCO) including working with Vietnam Customs on developing compliance management and client services.

Her publications include 'The Illicit Tobacco Trade and How to Tackle It' (2011, 2013), and 'Guidebook to the Successful Introduction of a Specific Excise Tax on Alcohol Beverages' (2011)—all published by ITIC. She is a member of the OECD working party on 'Tackling Illicit Trade'.

# Trade facilitation and customs revenue collection: Is that a paradox?

*Cristiano Morini, Paulo Costacurta de Sá Porto and Edmundo Inácio Jr*

## Abstract

This research examines whether trade facilitation (TF) measures may contribute to a loss of customs control or revenue. A survey was conducted to collect TF practices in the customs context worldwide. Responses were obtained from key stakeholders from 40 countries. We then obtained information related to tax revenues generated by Customs. The results reveal there is no direct relationship between the likelihood of observing TF practices and the extent to which a government depends on revenue generated by Customs. The result identified from this research is that it is possible to implement TF practices without diminishing customs revenues or weakening controls.

## Introduction

In many countries, Customs provide a service, which is primarily related to tax collection, that is not aligned with the interests of economic operators. The tax collection service provided by customs agencies also plays a vital role in various countries' economies, which could explain why some countries avoid implementing trade facilitation (TF) measures: a fear of lost revenue. It seems that opening borders to facilitate the international flow of goods must come at the cost of weakening border protections (Bersin, 2012).

In some countries, the customs administration may contribute to increased uncertainties in the international supply chain because of excessive concern about customs controls. According to Sawhney and Sumukadas (2005), the government acts as a supplier of key regulatory services, many of which are not optional. The uncertainty that the government introduces is a critical factor that must be considered in customs analysis. Sawhney and Sumukadas (2005) claim that customs clearance in developing countries continues to generate uncertainty. Liu and Yue (2013) suggest that it may be possible to change a country's trade structure, which thus stimulates international transactions by accelerating customs clearance procedures.

Appeals and Struye de Swielande (1998) developed a model to explain the evolution of each country's customs administration, beginning with controls that emphasise the physical verification of goods. Typically, the information on all incoming goods is checked at this initial stage. During the next stage, the information is checked before the goods arrive. During the third stage, TF involves the internal control of importers and subsequent audits. The evolution from one stage to another will be gradual, following the on-going implementation of customs reforms. TF suggests customs reforms. However, can TF be undesirable from a country's perspective (due to a loss of revenue)?

The aim of this research is to map TF measures in the customs context to identify whether there is a relationship between TF and customs-collected tax revenue. In doing this we answer three questions:

- What TF practices are currently in use, principally after the implementation of the Bali Agreement?
- Which region employs such practices to the greatest extent?
- Do TF practices conflict with revenue collection and weaken countries' controls?

Our survey approach used primary data obtained in the field from participating customs experts from 40 countries to understand the practices in use. Data about the share of customs-collected tax revenue in total revenue were also collected from the World Customs Organization (WCO). We then analysed the practices in place and the tax revenue collected by Customs. We sought evidence to determine if there is a trade-off between TF and taxes collected by Customs.

Section 2 presents concepts related to TF and Customs. Section 3 presents findings concerning TF measures and where they are practiced, and compares the practices in use with secondary data on tax revenue collection. Section 4 presents and discusses the results, and Section 5 offers concluding remarks.

## **Trade facilitation and the role played by Customs**

‘Trade facilitation’ does not have a universally accepted definition (Helble, Shepherd & Wilson, 2007; McLinden, Fanta, Widdowson & Doyle, 2011). It is understood as a set of measures to ease trade between countries and includes a variety of efforts intended to reduce the transaction costs associated with the enforcement, regulation and administration of trade policies across borders (Iwanow & Kirkpatrick, 2009). There are several ways to achieve this goal through TF programs, including strategies and investments that are common among governments or regional economies that receive aid (Sadikov, 2007; Shepherd & Wilson, 2009; Shepherd, 2016). The topic of TF was introduced at World Trade Organization (WTO) meetings in 1996. Among other sources, the parties introducing TF policies borrowed from the text of the 1994 General Agreement on Trade and Tariffs (GATT). In 2013, the 9th WTO Ministerial Conference secured the commitment of participating countries for the Bali Agreement, which primarily concerns FT, which is the subject of this paper.

According to Otsuki, Honda and Wilson (2013), TF is related to changes in the trade environment in terms of reforms, modernisation and requirement simplification. Francois and Manchin (2013) agree with this perspective and add that trade volumes, as well as the propensity of low-income countries to participate in the overall trading system, depend on the quality of regulatory institutions and access to well-developed transport and communication infrastructures.

Facilitation measures are recognised to be essential in helping to develop countries and expand their trade (OECD, 2005; McLinden, et al., 2011; Milner, Morrissey & Zgovu, 2008). At the WTO meeting in Doha in 2001, it was decided that future negotiations on TF would be limited to the clarification, review and improvement of the rules in Article V (freedom of transit), Article VIII (formalities related to imports and exports), and Article X (publication and administration of trade regulations) of the 1994 GATT. Since the WTO’s first meeting, TF has been on its agenda. In 2013, the Bali Agreement reformulated the main points considered previously by the WTO and implemented a set of TF measures (Table 1).

According to Portugal-Perez and Wilson (2012), TF measures encompass two dimensions: a ‘hard’ dimension related to tangible infrastructure (e.g. roads and ports) and a ‘soft’ dimension related to intangible issues (e.g. transparency, customs management and business environment). The Bali Agreement stressed the need for measures related to the soft dimension.

In countries with high degrees of customs controls and bureaucracy, including landlocked countries, soft dimension investments can provide faster TF results (Grainger, 2014)

*Table 1: Trade facilitation measures present in the WTO agreement, signed at the ministerial meeting at Bali in December 2013*

#### **Trade facilitation major contents**

- Publication and availability of information
- Opportunity to comment, information before entry into force and consultation
- Advance rulings
- Appeal or review procedures
- Other measures to enhance impartiality, non-discrimination and transparency
- Restrictions on fees and charges imposed on or in connection with importation and exportation
- Release and clearance of goods
- Border agency cooperation
- Movement of goods under customs control intended for import
- Formalities connected with importation and exportation and transit
- Freedom of transit
- Customs cooperation
- Institutional arrangements

*Source:* adapted from WT/MIN(13)/36/WT/L/911 (WTO, 2013)

The soft dimension is frequently relevant in the customs context. For example, although the requirement for documentation offers the necessary support for international transactions, excessive requirements impose administrative costs on the importers and exporters involved and may cause uncertainties (OECD, 2013; Souza & Burnquist, 2011).

Customs and trade procedures could be simplified by reducing the number of documents required for international trade and by replacing printed forms with electronic ones, which are more easily transmitted. Reforms in the customs environment do more to improve the business context than do tariffs that are negotiated in multilateral negotiations (Mann, 2012). Carrying out more efficient collection of taxes on trade could also simplify these procedures (Hoekman & Shepherd, 2015). Decreasing the time required for physical conferences and the delivery of imported goods could increase the revenue of national governments (Helble, Shepherd & Wilson, 2007; Zaki, 2008; Engman, 2005).

Under an efficient set of TF measures, from the government's perspective, TF should not harm the control and revenue collection processes. Some anecdotes are concerned that there is a direct relation between weakening controls and streamlining processes. This could be a thread through TF initiatives worldwide. The trade-off between TF and countries' customs needs argues for collecting data from different perspectives and for understanding how the TF process operates in practice. Section 3 identifies the practices implemented worldwide.

## **Sampling method and data collection**

The aim of this section is to identify which TF measures have been implemented worldwide and whether there is a relationship between which TF practices are employed and the extent to which a government depends on taxes collected by Customs. We employed a quantitative methodology and the questions we asked arose from the constituent elements of the Ministerial Decision of 7 December 2013 regarding the TF Agreement of the WTO.

The pilot version of the questionnaire was then provided to two TF experts for validation. Thereafter, the three-page questionnaire was administered to a group of professionals at an international conference

on TF in customs in May 2014. Customs experts attended this conference, representing government, the private sector and academia, and hence customs expertise characterised the sample participants. The conference represented a unique opportunity for obtaining answers to our research question.

In total, 145 participants from 64 countries attended this international conference in Baku, Azerbaijan, which was organised by the International Network of Customs Universities (INCU) and national customs administrations. Of these stakeholders, 60 respondents from 40 countries participated in the survey (Table 2). Note that this conference was designed for customs employees, relevant members of the private sector, and experts on customs issues worldwide. Global conferences on customs are uncommon. The questionnaire was distributed and collected during the event. Respondents were characterised by having considerable expertise in customs issues, as they each had more than five years of experience in the customs environment.

*Table 2: Respondent profiles per region*

Regions	Population (a)		Sample (b)		
	n	%	n	%	% of region (b/a)
Europe	69	47.6	24	40.0	34.8
Africa	25	17.2	16	26.7	64.0
Asia	33	22.8	13	21.7	39.4
North America	12	8.3	5	8.3	41.7
Others*	6	4.1	2	3.3	33.3
Total	145	100.0	60	100.0	41.4

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6,726	4	0.151
Likelihood Ratio	6,659	4	0.155

#### Symmetric Measures (Nominal by Nominal)

Phi	0.215		0.151
Cramer's V	0.215		0.151
Contingency Coefficient	0.211		0.151

Note: \* We aggregated Central and South America, Middle East and Oceania into a group called ‘Others.’

In Table 2, we can see that the largest proportions of respondents came from Europe (40%), Asia (21.7%) and Africa (26.7%), with North America (8.3%) placed in the middle, and regions such as Central and South America, Oceania and the Middle East being the least represented (accounting for 3.3% of the total).

We conducted a non-parametric Chi-square test (Hair et al., 1998) to verify that the sample is not biased. The test was run by region. These results validated our sample and allowed us to proceed to analyse the data in terms of TF practices.

Regarding the affiliation of the surveyed participants (Figure 1), 25 per cent reported working in the private sector (with many years of experience), while most participants (over 50%) were associated with the public sector (with Customs or a related public agency). Of those participants associated with the public sector, 66 per cent worked for Customs, and the other 32 per cent worked for organisations directly related to Customs. As shown in Figure 1, the remaining respondents (18%) reported being affiliated with universities.

*Figure 1: Affiliation of respondents*

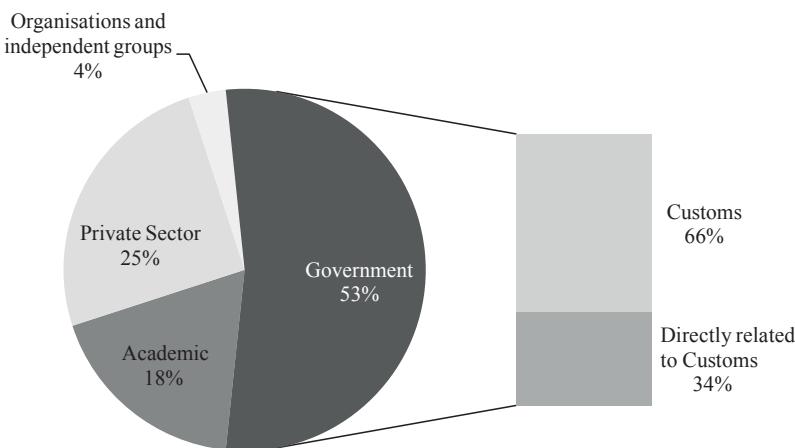


Table 3 presents the results concerning selected TF measures. Approximately 72 per cent of the respondents confirmed that the customs authority establishes a maximum time for the release of the goods in their countries and that 72 per cent of countries have an online support system for economic operators (Table 3 – I).

Table 3: Summary of TF questions asked

Questions	Sample mean	Africa	Asia	Europe	North America	Others
<b>I) Trade facilitation measures provided in country*</b>						
Does Customs establish a maximum allowable time for clearance procedures?	72	81	85	63	60	50
Does Customs have an online support system for external trade operators?	72	69	62	88	60	0
<b>II) Degree of alignment between agencies (%)</b>						
Fully aligned	18	13	15	17	20	0
Substantially aligned	47	25	39	42	80	50
Partially aligned	35	56	46	13	0	0
<b>III) Do you believe trade facilitation measures are directly related to customs reform?*</b>						
IV) Has the private sector participated in the single window implementation or monitoring?*	45	56	15	54	60	0
<b>V) Trade facilitation practices*</b>						
1. Paperless policy and data requirements as appropriate	75	63	77	83	80	50
2. Physical inspections and examinations based on risk assessment and use of non-intrusive equipment (e.g., scanners)	83	88	92	75	80	100
3. Deferred payment of duties, taxes, fees and charges	65	63	46	79	80	0
4. Single-window (SW) system	52	63	39	50	80	50
5. Publication of all laws and regulations	85	94	92	83	60	50

Questions	Sample mean	Africa	Asia	Europe	North America	Others
6. Public consultation for legislation changes	62	75	54	58	60	50
7. Binding consultation for harmonised system, origin and valuation	73	81	77	63	60	100
8. Tax refund for goods not entering the country	65	94	54	46	80	100
9. Simplified procedures for international transit	72	94	62	63	80	50
10. Authorised Economic Operator (AEO) program	63	50	54	88	20	50
<b>VI) Main improvements to the single-window system (%)</b>						
Time and cost	45	56	38	46	40	0
Simplification	38	38	62	33	0	50
Time (only)	23	19	31	25	0	50
Cost (only)	13	19	31	4	0	0
<b>VII) Cooperation between Customs and other agents (%)</b>						
Traders		32	31	28	28	33
Logistics operators		28	31	31	28	33
Other border agencies		30	31	24	22	33
Academia		10	6	18	22	0

*Note: The grey cells represent the regions with the highest frequency of positive responses.*

\*Answered 'Yes' as a % of the total. The topics concerned the WTO's Bali Agreement on Trade Facilitation in Customs Issues.

According to the Bali Agreement, an essential aspect of TF concerns the processing of customs clearance procedures prior to cargo arrival. Professionals from Africa and Asia responded that no more than 70 per cent of imported goods are cleared before arrival. However, respondents from other regions noted that more than 80 per cent of imported goods are cleared before arrival. Regarding cargo manifests, African and Asian respondents stated that no more than 40 per cent were submitted electronically to Customs prior to the arrival of goods, while respondents from other regions reported that more than 80 per cent were submitted electronically pre-arrival.

Most respondents believed that their border agencies had a good degree of alignment (substantial: 47.1% or partial: 35.3%) with one another, which encompassed procedures, formalities, work hours and shared controls. Some even believed that such alignment was complete (17.6%) in their countries. Nevertheless, all mentioned at least some degree of alignment between border agencies, customs authorities, and police authorities (Table 3 – II).

The next question assessed the TF practices that were most commonly applied in the respondents' countries (Table 3 – V). This question consisted of fixed options, reflecting selected practices identified in the WTO TF text.

The following TF measures were the most frequently applied:

- the publication (i.e. disclosure) of laws and regulations (5: 85.0%), which means that decisions are made public to contribute to the predictability of customs procedures
- the physical inspection of goods based on risk analysis and the use of non-intrusive equipment (2: 83.3%)
- a paperless policy (1: 75.0%).

Table 3 – V presents the percentage of respondents in each geographic region who claimed to have a certain facilitation measure in their country. The grey area reflects the most commonly employed measures.

On the African continent, the most used TF measures are the publication of all laws and regulations, tax refunds for goods that do not have final entry in the country in question, and the simplification of procedures for international transit (5, 8 and 9: 94%). The least used measures are payment deferrals for taxes and other customs fees, the single-window (SW) system, and the authorised economic operator (AEO) program (3, 4 and 10, Table 3 – V).

In Asia, the most commonly used measures are physical inspections based on risk analysis and the publication of customs rules and laws (2 and 5: 92%). The least used measures are payment deferrals and the SW system (3 and 4, Table 3 – V).

In Europe, the most commonly used measures are paperless procedures, the publication of laws and regulations, and the AEO program (1, 5 and 10: 84%, Table 3 – V). The least used measure is the SW system (4: 50%, Table 3 – V).

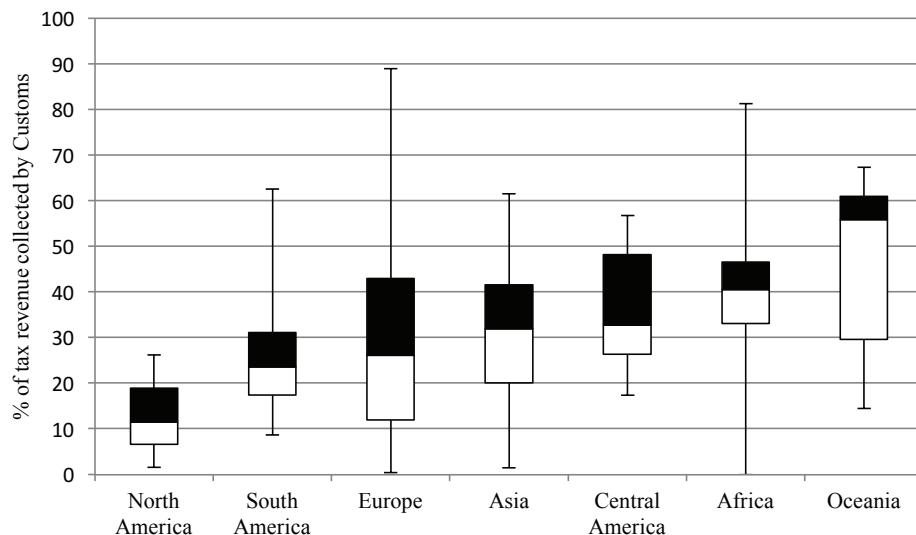
North America and Africa employ the greatest number of TF measures among the regions considered, but North America applies the AEO program on a smaller scale.

After having mapped the most common TF practices in the customs context, we turned to TF measures per region and tax collection. Is there a direct relationship between TF practices and the extent to which a country depends on customs-related tax revenue? How? Secondary data were gathered from the WCO, as issued in the 2014 Annual Report.

North America depends the least on the collection of tax revenue from Customs (12.83% on average). Other regions (e.g. Oceania) show a higher dependency on this source of revenue, as Customs accounts for nearly half of the overall taxes collected (46.18% on average). South America (27.61% on average), the Middle East (28.81% on average) and Europe (31.71% on average) fall within the lower half of the distribution, while Asia (32.07% on average), Central America (36.20% on average) and Africa (39.10% on average) fall within the top half.

Figure 2 shows that each region has top and bottom performers that represent outliers from the region's average value—a problem that demands distribution analysis.

*Figure 2: Distribution analysis of tax revenue collected by Customs per region*



*Source:* Authors (from WCO database, 2014)

In Figure 2, the boxes encompass 50 per cent of all countries in each region (i.e. the 2nd and 3rd quartiles), while the top and bottom ‘whiskers’ represent the upper and lower 25 per cent (i.e. the remaining 50%).

Some new information can be drawn from this analysis. For example, Europe obtained an average of 31.71 per cent of tax revenue collected by Customs, but Figure 2 shows that at least one quarter of its countries have rates of more than 40 per cent (top ‘whiskers’). Furthermore, the gap between the highest and lowest values in Europe is wider than in any other region, which is a strong indicator that there is little consistency in this percentage across European countries. In contrast, North American countries are more densely grouped around a lower span of rates, indicating that their dependency on Customs for tax revenue collection is lower and that a stronger common profile can be detected among its members (i.e. their values are closer to one another).

In Figure 2, the small boxes seen for North America, South America and Africa show that 50 per cent of the countries in these regions exhibit the regional average rate, that is, the individual country rates are not too widely dispersed. There is higher dispersion in the remaining regions, among which Europe is the best example.

According to the data collected from the survey, the least recurrent facilitation measure is the Single Window (SW) system, and the region that uses it the least is Asia (39%). However, the most commonly applied measures are paperless policies for data requirements, physical goods inspections based on risk assessment/profiling, and the publication of all laws and regulations. The evidence does not suggest that the implementation of TF practices reduces the tax revenue collected by customs agencies.

According to Table 3 – VI, the perceived improvements from the use of the SW system primarily relate to issues of time and cost (45%) and simplification (38%). Regarding inter-agency cooperation, respondents stated that the customs administrations have greater involvement with logistics operators, traders and other border agencies. Academia has one of the lowest levels of cooperation with customs administration. These results can be verified in Table 3 – VII.

## **Discussion**

The aim of this analysis is to understand how two fundamental aspects of trade—customs-collected tax revenue and TF practices—behave in each region. The goal is to establish a relationship between a region's profile with respect to dependency on customs-collected revenues and its effective application (or lack) of TF measures.

Among the common practices identified, and in line with the measures defined in the Bali TF agreement, we find a designated maximum time for the release of goods (under customs control) and an online support system for economic operators.

The certification of complying economic operators (i.e. the AEO program) may minimise risks, contribute to the agility of control procedures and reduce physical inspections, and such certification has primarily occurred in Asia.

Enhanced levels of interaction among various customs authorities and between Customs and the private sector contribute to TF, which benefits those involved in terms of information exchange, data sharing, and compliance with simpler procedures (thus avoiding double controls).

Table 3 – III indicates that Africa and Asia exhibited the greatest agreement that TF measures lead to customs reforms. This information coincides with studies by the World Bank (The World Bank, 2013), which illustrate that several reforms have been implemented in these regions, in contrast to developments in other regions (e.g. Latin America), which have registered few reforms and low integration into GVCs.

The SW system is one of least-used TF measures. More than an information integrating platform, SW requires the coordination of various national agencies, which requires political will but produces benefits in terms of saving time, reducing costs, mapping processes and simplifying procedures.

Considering the trade flows in Europe and Asia, TF measures would be highly beneficial for these regions, but they do not have the most TF measures. South America represents low integration into GVCs and has implemented few TF measures, with a minimal impact on customs-collected tax revenue. In contrast, Africa has similar trade characteristics, but customs-collected duties and taxes represent a large share of total revenue collection in that region. This finding shows that there is no relationship among trade volume, TF measures and customs-collected tax revenue.

The evidence suggests that it is possible to implement TF practices without diminishing revenues or weakening controls. It is not a paradox. The sample we surveyed was able to show that there are TF practices in regions and countries with high dependence on customs-collected tax revenue (comparing Table 3 with Figure 2). In this sense, there is no paradox between facilitating trade and strengthening the role of Customs in global supply chain management.

## Final remarks

This study identified features of TF practices in different global regions, using an intentional and qualified sample. It is uncommon to gather experts in customs considering a variety of origins. Our evidence does not suggest that adopting TF practices entails weakening customs control or losing revenue. Europe and Asia are the most important players in terms of merchandise trade volume, as they represent the largest share of world trade. However, there are no more TF measures in place in these two regions than in the rest of the world. Another factor that has no relationship with trade volume is share of tax revenue collected by Customs. Europe and Asia differ in the extent to which they depend on this type of revenue, even though they handle similar trade volumes each year.

A limitation of this sample is the low participation rate by experts from Latin America, and another is that it is a non-probabilistic sample. This limited participation may be an indicator of the limited number of customs reforms in place in this region and the region's remoteness in terms of GVC integration and matters related to TF.

Identifying specific TF measures implemented in various regions of the globe and collecting data from WCO allowed us to compare TF and tax revenue dependence. This approach allowed us to answer original questions on the TF practices in use, which region uses them most, and whether TF practices are detrimental to revenue collection. Having mapped TF practices, we demystified the relationship between revenue collection and TF through our examination of taxes collected through Customs as a share of total tax collection. Our findings indicate that TF neither weakens the controls provided by countries nor reduces revenue. It is possible to simultaneously have a high degree of dependence on customs-collected tax revenue and to implement TF measures.

## References

- Appeals, T., & Struye de Swielande, H. S. (1998). Rolling back the frontiers: The customs clearance revolution. *International Journal of Logistics Management*, 9(1), 111–118.
- Arvis, J. F., Mustra, M. A., Ojala, L., Shepherd, B., & Saslavsky, D. (2012). Connecting to compete: Trade logistics in the global economy. The Logistics Performance Index and Its Indicators. Washington, DC: World Bank.
- Bersin, A. D. (2012). Lines and flows: The beginning and end of borders. *Brooklyn Journal of International Law*, 37(2), 389–406.
- Butter, F. A. G. den, Liu, J., & Tan, Y. H. (2011). Using IT to engender trust in government-to-business relationships: The Authorized Economic Operator (AEO) as an example. *Government Information Quarterly*, 29(1), 261–274.
- Engman, M. (2005). The economic impact of trade facilitation. *OECD Trade Policy Papers*, 21. Paris: Organization for Economic Cooperation and Development.
- François, J., & Manchin, M. (2013). Institutions, infrastructure, and trade. *World Development*, 46(C), 165–175.
- Grainger, A. (2014). The WTO Trade Facilitation Agreement: Consulting the private sector. *Journal of World Trade*, 48(6), 1167–1188.
- Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. (1998). *Multivariate Data Analysis*. Prentice Hall.
- Hameri, A. P., & Hintsä, J. (2009). Assessing the drivers of change for cross-border supply chains. *International Journal of Physical Distribution & Logistics Management*, 39(9), 741–761.
- Haughton, M. A., & Desmeules, R. (2001). Recent Reforms in Customs Administrations. *The International Journal of Logistics Management*, 12(1), 1–11.
- Helble, M., Shepherd, B., & Wilson, J. S. (2007). *Transparency & trade facilitation in the Asia Pacific: Estimating the gains from reform*. Department of Foreign Affairs and Trade. Washington, DC: World Bank.
- Hendricks, K. B., & Singhal, V. R. (2012). Supply chain disruptions and corporate performance. In H. Gurnani, A. Mehrotra, & S. Ray (Eds.). *Supply chain disruptions: Theory and practice of managing risk*. London: Springer.
- Hoekman, B., & Shepherd, B. (2015). Who profits from trade facilitation initiatives? Implications for African countries. *Journal of African Trade*, 2(1–2), 51–70. doi.org/10.1016/j.jaat.2015.08.001
- Iwanow, T., & Kirkpatrick, C. (2009). Trade facilitation and manufactured exports: Is Africa different? *World Development*, 37(6), 1039–1050.
- Liu, L., & Yue, C. (2013). Investigating the impacts of time delays on trade. *Food Policy*, 39(1), 108–114.
- Mann, C. L. (2012). Supply chain logistics, trade facilitation and international trade: A macroeconomic policy review. *Journal of Supply Chain Management*, 48(3), 7–14.
- McLinden, G., Fanta, E., Widdowson, D., & Doyle, T. (Eds.) (2011). *Border management modernization*. World Bank Publications. Washington, DC: World Bank.
- Milner, C., Morrissey, O., & Zgovu, E. (2008). Trade facilitation in developing countries. *CREDIT Research Paper*, Centre for Research in Economic Development and International Trade, University of Nottingham.
- Organization for Economic Cooperation and Development. (2005). The economic impact of trade facilitation. *OECD Trade Policy Studies, Working Paper no. 21*. Paris: Organization for Economic Cooperation and Development.

- Organization for Economic Cooperation and Development. (2009). Overcoming border bottlenecks: The costs and benefits of trade facilitation. *OECD Trade Policy Studies*. Paris: Organization for Economic Cooperation and Development.
- Organization for Economic Cooperation and Development. (2013). Trade facilitation indicators. Transforming border bottlenecks into global gateways. *OECD Trade and Agriculture Directorate (TAD)*. Available from: [http://www.oecd.org/tad/facilitation/OECD\\_Trade\\_Facilitation\\_Indicators\\_updated-flyer\\_May\\_2013.pdf](http://www.oecd.org/tad/facilitation/OECD_Trade_Facilitation_Indicators_updated-flyer_May_2013.pdf)
- Otsuki, T., Honda, K., & Wilson, J. S. (2013). Trade facilitation in South Asia. *South Asian Journal of Global Business Research*, 2(2), 172–190.
- Portugal-Perez, A., & Wilson, J. (2012). Export performance and trade facilitation reform: Hard and soft infrastructure. *World Development*, 40(7), 1295–1307.
- Sadikov, A. M. (2007). Border and behind-the-border trade barriers and country exports. *IMF Working Papers*, 1–32. Washington, DC: International Monetary Fund.
- Sawhney, R., & Sumukadas, N. (2005). Coping with customs clearance uncertainties in global sourcing. *International Journal of Physical Distribution and Logistics Management*, 35(4), 278–295.
- Shepherd, B., & Wilson, J. S. (2009). Trade facilitation in ASEAN member countries: Measuring progress and assessing priorities. *Journal of Asian Economics*, 20(4), 367–383.
- Shepherd, B. (2016). Did APEC's trade facilitation action plans deliver the goods? *Journal of Asian Economics*, 43(1), 1–11.
- Souza, M. J. P. D., & Burnquist, H. L. (2011). Facilitacao de comercio e impactos sobre o comercio bilateral. *Estudos Economicos (Sao Paulo)*, 41(1), 91–118.
- United Nations Economic Commission for Europe (UNECE). (2004). UN/CEFACT, Recommendation 33, Recommendation and Guidelines Establishing a Single Window, Center of Trade Facilitation and Electronic Business, Geneva.
- Wilson, N. (2009). Examining the effect of certain customs and administrative procedures on trade. In Overcoming border bottlenecks: The costs and benefits for trade facilitation, *OECD Trade Policy Studies*. Paris: Organization for Economic Cooperation and Development.
- Wilson, J., Mann, C. L., & Otsuki, T. (2005). Assessing the benefits of trade facilitation: A global perspective. *The World Economy*, 28(6), 841–871.
- World Bank Database (WB). (2013). *Doing business*. Washington, DC: World Bank.
- World Customs Organization (WCO). (2007). *SAFE Framework of Standards to secure and facilitate global trade*. Brussels: World Customs Organization.
- World Customs Organization (WCO). (2008). *Customs in the 21st century: Enhancing growth and development through trade facilitation and border security*. Annex II to Document SC0090E1a. Brussels: World Customs Organization.
- World Trade Organization (WTO). (2013). *Trade facilitation*. Geneva: World Trade Organization.
- World Trade Organization (WTO). (2014). Annual report 2014. Available from: [http://www.wto.org/english/res\\_e/booksp\\_e/anrep\\_e/anrep14\\_e.pdf](http://www.wto.org/english/res_e/booksp_e/anrep_e/anrep14_e.pdf)
- Zaki, C. (2008). Does trade facilitation matter in bilateral trade? *Documents de Travail du Centre d'Economie de la Sorbonne, CES Working Papers*. Paris: Université Paris I Panthéon-Sorbonne.

