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World Customs Journal

The World Customs Journal (WCJ) is a free, independent, scholarly peer-reviewed journal that focuses on all aspects of Customs and border management. It provides a forum for customs professionals, academics, customs practitioners, industry researchers and research students to contribute and draw upon research, commentary, practical insights and experiences, to enhance its readers' understanding of all aspects of the roles and responsibilities of Customs and other border management agencies.

The WCJ publishes rigorous, original, high quality scholarship and provides a common platform for established academics and customs professionals as well as for those entering this interdisciplinary field. As such, the Journal showcases diverse perspectives and analyses from a broad range of contributors from various backgrounds. The WCJ encourages submission of papers from all social sciences, humanities and other disciplines that relate to border management such as international trade, transport, logistics, law, policy, economics, management and human resource management, public administration, taxation, international relations, information and communications technologies, and data analytics.

The aim of the Journal is to have impact not only in an academic sense, but also in the broader sense of advancing the knowledge on all aspects of Customs and providing intellectual input to strategic decision making through critical analysis and constructive debate. Accordingly, the Journal publishes both theoretical and empirical contributions from both academics and customs practitioners covering the development of theories and concepts, methodological perspectives, empirical analysis and policy debate. The WCJ has an international scope and welcomes the submissions of papers from all corners of the world.

Launched in 2007, the Journal is published twice a year (March and September) by the Centre for Customs and Excise Studies (CCES), Charles Sturt University, Australia, and the Institute of Customs and International Trade Law (ICTL), University of Münster, Germany in association with the International Network of Customs Universities (INCU) and the World Customs Organization (WCO). The funding for the WCJ is independent of business and government to ensure academic integrity.

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Editorial

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Keywords: WCO, natural disasters, crisis response, cross-border disaster relief

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The topics addressed in this edition of the Journal are very broad. Some analyse technical aspects of border management such as tariff classification, valuation, and Authorized Economic Operator verification, while others address more strategic issues relating to the design of excise regimes, the use of automation to mitigate corruption risks, the role played by Customs in free trade zones, and the ability of administrations to effectively manage new and emerging cross-border regulatory requirements. In many ways the wide variety of topics that we receive is reflective of the scope of responsibilities that fall to Customs and other border management agencies.

One area of responsibility that has again emerged at the time of publication is that of cross-border disaster relief, this time triggered by the devastating earthquake that struck Morocco, shortly followed by the flooding in Libya. It is in times of crisis that a country's customs authority is required to respond in the most radical of ways – whether the crisis is caused by natural disasters such as the devastation of an earthquake or flood, the impact of a global pandemic, the horror of a terrorist attack, or the carnage of war. It is at such times that the rule book is often cast aside due to its inability to provide an adequate response to the crisis at hand, and established policies, processes and procedures generally become meaningless.

Recognising the key role played by customs authorities in mitigating the effects of such emergencies, the World Customs Organization has developed a range of tools and guidelines to support the critical cross-border activities of its members. These are designed to facilitate the flow of humanitarian aid and secure distribution channels, while at the same time combatting potential abuse of international relief - something that is becoming far too common.

So, as we offer solace to those who have been affected by disasters of all kinds, we also acknowledge the valuable support provided by the customs community during these challenging times.

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ARTICLES

The Effect on Anti-Corruption of the Customs Information Systems of the Republic of Uzbekistan

Akmalhuja Mavlonov^a

Keywords: non-tariff regulation, certification of goods, information systems, areas of corruption risk, Single Window, corruption in Customs

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This article discusses areas of corruption risk in customs procedures using non-tariff regulation of foreign trade as an example. Analysis of normative legal acts and the main stages involved in the issuing of permits required for customs clearance of import operations was performed. The most probable areas of corruption risk in the certification of goods are determined and calculations of the anti-corruption effectiveness of customs information systems of the Republic of Uzbekistan are detailed.

1. Introduction

Maintaining the Corruption Perceptions Index as an indicator of the degree of corruption in the world has become one of the hallmarks of the 21st century. Since the 2000s, when the world began to speak openly about and discuss the problems of corruption, several international legal documents have been adopted that are aimed at removing this problem from society. In particular, the *United Nations Convention against Corruption* (United Nations Office on Drugs and Crime [UNODC], 2004) and the *Legislative guide for the implementation of the United Nations Convention against Corruption* (UNODC, 2012) have been adopted.

The fight against corruption is carried out in different countries with different timeframes, depending on the manifestation of its elements. For example, in the United States, the first legal document, the *Foreign Corrupt Practices Act*, which outlawed the bribery of foreign officials, was adopted in 1977.

In the Republic of Uzbekistan, the *Law on Combating Corruption* was adopted on 3 January 2017. Since then, issues in combating corruption have been under the special control of the President and the Government of the Republic. In a newspaper interview, President of the Republic of Uzbekistan Shavkat Mirziyoyev noted that in 2020, 1,723 officials of various levels were held accountable for corruption crimes (Doniyorov, 2021). The damage caused by them amounted to UZS500 billion. The President stated that ‘...for five months of 2021, criminal proceedings were initiated against 1,696 officials.

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The damage caused by them amounted to 450 billion Uzbek soums. Policies to remove the scourge of corruption from our society will continue to be critical in the future' (Doniyorov, 2021).

To transform economic sectors, unconditionally ensure human rights and interests, form an active civil society able to analyse in-depth the complex global processes and results of the past stages of the country's development, the President of the Republic of Uzbekistan approved the *Development Strategy of New Uzbekistan for 2022–2026* (National legislation of the Republic of Uzbekistan, 2022). One of the goals (Goal 84) of this Strategy is 'identification of areas and industries prone to corruption, increasing the efficiency of the system for preventing corruption factors, and forming an uncompromising attitude in society towards corruption.' The main tool for achieving this goal is the 'introduction of modern information technologies, including artificial intelligence, in the fight against corruption.'

The history of the fight against corruption in customs authorities at the international level officially begins with the 'Declaration of the Council for Customs Cooperation on Good Governance and Combating Corruption in Customs', adopted on 7 July 1993 and updated in June 2003 (World Customs Organization [WCO], 2003). This declaration defines the conditions for the manifestation of corruption risks as follows: 'Corruption typically occurs in situations where outdated and inefficient practices are employed and where clients have an incentive to attempt to avoid slow or burdensome procedures by offering bribes and paying facilitation fees' (key factor 5)' (WCO, 2003).

Based on this definition, researchers of customs corruption focus on 'slow or burdensome procedures'. Brovka and Nazarchuk (2019) suggest methods for analysing the causes of corruption in Customs using three forms of analysis: causal, scale and consequence. At the same time, it is the scale of corruption that acts as the analytical 'core', since the two other areas (causal and consequence) are considered based on this indicator.

Analysing international experience using the examples of Denmark, Finland, Germany and other countries of the European Union, Alekseeva and Bugaeva (2020) conclude that the leading states combating corruption adhere to, for example, the simplification of bureaucratic mechanisms in customs affairs, the improvement of anti-corruption legislation, and the increase in punishment for behaviour at the level of public condemnation.

Work by the anti-corruption departments of the customs authorities of the Russian Federation during 2012–2021 allowed Rozhkova and Rozhkov (2021) to develop and analyse acts of corruption from the client side and from the customs side and the quantitative component of participants in corruption schemes.

It should be noted that a large proportion of researchers of corruption in customs authorities focus their attention on studying the causes, extent and consequences of corruption only in customs authorities. No special attention is paid to the corruption risk posed by other authorised bodies related to

customs procedures and customs clearance. This is even though it is known that such risk has a strong impact on the organisation of transparent customs control.

The areas of corruption risk associated with customs procedures and customs clearance are examined below, using the example of certification of goods by authorised bodies.

2. Analysis of areas of corruption risk in the certification of foreign trade goods

The customs authorities of the Republic of Uzbekistan are actively continuing to work on the digitalisation of all processes. An increase in the scale of digitalisation of customs authorities to 100 per cent is planned in the near future. New information systems such as E-Transit, Archive, Cargo Operations and others have been launched in a pilot mode. Information systems, which are currently installed in almost all customs authorities, make it possible to automate and ensure the security of all customs clearance procedures (Mavlonov, 2022).

In 2020, the Customs Information System (CIS) Single Window was introduced into the activities of the customs authorities of the Republic of Uzbekistan. The concept and technical platform of this system was developed by customs specialists based on that of developed countries. The operation of the Single Window in the last few years has shown its effectiveness: the time for issuing permits required for the customs clearance of goods has been reduced, and revenues to the state budget from customs payments have increased.

Currently, 12 authorised bodies responsible for issuing permits and 56,516 participants in foreign economic activity (FEA) are registered in the CIS Single Window. The number of remotely processed permission documents required for customs clearance for 2020 was 559,121 units, for 2021, 561,188 units, and for 10 months of 2022 was 429,239 units. The time for issuing permits required for customs clearance of goods was reduced 2.6-fold.

At the same time, analysis of the results of the application of the CIS Single Window shows that there are certain areas that need to be improved.

Not all authorised bodies responsible for issuing permits required for customs clearance are integrated into the CIS Single Window. In addition, there are no opportunities through the CIS Single Window to receive 12 types of permits related to the movement of narcotic and psychotropic substances across the customs border, was originally planned. This influences the efficacy of the CIS Single Window.

Therefore, it is urgent to investigate and prove the effectiveness of this system, not only to reduce the time taken in issuing permits required for customs clearance of goods, but also in reducing areas of corruption risk, which is vital for ensuring the economic security of the country.

As well as incurring additional time and financial costs for a foreign trade participant, the methods of non-tariff regulation of foreign trade in the form of 'technical restrictions' also give rise to areas of corruption risk. Below are

the results of an analysis of the process of issuing permits required for customs clearance of import operations of goods with the Harmonized Commodity Description and Coding System Nomenclature FEA (CN FEA) code 1001990000: wheat and meslin. The analysis was carried out based on regulatory documents before the introduction of CIS Single Window.

The study of regulatory documents shows that to perform this operation, it is necessary to certify the goods, that is, for customs clearance of this product, a Certificate of Conformity is required. A Certificate of Conformity is issued by certification bodies accredited by the UzStandard Agency. The process of product certification, in turn, gives rise to several more stages related to the issuance of a hygiene certificate, permission from the plant quarantine authorities and a veterinary certificate.

The process of issuing a permit or certificate for the import of controlled goods can be divided into three stages, as follows:

1. Preparatory: this includes consideration by the certification body of the application and the documents attached to it for products and the applicant themselves. The first stage ends with the decision on certification. This stage includes preparation of the document package, appeals to authorised organisations, documentation analysis and conclusion of an agreement on certification.
2. Main: offering a full range of evaluation work to confirm the conformity of products, from identification to testing samples in an accredited laboratory. The components of the second stage depend on the certification scheme. This stage includes sampling and testing.
3. Final: considers the results obtained from the second stage and the decision to issue a Certificate of Conformity for products. This stage includes analysis of the results, certificate preparation, certificate registration and issuance.

[Table 1](#) summarises the sequence of issuing a permit document by three authorised bodies - the Center for State Sanitary and Epidemiological Surveillance of the Ministry of Health, the State Plant Quarantine Inspection under the Cabinet of Ministers, and State Committee of Veterinary and Livestock Development of Uzbekistan.

Further, in the Appendix *Regulation on the procedure for conducting product certification*, approved by the *Decree of the Cabinet of Ministers of the Republic of Uzbekistan No. 318* dated 6 July 2004 ‘On additional measures to simplify the product certification procedure’ (National legislation of the Republic of Uzbekistan, 2004), the following rules are established:

3. Certification is carried out, as a rule, in two stages according to the diagram in the Appendix.

Table 1. The stages of issuance of permit documents required for customs clearance of import operations

Number	Function
Preparatory stage	
1	Contacting Certification Bodies
2	Preparation of a package of documents for sanitary and epidemiological surveillance
3	Preparation of a package of documents for plant quarantine inspection
4	Preparation of a package of documents for veterinary control
5	Appeal to the bodies of sanitary and epidemiological supervision
6	Appeal to the plant quarantine inspection authorities
7	Appeal to the veterinary control authorities
8	Analysis of documentation and conclusion of an agreement on the issuance of a phytosanitary certificate
9	Analysis of documentation and conclusion of an agreement on the issuance of a veterinary certificate
10	Analysis of documentation and conclusion of an agreement on the issuance of a hygiene certificate
Main stage	
11	Issuance of quarantine permits or refusal
12	The territorial body of veterinary control studies the epizootic veterinary situation in the corresponding administrative territory where it is planned to import the controlled goods
13	The territorial body of veterinary control applies in writing to the Chief State Veterinary Inspector of the Republic of Uzbekistan to issue a permit for the import of controlled goods
14	The Chief State Veterinary Inspector reviews the submitted application and decides whether to issue or refuse a permit for the import of controlled goods
15	The territorial body of veterinary control provides a written permit or refusal to import controlled goods
16	Selection of product samples for laboratory research and inspection of the facility for sanitary supervision
17	With a positive result from laboratory tests, as well as veterinary and phytosanitary conclusions, issue a hygienic conclusion to the applicant.
The final stage	
18	Submits an application with the necessary documents attached to the accredited body to obtain a Certificate of Conformity
19	Issue a Certificate of Conformity or a written refusal.