## **Cristiano Morini**



Dr Cristiano Morini is Professor, International Relations, at the State University of Campinas (Unicamp), Brazil. He holds a Bachelor in International Relations (University of Brasilia, Brazil), Master in Latin American Integration and a PhD in Production Engineering. Cristiano is author of the first International Trade Manual in the Portuguese language. He worked in the Ministry of Justice in Brasilia, Brazil in 1996 and at Caterpillar Logistics department from 1998 to 2002. He has been a lecturer since 1998, and since 2012, has worked as a fulltime professor at the University of Campinas (Unicamp, Sao Paulo, Brazil). Cristiano's current research encompasses the topics of: performance indicators in the supply chain, issues relating to trade facilitation, and customs affairs. His papers and books use qualitative and quantitative methodology, as systematic literature review, data envelopment analysis (DEA), simulation, gravity model and structural equation modelling (SEM). Cristiano is a faculty member of the program in Industrial and Manufacturing Engineering (Unicamp) and works on the border of knowledge between applied social sciences and engineering.

## **Paulo Costacurta de Sá Porto**



Dr Paulo Costacurta de Sá Porto is an Adjunct Professor II, Economist, at the Federal University of São Paulo (UNIFESP), Brazil, where he is Coordinator of the Graduate Program in Economics and Development (EPPEN/UNIFESP). He is an engineer with a Master in Economics (Brandeis University, USA, 1998), a PhD in Economics (UNICAMP, Brazil, 2002) and postdoctoral studies in Economics (University of São Paulo, 2005). Paulo has experience in the areas of economics and business management, with emphasis on international economics, regional economics, environmental economics and strategic planning, working mainly on the following topics: international trade, regional economic integration, regional development and planning, space models, environmental risks, and applications of strategic planning methodologies.

## **Edmundo Inácio Jr**



Dr Edmundo Inácio Jr is Professor, Business Administration, at the State University of Campinas (Unicamp), Brazil. He holds a bachelor's degree in Administration from the State University of Maringá, Brazil (1996), a master's degree in Administration and a Master's degree in Informatics from the Federal University of Paraná, Brazil (2003) and a PhD in Science and Technology Policy from the State University of Campinas (2008). Edmundo has experience in the area of administration, with emphasis on technological innovation, working mainly in the following subject areas: entrepreneurship, entrepreneurial behaviour, development of indicators of science, technology and innovation and their evaluation.

# Assessment of the performance of Russian customs authorities

*Anna Vladimirovna Bobrova*

## Abstract

This research analyses the performance indicators of Russian customs authorities. The existing indicators do not form part of a single system; they are often duplicated and are differentiated by customs authorities' levels or tiers. This paper highlights a number of difficulties with calculating the indicators and inconsistencies in their application and documents the outcome of the research study undertaken. The research proposes an alternative, dual-purpose system of indicators that has been constructed from the perspectives of the participants of international economic activity and customs authorities. The results of the study should serve as a basis for the creation of a more practical model for assessing the performance of customs authorities.

## 1. Introduction

The effective management of Russia's customs authorities is critical, particularly during times of economic crisis and when there is a decline in commodity flows across its borders. Currently, Russia's customs authorities are strictly regulated, with various government bodies having established performance indicators that monitor and restrain their operating capabilities, including their staff and financial resources. The performance indicators applicable to customs authorities is therefore considered to be an important research issue (Knyshov, 2016). New methods of measuring customs authorities' activities have been developed in the past five years. During this time, they have been tested and have required repeated adjustments, with particular attention being paid to benchmarks and analytical indicators (Larionova & Dolgova, 2013; Rudakova, 2015b).

There is little variation in the type of research that has been undertaken in the field of international customs regulation as most research is based on international principles and on a coherent system of the relationships between the subjects and objects of management (Mindagulov, 2013). Many foreign authors believe that the main problem with Russian customs is not the lack of a clear system of performance indicators, but rather the integrity of the procedures due to bribery of customs officials (Beeslay, 2015; Tsvetkov, Zoidov, Medkov, & Ionicheva 2015a, 2015b). This is, however, a problem for many developing countries. For example, corruption in the Cameroon customs led to lobbying for the autonomy of customs apparatus, demonstrating the difficulties involved in government reforms (Cantens, 2012).

In order to effectively analyse the performance indicators of customs authorities it is necessary to address a number of issues and answer some crucial questions:

- How can the available information relating to the current performance indicators of customs authorities be systematised?
- What issues relating to the methods of calculating indicators may prevent the metrics from being effective?
- Which principles may help create an effective universal system of performance indicators for customs authorities?

## **2. Methods**

### **2.1 Justification**

The scope of the research covers all existing indicators used to assess the performance of customs authorities, as well as indicators developed by the author. They are studied together, by analysing the peculiarities of each indicator, their interactions, common elements, and principles of formation. The basic principle of the work is the adoption of a systematic approach to the various performance indicators.

The principle of irrationalism is present in this work. This principle involves changes in the relationship between participants of international economic activities and customs authorities. The study is based on the principle of evolution, as it views the metrics as a self-improving system. The research also includes the principle of multi-functionalism, involving the formation of indicators under different conditions of customs regulation and for all tiers of the customs authorities.

### **2.2 Research methods**

The research involved a comprehensive analysis the various performance indicators of the Russian customs authorities. The main method used in the study is system analysis, which enables the identification of principles and patterns of constructing a system of indicators. The method highlights key strategic points, eliminating the influence of minor or external factors, and allows for the application of standard criteria for the assessment, simplification of the metrics and reduction of the time costs of customs officials.

The following methods are applied in this work:

1. weighted fractions of indicators to establish the importance of each indicator in the overall structure
2. vertical analysis of the indicator system to calculate total performance indicators of each element of the customs organisation
3. simulation of performance criteria of customs authorities, which allows for the creation of common approaches to developing indicators and eliminating the influence of irrelevant factors
4. comparative analysis of identical indicators, which avoids duplication when developing metrics
5. induction as a transition from particular areas of customs authorities' activities to a unified metrics system
6. ranking of the indicators according to their degree of importance to support customs management.

## **3. Discussion**

The history of the system of performance indicators of customs authorities in Russia is a path between extremes: it goes from simple statistics on the operations of customs departments and officials, to total control in all spheres of the customs authorities' activities based on standard indicators. This leads to an excessive complexity of the system and the absence of any connectedness between its elements. Many researchers outside Russia believe that in developing countries customs authorities focus solely on inspections, forgetting that systematic attempts to reduce risks may result in revenue losses (Geourjon & Laporte, 2005). Some key problems with the current system of performance indicators are:

1. the lack of a single, balanced performance system for customs authorities
2. the absence of sufficient public information for the calculation and assessment of the authorities' performance
3. duplication and unnecessary detail in the performance indicators
4. the in-house approach to developing and monitoring indicators.

### **3.1 The lack of a single, balanced performance system for customs authorities**

In national practice, there are groups of indicators that characterise the activities of customs authorities:

1. Indicators of regional customs offices, customs officials, and customs stations:

- analytical indicators (their number is not defined)
- benchmarks (38 indicators).

2. Overall performance indicators of customs authorities (cumulative indicators):

- indicators for evaluating the performance of the officials on the creation of favourable conditions for business activities. These influence the performance evaluation of the customs heads (7 indicators)
- key indicators (11 indicators).

Key indicators relate to:

1. speed of customs operations for import and export procedures, and reducing costs of stakeholders in customs operations
2. timeliness and completeness of customs payments
3. effectiveness of preventing criminal and administrative offences.

Opinions about the criteria for grouping indicators differ, but many researchers believe that for each tier of customs authority there should be different performance indicators due to differences in the functions performed (Agamagomedova, Grigorenko, & Kozlova, 2014; Rudakova, 2015).

### **3.2 Absence of sufficient public information for the calculation and assessment of the authorities' performance**

Studies have shown that some of the indicators that are currently applied are missing in public sources:

1. systematic analytic performance indicators of customs authorities' activities: not standardised and not assessed
2. planned main performance indicators
3. planned benchmarks 2014, 2015, 2016
4. performance indicators for managers
5. development and application of methods of analytical indicators and benchmarks
6. ongoing reporting on the application of indicators.

In addition to missing data, there are contradictions and gaps in the existing performance indicators. Many indicators are identical, but differ in the calculation methodology, including almost all benchmarks that are differentiated according to risks. Some indicators are outdated. Indicators related to the refund of customs duties, based on decisions made by a head customs body or a court, are standardised, which is very limiting. Controls are not equally allocated between the various offices of customs authorities, and the system for assessing benchmarks is very complicated. According to this system, the activities of customs authorities receive two, three or four estimates, with points being assigned for each. In the future, however, point correction will be possible under certain circumstances.

### **3.3 Duplication and unnecessary detail in the performance indicators**

There are currently 56 indicators in the assessment system of the customs authorities' activities, not including analytical indicators. Many of the indicators are duplications or are outdated, do not have a significant impact on the assessment of customs authorities' activities, and do not reflect the relationship of customs authorities to participants of international economic activity. The calculation methods are complicated due to in-house disagreements and, as a result, there is a simplified and subjective 'success-failure' approach to the assessment of customs activities according to the system, which is significant, as it destroys all previous efforts to calculate and analyse indicators.

Also, some indicators are misleading. For example, the failure of a customs authority to maintain benchmarks for objective or formal reasons as a result of the transition of responsibilities to another authority is not an indication of the authority's effectiveness. A portion of indicators is established as unattainable (Turbin, 2014). It is therefore necessary to reduce the number of performance indicators and regulate the selection criteria in any new system of indicators.

Experience in other countries allows for the identification of key controls in customs activities.

It is also considered that performance indicators should focus on key functions. As well as the improvement of customs procedures, indicators should address the effectiveness of customs enforcement.

### **3.4 In-house approach to developing and monitoring indicators**

The Government of the Russian Federation has responsibility for defining the system of indicators, their structure, and the methodology of their monitoring, while the Federal Customs Service of Russia approves orders on performance benchmarks and analytical performance indicators that are developed by the customs authorities (Agamagomedova et al., 2015).

Since benchmarks are developed by various offices, the opportunity exists for differing interpretation and calculation of indicators, which results in an in-house approach to their development and interpretation. In this way, the public authorities assess the results of their own work.

## **4. Results**

Our analysis identified contradictions, omissions and gaps in the indicators applied to assess the performance of customs authorities, and a new system of measuring customs performance has been proposed. The system will be universal for all tiers of customs, logically rationalised, and available to all users.

### **4.1 Principles for a system of effective performance indicators**

The general principles adopted for the planning, calculation, and implementation of a system of indicators for customs authorities as government institutions are the:

- attainability of the performance indicators
- differentiation of indicators according to the specifics of customs authorities' activities
- possibility of determining the degree of a performance indicator's realisation
- transfer of knowledge about performance assessment techniques to subordinate customs authorities
- the ability of subordinate customs authorities to understand performance assessment techniques
- objectivity of the indicators' evaluation.

Based on these general principles, the following is proposed:

1. Reduce the elements of customs authorities (management) that perform only analytical functions, which would also reduce the number of controlled indicators. The main customs indicators will be those of customs authorities who directly provide customs services.
2. Combine head customs offices according to identical functions (indicators).
3. Recognise that individual managing departments of customs authorities are necessary to ensure the activity of customs authorities, but are secondary, and the calculation of indicators is secondary. Payment bonuses for such offices should be connected to the quality of service for main elements of customs which authorities provide.
4. Apply a standard set of indicators to all customs; customs directly subordinated to the Federal Customs Service of Russia should not be distinguished as special elements.
5. Introduce a procedure to establish all indicators and methods for their calculation to the Ministry of Finance of the Russian Federation, and not to the Federal Customs Service of Russia.
6. Calculate two summary performance indicators of customs authorities: one from customs authorities themselves and one from participants of international economic activity. Identify the following indicators: ‘Efficiency of customs authorities in creating a favourable environment for participants of international economic activity’ and ‘Effectiveness of customs authorities in the implementation of their powers’.
7. Apply universal indicators to all levels of customs authorities. For higher customs authorities, it is necessary to calculate the outcome indicator as a total of indicators for subordinate bodies, taking into account the proportionate number of officers.
8. Calculate an outcome indicator as a total of indicators, accounting for the weight of each indicator, for subordinate authorities. The weight reflects the importance of an indicator or a group of indicators in the activity.
9. Distribute weight fractions of outcome indicators and indicators within them in accordance with the needs of society. The first indicator from point 6 is 35 per cent, the second is 65 per cent. Maximum weight should be on the main indicators of each group, namely ‘Speed and quality of customs operations and customs control’ for the first outcome indicator, and ‘Effectiveness of control and supervision in the field of customs payments’ and ‘Effectiveness of risk profiles’ for the second.
10. Cancel analytical indicators as not planned and not standardised, but only used in the formation of initial data for calculating the benchmarks.
11. Eliminate the duplication of indicators.
12. Use only indicators that match the duties and skills of customs authorities. Do not use outdated indicators.
13. Assess (quantitatively) all performance indicators for customs authorities’ activities.
14. Use relative indicators. Within a homogenous group, the indicators’ denominator must contain the same value to make it possible to compare results and obtain related indicators.
15. Establish standards only for possible and relevant indicators. Other indicators must be monitored upon their realisation.
16. Calculate all indicators quarterly on an accrual basis.
17. Create concise indicator names that reflect the nature of the indicator.

The proposed system of performance indicators of customs authorities is presented in Tables 1 and 2.

*Table 1: Outcome performance indicator for the Federal Customs Service of Russia: ‘Customs authorities’ efficiency in creating a supportive environment for participants of international economic activity’ (35% weighting)*

Level of customs authorities			
Customs	Customs administration		
Indicator type			
Specified	General		
Indicator	Weight, %	Indicator (management)	Weight, %
Ratio of time of customs control at automobile checkpoints to the time of customs operations	5	Speed and quality of customs operations and customs control (General Directorate of customs clearance and control)	30
Ratio of the time of customs control of goods being exported to the time of customs operations	5		
Ratio of the time of customs control of goods being imported to the time of customs operations	5		
Ratio of the time of customs control for citizens to the time of customs operations	4		
Ratio of the time for the decision to release goods after registration of customs declaration to the time of customs operations	4		
Proportion of customs costs for the movement of goods across the border to the number of customs duties	7		
Ratio of the number of participants of international economic activity who filled in customs documents according to the step-by-step instructions of customs authorities to the total number of participants of international economic activity	1	Efficiency of informational support for participants of international economic activity (IT Chief Directorate, Office of public affairs)	5
Ratio of the number of participants of international economic activity who filled in customs documents in the single-window system for excisable goods to the total number of participants of international economic activity	3		
Ratio of the number of participants of international economic activity customs who consulted customs authorities to the total number of participants of international economic activity	1		

*Table 2: The outcome performance indicator of the activity of the Federal Customs Service of Russia: 'Efficiency of customs bodies in their powers implementation' (65% weighting)*

Level of customs authorities			
Customs		Customs administration	
Indicator type			
Specified			General
Indicator	Weight, %	Indicator (management)	Weight, %
Total amount of assessed customs duties (reference data)	–		
Proportion of collected customs duties within total assessed customs duties	4		
Proportion of all additionally assed customs charges within total assessed customs duties	2	Effectiveness of control and supervision over customs payments (Chief Directorate of federal customs revenue and tariff regulation)	18
Proportion of customs duties recovered within total assessed customs duties	3		
Proportion of additional customs duties paid by participants of international economic activity within total assessed customs duties	3		
Proportion of disputed customs duties by participants of international economic activity within total assessed customs duties	4		
Proportion of all customs duties returned to participants of international economic activity within total assessed customs duties	2		
Total number of consignments (reference data)	–	Efficiency of risk profile use (risk management and operational control with Chief Directorate on counter-contraband operations)	8
Proportion of released consignments within the total number of consignments	2		
Proportion of consignments for which customs inspection was conducted within the total number of consignments	3		
Proportion of consignments in which violations were detected within the total number of consignments	3		

Level of customs authorities			
Customs		Customs administration	
Indicator type			
Specified			General
Indicator	Weight, %	Indicator (management)	Weight, %
Proportion of consignments in which violations of currency legislation were detected within the total number of consignments	3	Effectiveness of currency and export customs control (Administration of trade restrictions, currency and export control)	6
Relationship between the sum of identified illegal currency transactions, funds that are not credited on time to accounts of authorised banks, and funds that are paid for non-imported goods to the assessed customs value	3		
Proportion of consignments and customs duties disputed by participants of international economic activities within the total number of consignments	4		
Proportion of consignments for which decisions were made in favour of participants of international economic actors within the total number of consignments	3		
Proportion of consignments for which criminal cases were opened within the total number of consignments of goods	3		
Assessed fines, penalties (reference data)	–	Effectiveness of legal maintenance of activity of customs bodies (Legal Department with Office of customs investigations and inquiries)	21
Proportion of fines and penalties paid within all assessed fines and penalties	1		
Proportion of participants of international economic activity complaining about customs officials' actions (lack of action) within the total number of participants of international economic activity	4		
Ratio of the total number of official offences to the total number of customs officials	3		
Ratio of the number of official offences to the total number of customs officials	3		

Level of customs authorities			
Customs		Customs administration	
Indicator type			
Specified			General
Indicator	Weight, %	Indicator (management)	Weight, %
Budgetary funds at the disposal of customs authorities (reference data)	–	Efficiency of budget management of financial costs of customs authorities	6
Proportion of budgetary savings in budgets at the disposal of customs authorities	2	(Chief financial and economic management with Directorate of logistics)	
Proportion of overspent budget funds within the overall budget at the disposal of customs authorities	2		
Proportion of the budget expenditure operations which were stopped due to irregularities in budgetary resources at the disposal of customs authorities	2		
Number of consignments (reference data; calculation is possible using the mentioned indicators)	–	Efficiency of customs control after the release of goods (General Directorate of customs supervision after the release of goods)	4
Proportion of inspections completed after the release of goods within the total number of consignments	2		
Proportion of inspections completed after the release of goods for which violations were found within the total number of consignments	2		

## 5. Conclusions

The advantages of the system of the performance of customs authorities proposed in this paper are that the system:

1. reduces the intermediate elements of customs authorities and merges offices of customs authorities with identical functions
2. promotes the elimination of management elements due to the decrease in the outcome indicator while narrowing the range of duties of individual managers
3. introduces a universal approach to all levels of customs authorities and uses common performance indicators of customs authorities for all levels
4. makes it possible to create and handle proposals on indicators from any level of customs authorities as a result of unified calculation

5. shifts the accent on stimulation and significance towards customs authorities directly involved in customs services, including the allocation of subsidiary offices focused on the main customs authorities
6. provides for external control of customs authorities' activities, the development of indicators, and monitoring of said indicators by a higher authority—the Ministry of Finance of the Russian Federation
7. records legislative violations by customs authorities and their executives
8. defines distinct limits of punitive sanctions and payment bonuses for customs authorities based on key performance indicators
9. reduces chains of information flows in the development, regulation and control of performance indicators of customs authorities; eliminates duplication
10. encourages the performance of official duties by a smaller number of staff by accounting for customs staff in the outcome indicator
11. relieves customs officials of formal calculations to perform basic duties
12. reduces controlled performance indicators for customs authorities to only the fundamentally important, including cancelling a group of analytical indicators
13. eliminates the duplication of indicators and abandons outdated performance indicators
14. provides quantitative evaluation of all indicators
15. provides the possibility of selective regulation of indicators based on the indicators' relationship to the powers of customs authorities
16. ensures the comparability of indicators among all levels of customs authorities, stating the customs authorities' ranks regardless of the specifics of the work being completed
17. separates performance indicators related to the activities of participants of international economic from the activities of customs authorities themselves
18. ensures the possibility of changing the weight of outcome performance indicators depending on state policy
19. expands the group of indicators to establish favourable conditions for participants of international economic activity
20. ensures the redistribution of weight among outcome performance indicators depending on the priorities of customs authorities' activities
21. simplifies the calculation of indicators, including bringing a group of indicators to a common denominator, and eliminates the system of numerical ratings (2,3,4)
22. eliminates the subjective adjustment of performance indicators by customs authorities.

This research may be useful to the Ministry of Finance of the Russian Federation, the Federal Customs Service of Russia, and customs researchers, teachers and students. The system of performance indicators of customs authorities outlined in this paper could serve as a basis for the reform of customs authorities' control system. It could also be useful for improving the principles of control. The author is planning to conduct further studies on adapting the suggested system of indicators to the work of customs authorities at all levels, and to complete calculations of outcome indicators for particular customs and customs offices.

## Acknowledgements

The work was supported by Act 211 Government of the Russian Federation, contract No. 02.A03.21.0011.

## References

- Agamagomedova, S. A., Grigorenko, K. A., & Kozlova, M. A. (2014). The performance assessment of customs authorities of the Russian Federation in today's society. *Models, Systems, Networks in the Economy, Technology, Nature and Society*, 1, 7–14.
- Alekseeva, M. V. (2016). Monitoring of performance indicators of customs bodies: Technology features, stages of formation and development. *Innovation and Investment Management*, 2, 5–10.
- Arbit, A., Oren, Y., & Wool, A. (2011). Toward practical public key anti-counterfeiting for low-cost EPC tags. *IEEE International Conference on RFID*, 5764620, 184–191. doi: 10.1109/RFID.2011.5764620
- Beesley, C. (2015). Globalization and corruption in post-Soviet countries: Perverse effects of economic openness. *Eurasian Geography and Economics*, 56(2), 170–192. doi: 10.1080/15387216.2015.1082923
- Cantens, T. (2012). Is it possible to reform a customs administration? The role of the customs elite on the reform process in Cameroon. In A. H. Amsden, A. DiCaprio, & J. A. Robinson (Editors), *The role of elites in economic development* (pp. 281–306). Oxford: Oxford University Press. doi: 10.1093/acprof:oso/9780199659036.003.0012
- Geourjon, A.-M., & Laporte, B. (2005). Risk management for targeting customs controls in developing countries: A risky venture for revenue performance? *Public Administration and Development*, 25(2), 105–113. doi: 10.1002/pad.336
- Hasik, D., & Łapińska, A. (2015). The seizure by customs authorities of counterfeited goods: The ruling by the European Court of Justice in Blomqvist. *Rolex and the changes brought about by regulation (EU)*, No. 608/2013, 16(1), 73–87. doi: 10.1007/s12027-015-0380-5
- Hullstein, I.R., Malerod-Fjeld, H., Dehnes, Y., & Hemmersbach, P. (2015). Black market products confiscated in Norway 2011–2014 compared to analytical findings in urine samples. *Drug Testing and Analysis*, 7(11–12), 1025–1029. doi: 10.1002/dta.1900
- Imperato, R., Campone, L., Piccinelli, A. L., Veneziano, A., & Rastrelli, L. (2011). Survey of aflatoxins and ochratoxin a contamination in food products imported in Italy. *Food Control*, 22(12), 1905–1910. doi: 10.1016/j.foodcont.2011.05.002
- Jusionyte, I. (2015). States of camouflage. *Cultural Anthropology*, 30(1), 113–138. doi: 10.14506/ca30.1.07
- Knyshov, A. V. (2016). *Improvement of the system of indicators for evaluating the activities of customs authorities, features of its development and application: Monograph*. Moscow, M.: Russian Customs Academy.
- Krug, O., Thomas, A., Walpurgis, K., Piper, T., Sigmund, G., Schänzer, W., Laussmann, T., & Thevis, M. (2014). Identification of black market products and potential doping agents in Germany 2010–2013. *European Journal of Clinical Pharmacology*, 70(11), 1303–1311. doi: 10.1007/s00228–014-1743-5
- Larionova, N. A., & Dolgova, Yu. V. (2013). The system of performance benchmark of customs authorities of Russia. *Kant: Economics and Management*, 2, 48–51.
- Malevich, I. V., & Berezkina, N. N. (2015). Conceptual aspects of the development of logistics management as part of the customs authority. *Review of European Studies*, 7(9), 32–40. doi: 10.5539/res.v7n9p32

- Mindagulov, A. (2013). The mode of government service in custom authorities. *World Applied Sciences Journal*, 25(11), 1608–1611. doi: 10.5829/idosi.wasj.2013.25.11.13439
- Rudakova, E. N. (2015a). Analysis of the system of performance of customs activities. *Bulletin of Moscow State Regional University. Series: Economics*, 2, 109–112.
- Rudakova, E. N. (2015b). The system of performance benchmark of customs authorities. *Bulletin of Moscow State Regional University. Series: Economics*, 3, 102–106.
- Strashkova, V. O. (2015). Performance benchmark of customs authorities. *Bulletin of the Scientific Conferences*, 2–4(2), 142–144.
- Thevis, M., Geyer, H., Thomas, A., & Schänzer, W. (2011). Trafficking of drug candidates relevant for sports drug testing: Detection of non-approved therapeutics categorized as anabolic and gene doping agents in products distributed via the Internet. *Drug Testing and Analysis*, 3 (5), 331–336. doi: 10.1002/dta.283
- Tsvetkov, V. A., Zoidov, K. Kh., Medkov, A. A., & Ionicheva, V. N. (2015a). Institutional and organizational features of the cross-border freight traffic in the conditions of integration among former Soviet States. Part 1. *Economy of Region*, 3, 188–204. doi: 10.17059/2015-3-16
- Tsvetkov, V. A., Zoidov, K. Kh., Medkov, A. A., & Ionicheva, V. N. (2015b). Institutional and organizational features of the cross-border freight traffic in the conditions of integration among former Soviet States. Part 2. *Economy of Region*, 4, 249–259. doi: 10.17059/2015-4-20
- Turbin, I. V. (2014). The performance assessment of customs authorities on the basis of the existing system of indicators and suggestions for their improvement. *Proceedings of Saratov University. New series. Series: Economics. Management. Rights*, 14(3), 587–594.

### **Anna Vladimirovna Bobrova**



Dr Anna Vladimirovna Bobrova is a professor in the Customs Affairs Department at South Ural State University where she has been involved in research for eight years. Prior to this, Anna worked for 25 years in pedagogical areas. She has published extensively, including monographs, textbooks, and conference papers. Her areas of scientific interest are in customs management, including indicators of the activities of customs authorities, taxes and tax planning, finance, and economic geography.

# Simplified procedures for customs intellectual property rights enforcement

*Alan Towersey*

## Abstract

This paper investigates the benefits of using a simplified procedure for the forfeiture of goods that infringe intellectual property rights (IPR), using a simple theoretical framework to test eventual gain. This framework considers the flow of trade and the dynamics of finding and seizing counterfeits in a way that allows for statistical hypothesis testing using Ordinary Least Squares. The research used data from European Union countries and the results suggest that there are significant gains for countries that adopt a simplified procedure. By implementing such a system, it is expected that enforcement will be more efficient, and forfeiture will require fewer resources.