Source: author

The first stage includes the issuance of a hygiene certificate in the state sanitary inspection bodies accredited by the UzStandard Agency with the simultaneous issuance, as necessary, of veterinary and phytosanitary assessments, in the state veterinary inspection bodies and the state plant quarantine service, respectively. In this case, the subject of entrepreneurial activity has the right to:

- simultaneously with the application for issuing a hygiene certificate, apply for issuing a Certificate of Conformity to certification bodies accredited in the prescribed manner (hereinafter referred to as certification bodies)
- if necessary, independently apply to the bodies of veterinary and phytosanitary supervision to obtain the relevant conclusions.

The second stage is the issuance of a Certificate of Conformity by certification bodies.

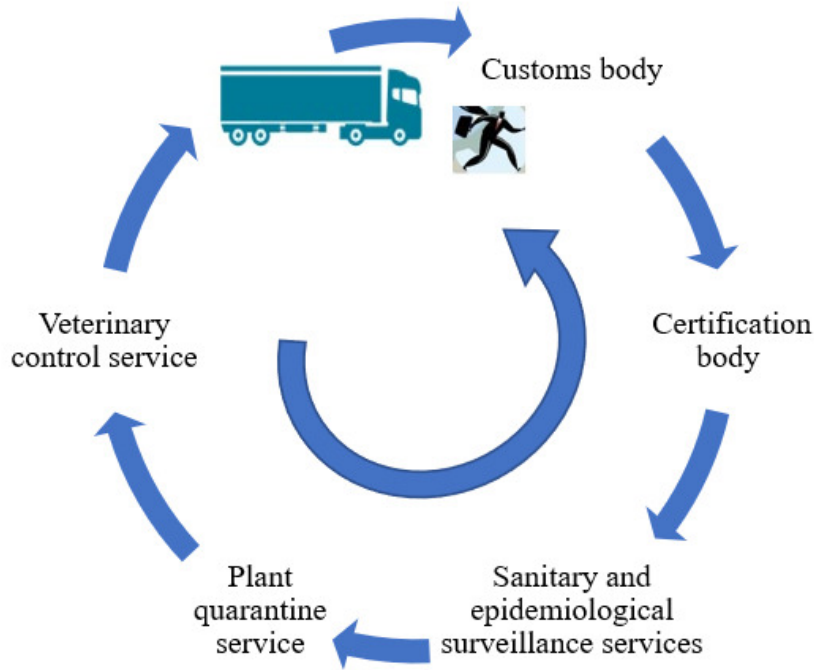


Figure 1. The process of certification of foreign trade goods with the CN FEA code 1001990000: wheat and meslin
Source: author

[Figure 1](#) shows a diagram of the process of certification of foreign trade goods with the CN FEA code 1001990000: wheat and meslin, based on the above extract.

The extract above is noteworthy in that it advises FEA participants that ‘if necessary, independently apply to the veterinary and phytosanitary supervision authorities to obtain the appropriate conclusions’. In other words, the FEA participant is given ‘useful advice’ in the form: ‘The process of certification of goods is complex, it is necessary to obtain four documents of a permissive nature from different authorised bodies. We will help you. But if you don’t have much time, you can do it yourself, turn to them’ (*Decree of Cabinet of Ministers of the Republic of Uzbekistan No 318*).

Naturally, a foreign trade participant does not always have enough time and understands that time costs always generate financial ones. On the other hand, each authorised body has its own rules and regulations. To independently apply to them, a FEA participant must study their rules and prepare documents in accordance with the requirements of these rules. Added to these difficulties is the so-called ‘human factor’, which requires the FEA participant to be personally acquainted with one of these bodies.

With such difficulties, it is only natural that a FEA participant will look for a ‘way out of the situation’. Again, the *Regulation on the procedure for conducting product certification* will come to the rescue — paragraph 4 of this provision states that:

Certification bodies, in accordance with a written application of business entities, are entitled to provide agency services for certification and obtaining all necessary conclusions from state sanitary inspection bodies, state veterinary inspection bodies and the state plant quarantine service, as well as state nature protection bodies.

At the same time, certification bodies bear the responsibility, as well as responsibility for the sampling and their submission to the relevant state bodies. Payment for these services is carried out at the rates declared in the Ministry of Finance of the Republic of Uzbekistan. (*Decree of Cabinet of Ministers of the Republic of Uzbekistan No 318*)

The above quote from the regulatory document in force in 2006–2019 opens a direct path to corruption. The fact is that under such complicated conditions of goods certification, outlined in point 3 of this document, a foreign trade participant is forced to look for shorter and simpler solutions to this problem. Learning about the ‘agency services’ outlined in paragraph 4 of this document, the foreign trade participant is forced to negotiate with a representative of the certification body for an additional fee. Thus, the situation becomes vulnerable to corruption.

According to the analysis of the regulatory documents for the certification of goods above, Khakimova et al. (2022) conclude that all direct meetings between a foreign trade participant and an employee of an authorised body before a permit is issued pose the main areas of corruption risk.

3. Conclusion

In conclusion, the above analysis does not in any way accuse the authorised bodies issuing the permits required for customs clearance of import operations of corruption. This study is devoted to the analysis of hypothetical areas of corruption risk in the certification of foreign trade goods and the effectiveness of the CIS Single Window in reducing corruption zones.

In this case, the effectiveness of the CIS Single Window is expressed in quantitative form, given that during 2021, cargo customs declarations were issued for 9,179 consignments of goods with the CN FEA code 1001990000: wheat and meslin. The above analysis shows that for each batch of this product there are four areas of corruption risk. From this, we can conclude that during 2021 the CIS Single Window contributed to the reduction of 36,716 areas of corruption risk.

Daily monitoring of the activities of the customs authorities of the Republic of Uzbekistan shows that not only the CIS Single Window, but that all customs information systems contribute to the reduction of corruption risk. To date, the entire life cycle of customs administration is covered by more than 50 integrated customs authorities’ information systems. Of these, 39 per cent

are information systems for external management of customs procedures, 35 per cent are for internal management of customs procedures and 26 per cent are for internal administration of customs authorities.

Information systems for external management of customs procedures include systems such as E-Transit, Single Window, Cargo Operations and others that directly interact with FEA participants.

Information systems for internal management of customs procedures include systems such as Customs Expertise, Customs Payments, Risk Management and others, which are a tool for customs officers to carry out their functional duties related to customs procedures.

The information systems for internal administration of customs authorities include systems such as Accounting, Customs Officers, Corruption Risk Management and others that are not related to customs procedures.

These information systems have been introduced over the past few years in stages. The concepts and technical platform of these systems were developed by customs specialists based on those of developed countries.

According to the requirements of the *Decree of the President of the Republic of Uzbekistan No. 81, On measures to introduce a rating system for evaluating the effectiveness of anti-corruption work*, on 12 January 2022, an assessment system was introduced and on 15 June 2022, the first stage of assessment of organisations implementing anti-corruption standards in their system was completed. According to the results of 24 state organisations, the State Customs Committee took first place, scoring 91 points out of 100 (Anti-Corruption Agency of the Republic of Uzbekistan, 2022). The level of digitalisation and informatisation of state organisations was adopted as one of the important criteria for assessing the effectiveness of anti-corruption activities.

Concluding the analysis of the effectiveness of the CIS Single Window, it should be emphasised that, according to Khakimova et al. (2022), the concept behind this system provides for the integration of 17 authorised bodies to issue 45 permits for foreign trade operations.

Currently, the system covers only 12 authorised bodies and 26 permits. The possibility of processing seven types of permit documents required for customs clearance of goods through the CIS Single Window has been partially implemented, and 12 types of documents have not been implemented at all. The implementation of the CIS Single Window in full will give even more tangible results in reducing areas of corruption risk.

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The Future Role of Customs

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Keywords: role of Customs, Identifying goods at the border, EU regulation, customs information

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Customs agencies have some powerful tools at their disposal to supervise the international movement of goods. These tools are designed for a specific purpose: verification of ‘the nature’ of the goods at the time of border crossing. More particularly, these tools facilitate, on the one hand, the determination of the fundamentals to calculate, levy and collect the right amount of taxes and duties, and on the other, determine whether the goods are allowed to be brought into the country and if yes, to check if they are subject to any restrictions. The limited research on the effectiveness of these tools shows that they are not easily applicable for situations they were not designed for. New EU regulations and the border-related enforcement they entail, however, put increasing demands on the role of customs agencies. This raises questions if Customs, with its current set of approaches, is fit for the future.

In this paper, we look at three proposed regulatory developments in the EU (regulation on fluorinated gasses, the Carbon Border Adjustment Mechanism and the Regulation to Prohibit Products made with Forced Labour) to assess the role these envisage for Customs and the application of elements from the Customs enforcement toolbox. We find that the expected roles of Customs in our three cases are quite different, and that their reliance on the standard customs tools is rather minimal. Therefore, a thorough discussion is required regarding whether Customs should be involved in new enforcement activities that demand different, enhanced or new elements in the enforcement toolbox, or that maybe another authority, at another time and place in the supply chain, should become competent. In any case, for regulations that require enforcement based on information of the entire supply chain, customs agencies need to upgrade their competencies in their role as an enforcement agency at the border. These competencies revolve, at least, around cooperation with other competent authorities, as well as the integration of system-based and transaction-based supervision.

1. Introduction

Customs organisations in many countries are characterised by the combination of seemingly contradictory roles: levying taxes on trade, as well as enabling trade and international business through standardised procedures and simplifications. Over the years, a third responsibility has been added to these two: the protection of society against illegal trade, irresponsible business and dangerous products.

While the world, trade, and therefore Customs, has seen much change, the basic operating approach of Customs has remained largely the same: targeted interventions based on data collected through declarations. Resource limitations, as well as the need for more efficient enforcement have resulted in risk-based operations. The large volume of communication between Customs and trade has made customs agencies early adopters of digitisation in their work.

And the world keeps changing. The development of e-commerce and the concomitant explosion in the number of shipments with relatively low value has resulted in one of the greatest challenges for customs supervision. Now,

more than ever, our environment is considered under threat. The environmental impact of economic activities is more and more regulated and restricted. In addition, fair business practices are recognised and regulated, due to increasing societal pressure towards global trade. Furthermore, violent conflicts keep developing, and very few parts of the world are exempt. This results in new, and sometimes sudden, restrictions on trade that need to be enforced. In much of this regulation, border-crossing trade is constrained and as a result, Customs is one of the agencies tasked with additional responsibilities.

If the responsibilities for customs agencies are increasing, but customs supervision mechanisms are not updated to satisfy these new demands, the question arises: will customs agencies be able to play an effective role in the future regulation of international trade? Moreover, the question is whether Customs should be involved at all if the supervision requires the verification of information that cannot be determined from the goods or the declaration themselves. We've seen in the past, for example, that information on the source of a product cannot be identified from the product itself. Therefore, Customs has had to develop different enforcement instruments, such as certificates and cross-verification mechanisms between international authorities to carry out their tasks. This is also a central issue in the Wise Persons Group on the Reform of the EU Customs Union that started its work in 2021 (see European Commission [EC], 2022).

This paper aims to evaluate if the ways in which customs agencies execute their enforcement and facilitation roles are still fit for the future. We will do that in two stages. First, we will review the standard tools customs agencies have at their disposal and discuss how effective these mechanisms are. This part is based on a literature study. We will then look at some of the new regulation that is being developed primarily in Europe to see what new responsibilities are put on the shoulders of Customs in the EU member states and if they can carry them out. This part of our study is based on structured text analysis.

We will first define what we call the basic working principles of a customs agency and describe the way these agencies carry out their designated tasks. We will then review the effectiveness of these mechanisms. After that we will briefly discuss three regulatory developments that are putting new responsibilities on the shoulders of customs agencies, for the simple reason that they target border-crossing goods flows. We conclude with some preliminary recommendations.

2. Basic principles of Customs

This paper is directed at an audience that knows what customs organisations do. We will therefore not elaborate extensively on the workings of Customs. For a comprehensive introductory source on customs procedures at the border, see Grainger (2021). We will, however, briefly define the frame through which we see the contribution of Customs to global trade.

The essential role of Customs is to protect the territory under its jurisdiction, in the broadest sense of the word. It protects businesses' and citizens' safety, health, the economic position of businesses, safe food and the living environment. Levying duties and taxes at the border can also be seen in this context, as these contribute to a solid contribution to government finances.

Customs' role is triggered by goods crossing borders. In many cases, customs operations, such as inspection and levying taxes, also take place at the border, but this is not always required.¹ For an extensive discussion on a modern vision of customs operations, see Heijmann and Peters (2022).

Customs agencies around the world have developed mechanisms, or simplifications, to allow goods to cross borders without having to import goods and pay duties and taxes. This allows businesses to postpone payment of duties and taxes, as much as possible, to the time that best fits their commercial strategy. For this purpose, specific suspension arrangements are in place in many countries, that relate to transportation, storage and processing under customs supervision. These regimes come with registration requirements so that customs agencies can control the volume of goods that fall under the suspension, and for which payment of duties and taxes are postponed.²

Once the goods are close to being sold, they can be brought into free circulation by means of an import declaration. With this declaration, Customs receives all relevant information that is needed to compute the required duties and taxes, which primarily includes customs value, type of goods (via the Harmonized System of Classification of Goods – HS) and country of origin, and, in some specific cases, weight. Goods that are leaving a customs territory can be declared to Customs by means of an export declaration. This allows for the supervision on exports controls and other trade restricting measures.