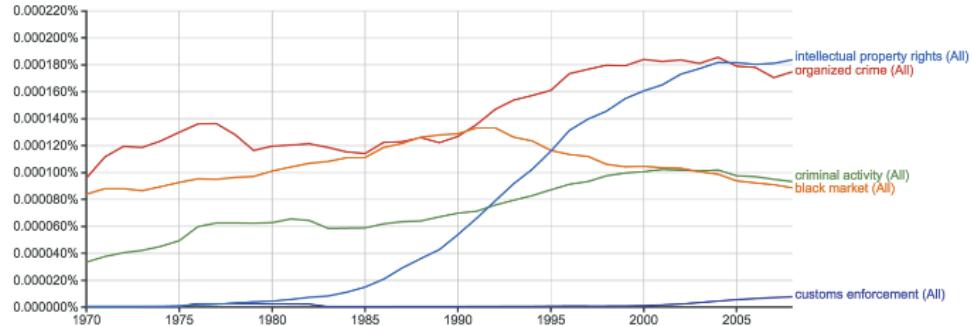
## Introduction

The forfeiture of goods that contravene intellectual property rights (IPR) can be a complicated process that prevents customs officials from directing their efforts elsewhere. This paper investigates the benefits of using a simplified procedure when seizing goods that infringe IPR and uses a simple theoretical framework to test eventual gain.

According to Balaam and Dillman (2011, pp. 379–404), there is a substantial amount of academic literature on protecting IPR from infringers. This body of literature also recognises other related areas, such as criminological studies on transnational organised crime, sociological studies on the effects of criminal activities, anthropological studies on informal markets in developing countries, and studies by international relations experts on the connection between money laundering and terrorism. However, little or no work has been undertaken to produce a global picture of transnational IPR infringement. Therefore, the investigation set out in this paper not only assists in improving our understanding of IPR enforcement processing, but helps to populate a scarce area in the academic field.

Although Balaam and Dillman (2011) claim scarcity in the academic field of this study, their work does not present evidence of this claim. However, as an effort to obtain such evidence, a search performed in Google Ngram suggests their point is correct, as seen in Figure 1. This chart, extracted from Google (2016) Ngram Viewer uses the data from Google's book library from 1970 to the latest available—2008. The viewer plots the time series of the ratio of searched key terms divided by all terms present in their library. The horizontal axis represents the year and the vertical axis the ratio of occurrence in percentages. The chart data was smoothed by presenting the average of the last three ratios for reducing particular fluctuations and easing comprehension. For greater accuracy and to avoid arbitrary upper and lower-case fonts selection, the search was not case sensitive. The key terms were selected based on the themes suggested by Balaam and Dillman (2011).

Figure 1: Related themes Ngram



Source: <https://books.google.com/ngrams>.

As suggested by Balaam and Dillman (2011), the chart indicates that there is a significant amount of works dealing with IPR, organised crime and money laundering and black markets, but very little on customs enforcement. Nevertheless, it is important to acknowledge the recent increase in customs enforcement as a term in the Google books library. However, if there has been little research to date on customs enforcement, it is likely that there has been considerably less on customs IPR enforcement.

## Background

A simplified procedure for Customs to process the forfeiture of goods that infringe IPR was introduced in the European Union (EU), as an option for its members, by Article 11 in Regulation (EC) No 1383/2003. This procedure is now mandatory for all members of the EU under Regulation (EU) No 608/2013. The procedure was made mandatory as it was seen as an improvement of IPR enforcement by Customs and, based on a stakeholder survey study, the EU (2013) concluded that the simplified procedure was very positive: ‘such procedure has proved very successful in the Member States where it has been available’.

This conclusion had already been reached by the EU (2010), as expressed in the European Parliament resolution of 18 December 2008:

... whereas the simplified procedure laid down in Article 11 of Regulation (EC) No 1383/2003 in Member States such as Portugal, Greece, Hungary, the Netherlands and Lithuania which allows for the destruction of large quantities of counterfeit goods in a short period of time and with relatively low costs, is very successful ...

Thus, from experience and based on the stakeholder survey, the EU concluded that adopting the simplified procedure would be positive for customs IPR enforcement.

Nevertheless, the motto of the oldest scientific organisation, the Royal Society, is *Nullius in verba* ('Take nobody's word for it'), the corollary of which is that scientists should verify all statements through testing and experimentation.

Under the light of this principle, the goal of this work is to scientifically evaluate the impact of the adoption of the simplified procedure. Whenever possible, data from results of practice in different countries is used. Eventually, further confirmation of the EU's conclusion will increase the foundation and reasoning in favour of adopting this alternative procedure in countries where it has not yet been implemented.

## Defining the procedure

To obtain a wider concept than the one adopted strictly in the EU, a concept that is consistent with other developed countries with a major role in international trade, such as the USA and Japan, is presented. The simplified procedure for forfeiture of IPR enforcement by Customs can be defined as the procedure where, after suspension or seizure, Customs follows through to forfeiture or destruction without the need for further intervention or participation by the holder of the rights.

After seizing the goods there are different criteria for adopting the simplified procedure in different countries. For example, in the USA, if there are counterfeit marks or the goods are clearly pirated, then the simplified procedure is applicable (WCO, 2016). According to Article 23 1 (c) of Regulation (EU) No 608/2013, in the EU the criteria for adopting the simplified procedure is the lack of opposition by the importer to the fact that the goods are counterfeit. Japan Customs (2016), however, adopts criteria similar to the USA (i.e. if the counterfeits and piracy are obvious the procedure can be applied). The focus of this work, however, is not on what criteria is adopted for the simplified procedure, as the criteria differ from country to country, but on evaluating whether adopting any of them improves the efficiency of enforcement, regardless of the criteria used.

The WCO (2011) model legislation for implementing the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) suggests, through item (2) of article 11, the adoption of simplified procedures.

Note 11.04 for this article reflects a global perception:

In a number of cases, the fact that the suspended goods are pirated or counterfeits is not disputed. Experiences from WCO member states demonstrate that the opposition procedure suggested here offers a fair and efficient way of dealing with seizures and destruction of infringing goods. Such a procedure has the added benefit of reducing the cost incurred by customs from the storage of the infringing goods.

The provision in the WCO standard is that a simplified procedure is followed in cases where there is a request and adequate evidence supplied by the rights holder, and there is no opposition from the importer within 20 days, as emphasised in the transcript of article 11(2) as follows:

Customs may at the request of the right holder forfeit and subsequently destroy the detained goods or place them outside the channels of commerce, or have them destroyed by the right holder under customs' supervision, ex officio and without a court order, wherever:

- a. the right holder has provided adequate evidence to prove that the goods are infringing goods, and;
- b. the importer, the exporter, the consignee, the consignor, the owner of the goods, or the declarant has been served by customs with the notice of suspension referred to in Article 6.2, has been informed about the possibility of confiscation and destruction or disposal outside the channels of commerce *by default of the allegedly infringing goods and he does not oppose the measure within twenty (20) working days* after having been served the notice, or alternatively if after reasonable efforts by customs the importer, exporter, consignee, consignor, the owner of the goods, or the declarant has not been identified.

In the event the applicant is granted an extension of the time limit for taking legal actions, such extension is automatically applied to the opposition procedure referred to in this paragraph.

Summarising the ideas presented here, some of the most developed countries and the WCO suggest, based on their experiences, the adoption of some sort of simplified procedure. These claims appear to be consistent with, and arise from, practices in many countries. On the other hand, one must still consider that for economic policy decision-making it is important to ground policy in data that leads to measurable expectations from policy change. That is where this study makes a significant contribution.

## The test

Objectively, the goal for this work is to perform the following hypothesis test:

$H_0$ : simplified procedure does not increase seizures of infringing IPRs goods; against

$H_1$ : simplified procedure increases seizures of infringing IPRs goods.

By rejecting the proposed null hypothesis one expects to obtain further confirmation of the success of the simplified procedure adopted in the EU.

## The model

A model is needed to support the proposed test. To construct such a model, it is assumed that the quantity of seizures is a function of the number of illicit shipments, number of legal shipments, quality of risk targeting, and the number of inspection/enforcement activities.

From the point of view of enforcement, the flow of trade contains both legal and illicit shipments that are to be targeted and treated accordingly. A simplified vision of the goal of enforcement is to detect an illicit shipment, seize it, process it, and start over again. The faster and more efficiently enforcement agencies process their cases, given the same structure, more cases and more illicit goods are removed from the market, thus contributing to a more secure society.

Since the target of the test is the procedure, the quantity here refers to the quantity of cases, since it is a more adequate measure of procedure than quantity of seized goods.

The illicit shipments are the object of the procedure. In the extreme, if there were no illicit shipments there would be no seizures, so a positive effect on the number of illicit shipments on the quantity of seizures is expected.

The quality of targeting (i.e. the identification of illicit shipments within the stream of international trade), is essential if there is to be a reduction in the level of enforcement resources devoted to inspecting lawful shipments. The quality of targeting is a result of a number of factors, such as the technology employed, staff qualifications, available data for risk assessment, and the volume of trade. Considering the same amount of illicit shipments, the greater the volume of trade, the harder it is to identify the illicit shipments.

Finally, enforcement refers to goods being seized. An increased efficiency in the enforcement process leads, if all else is equal, to more enforcement and more seizure cases as more is produced with the same resources. Therefore, an efficient procedure is expected to increase seizures through increasing enforcement. One important issue within enforcement is the amount and quality of resources deployed for enforcement activities, such as staff, equipment and training.

These ideas can be expressed in the following mathematical structure:

$$\text{Seizure} = f(\text{illicit}, \text{targeting}(\text{licit}), \text{enforcement}(\text{staff}, \text{procedure}, \dots))$$

By looking at different countries, the factors that lead to the amount of cases of IPR infringing goods processed by Customs can be compared.

The reasoning within this simple model for customs enforcement can also be used for more specific types of enforcement, such as IPR enforcement. Therefore, it will support the testing further exposed in this work.

## The data and ordinary least square structure

The structure of the model proposed here must be adapted to the available data to provide a reliable means for the hypothesis test.

To support the results of the procedure, data on the quantity of cases of IPR seizures was retrieved from EU Commission reports from 2011, 2012 and 2013. The data set for the study is limited to this period, as these are the years for which data was available.

Unfortunately, it was not possible to obtain data and realistically estimate the ratio of illicit to licit shipments within different countries, thus, it was necessary, within the limited resources and access of this work, to assume it as being the same level across the sample. This is a reasonable assumption as, even though there are significant differences amongst the EU members, they are part of the same customs union, sharing common cultural and economic features.

Also, one may consider that the quantity of illicit shipments will be positively related to the global quantity of shipments, as this figure reflects the total demand for imported goods (licit and illicit). The volume of imports also influences risk management as the greater volume may dilute the illicit shipments, as mentioned above. Therefore, either as a demand measure or due to its impact on targeting, the presence of imports is essential to assure the model is not biased.

The figures for imports available at the UN COMTRADE database were extracted for the years of 2011, 2012 and 2013 for each of EU countries.

In addition to using the volume of imports, the model can be significantly improved by adding the number of staff for each customs administration. If a given country has a great amount of imports, including counterfeits, but few resources for enforcement, there will be few cases processed for IPR infringement. Although it's not possible to account for capital and technology factors invested in customs administration, the data on staff is available from the WCO. It is expected that, where there is a greater number of staff there will be more staff employed in enforcement and therefore more cases processed, presuming the amount of imports remains constant. It would be better to have data on the staff deployed for enforcement activities, however such data was not available for this work. Including the number of staff for each country should reduce any bias towards countries with more or less resources dedicated for customs enforcement.

Data from the staff employed in Customs in each country were retrieved from the WCO annual reports (2011, 2012 and 2013).

To distinguish between the countries that adopted simplified procedures and those that did not, we referred to Altenburg and Rechtsanwälte (2012):

The following 15 EU member states have adopted national provisions for a simplified procedure in their trademark laws: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Germany, Hungary, Ireland, Lithuania, Portugal, Romania, Slovakia, Slovenia and Spain. In the United Kingdom, a similar proceeding is applied by customs, whereas Greece, the Netherlands and Latvia apply Article 11 of the Counterfeit Goods Regulation directly.

Article 11 of the Counterfeit Goods Regulation, referred to by Altenburg and Rechtsanwälte (2012), adopted the simplified procedure in the EC Regulation No 1383/2003 before it became mandatory for all EU members, that is, when Regulation (EU) No 608/2013 came into force.

The countries mentioned above were treated as adopting the simplified procedure and treated as 1 in the variable set for this purpose, while the others received value 0.

The number of cases, import trade volume, staff and whether the country uses the simplified procedure figures were paired for each respective year.

After running different combinations of nonlinear arrangements, such as squares and logs,  $\ln(\text{staff})$  improved the data fit to the model, though the same did not occur with squares or with Imports. Therefore, the natural logarithm of the staff data was also included in the final dataset.

The result is cross sectional data that can fit the following structure to be estimated:

$$\text{Seizure} = \beta_0 + \beta_1 \text{Import} + \beta_2 \text{Staff} + \beta_3 \ln(\text{Staff}) + \beta_4 \text{Simplified} + \varepsilon$$

Where:

- Seizure is the number of seizure cases in each country from the EU Commission Report, represented as CSeizure in the following statistics.
- Imports is the volume of import for a given year for a given country from the UN COMTRADE database
- Staff and  $\ln(\text{Staff})$  are respectively the number of staff and the natural logarithm of the number of staff from the WCO annual reports
- Procedure is the binary indicative if the country adopts the simplified procedure, as specified by Altenburg and Rechtsanwälte (2012).

The table of the data statistical descriptive figures follows:

*Table 1: Summary descriptive statistics of the gathered data*

Summary Statistics, using the observations 1 - 82				
Variable	Mean	Median	Minimum	Maximum
Cseizure	3109.24	516.5	1.07	32905
Imp	2.15E+11	8.21E+10	6.42E+09	1.26E+12
Staff	7011.06	2395	335	66000
I_Staff	7.89588	7.78088	5.81413	11.0974
Simplified	0.695122	1	0	1
Variable	Std. Dev.	C.V.	Skewness	Ex. kurtosis
Cseizure	6267.94	2.01591	3.03858	8.95106
Imp	2.82E+11	1.30962	1.95344	3.60222
Staff	13202.6	1.88311	3.29878	10.7942
I_Staff	1.31709	0.166807	0.469051	-0.172828
Simplified	0.463189	0.666342	-0.847701	-1.2814
Variable	5% Perc.	95% Perc.	IQ range	Missing obs.
Cseizure	11.73	21342.9	2957.25	0
Imp	7.58E+09	7.15E+11	2.95E+11	0
Staff	391.5	3392.9	3900	0
I_Staff	5.96994	10.4339	1.52072	0
Simplified	0	1	1	0

*Source:* Gathered data in GRETL.

## Ordinary least square results

Following the outline of this work, the ordinary least square (OLS) estimations were calculated using GRETL, presenting the following output, as displayed in Table 2.

Table 2: Results of the regression

Model 1: OLS, using observations 1–82

Dependent variable: CSeizure

	Coefficient	Std. Error	t-ratio	p-value	
<b>const</b>	10466.4	2514.4	4.1626	<0.0001	***
<b>Imp</b>	8.68956e-09	1.40391e-09	6.1896	<0.0001	***
<b>Staff</b>	0.417918	0.0309149	13.5183	<0.0001	***
<b>I_Staff</b>	-1719.27	337.577	-5.0930	<0.0001	***
<b>Simplified</b>	2037.24	532.459	3.8261	0.0003	***

<b>Mean dependent var</b>	3109.239	<b>S.D. dependent var</b>	6267.941
<b>Sum squared resid</b>	3.68e+08	S.E. of regression	2187.341
<b>R-squared</b>	0.884232	Adjusted R-squared	0.878218
<b>F(4, 77)</b>	147.0308	P-value(F)	3.11e-35
<b>Log-likelihood</b>	-744.3897	Akaike criterion	1498.779
<b>Schwarz criterion</b>	1510.813	Hannan-Quinn	1503.611

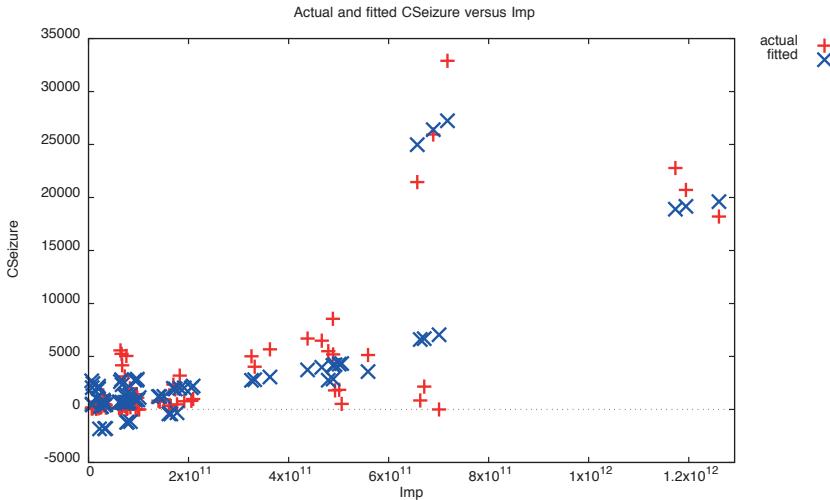
Source: Gathered data in GRETl.

With an  $r^2 \approx 0.88$  and all p-values under 1 per cent, the results suggest that, following the reasoning of the model, the selected data entered into this particular framework explains to a very high level the behaviour of the dependent variable. More importantly, the data and framework are adequate to test the alternative of adopting, or not adopting, the simplified procedure.

As expected, the coefficient for imports is positive and significant at 99 per cent confidence interval. The amount of imports accounts for factors such as the strengths of the economy of the country, the demand for imports, the demand for imported counterfeits, and others that may relate to the number of cases of seizures. The positive coefficient indicates that these previous factors, in relation to seizure cases, overcome an eventual effect of trade volume diluting the counterfeits and making it more difficult for management to identify these shipments.

The following chart (Figure 2) displays the scatter plot of the actual and fitted number of seizure cases against the volume of imports in each

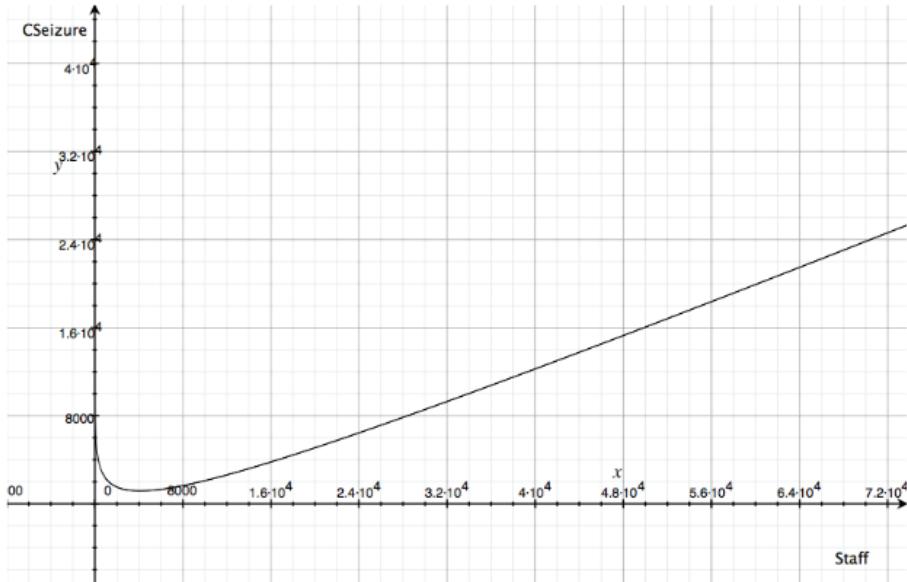
Figure 2: Seizure vs import scatter plot



Source: Gathered data in GRETL.

The nonlinearity of staff can be visualised in Figure 3, which presents the predicted CSeizure vs Staff according to the estimated parameters at the average of other variables as plotted in OSX Grapher.

Figure 3: Predicted seizure vs staff



Source: Estimated parameters and OSX Grapher.

For the estimated parameters in the frameworks equation the algebraic minimum value occurs when staff is approximately 4113.

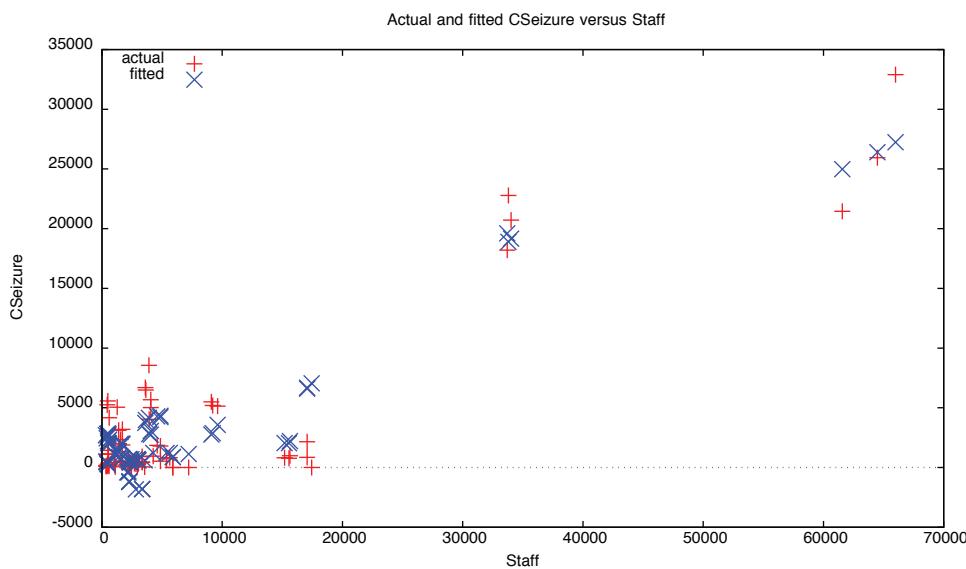
The equation suggests that, to fit very small countries, especially those with less than 1000 staff, a reduction of 1 seizure case when increasing staff. That may be explained by the fact that the average staff

is 7000 and few countries are below this, and trying to best fit the log and linear parameters adjusted to a flat response in the range around 2000–6000 to a slightly accelerating increase from 6000 onwards. Looking specifically at the staff curve, this equation may not be a good tool for predicting and studying the countries with less than 1000 staff members, as the equation in this region predicts that the number of cases will reduce with an increase of staff members, a behaviour that goes against common sense. Another explanation for such a curve shape is the possibility that there are economies of scale in relation to the number of cases and the staff in a given customs administration.

One must consider that the OLS curve fitting has been adapted to better explain the middle and upper range of the sample in regard to the number of staff members.

The following chart (Figure 4) displays the scatter plot of the actual and fitted number of seizure cases against the staff of each observation in the dataset, enabling a visualisation of the issues discussed.

*Figure 4: Seizure vs import scatter plot*



*Source:* Gathered data in GRETL.

It should also be noted that, in theory, it would be better if there were data of staff specifically working with IP enforcement in customs. This more specific data could also reflect how a particular customs administration prioritises its resources regarding IPR enforcement. It is also important to note that not only human resources (staff and training), but the equipment, infrastructure, and the budget for third-party expenditures, such as those related to the destruction of goods, are important for fast and effective IPR processing. These different factors could be reflected in the enforcement staff variable. Due to the lack of this specific data, such factors may be partially embedded in the simplified procedure variable, slightly overestimating its real value. This bias could occur if there is a correlation between countries or customs administrations that are concerned with IPR, and thus, that adopt the simplified procedure and also deploy more resources towards the fight against IPR infringing goods. Hopefully, if such phenomenon occurs, it is not significant enough to contaminate the conclusions of this work.

Regarding the estimated parameter for the simplified procedure coefficient, its value was positive and with a respective P-value well under 1 per cent, therefore, the null hypothesis can be rejected with over 99 per cent of confidence.

In other words, by rejecting  $\beta_4=0$  with  $\beta_4>0$ , with the available data and under the assumptions made, one concludes that adopting the simplified procedure contributes to an increase in the expected number of cases of IPR infringements seized by customs, if other factors remain constant.

Since this data is cross-sectional, and according to the way the model was constructed, it is important to keep in mind that the conclusions here can't be seen as having a causality relationship, but just as related factors. Therefore, based on the results one cannot conclude categorically that adopting a simplified procedure will cause a country to increase the number of counterfeit cases. On the other hand, one can state that, within the sample, if all else is equal, countries that process a greater number of cases of IP infringement adopt the simplified procedure.

## **Conclusion**

The objective of this work was to define and evaluate the simplified procedure for the enforcement of IPR by Customs. The concept was defined along the work and the evaluation, based on EU data, hypothesis testing, OLS and a specific model, following claims by the EU and WCO, presented strong evidence that the simplified procedure is related to a greater capacity of processing IPR cases by customs.

It is important to highlight that adopting a simplified procedure does not imply a shift of customs resources prioritising the enforcement of counterfeits against other of the important issues tackled by Customs. The simplified procedure is an alternative working process that may lead to a more efficient use of the resources dedicated to customs IPR enforcement.

Even though the simplified procedure variable received a positive figure and very low p-value, other factors that relate to that variable may influence the result. For instance, a country that decided to implement the simplified procedure is also one that pays attention to the matter of enforcement of IPRs and is likely to dedicate more resources to enforcement. Therefore, it would not be realistic to assume the result to be unchanged. Regardless of these sorts of conjectures, the result from the test is that changing to the simplified procedure generates an expected increase in the number of seizure cases for a given country.

For those countries that have not adopted some sort of simplified procedure, there is strong evidence that by doing so one expects gains in the efficiency of processing IPR infringing goods for forfeiture.

Adopting a more efficient procedure to process IPR cases must not be confused with any political position on IPR. A high efficiency procedure for IPR processing by Customs can contribute to social welfare as a means of either achieving better results with the same resources or the same results with less resources given that all WTO members must enforce at least to a certain point IPR at borders.

As a final remark, this study found evidence that countries that don't employ any sort of simplified procedure for customs IPR enforcement may, by adopting such procedure, be more efficient and better able to contribute to social welfare within the customs mandate.

## References

- Altenburg, D. & Rechtsanwälte, S. (2012). Transit of counterfeit goods in the EU: What's the effect of Philips and Nokia?. *INTA Bulletin*, 67(19), Retrieved from <https://www.inta.org/INTABulletin/Pages/TransitofCounterfeitGoodsintheEUWhat%20%99stheEffectofPhilipsandNokia.aspx>
- Balaam, D. N., & Dillman, B. (2011). *Introduction to international political economy* (5th ed.). New Jersey: Pearson.
- European Union (EU). (2010). European Parliament resolution of 18 December 2008 on the impact of counterfeiting on international trade. *Official Journal C45E*, 53. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:C:2010:045E:FULL&from=EN#CE2010045EN.01004701.doc>
- European Union (EU). (2013). Regulation (EU) No 605/2013 of the European Parliament and of the council. *Official Journal L181*, 56. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L:2013:181:FULL&from=EN>
- Google. (2013). *Google Ngram Viewer – Google Books*. Retrieved from <https://books.google.com/ngrams>
- Japan Customs. (2016). *IPR border enforcement—Overview of identification procedures*. Retrieved from [http://www.customs.go.jp/mizugiwa/chiteki/pages/c\\_001\\_e.htm](http://www.customs.go.jp/mizugiwa/chiteki/pages/c_001_e.htm)
- World Customs Organization (WCO). (2011). *Model provisions for national legislation to implement fair and effective border measures consistent with the agreement on trade-related aspects of intellectual property rights*. Retrieved from <http://www.tafa-r.org.tw/forum/20110816/20110816WCModelLawfinal.pdf>
- World Customs Organization (WCO). (2016). *Flow charts on border enforcement procedures—United States*. Retrieved from <http://www.wcoomd.org/en/topics/enforcement-and-compliance/instruments-and-tools/compendiums/~/~/media/4E9EDB5E8C5549278E77DC3AD1A288F9.ashx>

### Alan Towersey



Alan Towersey is a Fiscal-Auditor in the Secretariat of the Federal Revenue of Brazil, chief of the Enforcement Division in São Paulo fiscal region. He holds a degree in economics from the Pontifical Catholic University of Rio de Janeiro, a post graduate degree in Tax Law from the Graduate Program (GVlaw) at Getúlio Vargas Foundation (FGV) and a master's degree in business from the Strategic Management and Intellectual Property Rights Program at Aoyama Gakuin University (AGU), Tokyo, this last degree under the sponsorship of the World Customs Organization (WCO). Alan's research interests are in law, management, customs enforcement and smuggling.



# Establishment of an international legal framework for cross-border electronic commerce rules: Dilemmas and solutions

*Min Wang*

## Abstract

Cross-border electronic commerce is of great strategic significance to global economic integration.<sup>1</sup> However, different rates of development in electronic commerce, and significant differences in interest rates among nations and regions, make it hard to unify cross-border electronic commerce rules at an international level. This is especially reflected in the opposite propositions of the US and the European Union (EU) on the application of rules for products that include digitally delivered content within the World Trade Organization (WTO).

This paper examines the dilemma of cross-border electronic commerce in international law within the framework of the WTO, United Nations Commission on International Trade Law (UNCITRAL) and the Organisation for Economic Co-operation and Development (OECD). After examining the relevant legal systems in the US and the EU, and analysing conflicts of interest in the business rules related to cross-border electronic commerce between the US and the EU, this paper concludes that, in order to promote the development of cross-border electronic commerce, domestic private laws relating to electronic commerce must be improved, and based on an international legal framework designed to increase the predictability and certainty in business activities, which would be achieved by greater international cooperation.