The basic tools that Customs has at its disposal are:

- Customs can receive declarations, and evaluate the information in these declarations, based on characteristics such as type of good, value and weight, for risk assessment purposes,
- Based on these declarations, and other information, Customs performs risk-based targeting of enforcement interventions, considering resource limitations,
- Customs can allow goods to be brought into free circulation and collect duties and taxes, or
- Customs can (physically or administratively) supervise goods that are brought under a suspension regime, until they are removed from that suspension regime,

¹ In some countries border control and revenue services are separate organisations.

² An exception is the VAT and duty draw back system in the USA.

- Customs can issue licences to parties interested in using simplifications, or in performing customs related services on behalf of others,
- Customs can take measures to verify declarations on goods, by collecting more information on the goods, by technology to verify elements of the shipment, and by physically checking the goods.
- Customs has an intelligence function, that serves to assess the risk of criminal misuse of shipments and act accordingly to seize drugs, weapons, and so on.
- Customs has a number of formal instruments to pursue trading parties to pay the right amount of duties and punish unwanted behaviour through confiscation of the goods and levying penalties.

The basic level at which Customs is performing these tasks is the shipment. There are arrangements where Customs can suspend the individual collection of information at shipment level and replace this with either the periodic collection of shipment level data, or reliance on declarants' own records. In all cases, the basic information set that Customs collects consists of goods descriptions (including a formal classification according to the HS), the value of the goods, the origin of the goods (in specific cases certified by the country of origin) amended by transportation and packaging information (mode of transport, number of boxes, weight and so on), and identifying information of the relevant parties directly involved in the border-crossing shipment. We consider the elements in these two paragraphs to be the core components of the 'Customs Toolbox'.

There are two main challenges for the general application of the elements in this toolbox. The first of these is e-commerce. Here, the sheer volume of shipments and subsequently, declarations, are overwhelming many customs agencies. The rather low value of many of these individual shipments very quickly destroys any reasonable enforcement intervention at the level of individual shipments. Innovative approaches would involve stepping away from an enforcement approach that is based on individual shipment information and gathering risk information as well as duties and taxes based on aggregated data. How this data would need to be aggregated to make such an approach useful and justifiable and can also serve the detection of non-fiscal risks is a very current research problem.

The second challenge is the increasing focus on societal protection from regulators on environmentally damaging products, on fighting smuggling and counterfeiting, on the identification of decent working practices in supply chains and so on. In these cases, the protective role of Customs at the border forces customs agencies to collect individual shipment information, because these goods need to be stopped and seized at the border. For one, this practice creates barriers for the application of suspension regimes. In regulations where the Customs suspension regimes are explicitly acknowledged, the role of

Customs becomes more complicated, because it must be made clear that safety and security checks are performed before goods are entered into a suspension arrangement. This is not always the case. In other words, it does force Customs to act at the border, where the suspension regime was put in place to minimise interference with the goods at the border.

3. A brief note on the effectiveness of customs enforcement tools

In this paper, we will investigate research that was conducted on the effectiveness of some of the elements in the customs enforcement toolbox: risk-based targeting, issuing licences, the assessment of goods classification, the verification of value and origin, as well as the supervision of customs regimes. For the latter, we restrict our attention to transit only.

There is some literature on risk management in customs (for instance, Widdowson, 2020 and Iordache & Voiculet, 2007), but much of this literature deals with the importance of developing proper risk management approaches in customs organisations. There is virtually no literature on the effectiveness of risk-based approaches, except for Al-Shbail (2020), who related a dependent variable ‘Revenue Protection’ to a representation of a Customs Risk Management system, consisting of risk targeting, random selectivity, and intelligence. He finds a generally positive relationship, where random selectivity also has the benefit of identifying non-compliant traders.

There is, again, some research on customs licences. West (2010) discusses best practices for customs broker licensing. Widdowson (2014) reviews licensing arrangements and accredited operator programs. There is also work on the Authorised Economic Operator, which can be seen as either a certification program or a licence (Houé & Murphy, 2018). Licensing mechanisms are generally associated with quality and competitive advantage.

Chan et al. (2015) discuss the usefulness of HS codes for the monitoring of wildlife trade. They conclude that this system is inadequate for this societal purpose. Similar studies look at fish (Cawthorn & Mariani, 2017), or timber (Datta et al., 2020), or expand their view to the entire spectrum of illegal trade (Andersson et al., 2021) with similar outcomes. In other words, if HS codes are used for a more societal purpose, than what they were designed for, they fall short.

The assessment of value for customs has received much less attention than the discussion on for instance, transfer prices in other areas of taxation research (see, for example, Schippers, 2018). The basic premise for customs value is that it is evaluated on a transactional basis. However, border-crossing flows are often part of larger value chains, where the border crossing is not always a natural logistics waypoint. This means that for such a flow, there may be a legally logical determination of product value, but this does not always predictably translate into a customs value at shipment level. This will result in a lot of unnecessary work to determine a customs value for a shipment at the time of border crossing.

Recently, the problems emerging in the enforcement of international e-commerce have renewed the attention for the possibilities to determine (customs) value of goods objectively. Delissen (2020) analysed e-commerce value data for 2019 from Dutch Customs and concluded that Customs has the possibility to assess customs values for e-commerce shipments if the sales price and gross weight are available. He developed artificial intelligence (AI) tools that reach a 91 per cent accuracy in predicting customs value. Actual sales price, as well as the right product weight, however, are not commonly collected by Customs.

Another crucial piece of information for the determination of the duties payable is the origin of the goods (for background, see Brenton & Imagawa, 2005). Verification of origin is commonly based on a so-called origin certificate. From an enforcement point of view, the origin certificate is always suspect, because it is issued by a foreign party (see also Valantiejus, 2016, on legal ambiguities related to origin certificates within the EU). In addition, Customs authorities usually do not have alternative means to determine the true origin. Villate-Moreno et al. (2021) report on a study where molecular analysis was applied to shark fins to verify the effectiveness of the application of CITES regulation in Germany. This approach is effective, but introduces a lot more chemical testing procedures, and may involve DNA sequencing for biological samples. For large volumes of shipments, this is not a workable solution.

In many parts of the world, Customs supports a mechanism for transportation under customs supervision: transit (for an overview, see Kunaka & Carruthers, 2014). This is a system where a shipment must be registered as 'transit' (with a special document or registration) and where at the destination, the transit registration must be cancelled again. Eventually Customs agencies will want to match start and end for all shipments under customs supervision, including the shipments that went across the border. While this may sound simple, it is not straightforward in many parts of the world. It requires agreement on procedures, mutual recognition of processes, and a certain swiftness of communication and above all, a manageable guarantee system. Groenendijk (2018) reminds us that the digitised system for transit in Europe (the New Computerised Transit System or NCTS) was largely driven by the substantial problems with fraud and crime under the then paper-based transit system. In addition, she also points out that digitisation has not removed differences in application of the system, regarding the inclusion of VAT (or not), requirements of HS codes, and the need for (physical) fiscal representation when presenting documents to some customs agencies.

All in all, the conclusion at this point is that the mechanisms Customs has at its disposal are largely adequate for application in the customs domain. Application is not always perfect, and harmonisation across customs organisations may leave a lot to be desired. But these mechanisms do offer substantial benefits in terms of the facilitation of trade, and therefore support the growth of regular global trade. The limited insight on alternative uses for these mechanisms shows that:

- for goods classification: societal applications do not look promising
- for value verification in e-commerce: requires information Customs does not collect
- for exact origin verification: requires cumbersome chemical analysis.

In the next section we look at some ongoing regulatory developments. We aim to discover how much is expected of Customs, and if this results in the requirement to develop new competences for Customs.

4. New responsibilities for customs

We selected three different regulatory developments in the European Union to analyse. These are the tightening of the Regulation on Fluorinated Gasses (F-gasses), the introduction of the Carbon Border Adjustment Mechanism (CBAM), and the Regulation on Prohibiting Products made with Forced Labour (PPFL). All these are proposed regulations.

We looked for references to customs-related actions in these three regulations through a thematic analysis based on coding. We based our thematic analysis on the structure of the customs toolbox that we have introduced above. We developed a deductive coding approach that is based on a 'code book'. We then performed a word count and drew some inference from the different codes and code counts for the different regulations. For more background on thematic analysis, see King & Brooks (2018).

In our code book, we included as first level codes:

1. Customs
2. Competent authority
3. Compliance
4. Border.

These codes allowed us to interrogate the regulations on the role they see for Customs, or other supervisory authorities, and if these are not mentioned, if the regulations acknowledge that the rules need to be followed by companies or that the regulation might apply to border-crossing goods flows. These four first level codes thus represent different degrees of specificity in the regulation vis-a-vis the role of Customs.

As second level codes, we introduced codes that represent elements in the Customs Toolbox: controls, licence, customs declaration, free circulation, value, weight, commodity code, origin, verify, inspection. In all these cases, there were alternative spellings or terms that captured the same concept, but they all focused on checking authenticity of the data in the declaration, its match with the goods itself and to detect whether other goods are at stake. We indicate this in our presentation of the results. Based on the context of these

codes in the texts we reviewed, we added a third layer of codes that reflect this context. From this three-layer coding approach, we drew conclusions on the conception of the role for Customs in the three regulatory texts.

Our analysis is based on the following official documents:

- For F-gasses: Proposal for a regulation of the European Parliament and of the Council on fluorinated gasses, COM (2002) 150 final
- For CBAM: Proposal for a regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism, COM (2021) 564 final
- For PPFL: Proposal for a regulation of the European Parliament and of the Council on prohibiting products made with forced labour on the Union market, COM (2022) 453 final.

These documents are all ‘Regulations’, which means they prescribe rules that the member states must implement directly. All these documents contain an explanatory memorandum. In our analysis we did not distinguish between this memorandum and the formal legal text since they are part of the same official European Union document. In our analysis we ignored the annexes to these regulations.

We first briefly discuss the three regulatory initiatives and then report the results of our coding approach.

4.1. Fluorinated gasses

The global warming potential of certain greenhouse gasses was recognised well before the Paris Climate accord gave great weight to carbon dioxide (CO₂). Fluorinated gasses, or F-gasses, for instance, have a greenhouse effect that is 25,000 times larger than CO₂.

The EC had therefore already developed regulations to control the use of these so-called F-gasses in manufacturing. Recently (April 2022) a legislative proposal was forwarded to the Council and the European Parliament to further control the inflow of F-gasses into the European common market. The purpose of the new proposals is to reduce the usage of these F-gasses in the EU by two-thirds by 2030.

The main mechanism in the regulation is a quota system with a step-by-step reduction of the ceilings towards 2030. The proposal describes the approach for assigning quota and that the exchange of quota is permitted between active importers. There will be a separate F-gas portal for quota allocation, licensing and reporting obligations. This portal will be connected with the European Single Window for Customs. Quota holders will receive a licence which needs to be presented to customs for every shipment. Seizures of goods can take place, for instance of non-refillable containers, and the regulation allows the prevention of re-exporting of unlawful products. Certain trades, involving parties in countries that are not part of the F-gasses treaty, are also banned.

4.2. CBAM

A major mechanism to reach global sustainability goals is the charging or taxation of CO₂ emissions. In Europe, this will be implemented in various ways, with the European Trading Scheme (ETS) for CO₂ as a main pillar³. This mechanism will introduce charging for CO₂ for products resulting from economic activities within the EU.

Given that the EU does not stand alone in the world, there is always a possibility to bring goods into the EU-ETS area from a country where no charge is levied on CO₂. CBAM aims to resolve this so-called carbon leakage problem.

The way to resolve the carbon leakage problem is to introduce a charging procedure at the outer border of the EU common market. This idea was introduced in July 2021, and on 15 March 2022, the European Council reached a general agreement on the CBAM regulation. This general agreement results in the introduction of rules, in first instance, for some specific industries: cement, iron and steel, aluminium, fertiliser, and electric energy products and organic basic chemicals.

The general approach of CBAM is as follows. CO₂ charging will be based on some assessment of the amount of CO₂ emissions related to the amount of goods. For these emissions, a CO₂-price will be applied. Parties importing goods under the CBAM regulation need to become a so-called CBAM declarant. Parties can also rely on a CBAM declarant that performs the declaration duties or provides the CBAM certification on their behalf. This can be verified by customs agencies at the border, or at the point of bringing goods in free circulation. There will be a so-called cap and trade system for CO₂ rights, which means that parties can exchange their CO₂-rights with other licensed parties. At the end of a year, CBAM licence holders will have to account for their shipments with sufficient CO₂-rights with an annual declaration.

4.3. PPFL

The ideas behind restricting access for products made with forced labour to the EU common market was initially part of the Directive on Corporate Sustainable Due Diligence. During the negotiations for this Directive, the focus on barring goods from entering the EU was dropped. The idea, however, did not disappear. First, the European Commission formulated its views on decent work in a Commission Communication (COM (2022) 66 final) and then issued a proposal for a Regulation. The Communication on Decent Work ties the EU position to the generic multilateral consensus on the sustainable development goals and the pillars of decent work as laid down in, for instance, the International Labour Organization (ILO) Forced Labour Convention (ILO, 1930).

³ See https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets_en

The regulatory complexity of this Regulation lies in the fact that investigations into proof of Decent Work, as well as the enforcement of actual prohibitions, are the competence of the member states. A specific role is foreseen for customs authorities, who will be directed by member states' competent authorities to act at the border. However, pan-European legislation and enforcement coordination are deemed to be necessary to achieve the objectives of the Regulation.

The scope of the Regulation is that it applies to all products, and all stages of their supply chains. This puts a considerable burden on companies to conduct due diligence when they purchase products outside the EU. For small companies, the EC will put support measures and guidelines in place to level the playing field.

The Regulation works based on screening for Decent Work violations by competent authorities, and, upon identification of these violations, setting up an investigation to substantiate the suspicion. The companies should provide all relevant information on the activities, as well as their mitigating measures. Based on the findings, prohibitive actions may be taken to prevent the goods from entering the common market. For this, customs authorities are appointed in the Regulation.

The Regulation specifically discusses the usefulness of information supplied by companies to Customs. To solve this problem, companies will have to supply information to Customs that would allow them to identify specific goods flows subject to this Regulation. This mechanism needs to be further detailed in delegated acts. There is also mention of a review of the Union Customs Code to introduce informational requirements that would enable the enforcement of this Regulation.

It is left to customs agencies to determine how the Regulation is applied to goods under suspension regimes. In addition, goods that have been seized are not allowed to be re-exported.

5. Analysis

We performed a coding approach to objectively analyse the envisaged role of Customs in various regulatory documents from the European Union. We will not reproduce our complete coding table here. We will note some of the main differences and similarities. In all cases, various spellings of the codes were used, such as singular and plural, with different suffixes. For example, for 'verify', we also included counts for verifying, verification, and so on.

From [Table 1](#), we can observe that Customs is mentioned in all three Regulations. The reference in the regulations to the customs declaration process is very different, however, as can be seen from the second level codes related to declaration and declarant. The F-gasses regulation seems to rely to some extent on the regular customs declaration. In particular, responsible parties in the F-gas regulation are based on the importer, exporter and declarant named in the customs declaration. In the CBAM regulation, a *new*, annual, declaration process is introduced to account for the allocated emission rights, for which there will be a new declarant as well. A large part of the count

Table 1. First and second level codes 'Customs'; word counts

First level code	Second level code ^a	F-gasses	CBAM	PPFL
Customs		108	45	94
	Controls	6	3	2
	Procedure	6	3	4
	Customs Declaration	33	1	-
	CBAM declaration	- ^b	40	-
	Identification of goods	-	-	41
	Declarant	4	127	-
	Import	17	146	16
	Free circulation	13	5	25
	Licence	2	-	-
	Quota	155	-	--
	Inspection	3	-	5
	Value	37	46	37
	Weight/tonnes	24	5	-
	Commodity code	1	6	-
	Origin	-	18	2
	Verify	6	3	6
	Certificate	34	93	2

^a Second level codes are not direct combinations with first level code unless otherwise stated; ^b -, zero word count

(127) refers to this authorised or CBAM declarant. In the Forced Labour Regulation, neither the customs declaration, nor a declarant, is mentioned. This Regulation introduces the process of 'identifying the goods' at the border, which is expected to be done by customs authorities upon instructions from the competent authority. How these goods will be identified is not specified, but this seems to be Customs' envisaged primary role at the border under this Regulation.

Another interesting observation is that all three Regulations refer to import and bringing goods into free circulation. The definitions of what this means exactly are different in all three documents. The F-gasses regulation states: 'import means ... the entry in the customs territory'; the CBAM Regulation states: 'importation means the release for free circulation'; the Forced Labour Regulation refers for an explanation of 'free circulation' to the Union Customs Code (European Union, 2013, art. 201). Apart from the specific, and somewhat peculiar wording used in the Regulations, the link between the applicability of these Regulations with free circulation of goods means that the time of border crossing is not always the place where interventions need to take place. All three regulations allow the possibility that undesirable goods spend some time under a suspension regime in a bonded warehouse.

The F-Gasses regulation is based on a quota and licensing system, which provide parties with an annual volume of F-gas allowances. CBAM also uses a mechanism based on an annual volume restriction but calls it a certification scheme: companies need to obtain emission allowances that are recorded in a CBAM certificate. The Forced Labour regulation has no such mechanism.

Table 2. First and second level codes ‘competent authority’; word counts

First level code	Second level code ^a	F-gasses	CBAM	PPFL
Competent authority		59	73	155
Authority		122	118	256
	Customs + ^b	33	14	55
	Suspension	1	-	8
	Substantiated concern	- ^c	-	7
	Disposal	8	-	10
	Portal	52	-	-
	Declarative system	-	3	-
	Information system for market surveillance	-	-	8
	Common risk management system	-	-	2
	Single window	-	-	9

^a Second level codes are not direct combinations with first level code unless otherwise stated; ^b +, the code is combined with the immediate previous first level code; ^c -, zero word count.

In [Table 2](#), we report the coding results for the second first level code ‘competent authority’. We have also included some of the main mechanisms or tools that are discussed in the three Regulations for Competent Authorities.

From [Table 2](#), we can observe that all three Regulations introduce a mechanism where a competent authority needs to cooperate with a customs authority. The regulations all attribute responsibilities to these competent authorities: for F-gasses, companies need to provide trading records to the competent authority; in the F-gas Portal, competent authorities may request or approve authorisations for the use of certain gasses. In the CBAM regulation, competent authorities, among others, oversee the sale of CBAM certificates. In the Forced Labour Regulation, the competent authorities follow a risk-based approach, request information from companies, can start investigations, and formulate a substantiated concern and decide to prohibit goods.

How the competent authority and the customs authority then exchange information and operate in tandem is most concrete in the Forced Labour Regulation: the European Union Information system for market surveillance shall be used, and this will be linked with ‘the relevant customs risk management environment’ (PPFL art 22). In addition, a Union Network Against Forced Labour Products will be established (PPFL art 24) to support the coordination and cooperation between the member states and the EC.

As a third first level code, we identified ‘border’. We report the word counts in [Table 3](#).

At first sight, the code ‘border’ does not provide much insight. It is mentioned in CBAM relatively more often because this Regulation has the word ‘border’ in its title. What is relevant, however, is the mention of the term ‘third country’. This indicates that in all three Regulations, but especially in CBAM and PPFL, economic activities outside the Union territory fall under the scope of the regulation. This also results in the high counts of investigation and verification activities under PPFL, which may also have to be undertaken

Table 3. First and second level codes 'Border'; word counts

First level code	Second level code ^a	F-gasses	CBAM	PPFL
Border		2	29	6
	Carbon + ^b	- ^d	16	-
	Cross-+	1	1	3
	+ Controls	1	3	-
Third country		8	30	18
Stop/confiscate/seize/not allow/		3	1	12
Investigate/verify		-	(3) ^c	73
Suspension/simplification		-	1	-

^a Second level codes are not direct combinations with first level code unless otherwise stated; ^b +, the code is combined with the immediate previous first level code;

^c Counts in brackets mean these are not necessarily related to the first level code; ^d -, zero word count.

Table 4. First and second level codes 'compliance'; word counts

First level code	Second level code ^a	F-gasses	CBAM	PPFL
Compliance		47	8	13
	This regulation	19	3	2
	Montreal Protocol	17	-	-
	+ costs ^b	- ^c	3	2
Costs		41	21	19

^a Second level codes are not direct combinations with first level code unless otherwise stated; ^b +, means that the code is combined with the immediate previous first level code; ^c -, zero word count.

in these third countries. PPFL thus has an article (art 26) that refers specifically to international cooperation. In the F-gasses regulation, this term is not mentioned, and in CBAM only once, in the introductory text.

This need for international cooperation raises interesting questions: since customs organisations already have established mechanisms for international enforcement assistance and cooperation, would it make sense that these are used to enforce PPFL? If so, would this then mean that Customs will become, in some instances, the new 'competent authority' under this Regulation? Or perhaps, a new mechanism of international cooperation will be established. In that case, is there any role left for Customs under this Regulation?

As the fourth first level code, we selected 'compliance'. The results are presented in [Table 4](#).

From [Table 4](#), we see that the discussion on 'compliance' in the three regulations is broad: it refers to obligations of the EU to be compliant to international agreed protocols, such as the Montreal Protocol for Greenhouse gasses, to the general EU-level regulations, such as REACH, or to regulation at EU Member State level. There are also discussions in the Regulations in implementation costs, and compliance costs for businesses.

In conclusion, we observe that these three Regulations recognise a role for Customs, due to the border crossing nature of the goods flows that need to be controlled. All of them rely on a mechanism where Customs needs to work together with another competent authority, who obtains specific responsibilities under the Regulation. The role that Customs needs to play

under all three regulations is still unclear. We can elaborate further on this: we have argued that the enforcement toolbox of customs was designed for a specific purpose. This purpose includes the identification of goods at the border but based on very specific information (obtained from the customs declaration).

The regulations introduce two uncertainties: they do not acknowledge the need to link the information position of Customs with the requirements laid down for Customs under the regulation, and they stretch the regulatory competence of the European Union along international supply chains outside and inside the EU territory, which creates a lot more places where enforcement may need to be carried out. Specifically, the requirement to ‘identify goods’ for which the right to be brought into free circulation has been suspended by the competent authority under the PPFL regulation needs to be clarified with a workable information scenario before Customs can be expected to carry out this role.

Our analysis reveals that the standard toolbox of customs, including the main information elements in the customs declaration, do not play a large role in these Regulations, except for some data elements in the F-gasses regulation. The regulations introduce new information requirements for businesses (licences, certificates, obligations to provide information on their supply chain upon request), which do not tie into the customary customs declaration. This opens a discussion about the way these new information flows need to be managed, and how this new information could be used for risk assessment. And finally, it raises the question if Customs is the party that should be expected to carry out these enforcement tasks.

6. Recommendations

Customs agencies have some powerful tools at their disposal to manage the information on the movement of goods across borders. These tools are designed to interact with the goods flow at the time of border crossing. Some of the previous research on these tools shows that they are not easily applied to situations they were not designed for.

We have reviewed three pieces of regulation in the EU where border crossing is a trigger point for enforcement. These three cases differ substantially in their reliance on Customs to perform the supervision. The F-gasses regulation puts a lot of weight on customs agencies. The CBAM regulation takes its main structure from the operations of Customs, but attributes only limited responsibilities to Customs. Finally, the Corporate Sustainable Due Diligence regulation does not mention any standard customs mechanisms at all even though the regulation is about the responsible border-crossing flow of goods.

All three cases reveal both the power of the role of Customs (as a border enforcement agency) and its weakness. The latter refers to the fact that all three regulatory developments require not only supervision at the border, but also supervision at the product level or of business behaviour. For this, usually other competent authorities will have to be identified, that then either must cooperate with Customs, or develop their own enforcement activities to carry

out the obligations under the new regulation. This need to share information, and possibly share enforcement responsibilities (one agency identifies infringement, and the other then traces the goods and imposes penalties) creates substantial challenges in developing effective supervision mechanisms.

We observe, however, that this type of combined responsibilities on border-crossing activities and product of business-related behaviour is probably here to stay. All the responsible business and environmental regulation seems to go in this direction. This means, at the very least, that customs agencies must further develop their competencies to cooperate with other agencies (this is echoed in the Wise Persons Group report (EC, 2022)). In some cases, customs agencies might invest in product specific knowledge to bring that into their enforcement operations. Finally, customs agencies might consider developing new tools, as extensions of their current tools, such as company audits or high-volume chemical analysis in laboratories to verify origin, to extend their contribution to new regulation. This would contribute to the execution by Customs of systems-based supervision.

We would also like to draw attention to the fact that in much of the new legislation, it seems to be taken for granted that some supervision will have to take place at the border. The question, however, is, whether the border is the best place to safeguard a certain law. While Customs has tools available to authenticate data in a declaration against the actual goods, and to detect non-declared goods, additional information on supply chain operations that cannot be verified through the physical goods, cannot be controlled by Customs at the border. Other agencies, either within or outside the customs territory may need to be involved, which reduces the remaining enforcement contribution of customs at the border. There might be alternatives to these types of enforcement problems that are potentially more effective ways to achieve the legislations' goals and create less hindrance for global logistics.

Our final comment on the role of Customs as a transaction-based supervision agency is the following. The Wise Persons Group in the EU has as one of its points of analysis that the transaction-based approach needs to be replaced by a systems-based approach. We take issue with the word 'replaced'. We suggest that a complementary use of the transaction- and system-based approaches (for the same flows of goods) should be considered. Only then can the EU really achieve the goals it sets out in regulation such as the Prohibition of Products made with Forced Labour, where business practices can be improved based on system-based supervision, while some pressure can be exerted through the transaction-based approach. The key is in the combination of the two. Government in general should strive to achieve an optimal model of supervision, where the needs for physical interventions in the supply chain are reduced to an absolute minimum, and where post-clearance options are maximised as much as possible. An effective policy should strike an effective balance between these two enforcement options.




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The Reconciliation Programme as a Role Model to Resolve Complex Customs Valuation Cases?