## 1. Introduction

The volume of electronic commerce sales around the world will soon reach USD 963 billion. In the US, Goldman Sachs predicts a 12.4 per cent increase in online retail sales over the next three years, and the value will reach USD 235.3 billion.<sup>2</sup> While developed economies currently dominate the market, emerging economies are expected to catch up. These trends are also reflected in the field of cross-border electronic commerce which, in recent years, has become an increasingly important aspect of international trade. Effectively using electronic commerce will further improve the competitiveness of enterprises in the global market. However, there is a disparity in the rates of development of electronic commerce, and there is a significant gap between developed countries and developing countries. While some countries with rapid developments in electronic commerce are calling for the establishment of a basic international legal framework, it is hard to reach a consensus on some significant issues due to the overall imbalance in the rate of electronic commerce development across nations and their respective interests. Therefore, the World Trade Organization (WTO) has temporarily slowed its progress on international legislation for electronic commerce. Not since the Uruguay Round has this issue been referred to in WTO multilateral

negotiations, but following the final act of the Uruguay Round, subsequent agreements include numerous rules regulating and facilitating electronic commerce, which greatly facilitate the future development of electronic commerce rules.

Despite the progress of cross-border electronic commerce at the international level, nations and regions still have different systems and standards, such as discrepancies relating to the identification and authentication of electronic exchange records. For example, the definitions of ‘electronic signature’ provided by the legislation of China and the UK are quite different. Article 2 of China’s *Electronic Signature Law* is narrower than section 7(2) of the UK *Electronic Communications Act*. China does not use the expression ‘logically associated with’ in its legislation, which could lead a court to exclude a signature used separately from a data message, but logically associated with it. Therefore, it is hard to carry out judicial assistance. The disparity of domestic cross-border electronic commerce rules leads to difficulties in enacting coherent and unified international electronic commerce legislation. To promote the development of cross-border electronic commerce, it is therefore essential to improve domestic private laws relating to electronic commerce based on an international legal framework designed to increase the predictability of trade. This should be achieved through greater international cooperation.

## **2. The dilemma for cross-border electronic commerce in international law and policy analysis**

The main purpose of international trade regulation is to avoid or reduce trade barriers caused by national laws. Trade barriers are generally caused by customs, tariffs and corresponding costs, but non-tariff trade barriers also play an important role. With the decline in tariff rates, the importance of these obstructions increases. The WTO is the most important organisation when it comes to trade regulation. Therefore, during the last 20 years, the implementation of regulations promoting electronic trade has mainly been undertaken in the context of the legal framework of the WTO. In addition, other international organisations, such as United Nations Commission on International Trade Law (UNCITRAL) and the Organisation for Economic Co-operation and Development (OECD), have also released guidelines and policy suggestions aimed at promoting cross-border electronic trade.

However, there are severe differences between nations/regions on some significant issues, such as rules on the application of electronic commerce, so WTO, UNCITRAL and OECD still have a long way to go to achieve international harmonisation.

### **2.1 Disputes governed by the cross-border electronic commerce rules of the WTO**

The WTO’s Work Programme on Electronic Commerce determined that electronic commerce means, ‘the production, distribution, marketing, sale or delivery of goods and services by electronic means’ (WTO, 1998). All member states use this definition.

Cross-border electronic commerce provides a new mode of business transactions and exerts a fundamental influence on the way in which commercial trade is conducted. In practice, commodities traded in electronic commerce tend to be divided into digital commodities and non-digital commodities using electronic transmission as the medium. With the development of information technology, such commodities as books, software, music and films previously transacted in physical forms of paper, audiotape and disk, may now be delivered by electronic means over the Internet. Such products transmitted and delivered through a network are called digital commodities, which are ‘invisible’ and may be downloaded online. Digital commodities are grouped into four categories in WTO negotiations: (1) TV and film; (2) music; (3) software; (4) audio recordings and video, computers, and entertainment

programs.<sup>3</sup> Generally speaking, the General Agreement on Tariffs and Trade (GATT) still applies to commodities transported in physical form, while the General Agreement on Trade in Services (GATS) is applicable to electronic transmissions under rules applying to electronic commerce.

The WTO formulated a series of documents related to electronic commerce, such as the telecommunication annex of the fourth protocol of GATS (WTO, 1997), the *Information Technology Agreement* (ITA) and *Declaration on Global Electronic Commerce* (WTO, 1998). By conducting research on electronic commerce, the WTO has found that this new commercial medium (i.e. cross-border electronic commerce), faces many challenges, such as transaction security and privacy and jurisdiction disputes, and wishes to integrate existing trade rules and harmonise electronic commerce trade worldwide. In addition, the WTO also pays special attention to the methods that developing countries use to increase their participation in international commodity and service trade and narrow the gap between developed countries and developing countries through electronic commerce.<sup>4</sup> Since electronic trade was not common before the Uruguay Round and hardly had any relevance, it did not play an important role in the negotiations. But the WTO came to realise the importance of electronic commerce afterwards. In May 1998, WTO members made a declaration on electronic commerce in a ministerial meeting in Geneva. On 25 September 1998, the General Council officially approved an *Electronic Commerce Work Programme*. At first, the negotiation seemed to have made some progress. However, the impetus was lost as WTO negotiations on general issues were locked in a stalemate. When preparing for the Seattle ministerial meeting, the WTO Secretariat submitted numerous working documents, but the General Council was unable to reach a consensus on the rules concerning the application of the WTO rules when formulating the proposal. The key issue centres on the determination of rules that apply to cross-border electronic commerce. Neither the harmonisation system under the GATT nor the category list of service sector under the GATS provides an appropriate solution to electronic transactions.

In 2003, the Dispute Settlement Body of the WTO ruled that the GATS was applicable to cross-border electronic commerce when dealing with an Internet gambling case that involved cross-border gambling services provided through the Internet by an Antiguan online-gambling operator for US consumers. A WTO panel and the appellate body recommended that GATS rules and specific commitments made by the US in its schedule of commitments be applied to electronic delivery service, which means service providers of other WTO members have rights to provide services from their home countries to the US territory by delivery means such as email, phone and the Internet. It would be of great practical significance if such a decision could be generalised so that GATS rules and existing or modified specific commitments under the GATS were fully applicable to cross-border digital services. That is, with the emergence of new trade patterns, the scope for applying existing commitments under the GATS could be further extended to include cross-border service provided through the Internet.<sup>5</sup> This, in large measure, could help to eliminate the uncertainty about the relevance of WTO rules to cross-border electronic commerce. Some scholars, like Sacha Wunsch-Vincent, assert that technological progress will expand the scope originally defined by the GATS, thus making WTO members undertake unexpected obligations. From the legal perspective, it means that the wording of original commitments is open and inclusive, which is sufficient for adapting to the changes brought about by technological progress.<sup>6</sup> Nevertheless, in my opinion, this openness and inclusiveness is a double-edged sword based on international law theory. As the application of existing GATS commitments to cross-border digital services will inevitably impact the international trade of some WTO members, it is problematic to extend applicative trade control methods without multilateral consultation and consensus building among members on international rules of electronic commerce. For the sake of self-interest, the US and the EU, for example, have expressed their different demands for electronic commerce in other forms, such as free trade agreements (FTAs) and national legislation, in an attempt to establish rules for facilitating international electronic commerce.

In addition, if new GATS commitments are to be made, WTO members must prudently consider the fact that the commitments will be extended to digital service of cross-border electronic commerce. Moreover, new management challenges may arise due to technological progress.

As previously mentioned, the GATS is applicable to digital services for digital commodities, such as online booking services, database retrieval and legal consulting. On the other hand, there are also divergent opinions on digitally delivered content products in digital commodities and non-digital commodities. So far, more and more countries have shown their support for this system of classification: the GATT still applies to commodities transported in physical form, whereas the GATS applies to electronic transmission. Such classification is appropriate to non-digital commodities because commodities for which contracts are concluded on the Internet, but delivery is made in physical form, are still subject to the GATT.

Following a discussion about the rules applicable to non-digital commodities, digitally delivered content products included in digital commodities warrant some clarification: is information content that was previously transacted in physical form, but can now simply downloaded from the Internet, subject to the GATT or GATS? Since the objective is to liberalise electronic trade, adopting the GATT seems a perfect choice. The GATT is based on a ‘negative list’, which (1) urges WTO members to exclude certain commodities from most-favoured-nation and national treatment obligations; and (2) automatically includes new commodities developed in daily life. However, it is inappropriate to adopt the GATT. During WTO discussions, the member states classified digitally delivered content products as services because: (1) the GATS is technology-neutral; (2) what is transmitted and exchanged is information instead of manufactured products; (3) what is electronically transmitted is personalised rather than standardised products; and (4) digital information does not rely on a physical or tangible form. Different from the GATT, the GATS does not guarantee free market admission. An important feature of the GATS is that each WTO member has declared its acceptable scope of specific obligations in its ‘permissive import list’. The right of service and the service provider to enter the market depends on the scope of commitments made by each WTO member in its plan. In their plans, the members must write clearly about areas of their services that align with liberalisation and the modes of supply. This means that the market access standards for foreign services and service providers, and their rights and entitlements, must be well defined. This pattern can be called the ‘bottom-up’ approach to liberalisation. WTO members also can negotiate in many economic domains and adjust the rights and obligations. The GATS, by which digitally delivered content products are governed, is more favourable to developing countries, including China, because it offers a mechanism for developing countries to request commitments in certain domains as the condition for accepting service liberalisation, and to be able to seek better market access conditions for their own interest.

## **2.2 UNCITRAL’s attempt to build a single window system for cross-border electronic commerce**

In 1996, the *Model Law on Electronic Commerce*, drafted by UNCITRAL, was officially approved. This model law is applicable to commercial transactions conducted in the form of data messages. It systematically lays down the general principles of electronic commerce and the rules for data message exchanges. Further, it has standardised important issues, such as the effectiveness, delivery (such as the time and place for sending and receiving data messages), attribution and legal recognition of data messages. The Model Law, recommended by UNCITRAL to each nation/region, is intended to harmonise the legislation in each nation/region by clarifying basic principles and key issues on legislation for cross-border electronic commerce. Although the Model Law itself is not legally binding, it serves as a useful reference for the electronic commerce legislation and practice of each nation/region. Certain clauses of the Model Law have been formally passed in many nations/regions.

To clarify specific standards on the effectiveness of electronic signatures and data messages in electronic commerce, UNCITRAL also issued the *Model Law on Electronic Signatures* and the *Convention on the Use of Electronic Communications in International Contracts* in 2001 and 2005 respectively.<sup>7</sup> Based on common basic principles embodied in all the electronic commerce rules of UNCITRAL, the *Model Law on Electronic Signatures* provides the basic legal framework of electronic signatures, that is, the principles of non-discrimination, technology neutrality and functional equality, thereby clarifying the legal status of electronic signatures and promoting the use of electronic signatures worldwide. The *Convention on the Use of Electronic Communications in International Contracts* is aimed at ‘accelerating the use of E-communication in international trade through guaranteeing that the contract established by communication through electron exchange has the same effect and enforceability with those of traditional paper contract’.<sup>8</sup> This Convention enables each nation/region to amend and update the clauses in the Model Law according to the current international practices, so as to strengthen the unification of rules for international electronic commerce. At present, those affected by this Convention are not limited to the signatory countries. The Association of Southeast Asian Nations (ASEAN) has also chosen to use this Convention as a tool to harmonise the electronic commerce laws of its 10 member states. The Convention is expected to gradually replace the *United Nations Convention on Contracts for the International Sale of Goods* and become the uniform law in the field of electronic contracting.

The aforementioned legislation has made contributions to the harmonisation of cross-border electronic commerce rules worldwide, and formed a legal basis for building single window initiatives in international trade. In recent years, UNCITRAL has cooperated closely with the World Customs Organization (WCO) and the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), and participated in studying legal issues involving the implementation of cross-border single window facilities, so as to formulate international legal reference documents on establishing and managing a single window. The WCO and UNCITRAL have established the Joint Legal Task Force on Coordinated Border Management Incorporating the International Single Window ('Joint Legal Task Force').<sup>9</sup> The first meeting of the Joint Legal Task Force was held at WCO headquarters in Brussels in November 2008 and attended by many governments, regional economic integration organisations and industry representatives. It clarified the method that UNCITRAL and international customs use to organise their work, and emphasised that the principles contained in electronic commerce legislation by UNCITRAL will be upheld in the drafting of any law in the future. It also proposed that all countries should be included in the policy consultation process, regardless of the development of a country's economy and science and technology, thereby allowing their needs and viewpoints to be fully expressed. The main objective of the meeting was to build a harmonised legal framework for single window that is applicable to transactions between enterprises. Many relevant legal issues facilitating trade were brought up for preliminary discussions.

The improvement of the cross-border single window facility is also the objective of regional government organisations, such as the Asia-Pacific Economic Cooperation (APEC) and ASEAN. In addition, the UNCITRAL Secretariat was invited to participate in the high-level forum on capacity building for regional paperless trade, which was held by the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) and the United Nations Economic Commission for Europe (UNECE) in Bangkok in March 2009. The main achievements of this forum included the establishment of the United Nations Network of Experts for Paperless Trade in Asia and the Pacific, and the formulation of rules for building a single window system. The Joint Legal Task Force also addressed issues closely related to the building of a single window system, such as electronic dispute resolution, the electronic customs process, collection of customs duties and logistics control of importing and exporting commodities. These same issues also appear in the documents of many international organisations, such as UNESCAP, UNECE and ASEAN.

Unlike most laws governing electronic commerce, the single window project needs to harmonise wide-ranging substantive rules among nations/regions, including certificates of origin, unloading, discharging, third-party claims and other customs compliance matters. Therefore, for these rules to take effect, uniform and harmonised rules must be formed at the international level in addition to formulating explicit rules for electronic information transfer. Moreover, different from many existing legal rules regulating electronic commerce, the single window project is a field ‘whose work results may be obtained only when there is standard unifying data transmission technology to ensure compatibility’. However, it is exactly the field that most electronic commerce laws deliberately avoid. Given the primary stage of this project, along with the above-mentioned challenges for international harmonisation, UNCITRAL still has a long way to go. It will continue to harmonise the work process of the WCO and evaluate general issues for electronic commerce involving single window building for international trade, including legal standards on transferable rights, a bill of lading, a letter of credit, insurance and other common standards for the process of transporting commodities. All these efforts are expected to lead gradually to the harmonisation of international rules for cross-border electronic commerce.

### **2.3 OECD’s promotion of cooperation among stakeholders in cross-border electronic commerce**

The growth of electronic commerce—and its potential—has drawn the attention of many member states of the OECD. In view of extensive economic and social influences of electronic commerce, the OECD has declared that new transaction rules must be formulated and policies related to traditional business practices be re-evaluated. The inherent global properties of electronic commerce challenge each government’s ability to solve these problems by themselves. Since a non-harmonised and inconsistent national policy for electronic commerce is worse than complete inaction, the OECD believes that international collaboration is a must. It has held a series of meetings to solve policy issues in the field of electronic commerce. The meetings were intended to achieve the following objectives: (1) to identify main policy problems, potential plans for problem solving and organisations that can develop and implement these plans; (2) ensure the consistency and effective harmonisation of inter-governmental actions; and (3) try to reach an agreement between enterprises and the government in terms of guiding principles that would constitute an electronic commerce policy framework.

Since electronic commerce is still at an early developmental stage, the OECD has urged its member states not to strangle technological innovations and market development by introducing excessively stringent management. The OECD has noticed that if third world countries use the electronic commerce infrastructure but lack the corresponding technology, they may become less competitive. Moreover, many OECD member states have regulations that limit market access, which complicates this problem. The OECD worries that these management structures may inhibit the expansion of infrastructure by less developed nations/regions. The development of electronic commerce largely lies in full-scale competition in the trading market. Therefore, a country presently limited by market access may never catch up with other countries in technology or economy, which will further widen the disparities between nations or regions.

The OECD paid much attention to the taxation of electronic commerce, and held many related international conferences to discuss the tax collection and management of electronic commerce. The OECD ministerial meeting held in Turku, Finland, in 1997 discussed electronic commerce tax collection and administration, and formed a consensus on some issues, for example, adhering to the principle of tax equity and tax neutrality; continuing to use the current tax system; and actively developing international cooperation. The consensus reached in the Turku ministerial meeting was consistent with that reached at the Paris conference in 1998 and the Ottawa conference in 1999 on the taxation principle of electronic commerce, such as adhering to the principle of tax equity and tax neutrality and the need to regard digital

commodities as services rather than a sale of goods. Although the meeting adopted only a framework agreement on the taxation issues of electronic commerce and lacked a certain operability, it did lay a foundation for future electronic commerce taxation policy and relevant laws.

One of the most important conclusions reached at the Ottawa meeting was the recognition that it is imperative to promote cooperation between governments, consumers, enterprises and public institutions. One of its suggestions was that dialogue on policy settings should be encouraged so as to promote the development of global electronic commerce in all nations/regions, and that all systems should be compatible with international rules as much as possible. In addition, the OECD suggested that governments should improve the competitive environment and remove unnecessary trade barriers, and that policies formulated by governments to develop electronic commerce should be appropriate, transparent, consistent, predictable and technology-neutral.<sup>10</sup> Therefore, coherent and harmonised international rules of cross-border electronic commerce are necessary for guiding foreign trade.

### **3. Structural systems of cross-border electronic commerce rules: the US and EU**

#### **3.1 The US system of rules**

The US is one of the countries that first launched electronic commerce and has undergone the fastest development by promoting the unity of laws for domestic electronic commerce based on a series of legal norms.

The US issued *A Framework for Global Electronic Commerce* in July 1997, which was the first document on electronic commerce officially issued worldwide. The main principles embodied by this framework include: (1) the government should be committed to supporting and maintaining a predictable, low-interference, sustainable and simple legal environment for business when engaging in policy setting; and (2) the government should take a positive attitude toward the growing trend of the Internet and promote electronic commerce legislation based on internationalisation according to its characteristics, so as to bolster consumers' confidence in conducting online trading. As per the principles specified by this framework, the US signed the *Joint Declaration on Electronic Commerce* with Korea, Japan and Australia. *A Framework for Global Electronic Commerce* is becoming the standard reference for every country in formulating its electronic commerce policies.

With the development of the Internet, the National Conference of Commissioners on Uniform State Laws formulated two standard acts in 1999: the *Uniform Computer Information Transaction Act*<sup>11</sup> and the *Uniform Electronic Transaction Act*.<sup>12</sup> Both of these are model laws. The *Uniform Computer Information Transaction Act* specifies issues such as the establishment, validity, interpretation, performance and legal liability of electronic contracts; introduces a key concept of electronic agent; and clearly defines the obligations of the computer information provider to guarantee protection of the computer information it provides. But this act pays too much attention to the interests of business organisations and lacks effective protection for consumer rights and interests. Only two states have officially approved the *Uniform Computer Information Transaction Act*, probably because the uniform act has been amended twice (2000 and 2002).

The *Uniform Electronic Transaction Act* is a law that extensively covers all types of electronic transactions. As a model law, this act is in alignment with the legislative principles and core viewpoints of the UNCITRAL *Model Law on Electronic Commerce*. It admits the legal status of electronic records and electronic signatures, complies with technology-neutrality and functional-equivalence principles, and further clarifies specific contents, such as the sending and receiving times and places for data messages as well as the efficacy of the electronic agent's behaviours.

In 2000, Congress approved the *Electronic Signatures in Global and National Commerce Act*. Unlike the model law, this act is a formal federal law taking effect within the US. By adopting the cardinal principles of the *Uniform Electronic Transaction Act*, it specifies the effectiveness and probative force of data messages, consumer protection and the operator's information disclosure obligations. These laws stipulate that the legal force of electronic contracts or electronic signatures using data messages as the medium must not be denied due to their electronic form. This act also states that all requirements for the saving of written documents are applicable to the saving of electronic records or contracts. In legislating for electronic commerce, the US has considered the international ramifications and has made flexible provisions in international jurisdiction and international assistance with electronic commerce, thus making them compatible with the globalisation of electronic commerce.

### 3.2 The EU system of rules

In an attempt to shape the law for global electronic commerce and remove obstacles to the European internal market through a uniform legal and management framework, the EU formulated a series of rules and regulations concerning electronic commerce. The legal system of the EU's electronic commerce is constituted by uniform legislation, legislation of member states, comprehensive legislation and special legislation.

In 1997 the EU formulated the *European Initiative in E-commerce*. Unlike the US legislative principles based on economic rationality, the EU law attaches importance to consumer protection and internal coordination of the market. Specifically, the EU hopes to achieve the following objectives through legislation: (1) to ensure, by improving legislation, the free operation of electronic commerce in the internal market for member states; and (2) to protect public interest and build up the confidence of consumers and enterprises in electronic commerce.

In 2000, the EU issued the *Directive on Electronic Commerce*, and made uniform provisions applicable to all its member states regarding the conclusion of electronic contracts, business communications, responsibilities of intermediary service providers and cooperation among member states. In particular, the directive emphasises efforts to cooperate in transnational civil judicature. Through cooperation in policy communication, as well as investigation and evidence collection, the acknowledgement and execution of the verdicts in civil and commercial cases would be facilitated, with a view to ensuring the uniformity of rules for its member states with regard to legal conflicts and rights of jurisdiction.<sup>13</sup> Both the *European Initiative in E-commerce* and the *Directive on Electronic Commerce* are important guiding policies.

In order to coordinate EU member states' efforts to protect consumer rights in the conclusion of distance contracts among member states, the *Directive on the Protection of Consumers in Respect of Distance Contracts* was issued in 1997. Distance contracts specified by this directive made stipulations on sales or service contracts concluded between enterprises and consumers through distance sales networks or by means of telecommunications (e.g. phone, broadcasting, videotext, email, product catalogues, printed promotional products and newspaper advertisements featuring ordering coupons). These stipulations included consumers' rights to information, right of revocation and corporate legal liability.

In 1998, the EU issued the *Transparency Directive on Information Society Services* and established the principle of policy transparency, which required its member states to submit their network service legislation to the EU and other member states for review before receiving official approval. It also stipulated a freezing period for listening to suggestions of the EU and member states, so as to strengthen the uniformity of the norms for the market of electronic commerce.

In order to normalise the legal authentication of electronic signatures, the *Directive on a Community Framework for Electronic Signatures* was passed in 1999. The core of this directive, which stipulated

legal authentication services, was the legal acknowledgement of the validity of electronic signatures, which resulted in a uniform legal environment for the wide use of electronic signatures.

In terms of protecting the right to privacy for electronic commerce consumers, the EU issued the *Directive on the Processing of Personal Data and the Protection of Privacy in the Electronic Communications Sector* in 2002. The directive includes a series of special norms specially for the processing of personal information and the protection of consumers' right to privacy in the Internet environment.

With regard to the judicial system of electronic commerce, the EU stipulated *Regulation on Jurisdiction and Enforcement of Judgments in Civil and Commercial Matters* (2001) including consumer contracts. In addition, the EU adopted the *Regulation on Cooperation between National Authorities Responsible for the Enforcement of Consumer Protection Laws* in 2004, hoping to facilitate cooperation between public authorities responsible for enforcement of the laws that protect consumers' interests in dealing with intra-community infringements, and to contribute to the smooth functioning of the internal market, the quality and consistency of enforcement of the laws that protect consumers' interests, and the monitoring of the protection of consumers' economic interests.

On the whole, the basic principles underlying electronic commerce legislation of the EU and the US are similar in that they both create legal certainty through confirming electronic contracts. Due to the global characteristics of electronic commerce, the EU legislation takes account of internal legislation, international treaties and norms for industry self-regulation norms. In addition to formulating and improving uniform legislation, the EU also takes action to supplement legal norms by encouraging enterprises, industry associations and consumer organisations to jointly formulate self-disciplinary rules while participating actively in the formulation of rules for electronic commerce at the international level. Accordingly, the EU has participated for years in the legislative work within a series of international frameworks, especially the formulation of electronic commerce rules under the leadership of the WTO and OECD. Like the US, the EU has also built a normative system applicable to the global electronic market by working closely with other countries in legislation and safeguarding trade liberalisation for electronic commerce. Nonetheless, driven by self-interest, the EU and the US are not in agreement over the electronic commerce rules within the WTO framework. One area where the most serious conflict occurs is the applicability of rules for digitally delivered content products.

## 4. Conflicts of interest over rules for cross-border electronic commerce—standpoint analysis of the US and the EU

### 4.1 The US policy: maximising trade liberalisation

The US is the leader of global electronic commerce, with approximately one third of the world's electronic commerce market. Internet users in North America account for the largest proportion of its total population. The competitive advantages of the US in respect of the knowledge economy and information technology are the driving forces that have enabled the country to improve its legislation and maintain its economic hegemony. To maximise its economic and trade benefits, and retain its dominant role in the market, the US remains committed to the liberalisation of electronic commerce and the establishment of international rules favourable to the development of its electronic commerce. As international legislation for electronic commerce is not only related to profit sharing between developed and developing countries, but also impacts the competitive advantages of the US over other developed countries. Therefore, international legislation for cross-border electronic commerce is making slow headway in a competitive game that profoundly affects every stakeholder's interest. What follows is an analysis of conflicts of interest implicated in international legislation, as illustrated in the viewpoints of the US on applying rules to cross-border electronic commerce within the WTO framework.

During multilateral negotiations within the WTO, the US has insisted that the GATT should apply to digitally delivered content products in electronic commerce to facilitate the liberalisation of electronic commerce and prevent new trade barriers. It is the very topic on which the US disagrees with the EU and the WTO. Therefore, it is extremely difficult to reach agreement on a legal framework for cross-border electronic commerce at an international level. On the other hand, this technical issue of law application is also related to many WTO members' reluctance to accept the liberalisation of audiovisual services as represented in the largely political concept of cultural exception. The reasons for the US's support of the regulation of digital information products with the GATT are as follows:

- (1) Digitally delivered content products are significantly different from services. The provision and the consumption of services run concurrently. In contrast, information products are already produced prior to the realisation of the consumption function. From the US's perspective, many content products can keep having their information-carrying media changed prior to consumption. For example, an application program may be first made into a CD by its developer, then the program is published to consumers via the Internet, and then consumers save the program to their computer hard drives. This example illustrates the durability of digitally delivered content products and their inseparability from physical media.<sup>14</sup>
- (2) Under the GATT, content products are seldom subject to the restriction of tariffs and import quotas, and regulations are introduced for national treatment, anti-dumping rules, and emergency measures. The trade of digital content products will, therefore, be more liberalised. Due to the GATS commitment to market access for every member state, it is likely that the same content products cannot even enter the domestic market according to the GATS, and thus cannot enjoy preferential trade treatment.
- (3) If content products are subject to different rules during transactions due to different media, the technology-neutrality rule in the WTO agreement is violated. The US posits that, for a music CD or a software disc, whether it is purchased from a store or downloaded from the Internet, both should be viewed as similar products, hence the applicability of the GATT. It is evident that the US classification of digitally delivered content products in the WTO conveys a clear message of creating and maintaining an environment of free global electronic commerce. The US has made special efforts to prevent this new trade from encountering the same barriers for traditional content delivery technologies such as radio and movies.

## **4.2 The EU policy: industrial support and protection of cultural diversity**

As previously mentioned, the US supports the application of the GATT to the trade in information products, while the EU claims that the delivery of content products belongs to services within the GATS's jurisdiction (Table 1). Just as the US favours the GATT, the EU supports the application of the GATS for the following reasons:

- (1) The physical form of content products sets them apart from traditional goods, because the physical form of products is generally the criterion for differentiating goods and services. Even though media carrying digital information may change several times, they cannot be deemed analogous to physical products.
- (2) Tariff concession under the GATT does not cover any digital content delivered online across the border. Further, the GATT does not involve other important regulating factors relating to market access for certain service sectors. On the other hand, the GATS will make further progress over time in transparency, domestic rules and subsidies. Therefore, the GATT is not necessarily better able to facilitate trade liberalisation than the GATS.

This standpoint held by the EU is based on the supportive policy for the digital products sector in its member states, which has both economic and cultural objectives: to improve the competitiveness of digital products copyrighted by the EU; and to preserve the linguistic and cultural diversity of each member state. In light of the GATS, the EU has further classified digitally delivered content products as cultural and audiovisual services. As no differential treatment has been given during WTO trade negotiations to the departments in audiovisual services, no specific commitments need to be made to the departments and therefore, the latter are exempted. This will help to protect diversity in the best way possible.

Inspired by the EU's standpoint, some other WTO member states, such as Australia and Canada, have also implemented a supportive policy for the content products sector. They have also classified digitally delivered content products as audiovisual services, which do not make specific commitments under the GATS on the grounds of cultural diversity.