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This paper introduces scenarios that are very common in commercial reality. It poses typical questions regarding when and how the customs value is determined, especially in situations where the importer cannot provide all the information concerning the customs value at the time of filing. The paper then looks at practical solutions in different customs legislations, notably in the European Union and the United States.

1. Introduction

Customs valuation is one of the most challenging areas of customs law. The rules of customs valuation date back to the World Trade Organization (WTO) Valuation Agreement, which was drafted more than 40 years ago (WTO, 1994). This Agreement consists of a mere 24 articles, which are further described and illustrated in Explanatory Notes, but the essence of the Agreement has been unchanged since it first came into force. According to Article 1 of the Agreement, the price actually paid or payable shall be the basis for customs valuation – but what if this price is not (yet) known at the time the customs declaration is to be submitted by the importer? According to Article 8 of the Agreement, certain costs incurred by the buyer (e.g. royalties and licence fees) are to be added to the price actually paid or payable when determining the customs value. But what if the (exact) amount to be added is not yet known when the customs declaration is filed? This paper first describes a couple of scenarios that are very common in commercial reality, and then looks at the options offered in European customs law. Later, the author looks at the reconciliation procedure practised in the USA from a European perspective.

Recently, the European Court of Justice (ECJ) seems to have spent a considerable amount of time (and effort) to work and reflect on cases where the secondary methods of valuation (e.g. the deductive value method) or the fall-back method had to be used. Some examples of these reflections can be taken from the judgments of the ECJ¹ of 09.06.2022 (FAWKES), of 20.06.2019 (Oribalt Riga) or of 09.11.2017 (LS Customs Services), to name but a few. Despite these recent decisions, it must be stressed (and not forgotten) that

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¹ All ECJ judgments can be retrieved from <https://www.curia.europa.eu>

the transaction value of imported goods should be used to the greatest extent possible for customs valuation purposes as laid down in Advisory Opinion 1.1 of the Technical Committee on customs valuation at the WCO (WCO, n.d.). Consequently, the transaction value method is to be used even if the importer cannot submit all the information that is necessary to determine the customs value when the customs declaration is filed – or if the customs value is to be determined on the basis of a sale between related parties and may be subject to subsequent price adjustments, as in the famous Hamamatsu case (judgment ECJ of 20.12.2017), which has been discussed extensively by the customs valuation community since the ECJ published their decision. This article first describes the options laid down in the customs legislation in the European Union (namely the Union Customs Code – UCC – and its implementing provisions; European Commission [EC], 2013, 2015) and then takes a broader perspective and looks at how other customs administrations outside the European Union deal with the issue.

2. Analysis

Where goods are delivered to the customs territory of the European Union, they are generally placed under a certain customs procedure, for example, the release for free circulation or customs warehousing (customs procedures are defined in Article 5 (16) UCC and include the release for free circulation). This requires a customs declaration appropriate for the procedure (Article 158 (1) UCC). Generally, the importer files an electronic declaration in which they specify the kind of customs procedure. In the case where the goods are to be declared for free circulation the importer has to submit all the information that is necessary to calculate and levy the amount of customs duties that they are obliged to pay. Moreover, the importer is obliged to have all necessary documents (e.g. invoice, transport documents) in their possession and to submit them to the customs authorities if they so request (Article 163 UCC).

This obligation may lead to problems in situations where the importer does not have all the necessary information in their possession at the time they file the customs declaration. This is especially crucial in cases where the importer cannot submit the information that is necessary to determine the customs value as illustrated in the following examples.

Example 1: The importer, who is also the buyer, imports spare parts for automobiles into the European Union. They buy them from an unrelated seller who is also the manufacturer of the spare parts. This manufacturer needs certain tools to be able to produce the spare parts. These tools have been developed and produced by a third party according to the orders and specifications communicated by the buyer. The buyer purchases these tools and then delivers them to the manufacturer free of charge for use in connection with the production of the spare parts. Thus, the tools are considered as assists according to Article 71 (1) (b) (ii) UCC and their value, apportioned as appropriate, shall be added to the price actually paid or payable for the imported goods (i. e. spare parts). However, the company that has developed and produced the tools is not particularly well organised and therefore only

issues an invoice to the buyer after the first consignments of the spare parts have already been imported into the European Union. Thus, it is impossible to determine the value of the assists that needs to be added to the price actually paid or payable for the imported goods at the time the customs declaration is submitted by the importer.

Example 2: The importer, who is also the buyer, regularly imports shirts from a non-related supplier/seller. The imported shirts are trademarked. The buyer has the right to use this trademark based on a licence agreement that they have concluded with another company, the licensor. The licensor is not related to the seller. But the licence agreement provides for a manufacturer's agreement that the buyer/licensee must conclude with any manufacturer. When signing this manufacturer's agreement, the manufacturer agrees to produce the licensed goods only for the licensee and deliver them exclusively to the licensee.

After selling the shirts in the European Union, the buyer/licensee must pay licence fees to the licensor. These licence fees are to be included in the customs value according to Article 71 (1) (c) UCC and Article 136 (4) (c) UCC IA as they relate to the imported goods and are paid as a condition of sale, even though the amount to be included cannot be determined when the goods are imported.

Almost all licence agreements only require a payment of royalties after the licensed products have been resold by the licensee, so this is a very common scenario. However, the ECJ had to reflect on the question of whether royalties are to be included in the customs value even if it is not established, either at the time at which the contract was concluded or at the relevant date as regards the incurring of the customs debt that royalties or licence fees were owed. In the judgment *GE Healthcare* (09.03.2017) the ECJ stressed that the relevant provision on royalties and licence fees (then Article 32 (1) (c) CC) does not require 'the amount of royalties or licence fees to be determined at the time when a licence agreement was concluded or when the customs debt was incurred in order for those royalties or licence fees to be regarded as related to the goods being valued' – and consequently the royalties or licence fees are to be included in the customs value.

Example 3: The importer, who is also the buyer, only purchases goods from its parent company. At the beginning of every year, the parent company sets a provisional price for the goods, which is calculated according to the expected costs. When the importer declares the imported goods for free circulation, they consequently determine the customs value for these goods based on this provisional price. However, the parties have agreed to review the expected costs (and thus the provisional price) at the end of the year. In the case where the actual costs were higher than expected the importer will receive a debit note and consequently must make an additional payment to the parent company/seller. But if the actual costs turn out to be lower than expected, the importer

will receive a credit note. Thus, the kind of end-year adjustment (debit note or credit note) and the exact amount cannot be established at the time of importation.

Example 4: The importer, who is also the buyer, purchases materials (e. g. metals) for production in the country of importation. These materials are traded at the commodities exchange and thus are subject to variations in price. The importer and the supplier have agreed on fixing a provisional quarterly price for the goods, which is later adjusted according to the actual purchase price paid by the supplier. When the goods are imported the importer only knows the provisional price – the final price after the adjustment being the price actually paid or payable for the imported goods is only fixed later.

The scenarios in the above examples (and there are many more) have one thing in common: in all these scenarios the importer does not have all the information at hand that is necessary for the correct and final determination and declaration of the customs value. In some cases, information concerning the exact amount to be added to the price actually paid or payable according to Article 71 UCC is yet unknown while in others this price as such is not fixed yet.

3. Options according to the Union Customs Code

Article 166 UCC provides for the submission of a simplified customs declaration in such cases. This simplified declaration may omit certain particulars contained in the standard customs declaration or the supporting documents usually required. If this simplified declaration is to be used on a regular basis – which is most likely in the examples mentioned above – the importer needs an authorisation from the customs authorities. This authorisation may only be granted when the many conditions set out in Article 145 UCC DA are fulfilled. Thus, the requirements for this authorisation come very close to those of an authorized economic operator (AEO) status. Once the authorisation is granted, the importer may submit a simplified customs declaration to declare the imported goods for release for free circulation. But after that, the importer, of course, needs to submit a supplementary declaration ‘within a specific time limit’, and this supplementary declaration shall then contain the particulars and documents that were omitted in the simplified declaration (Article 167 UCC). However, there is no fixed definition of this time limit in the UCC and its implementing provisions. Thus, the German customs administration, for example, sets one month, which means that the supplementary declaration needs to be filed on the tenth day of the following month at the latest. This procedure is in conformity with the procedure laid out in Article 146 (3) UCC DA. However, Article 146 (3b) UCC DA, which was only recently added, provides for an exception in ‘duly justified circumstances’ – under such circumstances the time limit for the lodging of the supplementary declaration shall not exceed 120 days. In ‘exceptional duly justified circumstances related to the customs value’ the time limit may be further extended to up to two years from the release of the goods.

The general time limit of one month for submitting the supplementary declaration is neither particularly generous nor helpful in most of the scenarios described in the examples above. When, for example, dealing with royalties and licence fees or subsequent adjustments of transfer prices it is obvious that the exact amounts to be considered when determining the customs value will only be known later. The exceptions provided for in the new Article 146 (3b) UCC DA only apply in ‘duly justified circumstances’ or even ‘exceptional duly justified circumstances’ – but how to define these circumstances remains unclear. So it is hardly surprising that each customs administration in the European Union acts according to their own definitions. The European Commission is probably aware of this fact, but so far there is no guidance, or any other document aimed at a uniform application of this provision in the European Union.

3.1. Special cases relating to transfer price adjustments

Transfer price adjustments are not made to annoy customs administrations but are mainly made to adjust the returns on sale, that is, the profit margins, of the companies involved in related-party transactions to an arm’s-length margin. In doing that, the companies avoid an adjustment of the incomes by their local tax authorities which could – if there is no corresponding adjustment in the other country – lead to double taxation.

Example: A German distribution company buys finished products from the parent company established in a different country and distributes these finished products on the German market. At the end of the year, the parent company reviews the profit this distribution company has made in the past year and finds that this profit (net margin) has been too low. Thus, the parent company issues a credit note relating to the goods that the distribution company has purchased in this past year. As a result, the profit (net margin) is adjusted to an arm’s-length level and the German tax administration is satisfied. At the same time, the profit earned by the parent company is reduced and double taxation is avoided. This, of course, also works the other way round: imagine the profit earned by the distribution company was much too high. The parent company will then issue a debit note and thus increase the price for the purchases made by the distribution company. This results in a reduction of the profits earned by the distribution company on the one hand and at the same time results in a higher profit for the parent company. The tax authorities will be satisfied as everybody gets what they are entitled to.

But the problem here is not only the tax issue. The question that has long been discussed in cases like these was how these adjustments affect the customs values of the goods that have been imported in the past by the distribution company, as in the example just mentioned. In cases like these, the German customs administration always made a clear distinction between (1) adjustments that were made with a clear view to individual products (and consequently individual imports) and (2) those adjustments that were made

in the form of a lump sum for a certain period and thus relating to all the products that have been imported in this particular period, meaning that the adjustments could not be linked to individual imports.

Where the adjustments could firstly be clearly linked to individual products and secondly have been agreed upon before the actual imports have taken place (in a written agreement between the parties concerned, for example) the transaction value method is deemed to apply. In cases like these, the transaction values of all goods are adjusted retroactively according to Article 70 UCC – the adjustment is then made upwards in cases of debit notes and downwards in cases of credit notes under the framework of a repayment procedure as provided for in Article 116 UCC.

However, where the adjustment takes the form of a lump sum, the German customs administration used to deny a refund in cases of credit notes (i. e. in cases where the prices originally invoiced for the imported goods turned out to be too high). This position was also taken by the ECJ in the famous case of Hamamatsu Photonics that has been discussed ever since it was published. In cases where the prices that were originally invoiced have turned out to be too low and the parent company issues a debit note, the German customs administration assumes that the prices have been influenced by the relationship between seller and buyer, which consequently renders the application of the transaction value method impossible. The prices originally invoiced thus cannot be accepted and must be adjusted in accordance with the debit note using secondary methods, usually the fall-back method described in Article 74 (3) UCC.

The retroactive adjustments of the prices originally invoiced and thus of the customs values originally determined when the goods were imported need to be done for each and every single declaration. It is obvious that this results in an enormous administrative burden, both for the importers and the customs administrations. Therefore, it seems advisable to look at how other administrations handle cases like these, which are very common in commercial reality. Let's look at the United States as an example.

4. The Reconciliation Programme – background

As mentioned before, the customs value is to be determined according to the transaction value method as provided for in Article 70 UCC. Thus 'the transaction value of imported goods should be used to the greatest extent possible for customs valuation purposes' as laid down in Advisory Opinion 1.1 of the Technical Committee on customs valuation at the WCO. To apply the transaction value method, the importer is obliged to have all necessary documents (e. g. invoice, transport documents) in their possession and to submit them to the customs authorities if they so request (Article 163 UCC). But if we look at the scenarios described in examples 3 and 4 above, the importer can only enter a provisional price in the declaration at the time they file this declaration. The importer does not yet know whether this provisional price is going to be adjusted at a later point in time, and they do not know either whether this adjustment will be made upwards or downwards. Strictly

speaking, in cases like these the importer cannot file a customs declaration based on the transaction value method. The price actually paid or payable being the basis for the determination of the customs value is in fact composed of the provisional price (which is known when the declaration is filed) and the subsequent adjustment (which is only calculated at a later stage). The same principle applies to the scenarios described in examples 1 and 2 above: where the amounts to be added to the price actually paid or payable cannot be quantified at the time the customs declaration is filed, the transaction value method is not applicable. Article 71 (2) UCC requires that additions are only to be made ‘on the basis of objective and quantifiable data’, and where these data do not exist the transaction value cannot be determined under the provisions of Article 70 UCC as laid out in the Interpretative Note to Article 71 (2) UCC included in the Compendium of Customs Valuation texts issued by the European Commission (these Interpretative Notes on Customs Valuation are based on the Notes included in the WTO Valuation Agreement) (EC, 2022).