*Table 1: Standpoint contrast between the US and the EU on categories of digitally delivered content products*

	<b>Rule application of GATT or GATS</b>	<b>Rule application within GATS</b>
EU	Delivery of digital information products should be viewed as services within the GATS.	All digitally delivered content products fall into the category of audiovisual services except commercial software.
US	Digitally delivered content products should be regulated by the GATT.	Digitally delivered content products should also be categorised into value-added telecommunications instead of mere audiovisual services. Any sort of digitally delivered software should be regarded as computer services.

## 5. Conclusion

As there are deep differences in the principal problem of electronic commerce, multilateral trade negotiation within the WTO framework may come to a deadlock and the US may start to develop bilateral and regional free trade negotiation outside the WTO framework. It may also strive to develop international rules for electronic commerce, in a manner of speaking, concluding that the free trade agreement has become the tool for the US to use for preference to further increase its overseas interest.

By 2012, the US had reached FTAs with 19 countries (including Korea, Australia and Chile), which include bilateral trade agreements as well as regional trade agreements. These FTAs were obtained through the WTO framework, but the content of the agreements are more comprehensive than the WTO rules. It is thus clear that the quantity of the US's regional and bilateral free trade agreements is continually increasing, gradually forming a network constituted by FTAs. The US has introduced a chapter focusing on 'electronic commerce' that relates to FTAs, and adopted the method of a restrictive list, which aims to provide liberalisation for trade in digitally delivered content products. The main contents of the agreements are: definition of content products; applicability of the GATS to electronic transmission service; customs valuation; national treatment; most-favoured-nation-treatment; inconsistent measures; and mutual cooperation. The agreements also define the provisions of electronic authentication, the principle of transparency, and the protection of online consumers.<sup>15</sup> Different from goods and services, the US sets up the chapter of 'electronic commerce' dedicated for digitally delivered content products,

but seems to deliberately avoid clearly defining the property of content products, leading to more uncertainties compared with the WTO. Moreover, even if such trade agreements acknowledge the commitment of free market access, it still has not defined whether the management measures and trade treatment within the WTO framework apply to content products.

One of the critical problems that needs to be addressed is the duty or tariff collection and customs valuation. The fictitious transaction environment of electronic commerce presents challenges to the jurisdiction of traditional tariff, while tariff concession has always been the central topic for discussion among WTO members. The US has maintained policies allowing electronic commerce trade to be tax free, and has stipulated rules regarding exemption from obligations of import-export tariff and relevant fees for content products of the opposite party in FTAs with countries of Australia (Article 16.3), Korea (Article 15.3.1) and Singapore (Article 14.3.1). The tariff collection article also points out that, in order to determine the specific application of a tariff, each party should separately determine the dutiable value for import of content product carrier according to the cost or value of the content product carrier, and should not consider the cost or price of content products stored on the carrier. Compared with content product itself, the value of the content product carrier can be almost negligible. In the import and export of content product, what actually has trade value is the content product itself rather than its carrier. However, due to the uniqueness of electronic commerce, in FTAs each party agrees that in terms of their treatment of aspects of electronic commerce trade, they can cite exceptional provisions in investment, service trade, financial service and other aspects, for example, government purchases and the exception of government subsidies, which are provisions appropriately deviating from non-discriminatory treatment.

Through bilateral and regional FTAs, the US formulates trade rules relating to electronic commerce with contracting states, such as transaction safety, electronic signature, data privacy and intellectual property. The contents of the agreements embody the basic policy of electronic commerce reflected in the US legislation, *A Framework for Global Electronic Commerce*, and further deepen international cooperation. This behaviour undoubtedly expands the influence of the US electronic commerce policy to other countries and also facilitates the expansion and support of US opinions and standpoints in a larger scope. Under the condition of negotiation without achievements within the WTO framework, the US practice of expanding its domestic policy to overseas through self-trade agreements has become the impetus for further discussion and coordination of cross-border electronic commerce rules through future WTO multilateral negotiation, and the US pattern undoubtedly inspires other nations to some extent. As for the specific commitment on cultural and audiovisual aspects submitted after adoption and amendment of the restrictive list for market access of cross-border services, each member state might compromise, given the broader and deeper interests, and gradually reach a consensus on this international trade rule.

In terms of electronic commerce tariff legislation, each nation should follow the following principles:

- (1) electronic commerce tariffs will not distort or hinder the liberalisation of international trade, and should follow the basic rules formulated by the WTO
- (2) collection of electronic commerce tariffs should be transparent and reduce the transaction costs of both sides
- (3) collection of tariffs should be consistent with the basic principles of the current international and domestic tax systems, and should avoid conflict with the current policy of tax jurisdiction and double taxation.

However, since taxation is the symbol of national economic sovereignty, the implementation of a global unified electronic commerce tariff policy means that each nation must transfer part of its national sovereignty. This requirement is difficult to achieve due to differences in economic strength, historical origins and national interests of various countries. Therefore, under the guidance of a unified tariff policy

on electronic commerce, each nation needs to implement a differentiated tariff policy according to its own conditions.

In general, domestic legislation is not enough to apply to cross-border electronic transactions, and the convergence of electronic commerce law is imperative. The main trends are as follows: the formation of international law sources promotes the unification of domestic laws and international laws. In the global convergence of electronic commerce law, the legislation of electronic commerce in developing countries should actively absorb and transplant the legal system of electronic commerce power as an economic and technological leader. At the same time, in the construction of global governance of an electronic commerce system, we should guard against strong countries reflecting their own trade interests in the formation of international treaties, and then transform such rules through treaties to domestic law. Each nation should also proceed from its own trade interests and embody its own views in the construction of the international legal system of electronic commerce. It is worthwhile mentioning that interest is the basic consideration in the construction of an international legal system of electronic commerce. In the design of the rules, the positions of various countries are often sharply opposed, and the international mechanism of electronic commerce will eventually be established in the form of a basic framework and principles.

At present, academia's ideas on the establishment of international electronic commerce framework rules can be classified into two categories: one is the establishment of an independent Trade Related Electronic Commerce Agreement; another is the conclusion of an Electronic Commerce Agreement through negotiations on electronic commerce under GATS to jointly regulate electronic commerce. Meanwhile, an Electronic Commerce Agreement should be a framework agreement, which regulates the relationship between domestic legislation and existing commitments in electronic commerce, aimed at ensuring that no legislation can prohibit the expansion and development of electronic commerce because of conflicts with existing commitments. These rules are, in essence, universal, so that members can still enact domestic legislation to address their special concerns.

Each nation should start from its current situation, strengthen participation in international negotiations of electronic commerce, reflect the interest and appeal of domestic electronic commerce enterprises, and create a good legal environment for domestic electronic commerce trade. Under the background of development of electronic commerce worldwide, each nation should further participate in the Joint Legal Task Force ('single window') of UNCITRAL and WCO, positively cooperate with each party, harmonise the large number of substantial rules (such as certificate of origin, customs valuation and tariff collection, and transfer of electronic information), and feasible technical standards. Therefore, it is necessary to define international rules and standards for the transfer of electronic transferable rights (including electronic bills of lading and warehouse receipts, and electronic equivalents of promissory notes), so as to realise the vision of establishing international rules regarding transferable recordings, which are broader and more comprehensive, and transcend those of traditional paper bills. In order to realise integration of cross-border electronic commerce rules, cross-border recognition of electronic signatures and resolution mechanisms of online disputes will also become the direction to strive for at the international level, and so corresponding technical standards and legal rules should be formulated accordingly.

With regard to domestic legislation of cross-border electronic commerce, compatible legislation should be stipulated by reference to international rules, and thus the ultimate goal of full integration of global markets would be attained. When implementing domestic legislation on electronic commerce, each nation should introduce the basic law of electronic commerce first, and then draw up specific rules on specific issues, which should also be widely adopted globally. The basic law of electronic commerce should include the legislative purpose, guiding ideology, legislative principles, definition of electronic commerce and adjustment object, scope of application, electronic commerce market access system, management institutions and authority, as well as dispute settlement mechanisms. In the specific section,

concrete provisions should be made in specialised areas of electronic commerce and guided by the general provisions of electronic commerce. The legislation should give priority to the following legal systems: electronic contract, tax collection and management, intellectual property, electronic payment and settlement, consumer protection and electronic evidence.

When implementing cross-border electronic commerce domestic legislation, each nation should make clear the following three basic principles:

(1) **Development.** The legislation should remove obstacles for the development of electronic commerce while traditional legal systems and norms are set up for non-digital form and the non-virtual environment. Therefore, the provisions which are unable to adapt to the requirements of electronic commerce development should be modified and supplemented to encourage the popularisation and application of new technology and means of electronic commerce in various industries, and encourage electronic commerce enterprises to develop new business forms and create new business models. At the same time, all countries should exercise moderate supervision of electronic commerce activities to ensure their stability and vitality.

(2) **Coordination.** Electronic commerce is characterised by globalisation, so the legislation of electronic commerce should first consider the coordination of existing international rules formulated by organisations such as WTO, UNCITRAL, OECD, and other countries, for example, the principle of technical neutrality and the principle of functional equivalence. Of course, at the same time of complying with the international legislations, each nation should formulate new standards and stipulations with domestic features in terms of security protection and consumer rights, according to its own tradition and electronic commerce development.

(3) **Security protection.** Electronic commerce is running in a virtual environment, online transactions not only bring efficiency to people, but also lead to insecurity. The security principle is the basis of mandatory legislation in electronic commerce. Each nation should require electronic commerce participants to set up information security rules and adopt corresponding technical measures to ensure the safe operation of the whole transaction system. For example, the market access of certification bodies, supervision of the format terms in online transactions and other mandatory obligations are all aimed at protecting the security and fairness of transactions.

Indeed, it can be seen from the difficulties associated with the negotiation of the classification of digitally delivered content products in electronic commerce within the WTO framework, it will be extremely difficult to reach a resolution on a legal framework which is uniform and stable. Essentially, while electronic commerce development influences the individual interests of each country, it will present the status of a zero-sum game, however, it is possible to stipulate acceptable international rules with minimum standards. Nations/regions involved in cross-border electronic commerce should attempt to coordinate related domestic provisions of private law and establish a legal framework based on international cooperation, which will increase predictability and certainty for business activities.

## References

- Libin, E. & Yongwen, H. (2014). New way of international trade: Latest study on cross-border electronic commerce., *Journal of Dongbei University of Finance and Economics*, 2, 23–28.
- World Trade Organization (WTO). (1997). The General Agreement on Trade in Services (GATS): objectives, coverage and disciplines. Geneva: World Trade Organization.
- World Trade Organization (WTO). (1998). Agreement and Electronic Commerce. WTO Doc.WT/GC/W /90, 14 July 1998.
- Wunsch-Vincent, S. (2006). *The WTO, the internet and trade in digital products: EC-US perspectives*. UK: Hart Publishing.

## Notes

- 1 After the global financial crisis, electronic commerce has become a new trend of future international trade. Since 2008, the overall turnover of electronic commerce has maintained the growth rate above 20 per cent in a number of countries including China. Electronic commerce has greatly promoted the formation of new logistics systems and patterns of payment, which is of significance to global economic integration. See Libin & Yongwen, 2014, p. 28.
- 2 Goldman Sachs in JP Morgan's annual *Nothing But Net: 2011*, Internet Investment Guide on digital commerce.
- 3 Digital commodity applied in the context is content product transmitted and delivered through network. See Wunsch-Vincent, 2006 p. 2.
- 4 Committee on Trade and Development, WT/COMTD/W/38 (Mar. 3, 1998), at <http://www.wto.org>
- 5 See WTO Agreement and Electronic Commerce, WTO Doc.WT/GC/W /90, 14 July 1998.
- 6 See Wunsch-Vincent, 2006, p. 324.
- 7 The Parliament of Australia approved the Electronic Transactions Act in 2011. This act was drafted clearly in compliance with the Convention on the Use of Electronic Communications in International Contracts. In addition, Australia and more than 40 other nations are updating domestic laws in a larger electronic commerce field by referring to a series of legal documents drafted by the UNCITRAL including the Model Law on Electronic Commerce.
- 8 The Model Law on Electronic Commerce Adopted by the United Nations Commission on International Trade Law, art 5, GA Res 51/162, UN Doc A/RES/51/162 (Jan 30, 1997).
- 9 Official Records of the General Assembly, Sixty-third Session, Supplement No. 17 (A/63/17), para. 338.
- 10 OECD Ministerial Conference, A Borderless World: Realizing the Potential of Global Electronic Commerce, SG/EC(98)14 final at 4.
- 11 See Uniform Computer Information Transaction Act (2002).
- 12 See Uniform Electronic Transaction Act (1999).
- 13 See Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on Certain Legal Aspects of Information Society Services, in Particular Electronic Commerce, in the Internal Market, *Official Journal*, L.178, 2000, pp. 1–16.
- 14 COMTD, Communication from the US, Work Program on Electronic Commerce, WT/COMTD/17 (12 February 1999).
- 15 See US and Five Central American Countries Free Trade Agreement, US–Australia Free Trade Agreement, US–Korea Free Trade Agreement.

**Min Wang**



Dr Min Wang is a lecturer in the Department of Law at Shanghai Customs College in China. She received her PhD degree in Civil and Commercial Law from Fudan University and now teaches courses in Electronic Commerce Law, International Commercial Law, and Economic Law. She has presided over research projects in the fields of international customs cooperation, and trade facilitation, and has been a participant researcher in projects sponsored by the General Administration of China Customs.

# An analysis of prime determinants and constraints of Bangladesh's export market: Stochastic frontier gravity model approach

*Md Tariq Hassan*

## Abstract

This paper adopts the stochastic frontier gravity model approach, using panel data to investigate the prime determinants and constraints of Bangladesh's export industry, and its potential to improve its trading position in relation to its top 40 trading partners. The study finds that, for Bangladesh, gross domestic product (GDP), population, distance, average tariff, trade agreements and exchange rates are the prime determinants of export volume. While GDP, population, trade agreements and exchange-rate depreciation positively affect exports, the distance between Bangladesh and its partner countries and tariff levels negatively impact trade. The study also finds that socio-political-institutional, 'behind-the-border' constraints, such as customs procedures, port inefficiencies and corruption, are restricting trade. The results show that there are huge variations in export levels, even among countries within the same trading blocs, suggesting that a high level of untapped export potential can be realised by removing the behind-the-border constraints and by integrating more efficiently with the international market.

## 1. Introduction

The role of trade in the development process of any country is well established, which is particularly important for developing economies. There is evidence that, for countries with an outward-oriented economy, there is a strong correlation between export growth rates and the growth of gross domestic product (GDP) (Thirlwall, 2011, p. 502). Perhaps favourable export performance can be the single most important contributing factor for maintaining a consistent growth rate. As an emerging economy from the South Asian region, Bangladesh has been able to maintain steady and impressive growth rates of GDP (around 6 per cent over the last decade), while its export to GDP ratio rose from 0.13 in 2001 to 0.21 in 2011 (WITS 2016).

Despite this positive trend, the country's export sector can be highly vulnerable to external economic shocks, such as global recession, because both the export market and the export products lack diversity. Textiles and garments account for almost 80 per cent of the total export (Bangladesh Bank 2016), and the major export destinations are concentrated in the European Union (EU), particularly in Western Europe and in the North American region. During the last ten years, Bangladesh's top ten export destinations were the United States (US), Germany, United Kingdom, France, Spain, Netherland, Italy, Belgium, Canada and Hong Kong. The skewed nature of Bangladesh's export market makes it highly susceptible to the economic cycle of these countries. Therefore, it is important to diversify the export market, both in terms of destinations and products, to reach the potential level of export in aggregate terms.

Against this background, this study aims to analyse Bangladesh's export potential with its top forty trading partners in the post global financial crisis (GFC) period, 2008–2011, using the stochastic frontier gravity model approach with panel data. At the same time, through an efficiency analysis, this paper examines the impact of different socio-political-institutional 'behind-the-border' constraints in Bangladesh that restrict the export market from reaching its potential level. This bears significant policy implications, ranging from identifying the impact of behind-the-border constraints on exports, finding the efficiency loss in the current system and analysing the impact of trade policy reforms, if any. This will also help the policymakers to have a better insight into export promotion and diversification activities by identifying the currently untapped export potential.

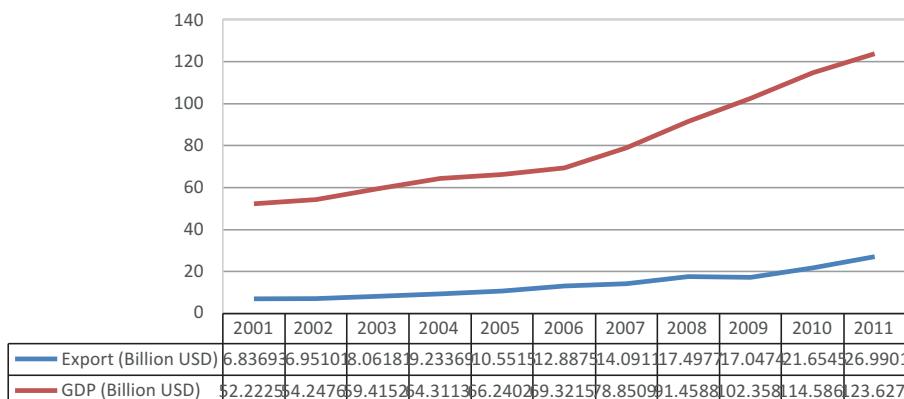
The organisation of the paper is as follows: the next section gives a brief overview of Bangladesh's export performance in the recent years, followed by a discussion of the gravity model theoretical framework in the context of trade performance analysis. The following section then discusses the empirical model used in this paper along with the methodology and data sources. Finally, estimation results from the model and its implications are discussed before conclusions are presented.

## 2. Overview of Bangladesh's export performance

As part of its structural adjustment program, Bangladesh, since 1990, has gradually liberalised its trade policy and moved away from its import substitution policy to pursue an export-led growth strategy. Since then, Bangladesh has significantly reduced tariff and non-tariff barriers; allowed duty-free importation of capital machineries; introduced tax rebates and duty drawback for exported goods; and adopted a flexible exchange rate policy (Hossain & Alauddin, 2005). As a result, in the post liberalisation period, total exports continuously grew and the export–GDP ratio increased. However, the increase in the export sector is highly concentrated in the ready-made garments (RMG) sector, with little diversity. In the post-GFC period, export slightly decreased in 2009 compared to 2008, but then bounced back in the following years.

The value of Bangladesh's exports rose from USD 6.84 billion in 2001 to almost USD 27 billion in 2011 (Figure 1), with almost 80 per cent of exports coming from the RMG sector.

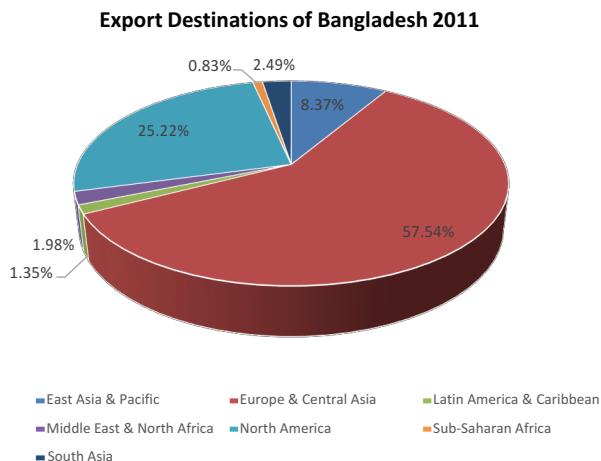
*Figure 1: GDP and total export of Bangladesh (2001–2011)*



Source: World Integrated Trade Solution (2012).

Europe & Central Asia, and North America remain Bangladesh's major export destinations, followed by the East Asia & Pacific and South Asia regions (Figure 2). Among these countries, the US has the greatest export share, with 21 per cent in 2011.

*Figure 2: Destination wise export share of Bangladesh 2011*



Source: World Integrated Trade Solution (2012).

### 3. Literature review, theoretical framework and methodology

This section of the paper will discuss the theoretical framework, based on the gravity and stochastic frontier gravity models that have been used in the literature to analyse the international trade flows and trade potentials.

#### 3.1 Gravity model

Since it was first introduced by Tinbergen (1962), the gravity model has been used extensively in empirical studies to describe bilateral trade flows between countries. The basic idea of the model is similar to that of Newton's Law of Gravitation and states that the volume of trade between two countries is proportional to their masses, often represented by their respective GDPs as proxy for physical mass and is inversely proportional to their geographical distance, which captures the economic distance or transaction costs for trade between the two countries. This basic model can be described mathematically as follows:

$$\text{Trade}_{ij} = \alpha \text{GDP}_i \text{GDP}_j / \text{Distance}_{ij} \quad (1)$$

The above equation can be transformed in linear form for regression by taking the log of both sides of the equation. Linneman (1966) first extended the above gravity model by including other important explanatory variables, such as population and complementarity.

Although the gravity model has successfully explained many empirical studies on trade flows, it has been criticised for its lack of theoretical background. Following these criticisms, Anderson (1979) provided a theoretical basis for the gravity equation based on a constant elasticity of substitution demand function, where goods were differentiated by country of origin. Later, Bergstrand (1985) introduced price generalisation, allowing goods from different countries of origin to be compared, and showed that the model can be derived following a trade model based on monopolistic competition. More recently, Anderson and van Wincoop (2003) explained the model with international borders as barriers.

The basic gravity model can be expanded by including other trade explanatory variables to analyse the bilateral trade flow. Bergstrand (1985) used exchange rates in his study to explain variations of international trade. Based on literature and trade theories, any other trade explanatory variables can be included in the model. For example, variables such as average tariff rate, or dummy variables indicating the existence of a trade agreement, common border or common language, can be included in the basic model to explain the relationship between the two trading countries. Thus, a representative equation in the context of the augmented gravity model for export could be as follows:

$$\begin{aligned} \ln EXP_{ij} = & \beta_0 + \beta_1 \ln GDPBD_j + \beta_2 \ln GDPPT_i + \beta_3 \ln POPBD_j + \beta_4 \ln POPPT_i \\ & + \beta_5 \ln DIST_{ij} + \beta_6 AVGTA_{ri} + \beta_7 \ln XRT_{ij} + \beta_8 DTA_{ij} + \beta_9 DEU_i \\ & + \beta_{10} DNA_i + \beta_{11} DTREND_t + \varepsilon_{ij} \end{aligned} \quad (2)$$

All the variables are defined in the latter section of the paper, except  $\varepsilon_{ij}$ . Here,  $\varepsilon_{ij}$  is the error term that accounts for both statistical errors and other factors influencing the export that has not been captured in the model. This standard gravity model estimates the mean effects of determinants of trade and can capture the observable resistance to trade (e.g. distance), and official barriers to trade (e.g. tariffs), but fails to capture other subjective barriers that are difficult to quantify, such as country-specific, socio-political-institutional, behind-the-border constraints (Armstrong, 2007; Kalirajan, 2007). With these omitted, unobservable barriers to trade, the assumption that the error term  $\varepsilon_{ij}$  is normally distributed will be violated and will lead to heteroskedasticity (Kalirajan & Finlay, 2005).

### 3.2 The stochastic frontier gravity model

The stochastic frontier approach was developed by Aigner, Lovell and Schmidt (1977) and Meeusen and van den Broeck (1977), and was first used in production economics to measure production efficiency. This approach advocates that the production process can be influenced by two distinct, economically distinguishable, disturbances (Aigner et al., 1977) and, therefore, the error term should represent two components: the production inefficiency component and other random disturbances. To address the shortcomings of the conventional gravity model in trade flow analysis, the stochastic frontier approach of production economics can be applied to have more precise estimation, as suggested by Kalirajan (2007). This approach is an improvement over the conventional gravity model in the sense that it separates the error term into two components: the non-negative error term, or the inefficiency components that represents all behind-the-border constraints; and the random error term, which captures the effect of all other omitted variables and measurement errors. Thus, drawing on Kalirajan (2007), the general form of the stochastic frontier gravity equation for exports can be estimated as follows:

$$EXPORT_{ij} = \ln f(Z_i; \beta) \exp(-u_{ij} + v_i) \quad (3)$$

In linear form this can be written as,

$$\ln EXPORT_{ij} = \ln f(Z_i; \beta) - u_{ij} + v_i \quad (4)$$

Here  $EXPORT_{ij}$  represents the actual export from country  $i$  to  $j$ ,  $Z_i$  represents the determinants of potential bilateral trade and  $\beta$  represents unknown parameters. The error term in equation (4) is now decomposed into  $u_{ij}$  and  $v_i$ , as compared to the single error term,  $\varepsilon_{ij}$ , in equation (2). Now the single-sided error term,  $u_{ij}$ , represents the inefficiency terms, or the behind-the-border constraints, and the term  $v_i$  represents the random error term. If  $u_{ij}$  takes a value other than zero, then the behind-the-border constraints are restricting the export from reaching the potential trade frontier.

### 3.3 Measuring export potential and efficiency

Ideally, export potential would refer to the level of export achieved at the frontier where there is free and frictionless trade between two countries. But in reality, this is not possible. Therefore, the export potential of a country would be the maximum achievable level of exports with the given level of trade determinants and the least level of restrictions in the current system (Drysdale, Huang & Kalirajan, 2000; Kalirajan, 2000; Armstrong, 2007). In other words, potential trade is not the level of trade with ideal free trade conditions; rather, it is the closest possible level of trade under the least possible restrictions between any two countries. The gap between the actual export and the potential export indicates the efficiency loss in the system, which can be estimated by the stochastic frontier model (Kalirajan & Finlay, 2005). It is noteworthy that this gap may result not only from the core determinants of export, but also from various socio-political-institutional behind-the-border factors that facilitate trade-related activities in both countries. Drawing on this argument, the achieved export efficiency of a country can be measured by the following equation in the stochastic frontier model:

$$\text{Technical efficiency, } TE_i = \ln f(Z_i; \beta) \exp(-u_i + v_i) / \ln f(Z_i; \beta) \exp(v_i) = \exp(-u_i) \quad (5)$$

and the potential export can be measured by:

$$\text{Potential Export} = \text{Actual Export} / \exp(-u_i) \quad (6)$$

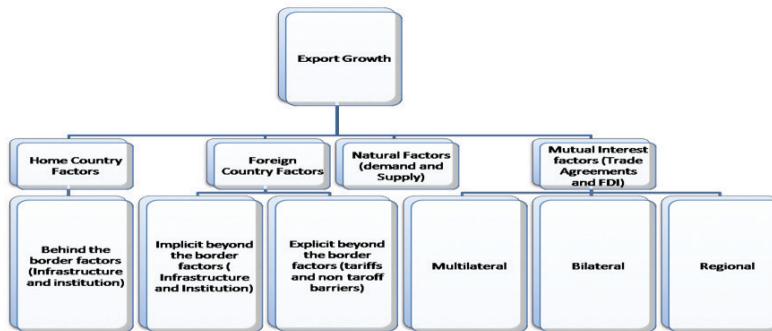
This also has strong policy implications. The policy makers can implement necessary reforms after identification of these constraining factors, and thus reduce the export gap.

### 3.4 Methodology

This study used panel data and the stochastic frontier gravity model to examine Bangladesh's export flow to its 40 largest trading partner countries for the period 2008–2011. The panel data methodology has distinct econometric advantages since it can address the relevant relationships among variables over time, and can monitor unobservable individual effects between the trading partner pairs. In addition, panel data can handle more variability and reduce the multi-collinearity among the independent variables in the regression (Baltagi, 1995).

Drawing on Kalirajan and Anbumozhi (2014; Figure 3), analytically it can be said that the flow of goods between any two countries broadly depends on natural factors, such as demand and supply (proxied by GDP and population size) and geographical distance (proxied by transportation cost); home country factors related to infrastructure and institutions (behind-the-border constraints such as internal connectivity, customs procedures, port efficiency, corruption); foreign country factors (implicit beyond-the-border and explicit beyond-the-border factors, such as tariffs or non-tariff barriers) and, finally, mutual interest factors, such as trade agreements and foreign direct investments (FDI).

Figure 3: Determinants of export flow for methodological framework



Source: Kalirajan and Anbumozhi (2014).

To capture the influence of all of the factors mentioned above on Bangladesh's export flow, relevant core variables and dummy variables have been added in the empirical model of this paper. In addition, location-specific dummies are also included because historically Bangladesh tends to export more to the European and North American countries.

### 3.5 Data

This study uses panel data of Bangladesh's top 40 trading partners, based on the yearly aggregate export value for the period 2008–2011. Availability of data for all the required explanatory variables was the primary reason for choosing this period. Country wise export data has been collected from the World Integrated Trade Solution (WITS) database of the World Bank. In the study GDP data has been used as a proxy to income, and population data has been used as a proxy to market size. GDP, population size and the official exchange rate (OER) of Bangladesh and its trading partners were obtained from the United Nations Conference on Trade and Development (UNCTAD) statistics database (UNCTAD, 2015). The exchange rate between Bangladesh and the partner countries were then calculated in terms of Bangladesh currency per unit of foreign currency using this OER.