However, the Reconciliation Programme (US Customs and Border Protection, 2020) offers a practicable solution for cases like these.

The Reconciliation Programme is a voluntary program and gives the importers the opportunity to correct certain elements of the customs declaration which are not yet known or fixed at the time the declaration is filed at a later point in time, that is, when such elements are definite. This may apply to the value of the imported goods or to classification. Thus, the importers may enter these elements into the customs declaration although they may be subject to changes (e. g. subsequent adjustments of the declared price or additions to this price). However, the importers need to flag these entries in the declaration to identify the indeterminable information to customs. As soon as the importers have the information about the final price or the amount to be added to the price actually paid or payable at their disposal they enter this information into the declaration by way of a reconciliation entry.

With the procedure of first flagging declarations and then resolving them using the Reconciliation Programme in mind, let’s go back to the examples that were mentioned before.

Example 1: The importer taking part in the Reconciliation Programme first declares the price paid for the imported parts and flags these entries. After receiving the invoice issued by the manufacturer of the tools (assists), they file the reconciliation entry and add the value of the tools (assists) to the price.

Example 2: The importer taking part in the Reconciliation Programme first declares the price paid for the imported goods and flags these entries. After selling the goods and paying the royalties based on the net sales they file the reconciliation entry and add the royalties to the price.

Example 3: The importer taking part in the Reconciliation Programme first declares the provisional price paid for the imported goods and flags these entries. After receiving the credit note, which results in a downwards adjustment of the prices paid in the respective period, they file the reconciliation entry and declare the final price.

Example 4: The importer taking part in the Reconciliation Programme first declares the price paid for the imported goods and flags these entries. When the supplier submits the final settlement of the price, the importer files the reconciliation entry and declares the final price.

4.1. Prerequisites for participation and how it works in practice

Basically, all importers are eligible to participate in the Reconciliation Programme if they submit their declarations electronically and have a valid and adequate bond coverage.

Once the importer has filed the declaration and flagged the elements that are not yet final, the importer has 21 months to file the reconciliation entry, that is, enter the final prices or make the final additions. The importer may even combine several flagged declarations in one reconciliation entry. Thus, if we go back to the scenario described in Example 1, the importer can file one reconciliation entry for all imports of parts that have been flagged. The same applies in the scenario described in Example 2 above.

4.2. Practical cases – rulings published by US Customs

The US Customs and Border Protection publish rulings in complex customs valuation cases in a database that is open to the public (US Customs and Border Protection, n.d.). These rulings can be understood as advance rulings or binding valuation information, something the European Commission is currently working on to establish in the European Union as well. The rulings are basically valid without a time limit unless they are expressly revoked or adjusted due to changes in legislation or facts, for example. If that is the case, it is documented in a transparent way in the database. The cases described in the following paragraph are real-life cases published in the database and offer some insight into the Reconciliation Programme.

The ruling HQ W548314 was published in the year 2012, but is considered an excellent example of binding valuation information with rich and detailed information about the case at hand and the deliberations of the customs authority. In addition, it promotes the Reconciliation Programme, which is the main reason it has been chosen as an example.

In the case described, the buyer and the seller are related. According to the Transfer Pricing Policy and the Advanced Pricing Agreement (APA) the seller fixes the provisional prices according to the resale price method, which are then analysed on a quarterly basis. This analysis results in frequent adjustments.

After examining the transfer pricing policy and the APA the customs authority concluded that the prices were fixed according to the arm's length principle and thus have not been influenced by the relationship between the parties. Consequently, the transaction value method could be applied for the

determination of the customs values for the imported goods. The subsequent price adjustments could be considered when determining the customs values of the imported goods as they had been described in detail in the transfer pricing policy, which was in place prior to the importation of the goods to be valued. Moreover, the adjustments were made on an entry-to-entry basis and thus related to specific goods.

With respect to the Reconciliation Programme, note the following remarks in the ruling:

Reconciliation allows the importer, using reasonable care, to file entry summaries with CBP [Customs and Border Protection] with the best available information, with the mutual understanding that certain elements, such as the declared value, remain outstanding. At a later date, when the specifics have been determined, the importer files a Reconciliation entry which provides the final and correct information. The Reconciliation entry is then liquidated, with a single bill or refund, as appropriate. Furthermore, the Reconciliation entry can be filed as late as 21 months from the date of the first entry summary filed under that Reconciliation with extensions of time as available to importers. This flexibility makes Reconciliation an ideal vehicle to declare all upward or downward post-importation adjustments within the timeframe allowed by in the APA or a transfer pricing study or policy that directly (or indirectly) relate to the value of the merchandise. Thus, the Importer should continue to report all of its adjustments to CBP via Reconciliation. (US Customs and Border Protection, 2020)

Further on in the text of the Ruling, the author gives a very clear recommendation: ‘CBP strongly encourages importers who may anticipate post-importation adjustments to use the Reconciliation program’ (US Customs and Border Protection, 2020).

A scenario which is quite like the scenario described in example 4 above forms the basis of HQ H302879 published in 2019. The ruling is based on the case of an importer of a certain car part. The (final) price for this part depends on the price of the raw materials used to produce this part and is thus not yet fixed at the time of importation. The importer utilises the Reconciliation Programme and has developed a certain formula to calculate the final price considering the subsequent adjustments. According to the author of the ruling ‘The Reconciliation Program is a proper method for adjusting the final value of the imported car parts.’

5. Summary and conclusion

Customs administrations and importers are often confronted with situations where the importer does not have all information available to file a complete and final customs declaration when the goods are imported into the customs territory. The customs legislation in the EU and the way it is currently

interpreted does not offer satisfactory solutions for scenarios like these. This may lead to undesirable consequences, that is, the need to determine the customs value according to secondary methods in many cases, which is against the principles of the WTO Valuation Agreement. The Reconciliation Programme as it is practised in the USA offers a way out. It gives the importers and the customs administration a tool to solve these cases in a straightforward way without posing unreasonable administrative burdens on either party. When utilising the Reconciliation Programme, it is up to the importer – after flagging the first entry in the declaration – to file the reconciliation entry without further intervention by the customs authority.

The German practice is quite different: when the goods are imported and released for free circulation, the importer needs to pay the customs duties. Where there is a need to correct the customs values later, the importer is bound to apply for repayment or inform the customs administration of an additional payment, which may result in a recovery procedure. Each and every customs value needs to be corrected individually; aggregation is not possible.

The simplification described in Article 73 UCC may be considered to ease the administrative burden, but it can only be applied under the transaction value method and in cases where the importer is faced with costs that need to be considered for customs valuation on a regular basis (as in example 2 mentioned above). At least, however, subsequent corrections of the customs values will not occur when this simplification is used.

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How Relevant Is Customs in the Operation of Free Trade Areas?

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While one of the principles of the World Trade Organization (WTO) is to ensure non-discrimination in global trade, Article XXIV of General Agreement on Tariffs and Trade (GATT) 1994 has provisions for the establishment of free trade areas (FTAs), in which trading partners accord each other preferential treatment. Article XXIV allows a group of countries to form their own FTAs to speed up trade outside the multilateral trading system. This paper explores the relevance of Customs in the operations of FTAs. The analysis concludes that Customs has a major role to play in the operations of an FTA, and by extension, towards the realisation of the goals of the WTO.

1. Introduction

The WTO has established a *corpus juris* to regulate global trade among its members. GATT 1994 (GATT, 1994) governs trade in goods to ensure that global trade is conducted in accordance with agreed rules. A key principle in global trade is the most-favoured nation (MFN) rule that lays down a fundamental principle of non-discrimination among WTO members. However, Article XXIV of GATT 1994 (hereafter Article XXIV), provides for the formation of FTAs and customs unions (CUs) whose operations can, within certain limits, deviate from the MFN rule. Since the end of World War II and the signing of GATT 1947, world trade has witnessed a gradual increase in the number of FTAs. As at 1 June 2023, a total of 303 FTAs had been notified to the WTO under Article XXIV (WTO, n.d.-a). Although these FTAs are regional in nature, they serve as major building blocks towards the liberalisation of global trade (WTO, 1994).

This paper explores the relevance and the role that Customs¹ plays in the operations of FTAs. It therefore examines the generic functions of Customs and uses these to assess how they relate to the operations of FTAs.

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¹ Using the definition given by the WCO in the *Glossary of International Customs Terms* (WCO, 2013), Customs is the governmental agency mandated with enforcing various laws and rules pertaining to the import, export and transit of goods as well as the administration of customs legislation and the collection of tariffs and taxes.

2. Generic functions of Customs

The role of Customs in any country is dictated by its own priorities and national laws. In general, the functions of Customs include revenue collection, protecting national security, controlling imports and exports by ensuring that international trade complies with national laws, protection of domestic industry against imports, implementing laws to ensure that trade complies with international obligations under the WTO, and safeguarding the security of the supply chain involving the movement of goods in international trade (De Wulf, 2005). It therefore follows that the structures of customs administrations at national levels will be determined by the roles as stipulated by domestic statutes.

By operating at the borders and processing imports and exports, Customs has an impact on trade facilitation. It must be noted, however, that implementation of trade facilitation measures is not the exclusive domain of Customs, although admittedly, it is a major player.² Bureaucratic customs administrations with outdated or uncoordinated laws and procedures can hamper trade and destroy the very reason why FTAs are created. In this regard, while most customs administrations fall under the government ministry responsible for fiscal matters, they implement and enforce several policies on behalf of other government agencies, such as foreign trade and agricultural controls.

The World Customs Organization (WCO) prioritises trade facilitation, and it collaborates with the WTO in implementing international trade instruments. The WCO has stated:

[...] Trade facilitation, in the WCO context, means the avoidance of unnecessary trade restrictiveness. This can be achieved by applying modern techniques and technologies, while improving the quality of controls in an internationally harmonized manner.

The WCO's mission is to enhance the efficiency and effectiveness of Customs administrations by harmonizing and simplifying Customs procedures. This in turn will lead to trade facilitation which has been a genuine objective of the WCO since its establishment in 1952 [...] (WCO, n.d.-a)

The above statement clearly spells out that the facilitation of trade is one of the principal missions of the WCO. During negotiations on the WTO's Trade Facilitation Agreement (TFA), the WCO was a key participant and represented the global voice of Customs by providing input on practical issues (WCO, n.d.-

² Apart from Customs, some of the players involved include other government departments such as agriculture, foreign trade and the banking sector.

b). This demonstrates how the WTO and the WCO work together to promote international trade. The collaboration is cemented when considering that their definitions of trade facilitation are the same.

One of the key functions of Customs is revenue collection. To cater for those with a strong orientation towards revenue collection, such customs authorities need to ensure that they acquire the relevant skills in revenue collection and its management. Other customs jurisdictions place emphasis on state security and border control, and for such, the strength would be to have requisite skills in military and policing in place. It is therefore evident that in addition to levying customs duties, customs laws also govern imports and exports and any issues involving the cross-border movement of goods. Customs has strengthened its security function by adopting the WCO's SAFE Framework of Standards to Secure and Facilitate Global Trade (SAFE Framework) of 2005 (Rogmann, 2019). The SAFE Framework sets out operational standards based on cooperation, resting on three pillars: customs administrations themselves, Customs and its business stakeholders, and Customs and other government agencies (WCO, n.d.-c).

An efficient customs administration must thus attain a balance between its various functions, some of which may appear to be mutually exclusive. This is a crux for customs administrations, in which professional expertise is required to balance these roles. Widdowson (2005) compared the two variables of control and trade facilitation and, as shown in Figure 1, he identified possible scenarios, represented by the four matrices as indicated. It shows the important role that Customs plays in facilitating trade, without compromising its security and control function. The desired equilibrium is the 'Balanced Approach' in which both the Customs functions of control and trade facilitation are high (Widdowson, 2005). As reflected, any other scenarios result in 'Red Tape', 'Crisis Management' or 'Laissez-Faire' approaches, all of which compromise the functions of Customs.

Figure 1 therefore demonstrates that Customs is not a straitjacket function but involves delicate balancing of many roles and skills. The depth and breadth of customs work has become more complex and will continue to become more complicated as it responds to developments in the environment, for example, economic, sociocultural and technological developments. Regional and global trade will continue to influence Customs. Customs authorities will need the skills to remain relevant and successfully discharge their duties.