The geographical distance data between Bangladesh and its trading partners were obtained from the French Research Centre CEPPII database. The average tariff data was sourced from the World Trade Organization (WTO) tariff database. It should be noted that tariff data was not available for all countries in each period. In those cases, the average tariff rate of the previous three years was used as an approximate proxy to fill that data gap. The data on the various multilateral and bilateral trade agreements which were already in force was used, which was collected from WTO website.

### 3.6 Model specification

The stochastic frontier gravity model has been used in this study to estimate the results. The empirical model used to measure Bangladesh's potential exports and efficiency with its top 40 trading partners is as follows:

$$\begin{aligned}
 \ln EXP_{ij} = & \beta_0 + \beta_1 \ln GDPBD_j + \beta_2 \ln GDPPT_i + \beta_3 \ln POPBD_j + \beta_4 \ln POPPT_i \\
 & + \beta_5 \ln DIST_{ij} + \beta_6 AVGTA_i + \beta_7 \ln XRT_{ij} + \beta_8 DTA_{ij} + \beta_9 DEU_i \\
 & + \beta_{10} DNA_i + \beta_{11} DTREND_t - U_{ij} + V_{ij}
 \end{aligned}$$

where the independent variables are defined as follows:

$\ln EXP_{ij}$ = log of value of total export from Bangladesh to partner country  $i$  measured in USD (thousands)

$\ln GDPBD_j$ = log of value of GDP of Bangladesh measured in USD (thousands)

$\ln GDPPT_i$ = log of value of GDP of partner country  $i$  measured in USD (thousands)

$\ln POPBD_j$ = log of value of Bangladesh's population measured in thousands

$\ln POPPT_i$ = log of value of partner country  $i$ 's population measured in thousands

$\ln DIST_{ij}$ = log of distance between Bangladesh and partner country  $i$  in kilometres

$AVGTA_{i,j}$  = The average tariff rate imposed by the partner country  $i$  in percentage

$\ln XRT_{ij}$  = the log of value of exchange rate of Bangladesh currency per unit of partner trading country  $i$ 's currency

$DTA_{ij}$  = dummy variable which takes the value 1 if Bangladesh has any kind of trade agreement currently in force between partner country  $i$ , otherwise takes the value 0

$DEU_i$  = dummy variable which takes the value 1 if partner country  $i$  is a member of European Union (EU), otherwise takes the value 0

$DNA_i$  = dummy variable which takes the value 1 if partner country  $i$  is from North America, otherwise takes the value 0

$DTREND_t$  = time trend variable

$U_{ij}$ = the truncated non-negative single-sided error term that represents the joint effects of the economic distance factor or behind-the-border constraints in Bangladesh, which hampers exports from reaching potential; alternatively,  $\exp(u_{ij})$  indicates the ratio of actual to potential exports of Bangladesh to a trading partner country  $i$

$V_{ij}$  = the normally distributed  $N(0, \sigma^2)$  random error term, which is iid, and which captures the effect of omitted variables in the model on the independent variable

$\beta_0$  = country-specific intercept term

$\beta_{i(i=1,2,3...11)}$  = parameters to be estimated by the model

According to the gravity model theory, the signs for  $GDPBD_j$ ,  $GDPPT_i$ ,  $POPBD_j$  and  $POPPT_i$  are expected to be positive since GDP and population size are respectively used as proxies for income and market size. The sign for  $DIST_{ij}$  is expected to be negative since distance is a proxy for economic distance. Also, the sign for  $AVGTA_{i,j}$  is expected to be negative since tariff restricts free flow of trade, whereas the sign for  $XRT_{ij}$  is expected to be positive because, according to standard economic theory, a depreciation in the home currency is expected to increase the country's exports, and hence improve the trade balance. The sign for the dummy variable  $DTA_{ij}$  is expected to be positive as trade agreements should be favourable for exports. Finally, the signs for the dummy variables  $DEU_i$  and  $DNA_i$  are expected to be positive since many countries of the EU, as well as the US, Canada and Mexico, are Bangladesh's major export destinations.

## 4. Estimation and results

The software Frontier 4.1 was used to estimate the above model. The error correction model was estimated here and the description of the estimation process is detailed in Coelli (1996). Only the final maximum likelihood estimates from the three-step estimation process are reported in Table 1.

*Table 1: Maximum likelihood estimation of the stochastic frontier gravity equation for Bangladesh's exports to top forty trading partner countries, 2008–2011*

Variable	Coefficient estimates
Constant	-26.643 (23.1626)
GDPBDj	1.624* (0.3524)
GDPPTi	0.6765* (0.0749)
POPBDj	-0.0263 (2.3351)
POPPTi	0.8508 (0.1165)
DISTij	-0.651** (0.2678)
AVGTARi	-0.0402** (0.0183)
XRTij	0.1376* (.0358)
DTAij	0.4908** (0.1972)
DEUi	0.1164* (0.1811)
DNAi	-0.6148 (0.3660)
DTRENDt	1.0362* (0.3939)
Sigma-squared( $\sigma^2$ )	7.5711* (2.8268)
gamma	0.9949* (0.0021)
mu	-5.4890* (1.9190)
eta	0.0069 (0.0177)
Log likelihood function	46.7829

**Notes:** \* and \*\* respectively show the level of significance at 1% and 5% and the figures in parentheses are the standard deviations

Results from the above table show that estimates for the coefficients GDPBDj, GDPPTi, DISTij, AVGTARI, XRTij, DTAij, DEUi and DTRENDt are all statistically significant, being at least at the 5 per cent level. Moreover, all these coefficients have the expected signs that conform to the gravity model theory. The positive and significant coefficients for GDPBDj and GDPPTi imply that exports from Bangladesh will increase with the partner countries by 1.62 per cent and 0.67 per cent, respectively, if the GDP of Bangladesh and GDP of its partner countries all increase by 1 per cent. Similarly, the coefficient of the exchange rate variable, XRTij, suggests that if the Bangladeshi currency depreciates then exports will increase, and coefficient of DTAij suggests that Bangladesh exports more to a trading partner country if there is a trade agreement in force.

On the other hand, the significant negative coefficients for distance variable DISTij and tariff variable AVGTARI suggest that the greater the distance between the two countries, and the higher the tariff rate, the less they are likely to trade. The positive coefficients for dummy variable DEUi indicates that exports from Bangladesh are likely to increase if the importing country is a member of the EU, which is expected since EU countries are major export destinations for Bangladesh and there are 14 countries from this region in the dataset. However, the coefficient for another region-based dummy variable DNAi is neither statistically significant nor bears the expected sign. One possible reason might be that there are only three countries in the dataset from the North American region. Another deviation from the standard expectation of gravity theory is that none of the coefficients for the variables POPBDj and POPPTi are statistically significant, which means the size of the economy of Bangladesh and the trading partner does not have any significant impact on export volume.

The result also shows that sigma-squared ( $\sigma^2$ ), which measures the mean total variation over time in the model, is significant, suggesting that potential exports over the time period varied significantly. This variation might be due to random factors or to particular characteristics that exist between Bangladesh and the trading partner country. In addition, the gamma coefficient further explains the nature of the variation by measuring the ratio of variation due to country-specific socio-political-institutional factors or, in simple terms, due to the behind-the-border constraints to the total variation. In this case, the gamma coefficient is 0.9949, which is very large and significant at the 1 per cent level. This implies that behind-the-border constraints have a significant influence and are driving a large proportion of the mean total variation in this case, and therefore the stochastic frontier analysis will give meaningful and valid results in this study. On the other hand, the eta coefficient is found to be insignificant, which means that the constraining impact on the potential export remains constant over time without any improvement.

### **Analysis of Bangladesh's export performance**

The estimated result of Bangladesh's export performance, measured in terms of technical efficiency for the period 2008–2011 with its top forty trading partners, is presented in Table 2.

Table 2: Country and trading bloc-wise Bangladesh's technical efficiency of export (per cent) with top forty trading partners, 2008–2011

Country/trading blocs	Technical efficiency (TE) for export (%)				
	2008	2009	2010	2011	Mean efficiency
EU	<b>46.23</b>	<b>46.40</b>	<b>46.57</b>	<b>46.75</b>	<b>46.49</b>
Germany	87.76	87.84	87.91	87.99	87.87
UK	79.80	79.92	80.04	80.16	79.98
France	52.04	52.28	52.51	52.74	52.39
Netherlands	93.22	93.27	93.31	93.36	93.29
Italy	35.03	35.28	35.54	35.79	35.41
Belgium	82.14	82.25	82.36	82.47	82.31
Spain	32.11	32.36	32.62	32.87	32.49
Sweden	55.50	55.72	55.94	56.17	55.83
Denmark	66.14	66.32	66.51	66.69	66.41
Finland	7.03	7.16	7.29	7.42	7.22
Ireland	39.47	39.72	39.98	40.23	39.85
Austria	7.02	7.15	7.28	7.42	7.22
Portugal	13.34	13.53	13.72	13.91	13.62
Poland	35.34	35.59	35.85	36.10	35.72
Greece	7.46	7.60	7.73	7.87	7.67
<b>NAFTA</b>	<b>60.04</b>	<b>60.16</b>	<b>60.28</b>	<b>60.40</b>	<b>60.22</b>
USA	86.95	87.04	87.12	87.20	87.08
Canada	82.00	82.11	82.22	82.33	82.16
Mexico	11.17	11.34	11.51	11.68	11.43
<b>ASEAN</b>	<b>28.81</b>	<b>29.00</b>	<b>29.20</b>	<b>29.39</b>	<b>29.10</b>
Singapore	60.74	60.95	61.16	61.36	61.05
Thailand	6.78	6.91	7.04	7.17	6.97
Vietnam	47.64	47.88	48.12	48.36	48.00
Malaysia	14.01	14.20	14.39	14.59	14.30
Indonesia	14.87	15.07	15.27	15.47	15.17
<b>East Asia</b>	<b>46.72</b>	<b>46.88</b>	<b>47.05</b>	<b>47.22</b>	<b>46.97</b>
Hong Kong	89.31	89.38	89.44	89.51	89.41
Japan	39.54	39.79	40.04	40.29	39.91
Korea	52.38	52.61	52.84	53.08	52.73

Country/trading blocs	Technical efficiency (TE) for export (%)				
	2008	2009	2010	2011	Mean efficiency
China	5.64	5.75	5.87	5.98	5.81
<b>EFTA</b>	<b>41.25</b>	<b>41.50</b>	<b>41.75</b>	<b>42.00</b>	<b>41.63</b>
Norway	41.18	41.43	41.68	41.93	41.55
Switzerland	41.32	41.57	41.82	42.07	41.70
<b>SAARC</b>					
Pakistan	85.25	85.34	85.43	85.52	85.38
India	42.61	42.86	43.11	43.36	42.98
<b>Others</b>	<b>56.99</b>	<b>57.16</b>	<b>57.32</b>	<b>57.49</b>	<b>57.24</b>
Australia	42.81	43.06	43.31	43.56	43.19
UAE	36.68	36.93	37.19	37.44	37.06
Iran	90.81	90.87	90.92	90.98	90.89
Turkey	90.55	90.61	90.67	90.73	90.64
Syria	86.01	86.10	86.18	86.27	86.14
Russia	20.12	20.34	20.56	20.79	20.45
Saudi Arabia	43.82	44.07	44.32	44.56	44.19
Sudan	83.35	83.45	83.55	83.65	83.50
Brazil	18.76	18.98	19.20	19.42	19.09
<b>All</b>	<b>48.19</b>	<b>48.37</b>	<b>48.54</b>	<b>48.71</b>	<b>48.45</b>

It is noteworthy that the mean technical efficiency (TE) over this period, among these countries, was 48.45 per cent and remained almost constant, without any significant improvement in the behind-the-border constraints. The insignificant eta term supports this result. Mean TE among the trading blocs in 2012 is slightly higher than the mean TE over the entire period. Among the trading blocs, export flow is most efficient in the SAARC bloc, with the highest TE score of 64.18 per cent, followed by the NAFTA bloc, with an efficiency score of 60.22 per cent, which is mostly attributed to the high TEs of USA and Canada. Interestingly, the geographical distance factor did not play a role here since Bangladesh has been maintaining good economic ties with these two countries over a long period.

Another important finding is that in the EU trading bloc, which is the largest trading bloc for Bangladesh, the efficiency parameter varies greatly. In this bloc, the TE is as high 87.87 per cent with Germany, and as low as 7.22 per cent with Finland and Austria, and 6.67 per cent Greece, and an overall mean efficiency of 46.49 per cent. Similarly, in the ASEAN region, the TE score is very low for Thailand (6.97 per cent), Malaysia (14.30 per cent) and Indonesia (15.17 per cent), despite having trade agreements, compared to Singapore (61.05 per cent), with which Bangladesh has no trade agreements. In general, the TE score is below 50 per cent, suggesting that there is a large gap between actual exports and potential exports.

Table 3 shows the results of the calculations for the country-specific export gaps, which could be achieved if there were no behind-the-border constraints.

*Table 3: Country and trading bloc-wise Bangladesh's export potential and export gap in thousand USD with its top forty trading partners, 2008–2011*

Country/trading blocs	Mean actual export (Thousand USD)	Mean potential export (Thousand USD)	Mean export gap (Thousand USD)
EU	<b>627,241.11</b>	<b>1,114,493.30</b>	<b>487,252.19</b>
Germany	2,660,559.37	3,026,956.13	366,396.76
UK	1707,310.12	2,133,896.69	426,586.57
France	1,178,348.02	2,246,827.80	1,068,479.78
Netherlands	955,330.02	1,024,027.40	68,697.38
Italy	721,127.35	2,033,192.83	1,312,065.48
Belgium	524,075.09	636,511.87	112,436.78
Spain	733,291.66	2,252,211.95	1,518,920.29
Sweden	272,613.20	487,777.85	215,164.65
Denmark	245,912.04	369,850.69	123,938.66
Finland	31,505.32	434,204.75	402,699.43
Ireland	132,429.56	331,726.69	199,297.13
Austria	41,155.33	568,115.42	526,960.10
Portugal	47,490.24	347,302.33	299,812.09
Poland	119,856.50	333,758.15	213,901.65
Greece	37,612.88	491,038.96	453,426.08
<b>NAFTA</b>	<b>1,709,674.14</b>	<b>2,191,925.48</b>	<b>482,251.34</b>
USA	4,286,159.12	4,921,569.55	635,410.42
Canada	759,281.47	923,820.63	164,539.16
Mexico	83,581.84	730,386.27	646,804.44
<b>ASEAN</b>	<b>51,208.91</b>	<b>241,489.86</b>	<b>190,280.94</b>
Singapore	111,613.77	182,702.16	71,088.38
Thailand	30,053.18	429,742.80	399,689.62
Vietnam	39,032.14	81,146.82	42,114.68
Malaysia	45,976.95	320,597.35	274,620.41
Indonesia	29,368.52	193,260.15	163,891.64

<b>Country/trading blocs</b>	<b>Mean actual export (Thousand USD)</b>	<b>Mean potential export (Thousand USD)</b>	<b>Mean export gap (Thousand USD)</b>
<b>East Asia</b>	<b>214,254.42</b>	<b>1,231,665.85</b>	<b>1,017,411.43</b>
Hong Kong	165,740.55	185,335.06	19,594.52
Japan	339,712.64	848,717.38	509,004.75
Korea	138,253.07	261,843.55	123,590.48
China	213,311.43	3630,767.41	3,417,455.99
<b>EFTA</b>	<b>73,659.34</b>	<b>176,503.27</b>	<b>102,843.93</b>
Norway	58,375.00	140,089.41	81,714.41
Switzerland	88,943.68	212,917.13	123,973.45
<b>SAARC</b>	<b>206,639.30</b>	<b>434,012.32</b>	<b>227,373.03</b>
Pakistan	80,002.45	93,693.13	13,690.68
India	333,276.15	774,331.52	441,055.37
<b>Others</b>	<b>132,155.82</b>	<b>269,440.07</b>	<b>137,284.25</b>
Australia	154,139.20	355,580.16	201,440.96
UAE	100,479.03	270,512.48	170,033.45
Iran	72,224.97	79,444.02	7,219.06
Turkey	523,410.53	577,332.19	53,921.66
Syria	27,076.57	31,428.40	4,351.83
Russia	73,574.98	358,255.81	284,680.83
Saudi Arabia	99,453.80	224,844.99	125,391.19
Sudan	49,177.11	58,894.73	9,717.62
Brazil	89,866.23	468,667.87	378,801.64

**Notes:** Potential export has been measured by equation (6) and the gap is the difference between actual and potential export.

These results highlight that, although there is an export gap in every country included in the sample, there are huge deviations of actual export volumes and potential level of exports amongst these countries. In the EU region, France, Italy and Spain show the greatest potential. This suggests that, although Bangladesh has been trading with these countries for quite some time, the level of export is nowhere near its potential. Countries with large markets, like China, India, Russia and Brazil, and highly developed economies like USA and Australia, also bear very high export potential.

## **5. Conclusion**

Since 1990 Bangladesh has been pursuing an export-led growth strategy in its journey to become a middle-income country. Although the success of the country so far in this regard is notable, the export sector is highly vulnerable to external shocks due to the lack of diversity in its export portfolio, in terms of both products and destinations. Also, as a developing country, it is believed that the potential export performance is affected by several socio-political-institutional behind-the-border constraints. By applying a stochastic frontier gravity model, this study examined the core variables that affect Bangladesh's export industry; the extent that behind-the-border constraints are responsible for its export performance; and the potential level of exports that can be achieved given the existing trade barriers, after controlling for the behind-the-border constraints.

The results show that export levels are positively affected by the GDP of Bangladesh and its trading partners, exchange rates and trade agreements. On the other hand, distance and tariffs have a negative impact on exports. The study also revealed that behind-the-border constraints play a significant role in restricting exports to reach their potential level. It also shows that there was virtually no improvement in these conditions during the study period. This has a significant policy implication, suggesting that either no visible policy measures were taken to improve the behind – the-border constraints, or if any measures were taken, they were ineffective.

Therefore, as a matter of priority, Bangladesh needs to take effective measures to reduce the impact of behind-the-border constraints by improving its customs procedures, port inefficiencies, internal connectivity, corruption index and other trade-related socio-political-institutional factors. The study shows that Bangladesh has huge scope for realizing the untapped export potential by integrating more efficiently with the international market. It has also revealed that there exists a huge variation in exports with some countries even in the same trading blocs, despite trade agreements being established. This gives food for thought for the policy makers to develop trading partner-specific strategies in diversifying Bangladesh's export portfolio and expanding its export volume.

There are a few limitations of the study. First, it could not identify the specific behind-the-border reasons that impact the export flow due to unavailability of data. Second, it used the average tariff instead of weighted average tariff and, third, it did not take into account the terms of trade effect due to price changes in the empirical model. Therefore, further research should be undertaken to address these limitations.

## References

- Aigner, D., Lovell, C. A. K., & Schmidt, P. (1977). Formulation and estimation of stochastic frontier production models. *Journal of Econometrics*, 6(1), 21–37.
- Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American Economic Review*, 69(1), 106–116.
- Anderson, J. E., & van Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. *The American Economic Review*, 93(1), 170–192.
- Armstrong, S. (2007). *Measuring trade and trade potential: A survey*, Asia Pacific Economic Paper, no. 368, Australia-Japan Research Centre, Crawford School of Public Policy, ANU College of Asia and the Pacific. Retrieved from: [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1760426](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1760426)
- Baltagi, B. H. (1995). *Econometric analysis of panel data*. Cambridge, UK: Cambridge University Press.
- Bangladesh Bank (2016). *Bangladesh Bank open data initiative*, Bangladesh: Bangladesh Bank. Retrieved from [www.bangladesh-bank.org/econdata/index.php](http://www.bangladesh-bank.org/econdata/index.php)
- Bergstrand, J. H. (1985). The gravity equation in international trade: some microeconomic foundations and empirical evidence. *The Review of Economics and Statistics*, 67(3), 474–481.
- CEPII, see Centre d'Études Prospectives et d'Informations Internationales.
- Centre d'Études Prospectives et d'Informations Internationales (CEPII) (2015). Retrieved from <http://www.cepii.fr>
- Coelli, T. J. (1996). *A guide to FRONTIER version 4.1: A computer program for stochastic frontier production and cost function estimation*, CEPA Working Papers, no. 7, Department of Econometrics, University of New England, Australia. Retrieved from <http://www.une.edu.au/econometrics/cepawp.htm>
- Drysdale, P., Huang, Y., & Kalirajan, K. (2000). China's trade efficiency: Measurement and determinants. In P. Drysdale, Y. Zhang & L. Song (Eds.), *APEC and liberalization of the Chinese economy*. Canberra: Asia Pacific Press (pp. 259–271).
- Hossain, M. A., & Alauddin, M. (2005). Trade liberalization in Bangladesh: The process and its impact on macro variables particularly export expansion. *The Journal of Developing Areas*, 39(1), 127–150.
- Kalirajan, K. P. (2000). Indian Ocean Rim Association for Regional Cooperation (IOR-ARC): Impact on Australia's trade. *Journal of Economic Integration*, 15(4), 533–547.
- Kalirajan, K. (2007). Regional cooperation and bilateral trade flows: An empirical measurement of resistance, *The International Trade Journal*, 21(2), 85–107.
- Kalirajan, K., & Anbumozhi, V. (2014). Regional cooperation toward green Asia: Trade in low carbon goods. *The International Trade Journal*, 28(4), 344–362.
- Kalirajan, K., & Findlay, C. (2005). *Estimating potential trade using gravity models: A suggested methodology*. Tokyo: Foundation for Advanced Studies on International Development.
- Meeusen, W., & van den Broeck, J. (1977). Efficiency estimation from Cobb-Douglas production functions with composed error. *International Economic Review*, 18(2), 435–444.
- Thirlwall, A. P. (2011). *Economics of development: Theory and evidence*. Basingstoke, UK: Palgrave Macmillan.
- Tinbergen, J. (1962). *Shaping the world economy: Suggestions for an international economic policy*. New York: Twentieth Century Fund.
- UNCTAD, see United Nations Conference on Trade and Development.

United Nations Conference on Trade and Development (UNCTAD). (2015). *UNCTAD Stats*. Retrieved from [http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?IF\\_ActivePath=P,4&sCS\\_ChosenLang=en](http://unctadstat.unctad.org/wds/ReportFolders/reportFolders.aspx?IF_ActivePath=P,4&sCS_ChosenLang=en)

World Integrated Trade Solution. (2012). *Bangladesh Exports by Country and Region 2011*, World Integrated Trade Solution. Retrieved from <http://wits.worldbank.org/CountryProfile/en/Country/BGD/Year/2011/TradeFlow/Export/Partner/all>Show/Partner%20Name;XPRT-TRD-VL;XPRT-PRTNR-SHR;/Sort/XPRT-TRD – VL/Chart/top10>

### **Md Tariq Hassan**



Md Tariq Hassan is a member of Bangladesh Civil Service Customs and Excise Cadre. He currently holds the position of Deputy Commissioner of Customs and is working in the capacity of Second Secretary (VAT Policy) at the National Board of Revenue of Bangladesh. He has worked in various capacities both in the private and public sectors for the last seven years. He started his career in academia as a Lecturer in Computer Science at Dhaka International University and, later, he decided to diversify his professional activities.

Tariq holds a Master's degree in International and Development Economics from the Australian National University, an MBA and a Bachelor of Science in Computer Science and Engineering from Dhaka University, Bangladesh. His areas of interest are international trade, revenue management, environmental economics, and green customs.



WORLD CUSTOMS ORGANIZATION



## *Section 2*

### *Practitioner Contributions*



# Chemical laboratory support for Customs: Vegetable oils added to diesel fuel—a case study

Vito Daniele, Paolo A Di Lorenzo, Adriano Francescangeli and Magda Franco

## Abstract

In June 2015, the *WCO News* published an article about the role played by customs laboratories around the world. It focused on the evolution of laboratories in the last two centuries and explains why this role is scarcely known by citizens and the scientific community.

One year later, in June 2016, during the Dutch European Union (EU) Presidency, Amsterdam held the 6th Seminar of European Customs Chemists, *Sharing knowledge beyond borders*.

This paper provides a brief overview of customs laboratories, and then describes one of the most notable frauds discussed during the seminar due to its significant fiscal impact on many EU countries, and because it relates to several aspects of customs activity, such as economic security, policy, science and law. The case study concerns the mineral oil sector and is an example of a cross-border crime that can be detected by Customs when they have the scientific support provided by customs laboratories experienced in classification, counterfeiting activities and the investigation of fraud.

## WCO highlights the customs laboratories' role

In June 2015, *WCO News* published an article about the role played by customs laboratories around the world. It focused on the evolution of laboratories in the last two centuries and explained the reasons why this role is scarcely known by citizens and the scientific community (Suay-Matallana, 2015).

Customs administrations are required, among other things, to control internationally traded goods in order to ascertain their origin, quantity, quality and value. While origin, value and quantity can be verified through document review and visual examination, often the only way to check the quality of goods is through chemical analysis. Let's consider, for example, the historical organoleptic investigations performed on food through our senses of taste and smell. In this regard, chemical analysis has existed for several thousands of years, as have trade, customs and tax authorities.

Century by century, world trade has matured enormously, particularly in relation to the variety of goods being traded, as demonstrated by the comprehensive chapters, headings and subheadings of the Harmonized System (HS), as reflected in the subheadings of the integrated Tariff of the European Union (TARIC). In almost every commodities sector, chemists are able to offer unique and strategic support, which is harmonised by specific and rigorous analytical standard methods.

In this regard, heading 2710, 'Petroleum oils and oils obtained from bituminous...', represents a clear example. Here, only through the application of specific physical-chemical standard methods, it is possible to differentiate between the different HS subheadings—and hence TARIC subheadings—that vary significantly in terms of their commercial values and applications.

Part of the mission of custom laboratories is also to detect illegal imports of narcotics and any substance for which may have the capability of ‘dual use’; for example, chemicals which could be used as either drugs precursors or medicine, or reagents that could be adapted as chemical weapons.

The evolution of the role of customs laboratories is continuing, as demonstrated by the request for them to assist in combatting terrorism (which was discussed during the recent Seminar of European Customs Chemists held in Amsterdam in June 2016).

As a further confirmation of the importance of customs laboratories, it is observed that ‘emerging’ economies are now racing to put their best resources into delivering modern and well-equipped facilities. They are supported by the WCO, which assists them by organising workshops, projects of cooperation and technical assistance.

It is interesting to observe how on the one hand, by supporting the work of customs and tax authorities, customs laboratories help to protect society but, on the other hand, these laboratories are still scarcely known by the general public and the scientific community. Suay-Matallana (2015) suggests a possible reason for this. Historians of science have extensively studied the contributions from, and the work of, many relevant scientists from different ages and, more recently, they have also considered scientific spaces, such as hospitals and academic and municipal laboratories. However, customs laboratories have scarcely been studied. The possible reasons are that:

- until recently, customs laboratories were inaccessible to students or the general public
- the total number of chemists (and other experts) working in customs laboratories is smaller than in other chemistry sites, such as universities or industry
- laboratories are usually located in different places and within different government departments, such as customs houses, port authorities or treasury offices.

This dispersion of original sources and archival material makes it more difficult for scholars of the history of science to locate documentary sources (including about prominent characters that have worked in such laboratories). Suay-Matallara (2015) also reported some historical anecdotes about customs chemists to demonstrate this point.

Another noteworthy point is that the experience acquired by customs chemists over time is unique. In addition to strengthening their chemical/analytical background with the opportunity to apply their knowledge in different commodities sectors, they also develop knowledge of customs and fiscal proceedings.

## **Vegetable oil added to diesel fuel—a case study**

The EU has been living in one of the most challenging times of its history from a range of perspectives, including an economic one. Generally, when a state suffers economically, it becomes easier for criminal organisations to operate, developing parallel black markets in the strategic fiscal sectors, such as tobacco, alcohol and energy products (Baloun & Scheinost, 2012; von Lampe, 2012).

Regarding energy products, petroleum products represent one of the most attractive forms of merchandise for fraudsters, usually because of their economic value, distribution network and physical nature (liquid).

European central and eastern states, such as the Czech Republic, Hungary, Slovakia and Poland, still have memories of the massive tax losses of 1990 due to untaxed heating oil sold as highly taxed car fuel (Baloun & Scheinost, 2012). That occurred because, in these countries, a different consumer tax had been imposed on visually similar products, such as light fuel oil (low tax rate) and diesel oil (high tax rate). Today, the EU has adopted different measures to combat this kind of phenomenon. One of the most

recent and important ones is the introduction of the Excise Movement and Control System (EMCS), a computerised system for monitoring the movement of excise goods under duty suspension in the EU. It records, in real time, the movement of alcohol, tobacco and energy products for which excise duties have still to be paid (Decision 1152/2003/EC).

Despite this, customs and financial police operations (World Customs Organization, 2015, 2016; Mobili & Parente, 2014; Di Benedetto, 2016; Pasqualetto, 2015; Pubants, 2016) highlight that automotive diesel fuel continues to be the most attractive product to fraudsters because of its high commercial value. Once again, eastern Europe is a critical source of fraud in the mineral oil sector that now touches the majority of the EU (Semerád, 2012).

In the current example, the goal of the fraudster is to produce and transport a product declared as lubricating oil into the EU. However, it is composed mostly of mineral oil and a relatively small percentage of vegetable oils. Often in these cases, the mineral oil itself is a mix of base oil and gas oil. By changing the percentages of the different parts (vegetable, base and gas oils), the resulting mixtures display a physical property that borders between diesel fuel and lubricating oil. This makes them difficult to detect by conventional methods.

This particular fraud was one of the main issues discussed during the 6th Seminar of European Customs Chemists during the sessions *Going mobile* and *Collecting excise, combating fraud and counterfeit*.

Over the last five years this product has quickly spread to almost all EU countries. Five years ago, at the beginning of the introduction of this product in the EU, authorities generally detected it as a result of controls on trucks transporting ‘oil’. Cubitainers were located under the tarpaulin in circumstances that raised suspicion, such as situations where safe transport conditions and documentation were absent. Months later, the fraudulent products were found during routine checks in legal petrol stations and were transported in the EU accompanied by fraudulent BTI (Binding Tariff Information) and SAD (Single Administrative Document).

The ability to combat this fraud requires technical knowledge of TARIC, its explanatory notes and of chemistry, and this is the role of the customs laboratories. So, let us briefly examine the mission of customs laboratories using an example in the mineral oil sector.

In order to classify a product for customs and fiscal purposes, customs laboratories ascertain its specific characteristics described in the TARIC by applying methods prescribed in international standards. For example, a product declared as ‘gas oil’ must have specific percentages in volume of distillation recovery at 250°C and at 350°C, and the sulphur content has to be in a specific range. The presence of biodiesel also needs to be evaluated because a ‘gas oil’ could be classified in the EU as CN 27101943-46-47 (according to the sulphur content) if it does not contain biodiesel, but CN 27102011-15-17-19 (according to the sulphur content) if it does contain biodiesel.

In addition, EU customs laboratories usually have the responsibility of checking commercial and environmental parameters. Focusing on ‘gas oil’ as an example, these parameters for diesel are defined by the Standard EN 590. This standard is published by the European Committee for Standardization and describes the physical properties that all automotive diesel fuel must meet if it is to be sold in the EU and several other European countries. Examples of properties are density, viscosity, flash point and cetane number.

**The lubricating oil issue in Europe.** In order to understand the development of the fraud it is important to underline the fact that there is a gap in the anti-smuggling web set by the EU concerning the mineral oil sector. Automotive diesel fuels, like light fuel oils, are monitored in the EU through the European Commission’s Excise Movement and Control System (EMCS), while ‘lubricating oils’ can be moved in the EU without being monitored by EMCS because it is not subject to excise tax in the EU and only a few states apply national taxation on these products.

**The fraud.** Evaders produce and move, or import, a product declared as lubricating oil (e.g. *anti-stick* & *anti-corrosion oil* or *protective oil*) into the EU also using false documents. It circulates in the black market before entering the mainstream network, where it is sold as expensive automotive diesel fuel. However, it contains a majority of ‘gas oil’ which bypasses the official standard methods employed in the customs laboratories.

The consequence is a massive tax loss in terms of excise and value added tax (VAT).

The financial police involved in these international operations have estimated that each EU country loses hundreds of millions of euros from this new diesel swindle (World Customs Organization, 2015, 2016; Mobili & Parente, 2014; Di Benedetto, 2016; Pasqualetto, 2015; Pubants, 2016).

The intelligence sources and the technical knowledge of these criminals is balanced by the scientific knowledge of the customs chemists that are moving beyond the TARIC methods, setting new specific methods, in order to detect such fraud. That is one of the conclusions that came from the 6th Seminar of the European Customs Chemists, where chemists from a variety of EU countries, exchanged their technical approaches in the fight against such situations.

In conclusion, fraud involving vegetable oil added to diesel fuel represents an interesting case study for the following reasons:

1. This fraud spread throughout the EU because ‘lubricating oil’ is not monitored by EMCS, so it represents a gap in the anti-smuggling web set by the EU.
2. TARIC defines ‘lubricating oil’ (CN codes 27101971 to 27101999) as *heavy oil* which also contains ‘fuel oil’ and ‘gas oil’. However, there are too few technical parameters and it is simply thought of as ‘different’ from ‘fuel/gas oil’. The residual definition of lubricating oil should therefore be updated.
3. The possibility to describe the mixtures of mineral oils with triglycerides (vegetable oils) through one or more new CN codes should be evaluated. According to the *Official Journal of the European Union*, Council Directive 2003/96/EC of 27 October 2003, we are describing two kinds of energy products: mineral oil and vegetable oil.
4. From the customs laboratories’ points of view, this fraud underlines not only the need for faster recognition of emerging fraudulent trends, but also the strategic importance of updating existing standard control methods, as well as the development of new official methodologies.

The participants at the seminar in Amsterdam agreed that this fraud has already been modified in the past year. Some laboratories in the EU are finding other organic compounds in these fraudulent products, rather than vegetable oils. These organic compounds come from industrial processes and show the same chemical functional groups as vegetables oil triglycerides. Consequently they are likely to present customs with the same problems as the products that have already been encountered.

This last point also highlights the ability of criminal networks with a knowledge of industrial chemistry to identify ways of circumventing TARIC, and therefore how important it is to combat the evaders with government-sponsored chemical experts.

## Acknowledgements

For his approval, the authors thank Dr Roberto Chiara, Interregional Director of the Italian Customs and Monopolies Agency for Apulia, Molise and Basilicata. The authors are grateful to Paolo S Lograno, Dr Paola Martino, Paolo Ottomano and Dr Gianvito Pedone for their skilled and valuable technical assistance rendered in carrying out the work.

## References

- Baloun, V., & Scheinost, M. (2002). Economy and crime in a transition society—the Czech Republic's case. In P. C. van Duyne, K. von Lampe, & N. Passas (Eds.), *Upperworld and underworld in cross-border crime*. Nijmegen: Wolf Legal Publisher (pp. 43–59).
- Di Benedetto, G. (2016). Trani, lubricant sold as diesel: 19 arrests in the blitz against tax evasion. *Bari*. Retrieved from <http://bari.repubblica.it/cronaca/2016/05/02/news/bari138889545/?ref=search>
- European Commission. (2016). 6th Seminar of European Customs Chemists, 22–24 June 2016, Amsterdam, Netherland. Retrieved from [http://ec.europa.eu/taxation\\_customs/sites/taxation/files/resources/documents/customs\\_controls/custom\\_laboratories/group\\_ecl/netherlands\\_en.pdf](http://ec.europa.eu/taxation_customs/sites/taxation/files/resources/documents/customs_controls/custom_laboratories/group_ecl/netherlands_en.pdf)
- European Commission. (2017a). *Binding tariff information*. Retrieved from [http://ec.europa.eu/taxation\\_customs/business/calculation-customs-duties/what-is-common-customs-tariff/binding-tariff-information-bti\\_en](http://ec.europa.eu/taxation_customs/business/calculation-customs-duties/what-is-common-customs-tariff/binding-tariff-information-bti_en)
- European Commission (2017b). *The single administrative document (SAD)*. Retrieved from [http://ec.europa.eu/taxation\\_customs/business/customs-procedures/general-overview/single-administrative-document-sad\\_en](http://ec.europa.eu/taxation_customs/business/customs-procedures/general-overview/single-administrative-document-sad_en)
- European Union (2003). Decision No 1152/2003/EC of the European Parliament and of the Council of 16 June 2003 on computerizing the movement and surveillance of excisable products. *Official Journal of the European Union*. L. 152, 5–8. Retrieved from <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003D1152&from=EN>
- Mobili, M., & Parente, G. (2014). Tablets, invoices made in China & Co: how does fraud change for not paying tax. *Italia*. Retrieved from <http://www.ilsole24ore.com/art/notizie/2014-02-12/lotta-evasioneil-gasolio-viene-est-evitare-accise—191326.shtml?uuid=ABpPcBw&nml=2707#navigati-on>
- Pasqualetto, A. (2015). *Fueling gas is boom Indagano 17 Procure, 1800 denounced*. Retrieved from [http://www.corriere.it/cronache/15\\_ottobre\\_01/contrabbando-gasolio-boom-indagano-17-procure-1800-denunciati-b8bde238-6865-11e5-8caa-10c7357f56e4.shtml?refresh\\_ce=cp](http://www.corriere.it/cronache/15_ottobre_01/contrabbando-gasolio-boom-indagano-17-procure-1800-denunciati-b8bde238-6865-11e5-8caa-10c7357f56e4.shtml?refresh_ce=cp)
- Pubants, F. (2016). *International lubrication oil band in Grimmen flown*. Retrieved from <http://www.ostsee-zeitung.de/Nachrichten/MV-aktuell/Internationale-Schmieroel-Bande-in-Grimmen-aufgeflogen>
- Semerád, P. (2012). Value added tax evasion and excise duty fraud on fuel market in the Czech Republic. *Acta Universitatis Agriculture et Silviculturae Mendelianae Brunensis* 60, 335–340.
- Suay-Matallana, I. (2015). Customs laboratories, chemistry and excise: An historical introduction. *WCO News*. 77, 34–36. Retrieved from [http://www.academia.edu/12871267/Customs\\_Laboratories\\_Chemistry\\_and\\_Excise\\_an\\_Historical\\_Introduction](http://www.academia.edu/12871267/Customs_Laboratories_Chemistry_and_Excise_an_Historical_Introduction)
- von Lampe, K. (2002). ‘The trafficking in untaxed cigarettes in Germany: A case study of the social embeddedness of illegal markets’. In C. van Duyne, K. von Lampe, & N. Passas (Eds.), *Upperworld and underworld in cross-border crime* (pp. 141–161). Nijmegen: Wolf Legal Publishers.
- World Customs Organization. (2015). *Illicit Trade Report 2014*. Retrieved from <http://www.wcoomd.org/-/media/wco/public/global/pdf/topics/enforcement-and-compliance/activities-and-programmes/illicit-trade-report/itr-2014-en.pdf?la=en>
- World Customs Organization. (2016). *Illicit Trade Report 2015*. Retrieved from [https://illicittrade.com/reports/downloads/OMD\\_ITR\\_Complete\\_LR\\_2016\\_12\\_04.pdf](https://illicittrade.com/reports/downloads/OMD_ITR_Complete_LR_2016_12_04.pdf)

### **Vito Daniele**



Dr Vito Daniele graduated in chemistry with honours at the University of Bari in 1997 with an experimental thesis in analytical chemistry. A chemist at the Italian Customs Laboratory of Bari, he deals with the analysis of narcotic drugs and mineral oils for tariff classification, excise duties and antifraud activities for private persons and institutions. He is responsible for the storage and disposal of chemical laboratory wastes; supervisor of the maintenance of the scientific instruments; and a member of the following national working groups: ‘Biodiesel in Diesel’, ‘Determination of drugs’, ‘Analytical methods for determination of fiscal denaturings in mineral oil’, ‘Error in analytical measure’, ‘Purchase of scientific instruments’. He is interested in the evaluation and development of new analytical methods.

### **Paolo A Di Lorenzo**



Dr Paolo Antonio Di Lorenzo graduated from the University of Bari with a thesis in macromolecular synthesis and took a PhD in organic chemistry under Professor S Florio and F Naso in 2006. In the same year, he became a chemist at the Italian Customs Laboratory of Bari. He is responsible for the processes regarding analysis for private persons and institutions and for the quality system of the Laboratory on the basis of EN ISO/IEC 17025. His analytical activity deals with the analysis of narcotic drugs, vegetable oils and mineral oils for tariff classification, excise duties and antifraud activities.

### **Adriano Francescangeli**



Dr Adriano Francescangeli is a chemist at the Italian Customs and Monopolies Agency having been appointed to the position in 2008. His qualifications include a degree in enantioselective synthesis and a PhD in plasma chemistry. While completing his doctorate, Adriano participated in the European research project NAPOLYDE. In 2010, he took part in the European program ‘Customs 2013—working visit’, and in 2016, he presented a paper, ‘Triglycerides added to diesel fuel: What is happening in the south of Italy’ to the 6th Seminar of European Customs Chemists held in Amsterdam. Adriano is also involved in the organisation of scientific divulgation activities on behalf of the Italian Customs and Monopolies Agency.

### **Magda Franco**



Dr Magda Franco is a chemist at the Italian Customs Laboratory. She has a PhD in Chemical Science, received at the University of Roma ‘La Sapienza’. As a Customs Chemist, she is an expert in analysis and tariff classification of mineral oils. She was quality assurance manager and managing director of the Customs Laboratory of Bari. Magda regularly takes part in meetings on national and international fraud in the energy products sector. Her interests are in chemical analysis of drugs, mineral and vegetable oils, international trade and related fraud.

# The role of information technologies in the development of customs control in the Republic of Bulgaria

*Momchil Antov*

## Abstract

Advances in information technologies (IT) in recent years have contributed significantly to the automation and development of customs control. This article examines the European Union (EU)-wide customs information systems (CIS) that operate within the pan-European CIS network and their application in the Republic of Bulgaria, with a focus on customs control efficiency. Guidelines for applying IT in customs control in the member states of the EU are outlined, and the CIS established to automate customs procedures in the Republic of Bulgaria, introduced in the context of the Union Customs Code (UCC), are discussed, including their main benefits and some of the problems accompanying their use, together with possible guidelines for their improvement.

## 1. Introduction

In recent years, the use of modern equipment, software and new information technologies has underpinned economic activities. International trade and its accompanying activities are no exception, as a result of which customs control bodies embark on automating most of their processes. This trend gives rise to the emergence of a new type of communication between the parties involved in the international commodity exchange. This concept has also been reflected in the new Union Customs Code (UCC), in which information technology has been considered as the main instrument for the implementation of customs control. Its use has become mandatory for all member states, with the idea to establish united pan-European customs, on the basis of information technology, by 2020. The use of information technologies results in largely discontinuing the direct contact between the different bodies, saving time and resources and limiting the opportunities for errors and omissions. At the same time, it should be borne in mind that the successful development and implementation of specialised information systems in the field of customs control is a slow and cumbersome process. The advantages and disadvantages of its development can be viewed as part of the criteria by which the efficiency of customs administrations should be assessed.

This article examines the EU-wide customs information systems (CIS) that operate within the pan-European CIS network and their application in the Republic of Bulgaria, with a focus on customs control efficiency. The purpose of the study is to characterise the CIS established in the Republic of Bulgaria, which was introduced in the context of the UCC to automate customs procedures, and outline the main benefits of their implementation, some of the problems accompanying their use and the possible guidelines for their improvement. In doing so, this paper:

- outlines the guidelines for applying information technologies in customs control in the member states of the EU
- presents the CIS developed and implemented in the Republic of Bulgaria

- analyses functional specifications of the main CIS in the Republic of Bulgaria
- outlines the advantages and disadvantages of using the CIS, and provides guidelines for further development.

## **2. Guidelines for applying information technologies in customs control**

The rapid penetration of information technologies (IT) into business has had a significant impact on the ways in which economic activities are carried out and the ways in which the procedures developed for organisational management are followed. Economic operators work in a dynamic global environment and their internal business processes are becoming more critically dependent on the timely provision and accurate processing of specific information flows. Modern channels of communication and highly developed IT have accelerated the flows and consumption of goods (Wolfgang & Harden, 2016, p. 2). Parallel to these processes, IT achievements in recent years have contributed significantly to the development of customs control towards its automation. This has necessitated the creation of a new type of communication between the separate customs administrations of the EU member states, and between the economic operators and customs offices. These relationships have largely discarded the use of paper flows and entered a new and modern electronic environment. In practice, this means that economic operators and their representatives can process and submit most customs, trade and transport documents used in international trade, electronically.

The European Commission is working more actively to implement IT in the field of customs control. The European Parliament and Council decision of 2008 to create a pan-European electronic customs system that provides an efficient paperless environment for customs and trade—a CIS—is the response to this challenge. This system aims to build a robust communication chain between all customs offices in the Union, between customs and other public authorities operating at the border, and between public authorities and traders (Decision No 70/2008/EC of the European Parliament and of the Council of 15 January 2008 on a paperless environment for customs and trade, 2008). The practical realisation of this decision is the new UCC (Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code, 2013) adopted in October 2013, which largely focuses on the use of modern information systems.

Satisfying the needs of modern logistics, the pan-European electronic customs should lead to an increase in the competitiveness of economic operators acting in the EU member states, to a reduction in the costs of compliance with the legal requirements, and to an increase in security at the borders of the Union. To this end, a stage-by-stage implementation of a number of new systems in the member states is envisaged by 31 December 2020. Under the provisions of Article 280 of the UCC, the European Commission has signed a work program for the development and deployment of electronic systems (Commission Implementing Decision (EU) 2016/578 of 11 April 2016 establishing the Work Programme relating to the development and deployment of the electronic systems provided for in the Union Customs Code, 2016). It establishes the transitional measures for electronic systems and the deadlines for their introduction. Essentially, these systems cover the opportunities of implementing the customs procedures for the import, export and transit of goods. Risk analysis, remote control and auditing of accounting and trade documentation will have priority within the envisaged new CIS.

In line with the EU policy, computerisation is one of the strategic objectives of the Customs Administration of the Republic of Bulgaria. This process is an important prerequisite for achieving the necessary administrative capacity for the implementation of national and pan-European customs legislation.

The early computerisation of customs control in the Republic of Bulgaria began in 1995 and today the National Customs Agency is one of the leading Bulgarian control institutions, offering its clients a number of online services. Today, a significant part of the customs procedures is electronic and realising them via paper documents is considered an emergency procedure. In practice, IT has found its important place in organising and implementing customs control in Bulgaria and, as already mentioned, the communication between control authorities and economic operators has shifted to a new electronic environment. To this end, the Bulgarian customs administration has developed and maintains several CISs of its own, and after joining the EU it has had access to a number of pan-European CISs. These systems provide, to a significant degree, the exchange and processing of information in the course of the various customs procedures. They serve not only as information flows between the different structural units of the customs administration but also its contacts with other agencies and institutions, economic operators and their representatives.

The commitments of the Bulgarian Customs Administration for the development and improvement of CIS come from its commitments as an EU member state and from the direct application of the UCC in its territory. The establishment of these systems must be in line with the changes in the customs control philosophy, which is about reducing the use of conventional methods of control (such as physical inspection of goods, documents or vehicles), and enhancing the use of simplified customs procedures and follow-up control on the basis of well-planned and performed risk analysis. With the new UCC, all its member states face the challenge of fully automating their customs control procedures and thereby providing economic operators and society with new digital services. The transition to such an organisation of customs control requires using a number of financial and other resources and meeting many requirements by both customs administrations and economic operators.

The prerequisites for the transition to operating in a new electronic environment, under the provisions of the UCC, present major difficulties for the member states, including the Republic of Bulgaria, as they must organise and carry out this transition by themselves. Although of paramount importance in this process is each member's national economic characteristics, they cannot ignore their commitments regarding the implementation of tariff and non-tariff measures in trade with third countries.

One of the key requirements for effective implementation of automated customs systems is ensuring security in generating, processing, transmitting and storing information that circulates between customs authorities and economic operators. A registration regime has been introduced, for Bulgaria in particular, giving access to these systems, allowing the identification of the persons using them and defining their rights and competences. In order for economic operators to have access to the information systems of the National Customs Agency, it is necessary that they be registered under Ordinance No. 5 of 29 June 2006 on the conditions and procedures for submitting customs declarations electronically (Ordinance No. 5 of 29 June 2006 on the conditions and procedure for customs declarations by electronic means, 2006). Under Article 17 of the same normative act, an economic operator (a legal entity, sole proprietor or individual) is registered by signing the registration form with a valid universal electronic signature (UES) held by the respective applicant. The registration of economic operators constitutes a single act and enables them to operate with all CISs in the country.

The UCC sets the legal basis for the introduction of the electronic exchange of information between customs authorities and economic operators, such as lodging declarations and accompanying documents electronically, which offers identical facilities to traders in each member state (Truel & Maganaris, 2015, p. 14). After the single registration, economic operators can submit data electronically to the Bulgarian CIS ('declaring') in two ways:

- **Electronic Data Interchange (EDI) messages.** This requires a system-to-system connection between the information system of the economic operator and the CIS. EDI occurs via the internet or via a direct non-dial-up (leased) line between a network node of the declarant and the *Central Customs Directorate* of the National Customs Agency. The receipt of each standard EDI message must be

confirmed by the receiving system. The current legislation in the Republic of Bulgaria provides that the declarants independently and at their own expense:

- › equip their information systems with the necessary hardware, system, network and telecommunication devices, and connect via an encrypted network channel
  - › provide the necessary software and technical devices to protect information
  - › provide the necessary connectivity between their information systems and the CIS.
- **National Customs Agency website.** Economic operators or their representatives can enter the information required to complete the relevant customs formalities directly into the CIS. To this end, the National Customs Agency (Customs Agency, 2017) website provides online forms that allow reviewing, editing, signing with a UES and sending electronic documents (e.g. customs declarations, customs manifests, entry or exit summary declarations, applications for authorisation of different procedures or issuance of documents) to the CIS.

Each option for declaring has advantages and disadvantages. Using the system-to-system connection allows the declarant to use the available software applications to maintain records of documents, optimise their work process and transfer the information entered into the system from one document to another. A significant disadvantage of this type of connection is the cost involved in building and maintaining it, which must be met by the economic operators and their representatives. On the other hand, submitting customs declarations through the website of the National Customs Agency is completely free (only internet access is required). However, completing and submitting electronic customs documents via this module is a single act, no records are kept and there are few options to automatically fill in the fields.

### **3. Customs information systems in the Republic of Bulgaria**

Being subject to the provisions of the UCC, the Bulgarian Customs Administration has developed and implemented its own strategy for the development of information systems. It is consistent with the European Commission's requirements and provides full automation of customs control in the country within the established deadlines. The information systems of the customs agency cover a substantial part of the customs formalities for the import, export and transit of goods provided by the legislation. This allows the full inclusion of the country in the customs clearance of cargo to and from any part of the customs territory of the EU. The systems are created on a modular basis and maintain the exchange of information between each other and the customs systems of other member states, and between the economic operators in the Union. Bulgarian customs authorities use one of the following systems as intended within the control activities implemented on imports, exports and transit of goods or the administration of excise:

- **Bulgarian Integrated Customs Information System (BICIS).** This system automates all functions of customs administration, encompassing the entire spectrum of activities carried out by customs officers in the control procedures on the import and export of goods. BICIS can also be viewed as an important component of the internal control in the Bulgarian National Customs Agency. Access to BICIS is authorised on the basis of specific competences of customs officers with respect to its separate modules, and records are kept about which actions have been performed, when they were performed, and by which employee.
- **Customs Information System for Exports (CISE).** This system was put into operation on 10 August 2015 and replaced the Export Control System (ECS) – Phase 2. CISE involves EDI on export operations between economic operators, customs authorities of the exporting and outgoing customs office, and the results of control and validation of goods leaving the customs territory of the

Union. The driving factor in the system is the information contained in the electronic export customs declarations submitted by the economic operators, and under certain circumstances, the information in the Exit Summary Declarations (EXS).

- **Import Control System (ICS).** ICS is an *electronic security declaration management system* for the importation of goods into the EU customs territory. It came into effect in 2010 and covers the submission, correction and cancellation of Entry Summary Declarations (ENS), Customs Manifests (Summary Declaration for Temporary Storage) and Customs Import Declarations (Single Administrative Document – SAD). The system facilitates the acceleration of the flow of goods and contributes to the safety and security of the supply chain along the interconnected consumer electronic systems of the EU member states.
- **New Computerised Transit System (NCTS).** NCTS is a computerised transit system based on the exchange of EDI messages. These messages replace the various paper documents and certain customs formalities of the operating Common Transit System in the EU member states and in some third countries (the EFTA states, Iceland, Norway, Liechtenstein and Switzerland; and Turkey, Macedonia and Serbia). All transit declarations (including TIR Carnets) must be submitted to the customs authorities by the outgoing customs offices electronically through the NCTS, and then the system processes the information contained in them and creates conditions for exercising control over the transit movement of goods. The electronic exchange of messages in the NCTS takes place at three levels:
  - › between economic operators and Customs (external domain)
  - › between the customs offices of a Common Transit country (national domain)
  - › between the separate national customs administrations and the European Commission (common domain).

NCTS applies to all Union's transit operations (external [T1] or internal [T2]) regardless of the type of vehicle used. An exception to this rule are the cases of simplified transit procedures where other documents can serve as a transit declaration (e.g. within the simplified customs procedures for air, sea and rail transport, the customs manifest or CIM consignment can be regarded as a transit declaration).

- **Bulgarian Excise Centralized Information System (BECIS).** This system came into operation on 1 April 2013 and serves the control activities of customs authorities regarding the compliance with the excise legislation. Its scope covers:
  - › Submitting applications electronically for obtaining a status or changing a status in terms of the Law on Excises and Customs Warehouses (LAW on excise duties and tax warehouses, 2005), and enclosing the legally required documents. This option aims to facilitate communication with the customs administration, which can be conducted electronically without the need to visit the place of the relevant customs office.
  - › Issuing electronic tax administrative documents, with the data submitted to BECIS, signed with an UES. The system carries out a number of checks to ensure that correct and complete documents are prepared. Only documents that have successfully passed the check are validated by obtaining a registration number from the BECIS.
  - › Submitting all appendices of the Regulation for applying the Law on Excises and Customs Warehouses electronically.

- **Automated Information System for Document Processing and Administrative Activity (AIDA).** All electronic administrative services of the National Customs Agency that economic operators have access to are realised through this system. AIDA provides an option for selecting a specific administrative service and a customs office to which the electronic application for the respective service can be submitted. Once the application form is completed with the necessary information, it is automatically registered and sent to AIDA for follow-up processing. A number of administrative services by the Bulgarian Customs Administration (Customs Agency, 2017) are currently performed online using this system (see Table 1).

*Table 1: Administrative services, provided by the AIDA Customs Information System*

<b>Granting</b>	<ul style="list-style-type: none"> <li>• Authorisation to use a comprehensive guarantee or guarantee waiver, with goods placed under a transit procedure</li> <li>• Certificate of Approval</li> <li>• Authorisation to use simplified procedures</li> <li>• Authorisation to grant the status of approved exporter</li> <li>• Authorisation to grant the status of authorised consignee (transit + TIR) or Authorised consignor (transit)</li> <li>• Authorisation for customs economic procedure/end use</li> <li>• Authorisation for access to TIR regime</li> <li>• Certificates of Authorised Economic Operator (AEO)</li> <li>• Certificates EUR.1</li> <li>• Authorisation for the application of simplified procedures for the carriage of goods by rail, large containers, air, or sea</li> </ul>
<b>Performing</b>	<ul style="list-style-type: none"> <li>• Customs control outside the normal working hours and/or outside the customs office</li> <li>• Scientific laboratory studies and preparation of expert opinions</li> <li>• Checks, measurements and loading/unloading at the request of stakeholders</li> </ul>
<b>Providing</b>	<ul style="list-style-type: none"> <li>• Binding Tariff Information (BTI)</li> <li>• Binding origin information (BOI)</li> <li>• Information on the presence or absence of obligations for public receivables collected by customs authorities</li> </ul>
<b>Submitting and reviewing</b>	<ul style="list-style-type: none"> <li>• Applications for the implementation of measures to protect intellectual property rights</li> <li>• Warnings</li> <li>• Complaints</li> </ul>

AIDA covers all structural subdivisions of the National Customs Agency, and is integrated with other information systems, including the Unified Environment for the Exchange of Electronic Documents of Public Administration (UEEED) (Law on e-governance, 2007). This system allows for automation of the internal document flows within all units of the Bulgarian customs administration, which in practice realises the e-governance of the administrative processes within it. This is useful for the customs administration in terms of intensifying its work, and for economic operators as they can communicate with the customs authorities through the system, thus eliminating the need for direct contact with them.

The systems under consideration maintain functional online connection with the established pan-European CISs, which allows effective and fast real-time data exchange with the customs administrations of other EU member states. These systems are the following:

- Customs Decisions
- Binding Tariff Information (BTI)
- AEO and impacts of Mutual Recognition Agreements (MRA)
- Automated Export System (AES)
- Transit System including NCTS
- Registered Exporter System (REX)
- Anti-Counterfeit and anti-Piracy Information System (COPIS)
- EU Customs Single Window program
- Classification Information System (CLASS)
- Economic Operators Registration and Identification subsystem 2 (EORI 2).