3. Definition of FTA

The nature of operations of an FTA can be deduced from its definition. An FTA involves the movement of goods across borders, and arising from this, there are bound to be linkages with the role of Customs. Article XXIV:8(b) of the GATT (GATT, 1994) defines an FTA as follows:

A free-trade area shall be understood to mean a group of two or more customs territories in which the duties and other restrictive regulations of commerce (except, where necessary, those

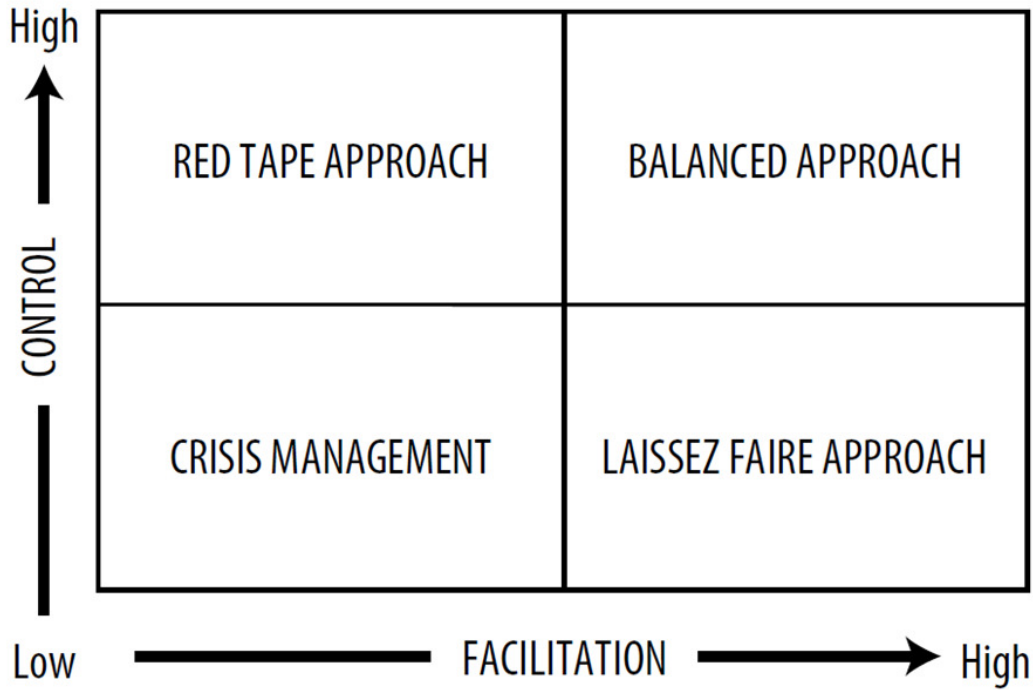


Figure 1. Balancing trade facilitation and control

Source: Widdowson (2005, p. 92)

permitted under Articles XI, XII, XIII, XIV, XV and XX) are eliminated on substantially all the trade between the constituent territories in products originating in such territories.

The definition is important in that it is pronounced in the legal texts of the WTO and thus has legal effect. There are of course simplified explanations as captured in some published literature and books, including some from the WTO, but all these must be viewed as attempts to put legal terminology into plain language.³ This paper will not examine the exceptions in Articles XI, XII, XIII, XIV, XV and XX, which also apply in relation to CUs.⁴

Further to the definition of an FTA, it must be noted that Article XXIV:4 stipulates the goals of an FTA, and states that:

The Members recognize the desirability of increasing freedom of trade by the development, through voluntary agreements, of closer integration between the economies of the countries parties to such agreements. They also recognize that the purpose of a customs union or of a free-trade area should be to facilitate trade between the constituent territories and not to raise barriers to the trade of other contracting parties with such territories. (GATT, 1994)

³ For example, the definition in WTO (n.d.).

⁴ The exceptions in Articles XI, XII, XIII, XIV, XV and XX with quantitative restrictions; balance of payments; exceptions to the rule of non-discrimination; exchange control arrangements; and general exceptions.

From this provision, it can be noted that the whole purpose of an FTA is to expand and facilitate trade among its members. This is consistent with the idea that one of the goals of Article XXIV is to make FTAs a step towards free global trade rather than to create hurdles to the expansion of multilateral trade. As a result of this, when entering into an FTA, the members must not create additional barriers with third parties. Most FTAs would however go beyond the basics of the tariff-free movement of goods and proceed to the harmonising of procedures and laws to facilitate the movement of goods within their membership. This original intention of the GATT was confirmed in the preamble to the Understanding on the Interpretation of Article XXIV of the General Agreement on Tariffs and Trade (WTO, 1994), which states:

[...] *Reaffirming* that the purpose of such agreements should be to facilitate trade between the constituent territories and not to raise barriers to the trade of other Members with such territories; and that in their formation or enlargement the parties to them should to the greatest possible extent avoid creating adverse effects on the trade of other Members; [...]

In summary, it can be noted that the constituent elements of an FTA are as follows:

- (a) it must be comprised of at least two customs territories
- (b) the purpose must be to facilitate trade among the participating members
- (c) duties must be eliminated
- (d) restrictive regulations must be eliminated
- (e) liberalisation must apply to substantially all trade
- (f) preferential trade applies to originating products.

The author considers that the above criteria is the rubric used to identify the existence of an FTA in the context of GATT 1994 and the WTO. Any trading arrangement that meets all the given elements is an FTA. In practice, compliance with all the above fixed criteria is a gradual process, not a single event. Parties to the WTO Agreement are obligated to adhere to Article XXIV and WTO rules in any trading arrangement they enter into. It should be noted that, in practice, the WTO has been liberal when dealing with the registration of FTAs, with some notifications having been done when the FTA had already entered into force.⁵ The WTO has generally endorsed that the legal process of registering a FTA can even take place after its entry into force.⁶ A typical example, noted by Mavroidis (2012), is the North American Free Trade Area (NAFTA), which was signed in December 1992, entered into force in January 1994, and the relevant WTO committee examined its consistency with Article XXIV, and was subsequently established in March 1994.

⁵ WTO Decision of 14 December 2006 on Transparency Mechanism for Regional Trade Agreements (18 December 2006) WT/L/671.

⁶ WTO General Council Decision of 14 December 2010 on Transparency Mechanism for Preferential Trade Arrangements (16 December 2010) [WT/L/806](#).

4. Relevance of customs administrations in an FTA

The six elements of an FTA identified above serve as the foundation for assessing the relevance of Customs in FTAs and, in some ways, demonstrate the role of Customs in FTAs. Each of them are of importance to customs operations.

4.1. Composition of FTAs

An FTA must consist of at least two customs territories. Article XXIV:2 defines a customs territory as follows:

For the purposes of this Agreement a customs territory shall be understood to mean any territory with respect to which separate tariffs or other regulations of commerce are maintained for a substantial part of the trade of such territory with other territories. (GATT, 1994)

From this it can be deduced that, in plain language, a customs territory is a geographic area that is bound by uniform customs laws and procedures. This can cover a single or group of countries. In practice, most of the members of an FTA would be sovereign states. The WTO Agreement also explains the extent to which the term ‘customs territories’ can interchange with ‘country’ but at the same time underscoring the fact that the correct legal word is ‘customs territory’.⁷ This matter came up in WTO jurisprudence, where it was opined that the question was not whether it was a sovereign country, but rather if it possessed the status of a customs territory and thus qualified for full WTO membership.⁸ An FTA can therefore take the form of a bilateral agreement as was the case with the agreement signed between the United States and Morocco in 2004.⁹ It can also be a regional grouping as is the case with the European Free Trade Association (EFTA) which include four non-EU member states, namely Iceland, Liechtenstein, Norway and Switzerland (EFTA, 2020). The essential element is that the members must be customs territories.

It is noted that in an FTA, each customs territory may continue to apply its own legislation and external tariff. There is no provision compelling the customs territories forming an FTA to apply the same customs laws, other than to ordinarily harmonise their customs or trade procedures as per the dictates expected in trade facilitation. The FTA is therefore comprised of different customs territories whose objective is to allow the free movement of qualifying products. This contrasts with a CU, whose constituent customs territories all apply a common external tariff (CET) and common customs laws. The

⁷ WTO Agreement Art XVI: Explanatory Notes (GATT, 1994) reads: ‘The terms “country” or “countries” as used in this Agreement and the Multilateral Trade Agreements are to be understood to include any separate customs territory Member of the WTO.’

⁸ Cottier, T. and Nadakavukaren Schefer, K. (1998, February). Legal opinion submitted to the economic policy programme on conditions and requirements to qualify as a separate customs territory under WTO rules. EPPI C5.

⁹ US Department of State, *Existing US trade agreements*, <https://www.state.gov/trade-agreements/existing-u-s-trade-agreements/>, accessed 13 August 2022.

harmonisation of laws and procedures is however one of the requirements for trade facilitation, although an FTA can operate with each partner implementing its own customs laws.

An FTA is therefore closely associated with Customs as demonstrated by the fact that the constituent elements are all related to Customs. Further, the unit of membership is based on a customs territory and not on independent political statehood. As already noted, a customs territory has unique characteristic of common customs tariffs and laws pertaining to trade matters. This demonstrates a linkage between an FTA and elements from Customs.

4.2. Purpose of a free trade area

According to Article XXIV:4, one of the key purposes of an FTA is to facilitate trade:

The Members [...] recognize that the purpose of a customs union or of a free-trade area should be to facilitate trade between the constituent territories and not to raise barriers to the trade of other contracting parties with such territories. (GATT, 1994)

The creation of FTAs is therefore intertwined with the implementation of more favourable trade facilitation measures. This given purpose is an important declaration on why FTAs are created. As a result, trade within the FTA must be more liberalised than it was before the FTA's inception. It is evident from this that the whole aim of FTAs is to liberalise and facilitate trade between their constituent members. The principle that an FTA is designed to facilitate trade among constituent members can be extended to imply that an FTA can devise more favourable trade facilitation measures to specifically benefit its members. According to Okabe (2015) several studies have shown that when an FTA creates a framework to facilitate trade among its members an increase in trade within the configuration is the result. One of the latest FTAs, the African Continental Free Trade Area (AfCFTA), was established by the Agreement Establishing the African Continental Free Trade Area (the AfCFTA Agreement) to facilitate and boost trade amongst its members.¹⁰ The AfCFTA has also demonstrated this, and it developed its own legal tools to boost and facilitate trade among its members.¹¹

Most FTAs go beyond the basics of the tariff-free movement of goods and proceed to the harmonising of procedures and laws to facilitate the movement of goods within their membership. It therefore follows that an FTA can devise more favourable trade facilitation measures for its members. These more favourable measures and treatment can be justified as falling within the ambit of Article XXIV (United Nations Conference on Trade And Development [UNCTAD], 2011). FTAs have emphasised the importance of facilitating

¹⁰ Agreement Establishing the African Continental Free Trade Area (adopted 21 March 2018 (entered into force 30 May 2019) art. 3 and 4. https://au.int/sites/default/files/treaties/36437-treaty-consolidated_text_on_cfta_-_en.pdf

¹¹ AfCFTA Agreement, p. 17. Protocol on Trade in Goods (adopted 21 March 2018, entered into force 30 May 2020).

trade within their own configurations, with some, including the AfCFTA, having developed their own frameworks for the facilitation of trade. As a result, the trade facilitation measures within an FTA do not necessarily have to be an exact duplicate of the WTO TFA. More often than not, most trade facilitation measures implemented in FTAs apply to members, in as much as they do to non-members. The test will be whether such measures impose any additional burden on WTO members not participating in the FTA. Any formation of an FTA whose design does not facilitate trade, or which raises barriers to non-FTA members would be operating contrary to the core spirit of GATT 1994 and the WTO. It therefore follows that if they do not introduce more restrictive procedures, trade facilitation measures are of benefit to global trade.

Since trade facilitation involves cross border movement of goods, several measures would involve Customs. The fact that one of the core functions of an FTA is to facilitate trade means that Customs is at the centre stage and relevant. On this point, the role of Customs is synonymous with the operations of an FTA. This also explains the strong partnership between the WTO and the WCO in that both share a common goal of facilitating global trade. The preamble to the Convention Establishing a Customs Cooperation Council (WCO, 1950) also brings out that global customs cooperation was motivated by the need to support global trade following the signing of GATT 1947.

4.3. Elimination of duties

The term 'FTA' indicates free trade and consequently, the elimination of border-related taxes. The WTO uses the terms 'duties', 'taxes' and 'customs duties' interchangeably, and has a broad definition that these are taxes on imports and exports, which are levied as goods move across borders.¹² The WCO's Harmonised System (HS) has been used as an instrument to allocate rates of duties and in implementing trade policy issues. From a broader perspective, it can be noted that the elimination of duties in FTAs is consistent with the objectives envisaged in the GATT 1994 which, in the preamble, refers to a desire for 'the substantial reduction of tariffs and other barriers to trade' (GATT, 1994). Whereas it is part of trade policy to identify goods that must be traded duty-free in an FTA, Customs becomes the relevant agency to interpret and implement what would have been agreed in an international agreement.

4.4. Elimination of other restrictive regulations of commerce

Apart from abolishing duties, an FTA must eliminate 'other restrictive regulations of commerce' (ORRC) in the constituent territories.¹³ While ORRC is significant to the meaning of FTAs, and in enhancing trade among its parties, the meaning is not clear. Article XXIV is vague on the scope and

¹² WTO. Understanding the WTO: the agreements. Tariffs: more bindings and closer to zero, https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm2_e.htm, accessed 21 April 2021.

¹³ GATT 1994 Art XXIV:8(b).

coverage of ORRC. The other related term is ‘other regulations of commerce’ (ORC),¹⁴ which is concerned with the elimination of barriers with third parties. ORC is discussed in Section 5.2 below.