Similar links have been developed at the international level, with eTIR and eATA being the most important ones.

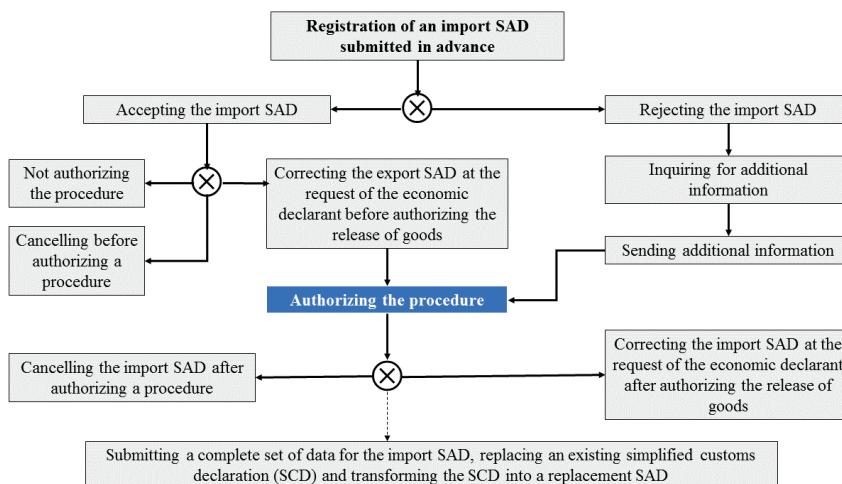
## 4. Functional specifications of customs information systems in Bulgaria

The information systems presented below form the backbone of the Bulgarian customs control system, allowing for automation of a large part of the customs procedures. Without using them Bulgaria would not be able to meet the high standards of customs control imposed by the European Commission, the World Customs Organization (WCO) and the World Trade Organization (WTO). The systems administering customs procedures for the import (ICS), export (CISE) and transit (NCTS) of goods have a leading role in performing the functions assigned to customs control. By their nature, customs procedures can be defined as actions required by the customs authorities aimed at compliance with customs legislation regarding the goods under customs supervision. They are used to find out certain facts and events, regulate the deviations made from the legal norm and ensure the normal course of the customs process. Therefore, one can say that it is customs procedures that are the functional expression of control authority and manifestation of its interconnected elements (Tomeva, Gancheva, & Antov, 2016, p. 147). This fact underpins the drive towards developing and implementing computer information systems that automate the implementation of customs processes and improve the efficiency of the customs control performed in the Republic of Bulgaria and in the other EU member states.

The three CISs discussed here automate a number of business processes associated with the filing and acceptance of customs declarations (SAD) submitted electronically for placing goods under a particular regime, as well as other documents relating to customs clearance (e.g. Customs Manifest, Summary Declaration for Temporary Storage, Entry or Exit Summary Declarations). The functional specifications of these systems strictly define the type and procedures of the messages used (to and from the systems), their structure and the rules which they must meet, and the terms and procedures for handling errors that may occur. The processes handled by these systems under the customs procedures are as follows:

**ICS.** The steps for processing customs declarations are carried out in a strictly defined sequence, and apply to the following customs procedures: release for free circulation, temporary importation, inward processing, customs warehousing, free zone and end use (Customs Agency, 2014). This process is outlined in Figure 1.

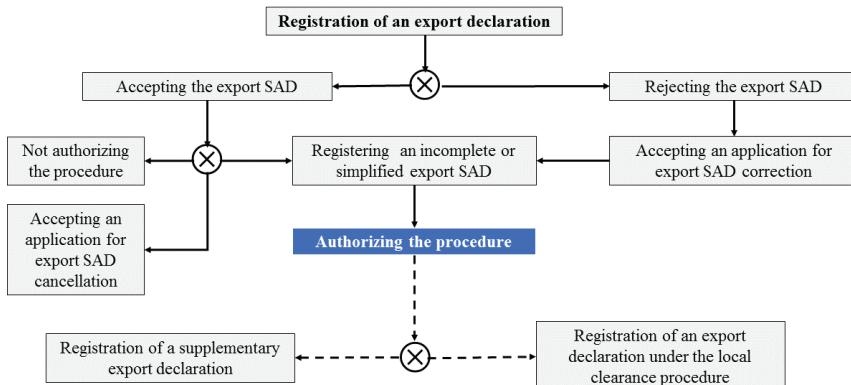
Figure 1: Functional specification of import control system (ICS)



After the SAD for import lodged in advance is registered, depending on its compliance with the requirements for its clearance, it is accepted or rejected, by the information system. Where there are discrepancies, the customs authorities may request more information from the economic operator and after processing it they decide whether or not to authorise the relevant customs procedure. The ICS CIS can process applications submitted by economic operators for corrections or cancellation of the SADs lodged. This is possible both before the authorisation for the release of goods and after such authorisation has been granted. ICS involves algorithms for processing simplified customs declarations (SCD) and their subsequent transformation into replacement customs declarations. This is especially important as the use of simplified customs procedures is an increasingly preferred way for customs clearance of imported goods by economic operators.

**CISE.** CISE handles processes in SADs submitted for placing goods under the following customs procedures: export, temporary export, outward processing and re-export (Customs Agency, 2015a). The functional specifications of CISE are set out in Figure 2.

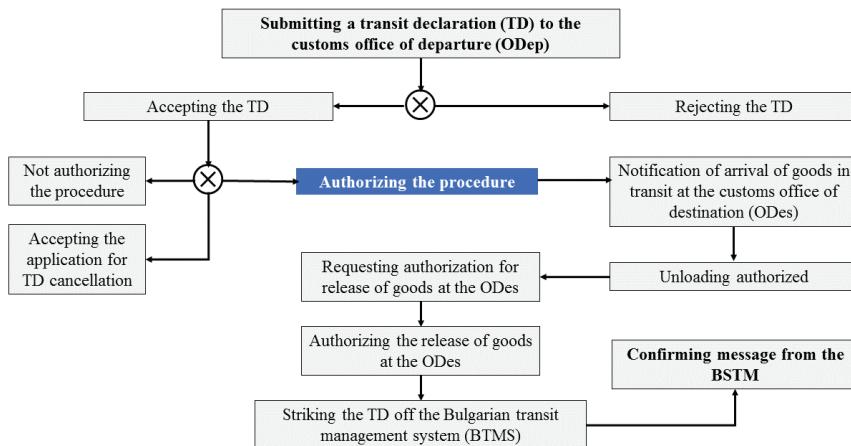
Figure 2: Functional specification of CISE



The SADs submitted by economic operators via the CISE are subject to formal verification in terms of their complete and correct clearance. Based on this verification, the system accepts or rejects the relevant declaration and electronically sends a message to the declarant specified in it. If necessary, the system processes incomplete or simplified SADs, as well as local clearance declarations submitted by economic operators authorised to use simplified customs procedures for export of goods.

**NCTS.** NCTS handles the processes of EDI between economic operators and customs authorities related to operations with SADs or TIR Carnet under the Union Transit procedure (Customs Agency, 2015b). These operations are shown in Figure 3.

Figure 3: Functional specification of the customs information system for processing a transit procedure



The processes for each transit operation start in the Office of Departure (ODep), which is where customs declarations for placing goods under procedure should be submitted. The information system processing them verifies the available conditions for their acceptance and registers or rejects the transit declarations. Once the customs authorities verify the security provided and all other conditions under the procedure, they authorise or refuse its activation. From a spatial perspective, the following operations with the transited goods are carried out at the Customs Office of Destination (ODes), which should be informed

by the economic operator via the information system about goods in transit that arrived at its office. After processing the permit to unload the goods and analysing the results of the physical checks on goods, the customs officials authorise their release. The release of the goods is regarded as grounds for striking the transit declaration off the Bulgarian Transit Management System (BTMS) and in particular the NCTS. The procedures for each transit operation end after sending the confirmation email from ODes to ODep regarding the actual and accurate completion of the procedure.

The above functional specifications of the three main CISs show similarities between some of the processes administered in terms of processing the submitted customs declarations for placing goods under the relevant customs procedures. The relatively equal goals set by the functions of customs control can be regarded as a prerequisite for that similarity. It is exactly these functions that determine the presence of certain uniformity within the applicable customs procedures that accompany the entry, import, export, and transit of goods. These circumstances, in turn, allow the identification of the leading processes, which are implemented in all three CISs. These processes can be summarised as:

- submitting customs declarations
- accepting or rejecting customs declarations
- processing customs declarations
- correcting submitted customs declarations
- cancelling submitted customs declarations
- requiring or sending additional information (from the economic operator to the system and vice versa).

The presented technological sequence of the main processes in CISs reveals the leading role in the overall coverage of customs procedures for the import, export, and transit of goods. In turn, the opportunity of economic operators and customs officials to carry out customs procedures fully electronically is an expression of the modern understanding of organising the business processes in each economic entity. At the same time, it should be borne in mind that customs clearance of traded goods is directly dependent on the functioning of the information systems in the National Customs Agency. This leads to the conclusion that these systems underlie the customs control implemented in the Republic of Bulgaria and have a significant impact on its efficiency.

## **5. Advantages and disadvantages of using customs information systems**

The CCU aims to simplify customs legislation and allow the use of modern tools and technologies for efficient and fast customs procedures. Their use is a key element in ensuring trade and reducing business costs and risk to society (Decision No 70/2008/EC of the European Parliament and of the Council of 15 January 2008 on a paperless environment for customs and trade, 2008). This is due to the fact that information systems are generally highly effective in environments where there is a significant amount of data and precise calculations are needed for the many different parties that are concerned (Dečman & Klun, 2015, p. 110). The specialised CISs allow for the automation of most of the activities carried out by customs officials and economic operators. In terms of customs control these systems aim to:

- **Improve the efficiency of the customs control system.** The increasing volume of international trade and the involvement of more and structurally diverse participants in international supply chains require the development of efficient computer information systems to automate and accelerate customs procedures.

- **Improve economic operator service.** The use of IT systems reduces the time and cost of processing cargoes, limits the possibility of making mistakes and eliminates arbitrary treatment by customs control officials.
- **Intensify the information activities in customs procedures.** The processing of large volumes of data is a challenge for any information system, but the availability of sufficient, reliable, timely and targeted information is a prerequisite for the modelling of a proper control attitude towards the objects of control (such as economic operators, goods, vehicles, documents presented).
- **Improve the working conditions of customs officers.** The automation of the customs control process gradually relieves control officials of routine activities, such as keeping records, searching for and analysing certain information, and corresponding with third parties.
- **Improve the relations with external organisations.** The customs authorities can exchange operational information electronically with other individuals and organisations, which in turn is a prerequisite for multiplying the effect of the control activities performed.

Every year, the Directorate-General for Taxation and Customs Union of the European Commission prepares reports on the progress made in implementing the Commitments on Automated Customs Information Systems in the Member States of the EU (Directorate-General for Taxation and Customs Union, 2016, p. 15). Data shows a high degree of automation, with more than 93 per cent of customs declarations submitted and processed electronically by 2015. The Republic of Bulgaria is not lagging behind in this respect, as the number of processed customs declarations in paper form is insignificant (used as an emergency procedure when the relevant information systems temporarily fail).

Despite the variety of electronically managed administrative processes in terms of controlling the import, export or transit of goods in Bulgaria, there are some customs procedures that are not yet automated and their administration involves the active participation of customs officials. These procedures include the identification and verification of the declared tariff classification of goods, the transformation of the customs value of the goods in BGN, and the calculation of customs duties. The conventional implementation of these procedures can be seen as a high-risk area for the customs control system because of the increased likelihood of errors and violations.

The positive attitude towards strengthening the implementation of automated customs formalities does not mean that it is always possible and easily achievable. In practice, the processes of planning, developing and implementing CISs are accompanied by certain difficulties. The development of these systems is usually time-consuming and requires significant financial resources. Therefore, despite the overall automation of customs control in the Republic of Bulgaria, conventional means and methods of control are still used in certain customs procedures. In order to solve this problem more quickly, Bulgarian customs administration can use European funds within the relevant operational programs. A good example here is the ‘Develop and implement architecture of information and technology services, processes and infrastructure of the Agency “Customs” (*Enterprise Architecture*)’ project completed in September 2015, realised with the financial support of the operational program ‘Administrative capacity’, co-financed by the EU through the European Social Fund.<sup>1</sup>

Taking into account the slow pace at which the National Customs Agency builds its information systems, an in-depth analysis of its business processes is needed so that those customs formalities that will be transferred to the new electronic environment can be prioritised. It would be appropriate to use proven approaches from within the field of IT, such as the Control Objectives for Information and Related Technology (CobiT) framework.<sup>2</sup> Such an approach would contribute to the overall improvement of the efficiency of the customs control system in the Republic of Bulgaria.

## **Conclusions**

The transition to an information society strongly affects the activities of all parties involved in international trade. In practice, this predetermines the necessity to build and develop specialised information systems that facilitate the work of customs control authorities. The development and implementation of these systems bring a number of benefits for both economic operators and customs administrations.

The automation of certain parts of the customs control procedures saves time and resources, allowing for more effective targeting of those parts of the international supply chain where deviations are more likely. In this respect, the comprehensive automation of customs controls in Bulgaria is both logical and beneficial. This automation is a consequence of the commitments made by Bulgaria as a full member of the EU and the direct application of the provisions of the UCC on its territory.

From a functional point of view, the information systems related to controlling the import, export, and transit of goods are the most important in fulfilling customs formalities. These are the Import Control System (as part of BICIS), the CISE and the NCTS transit management system. These systems are used to administer a number of processes related to the processing of customs declarations (SAD) for placing goods under a certain procedure submitted by economic operators. The similarity of the objectives and functions in the specific customs procedures is manifested within the customs procedures themselves. This enables performing key processes that are the backbone of the Bulgarian customs information systems. The development and improvement of these processes is in line with the Customs 2020 program, applied in the EU member states, which is a prerequisite for increasing the efficiency of customs control in the Republic of Bulgaria.

## **References**

- Commission Implementing Decision (EU) 2016/578 of 11 April 2016 establishing the Work Programme relating to the development and deployment of the electronic systems provided for in the Union Customs Code, OJ L 99 (15 April 2016).
- Customs Agency. (2015a). *MISI – Model of activities* (3.3 ed.). Sofia: Customs Agency.
- Customs Agency. (2015b). *Functional specification for electronic data interchange (EDI standard messages), when electronic transit declaration is declared, through a pre-built system-to-system connection* (4.08 ed.). Sofia: Customs Agency.
- Customs Agency. (2017, 04 28). *Bulgarian Customs Agency e-Portal*. Retrieved from Bulgarian Customs Agency e-Portal: <http://www.ecustoms.bg/eportal/>
- Customs Agency. (2017, 04 28). *Platform for electronic administrative services of the Customs Agency*. Retrieved from Administrative services: <https://onlinefrontoffice.ecustoms.bg/customs/aidaportal.nsf/home.xsp>
- Cystoms Agency. (2014). *Functional Specification for a System for electronic filing of a Common customs manifest and SAD for importation* (1.5 ed., vol. 1.5). Sofia: Cystoms Agency.
- Decision No 70/2008/EC of the European Parliament and of the Council of 15 January 2008 on a paperless environment for customs and trade, OJ L 23 (26 January 2008)
- Dečman, M., & Klun, M. (2015). The impact of information systems on taxation: A case of users' experience with an e-Recovery information system. *The Electronic Journal of e-Government*, 13(2), 110–121.
- Directorate-General for Taxation and Customs Union. (2016). *Electronic Customs Multi-Annual Strategic Plan (MASP Rev. 2016)*. Brussels: European Commission.
- Law on e-governance, State gazette No. 46 (6 December 2007 r.)
- Law on excise duties and tax warehouses, State gazette, No. 91 (15 November 2005).

Ordinance No. 5 of 29 June 2006 on the conditions and procedure for customs declarations by electronic means, State gazette No. 55 (29 June 2006 r.).

Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code, OJ L 269 (10 October 2013).

Tomeva, M., Gancheva, Z., & Antov, M. (2016). *Currency and Customs Control*. Veliko Tarnovo: Faber.

Truel, C., & Maganaris, E. (2015). Breaking the code: the impact of the Union Customs Code on international transactions. *World Customs Journal*, 9(2), 12–23.

Wolfgang, H.-M., & Harden, K. (2016). The new European customs law. *World Customs Journal*, 10(1), 3–16.

## Notes

- 1 The contract for providing the grant No. A13-31-2 was signed on 11.04.2014, and has a total value of 3,500,606.08 BGN.
- 2 The standards and ‘CobiT’ framework are issued and maintained by the ISACA (Information Systems Audit and Control Association), viewed 28 April 2017, <https://www.isaca.org> (*last visited: 28.04.2017*).

### Momchil Antov



Chief Assistant Professor Momchil Antov, PhD, is a lecturer at the Department of Control and Analysis of Economic Activities, at D. A. Tsenov Academy of Economics – Svishtov, Bulgaria. He has published over 20 conference and journal papers in his country and abroad. He delivers lectures on subjects related to customs and financial control and has practical experience in the sphere of customs representation. He is a member of the National Organization of Customs Agents (NOCA) in Bulgaria and is a contact person with the International Network of Customs Universities (INCU) for D. A. Tsenov Academy of Economics – Svishtov, Bulgaria.



**incu**

INTERNATIONAL NETWORK OF CUSTOMS UNIVERSITIES



WORLD CUSTOMS ORGANIZATION



### *Section 3*

*Special  
Report*



# Trump just might be giving us the opportunity to make NAFTA even stronger

*Alan Bersin, Contributor*

*Published online by the Dallas News, in Opinion, Commentary, on 7 June 2017 and is reprinted with permission from Alan Bersin.*

Donald Trump's campaign, when it turned to issues, focused on migration, borders and trade. Characteristic of populist crusades, it zeroed in on foreigners to explain this country's purported loss of greatness. Mexico and Mexicans were targeted with particular venom: NAFTA was the worst trade deal ever, Mexican migrants were rapists and thugs, and only a big wall could ensure our border security. In office, the administration's initial policy pronouncements tracked the rhetoric: NAFTA will be scrapped, undocumented migrants will be deported and the wall will be built.

Two months into governing, the new administration's messages remain mixed, but talk has turned from abject negation of the North American Free Trade Agreement to likely renegotiation with a decidedly positive focus on competitiveness. The realities of the complex, symbiotic U.S.-Mexican relationship have begun to assert themselves: We don't trade with one another so much as make things together, and both countries protect themselves through shared perimeter security systems that won't work absent trust and confidence between officials on both sides of the border.

No one knows these realities better than the Borderlanders, *Los Fronterizos* — the roughly 14 million people who live and work on both sides of the U.S.-Mexico border.

The consequences, indeed the strategic madness, of dissolving this security and economic partnership are dawning on many policymakers inside and outside the White House. Any solutions must be devised with the wisdom of the people who know the border best, those who live and work there.

A silver lining to all this uproar is possible. NAFTA was never perfect, but neither its game-changing benefits nor its imperfections were ever treated sensibly in public debate. Now, President Trump's intense focus on NAFTA and the willingness of his administration to renegotiate it furnishes an extraordinary opportunity to rebrand North American trade, commerce and security while addressing the issues that were either too hot to handle in the 1990s or didn't even exist then.

These include Mexican labor laws and U.S. trade adjustment support; digital, cyber and artificial intelligence matters; and temporary worker programs and NAFTA labor classifications. The prize is a continental bloc (including Canada) with unparalleled comparative advantages: a half billion people; a trillion dollars a year in trade across trade-friendly demilitarized borders; energy independence within reach; a huge natural resource base (beyond hydrocarbons) including enormous navigable rivers and copious amounts of arable land; and three national commitments to democratic governance and the rule of law.

Given the massive economic impact of the region on both countries and the historic sense of interdependence that binds it, *Fronterizos* have a special role to fulfill in the reinvention of North American security and trade. The gross domestic product of the 10 U.S. and Mexican border states account for a quarter of the combined national economies of the two countries. Only the U.S., China, Japan and Germany have a larger standalone GDP than the border states. This is the base that is generating much of the dynamic of economic and social integration, not only in Mexico but along a north-south axis in North America. A third of all U.S. exports are destined for Mexico and Canada and nearly all of these goods cross the physical border in trucks and trains.

Hailing from places where cross-border commerce flows and communities live in close proximity, *Fronterizos*/Borderlanders are well-positioned to offer important guidance regarding sensible and practical integration to their countries at large. Their knowledge and experiences of what actually works for states, cities and communities on the border should drive the national debate about what “secure” and “smart” borders ought to look like in national policy terms.

The more this political discussion is infused with insights from those public and private sector entities and people who rely on cross-border commerce and interdependence, the more self-evident it will be that North America 2.0 can serve the ends of security and prosperity infinitely better than barriers of division and fragmentation, like walls and tariffs.

Many of these ideas have been talked about for years in border communities and academic circles. Now, the border has captured the nation’s attention. *Fronterizos* should seize the opportunity to work with the Border Caucus in Congress and the White House to advance their vision for a smart, secure and competitive U.S.-Mexican border, because it could be decades before another opportunity comes again.

Border communities can prosper as never before if they build themselves into gateways and bridges for the North American future that awaits Mexico, the U.S. and Canada. But inserting this continental perspective into the national debate is the key to realizing our brightest future, from the borders inside out.

[<https://www.dallasnews.com/opinion/commentary/2017/06/07/trump-just-might-giving-us-opportunity-make-nafta-even-stronger>]

### **Alan Bersin**



Alan Bersin is a former assistant secretary of international affairs and chief diplomatic officer at the U.S. Department of Homeland Security. He was the department’s principal adviser regarding Mexico, Canada and North America. Email: [alanbersin@msn.com](mailto:alanbersin@msn.com)

**incu**

INTERNATIONAL NETWORK OF CUSTOMS UNIVERSITIES



WORLD CUSTOMS ORGANIZATION



## *Section 4*

### *Reference Material*



# Guidelines for Contributors

The *World Customs Journal* invites authors to submit papers that relate to all aspects of customs activity, for example, law, policy, economics, administration, information and communications technologies. The Journal has a multi-dimensional focus on customs issues and the following broad categories should be used as a guide.

## Research and theory

The suggested length for articles about research and theory is approximately 5,000 words per article. Longer items will be accepted, however, publication of items of 10,000 or more words may be spread over more than one issue of the Journal.

Original research and theoretical papers submitted will be reviewed using a ‘double blind’ or ‘masked’ process, that is, the identity of author/s and reviewer/s will not be made known to each other. This process may result in delays in publication, especially where modifications to papers are suggested to the author/s by the reviewer/s. Authors submitting original items that relate to research and theory are asked to include the following details separately from the body of the article:

- title of the paper
- names, positions, organisations, and contact details of each author
- bionotes (no more than 100 words for each author) together with a recent, high resolution, colour photograph for possible publication in the Journal
- an abstract of no more than 100 words for papers up to 5,000 words, or for longer papers, a summary of up to 600 words depending on the length and complexity of the paper.

Please note that previously refereed papers will not be refereed by the *World Customs Journal*.

## Practical applications, including case studies, issues and solutions

These items are generally between 2,000 and 5,000 words per article. Authors of these items are asked to include bionotes (no more than 100 words for each author) together with a recent, high resolution, colour photograph for possible publication in the Journal. The Editorial Board will review articles that relate to practical applications.

## Reviews of books, publications, systems and practices

The suggested length is between 350 and 800 words per review. The Editorial Board will review these items submitted for publication.

## Papers published elsewhere

Authors of papers previously published should provide full citations of the publication/s in which their paper/s appeared. Where appropriate, authors are asked to obtain permission from the previous publishers to re-publish these items in the *World Customs Journal*, which will acknowledge the source/s. Copies of permissions obtained should accompany the article submitted for publication in the *World Customs Journal*.

Authors intending to offer their papers for publication elsewhere—in English and/or another language—are asked to advise the Editor-in-Chief of the names of those publications.

Where necessary and appropriate, and to ensure consistency in style, the editors will make any necessary changes in items submitted and accepted for publication, except where those items have been refereed and published elsewhere. Guidance on the editors’ approach to style and referencing is available on the Journal’s website.

## Letters to the Editor

We invite Letters to the Editor that address items previously published in the Journal as well as topics related to all aspects of customs activity. Authors of letters are asked to include their name and address (or a pseudonym) for publication in the Journal. As well, authors are asked to provide full contact details so that, should the need arise, the Editor-in-Chief can contact them.

All items should be submitted in Microsoft Word or RTF, as email attachments, to the Editor-in-Chief: [editor@worldcustomsjournal.org](mailto:editor@worldcustomsjournal.org)

## Editorial Board

### Professor David Widdowson



Charles Sturt University, Australia *Editor-in-Chief*

Professor David Widdowson is Chief Executive Officer of the Centre for Customs & Excise Studies (CCES), Charles Sturt University. He is President of the International Network of Customs Universities (INCU), a member of the WCO's PICARD Advisory Group, and a founding director of the Trusted Trade Alliance. David holds a PhD in Customs Management, and has more than 35 years' experience in his field of expertise, including 21 years with the Australian Customs Service. His research areas include trade facilitation, regulatory compliance management, risk management and supply chain security.

### Professor Hans-Michael Wolfgang



University of Münster, Germany

Professor Dr Hans-Michael Wolfgang is Professor of International Trade and Tax Law and Head of the Department of Customs and Excise which forms part of the Institute of Tax Law at the University of Münster, Germany. He is director of the Münster Masters studies in Customs, Taxation and International Trade Law and has written extensively on international trade law, customs law and export controls in Europe.

### Dr Andrew Grainger



The University of Nottingham, UK

Dr Andrew Grainger is an experienced trade facilitation practitioner and academic. He is currently based at Nottingham University Business School and is regularly consulted by governments, companies and international organisations. In previous roles, Andrew worked as Deputy Director at SITPRO, the former UK trade facilitation agency, and Secretary for EUROPROM, the umbrella body for European trade facilitation organisations. His PhD thesis on Supply Chain Management and Trade Facilitation was awarded the Palgrave Macmillan Prize in Maritime Economics and Logistics 2005-2008 for best PhD thesis.

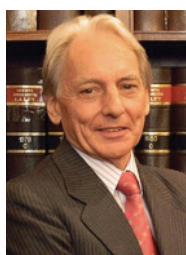
### Professor Aydin Aliyev



State Customs Committee, Republic of Azerbaijan

Professor Aydin Aliyev is Chairman of the State Customs Committee of the Republic of Azerbaijan. He is a graduate in Law from Azerbaijan State University, and author of educational and scientific articles and books on customs matters which have been published in several countries. His contributions to the development of customs administrations and for strengthening customs cooperation have been recognised by the World Customs Organization, the State Customs Committee of the Russian Federation, and by the Republic of Hungary. In 2010, he was awarded the title of 'Honoured Lawyer of the Republic of Azerbaijan' by Presidential Decree.

## Professor Enrique Barreira



BRSV, Buenos Aires, Republic of Argentina

Professor Enrique Barreira is a founding partner of BRSV Attorneys at Law in Buenos Aires, Argentina. He was one of the drafters of the Argentine Customs Code. He has also been a professor of Customs Tax Law, Customs Regimes, and Anti-dumping and Subsidies in the Graduate Program at the School of Law, University of Buenos Aires since 1993, and is a founding member of the International Customs Law Academy. Professor Barreira has been the Argentine arbitrator to the Mercosur in various disputes.

## Dr Juha Hintsa



Cross-border Research Association and Hautes Etudes Commerciales (HEC), University of Lausanne, Switzerland

Dr Juha Hintsa is a Senior Researcher in global supply chain security management. He is one of the founding partners of the Global Customs Research Network, and the founder of the Cross-border Research Association (CBRA) in Lausanne, where he undertakes research into various aspects of supply chain security management in close collaboration with several multinational corporations. Juha's PhD thesis was on 'Post-2001 supply chain security: impacts on the private sector'.

## Sub-editors

### Elaine Eccleston



Charles Sturt University, Australia

Elaine Eccleston, BA, MA, is Editor at the Centre for Customs & Excise Studies (CCES), Charles Sturt University. She is a professional member of the Canberra Society of Editors. For many years, as a university lecturer, Elaine designed, coordinated and delivered undergraduate and postgraduate courses and training programs in office management, records and archives, information and knowledge management. She was Manager, Information & Knowledge Management at the Australian Trade Commission, and has worked in these fields at the Australian Taxation Office, the Department of Foreign Affairs & Trade, and as Manager, Information & Records Management BP Oil UK.

### Dr Pam Faulks



Charles Sturt University, Australia

Dr Pam Faulks is an editor with the Centre for Customs & Excise Studies (CCES), Charles Sturt University. She has qualifications and extensive experience in editing, communications, tourism and tertiary education. In addition to assisting with the *World Customs Journal*, Pam provides academic editing services to PhD candidates in the final stages of their thesis preparation. She has previously worked at the University of Canberra and the ACT Exporters Network.