It is obvious that ORRC cannot be referring to duties or tariffs because the reference to ORRC is preceded by the conjunction ‘and’, showing that this is an additional requirement to the ‘duties’ which are specified already.¹⁵ The connection between ORRC and trade facilitation is referred to in the *Understanding on the interpretation of Article XXIV of the General Agreement on Tariffs and Trade*, (WTO, 1994), which emphasises the internal liberalisation in FTAs and whose preamble reads:

[...] *Recognizing* also that such contribution is increased if the elimination between the constituent territories of duties and other restrictive regulations of commerce extends to all trade, and diminished if any major sector of trade is excluded;

Reaffirming that the purpose of such agreements should be to facilitate trade between the constituent territories and not to raise barriers to the trade of other Members [...]

This then suggests that ORRC is all about the removal of restrictions affecting the cross-border movement of goods within the FTA such as administrative rules, trade facilitation issues or introducing burdensome surcharges and controls on intra-FTA trade. This view is corroborated by Lockhart and Mitchell (2005) who consider that the whole purpose of eliminating ORRC is, among others, to have a border-free FTA. Trachtman (2002) considers that ORRC is an internal test that calls for the removal of barriers to intra-FTA trade, whereas ORC¹⁶ is concerned with the elimination of barriers with third parties. From the preamble to GATT 1994, it is clear that the agreement on trade in goods is directed towards liberalising ORRC. This was also raised in a WTO case of *Turkey – Restrictions on Imports of Textile and Clothing Products*, ORRC was broadly interpreted as relating to the movement of goods or the commerce within that particular FTA.¹⁷

Despite the vagueness in the interpretation of ORRC, from a simplistic point of view an FTA does not condone barriers to trade with both intra-FTA or third parties. The conclusion from this is that an FTA must not have restrictive laws or procedures for conducting business. As noted in Section 4.2 above, and as an example, Articles 3 and 4 of the AfCFTA Agreement is premised on removing restriction and liberalising trade. The elimination of ORRC in an FTA is therefore part of the process to liberalise trade in

14 ORC is stipulated in GATT 1994 Art XXIV:5(b).

15 GATT 1994 Art XXIV:8(b).

16 ORC is stipulated in GATT 1994 Art XXIV:5(b).

17 *Turkey – Restrictions on Imports of Textile and Clothing Products*: Report of the Appellate Body (22 October 1999) WT/DS34/AB/R [48].

goods, and all these concern facilitating intra-FTA trade. Customs is a player in implementing some of the ORRC at the borders, and to some extent, in introducing some of the restrictive practices in international trade.

4.5. Liberalisation must be on substantially all the trade

One of the characteristics of an FTA is the requirement that liberalisation must be on substantially all the trade (SAT), and this also infers that not all products can be traded duty-free.¹⁸ The adjective ‘substantial’ is judgemental and it invokes different meanings and understandings depending on the person measuring it and those affected by the value so determined. The interpretation of SAT is therefore not definitive and such flexibility creates room for disputes. The following extract from a WTO Appellate Body (AB) report in the case *Turkey – Restrictions on Imports of Textile and Clothing Products* demonstrates the difficulty in defining SAT:

Neither the GATT CONTRACTING PARTIES nor the WTO Members have ever reached an agreement on the interpretation of the term ‘substantially’ in this provision. It is clear, though, that ‘substantially all the trade’ is not the same as *all* the trade, and also that ‘substantially all the trade’ is something considerably more than merely *some* of the trade.¹⁹

While not providing any solution, the above statement merely restates the problem and demonstrates that there are no hard rules in the interpretation, and that each instance would be evaluated on its own merits. In a WTO case, *US – Line Pipe*, it was stated that NAFTA provided for the elimination, within ten years, of all duties on 97 per cent of the parties’ tariff lines, and that was more than 99 per cent of the volume of trade in the RTA.²⁰ Although the case did not involve Article XXIV, the panel was able to remark that such a figure was above the threshold of SAT. Despite not averting the opinion on SAT, the AB was to later observe that the question of Article XXIV was not pertinent to the argument.²¹

In a Working Party Report involving *EC – Agreements with Portugal*,²² the EC argued its case that there was no specific definition of SAT, and while advocating for 80 per cent, it was reasoned that it was not appropriate to prescribe a figure. While Saurombe (2011) accepts these arguments on what substantial should encompass he observes, however, that the unsolved question is the attempt to define what must be excluded from SAT. In another case

18 GATT 1994 Art XXIV:8(b).

19 *Turkey – Restrictions on Imports of Textile and Clothing Products*: Report of the Appellate Body (22 October 1999) WT/DS34/AB/R [48]. [https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=\(@Symbol=%20wt/ds34/ab/r%20not%20rw*\)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#](https://docs.wto.org/dol2fe/Pages/FE_Search/FE_S_S006.aspx?Query=(@Symbol=%20wt/ds34/ab/r%20not%20rw*)&Language=ENGLISH&Context=FomerScriptedSearch&languageUIChanged=true#)

20 *US – Line Pipe*: Report of the Panel (29 October 2001) WT/DS202/R [7.142]. The case was in respect of safeguard measures under GATT 1994 Articles I, XIII and XIV.

21 *US – Line Pipe*: Report of the Appellate Body (15 February 2002) WT/DS202/AB/R [199].

22 GATT Working Party Report on EEC, GATT Doc BISD 20S/171 para 16.

involving the EFTA, the Working Party argued that even with a figure of 90 per cent, that proposal could not be the only criterion for consideration.²³ The proponents of quality argue that SAT must be representative of a cross-section of all sectors involved in trade, and leaving out particular sectors goes against the spirit of Article XXIV that envisaged free circulation of qualifying goods in FTAs and CUs (Nsour, 2010). The qualitative approach is evident in that the word ‘substantial’ is describing ‘all trade.’ Based on the qualitative approach, the exclusion of a whole sector would therefore be contrary to the spirit of GATT.²⁴ Mathis and Breaton (2011) observed that, in practice, the quantity test based on approximately 90 per cent benchmark seems to be generally accepted as a viable indicator for several RTAs, however, it has been subjected to some verification using the test of quality. Although the issue has been debated within WTO jurisprudence, it is still subject to various interpretations and can therefore accommodate a variety of scenarios. There has never been a standardised method for determining the optimal level of SAT, and cases have varied depending on their background (Bhala, 2005). It has therefore been noted that, in view of this, the WTO continues to handle cases on their own merits (Matsushita et al., 2005).

Some customs administrations collect statistics on behalf of governments, while others proceed further to process trade statistics, and to that extent Customs becomes a useful agency in the chain and determining the various elements of SAT. The Harmonized Commodity Description and Coding System or the Harmonized System (HS), which is a customs tool, provides a useful framework to collect data, which can then be used to assess whether qualitative or quantitative trade is substantial or not.

4.6. Trade must be in respect of originating goods

Article XXIV:8(b) is clear that FTA members must grant each other concessions on products that originate within their borders. The rules of origin (ROO) can be viewed as the criteria to define the nationality of a commodity when it moves across borders. ROO exist because governments want to distinguish between foreign and domestic goods and, where necessary, accord preferential treatment (Falvey & Reed, 1998). ROO are an essential component in the operation of an FTA because their purpose is to ensure that the products granted free movement without payment of duty are those which have been defined as originating within the constituent territories of the FTA.²⁵ The criteria determining the ROO would be part of the FTA. This involves legally binding definitions of what is meant by originating products. The ROO are therefore important legal instruments for the application of preferential

23 GATT Working Party Report on EEFI, GATT Doc BISD 96/83 para 48.

24 WTO, Committee on Regional Trade Agreements: Annotated Checklist of Systemic Issues – Note by the Secretariat (26 May 1997) WTO Doc WT/REG/W/16 paras 40–44.

25 AU, UNECA and AfDB (2017). Assessing Regional Integration in Africa VIII: Bringing the Continental Free Trade Area About. UNECA.

trade agreements. FTAs, such as SADC and the AfCFTA, have the rules as a separate annex or protocol, comprising an integral part of their respective agreements.

The application of such rules is critical because it prevents the FTA members from granting each other preferential treatment for goods sourced outside the continent. The rules therefore provide a control system to ensure that only qualifying goods enjoy the FTA preference. A typical annex on ROO would identify goods that must be wholly produced in a territory to qualify as 'originating' and this would be followed by other criteria such as the specific manufacturing or processing operation. Wholly produced goods are those which are wholly obtained, grown or harvested in a territory such as minerals, plants and animals. The second criterion applies to manufactured or assembled goods, as well as those made from materials obtained from a variety of countries including those outside the AfCFTA. This criterion has been difficult to interpret because it is intended to prevent the conferring of origin on goods that have undergone simple processes. The criterion involves technical expertise that must be defined by rules such as: the value addition test; the definition of substantial transformation; and requirements regarding change in tariff classification using the HS Code (LaNasa, 1996).

Free trade in an FTA is for qualifying goods as defined in the ROO. Therefore, an FTA must outline the processes for confirming the claimed origin of goods. Without enforcement measures, an FTA can end up trading in non-qualifying goods or products from non-members. Customs is an important agency to prevent fraud and ensure compliance with ROO by both importers and exporters. The need for skilled customs authorities and cooperation among the enforcement agents cannot be emphasised as this ensures proper implementation of agreed trade agreements.

5. External requirements for a free trade area

While Section 4 above discussed the constituent elements of an FTA, Article XXIV also imposes some rules on how members in an FTA must interact with each other in regulating their own trade. In addition to the requirements governing the intra-FTA liberalisation, Article XXIV also imposes certain obligations concerning how members of an FTA relate their trade with non-FTA members. An FTA has certain obligations that it must comply with or manage with outsiders or third parties. As noted, these requirements include a commitment by the FTA members not to increase trade barriers with non-FTA members belonging to the WTO, and a requirement that tariffs and ORC not be higher or more restrictive.

5.1. Trade barriers with non-free trade areas

It has been noted that while the purpose of an FTA is to facilitate trade among its members, WTO rules forbid FTA members from raising trade barriers against those WTO members not participating in the FTA. From *Turkey – Restrictions on Imports of Textile and Clothing Products*, two major conclusions were drawn regarding the relationships between FTAs and the

WTO.²⁶ The first is that by removing trade restrictions and liberalising it, FTAs enhance the multilateral trading system. The second is that FTAs must generally be acknowledged as operating within the guidance and supremacy of WTO rules.

The WTO members who are not party to an FTA must therefore not be prejudiced by the actions of those who resolve to form their own ‘club’ within the bigger WTO family and agree to facilitate trade among themselves. At the same time, while facilitating intra-FTA trade, there is nothing to prevent FTA partners from reducing trade barriers by doing business with non-members of the FTA. As a result, an FTA must have either a neutral or an advantageous effect on non-members. In practice, non-FTA members might actually benefit from certain measures implemented within an FTA. For example, a measure to automate Customs procedures in the AfCFTA would accrue some benefits to non-AfCFTA members and global trade, as it would result in faster processing of all customs procedures without any discrimination.

5.2. Duties and other regulations of commerce

The relationship between the parties of an FTA and the members of the WTO not party to the FTA, in respect of duty concessions and ORC, is stipulated in Article XXIV: 5(b) as follows:

[...] the duties and other regulations of commerce maintained in each of the constituent territories and applicable at the formation of such free-trade area or the adoption of such interim agreement to the trade of contracting parties not included in such area or not parties to such agreement shall not be higher or more restrictive than the corresponding duties and other regulations of commerce existing in the same constituent territories prior to the formation of the free-trade area [...]. (GATT, 1947)

From a common and general understanding, regulations to commerce affecting trading partners outside an FTA would include licensing requirements and border formalities. In a submission to the WTO by Korea it provided a list of some of the ORCs which were prevalent, including quantitative restrictions and measures of similar effect; Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary (SPS) standards; antidumping and countervailing measures; and ROO.²⁷ ORCs can therefore be interpreted to include trade facilitation instruments developed and implemented within FTAs.

The aim of an FTA is to enhance trade among its members and such a gesture among the participating members must not prejudice non-FTA members. Saurombe (2011) underscores the point that this is in line with the

²⁶ Turkey – Restrictions on Imports of Textile and Clothing Products: Report of the Panel (22 October 1999) WT/DS34/AB/R [9.163].

²⁷ WTO. Negotiating Group on Rules of Origin, Submission on Regional Trade Agreements: Communication from the Republic of Korea (11 June 2003), WTO Doc TN/RL/W/116.

notion that Article XXIV's primary objective was not to make FTAs a barrier to the growth of multilateral trade, but rather to make them a step towards free trade. Consequently, while entering into an FTA, the members must not alter their external trade policies in such a manner that they negatively impact WTO members who are not party to the FTA. It also implies that, when trading with non-members, FTA members would either maintain or reduce tariffs and not raise any trade barriers found in place. In practice, chances are that tariffs involving external trade members of the WTO will gradually be reduced in line with continuous obligations under multilateral trade negotiations. The formation of FTAs, in effect, assures non-members that their tariffs and ORCs have been bound and will not exceed what they were prior to the formation of such an FTA. Customs is therefore placed at the centre to ensure that global trade is in line with GATT rules.

6. Conclusion

Article XXIV has important provisions in international trade law in that it allows for exceptions from the most favoured nation (MFN) principle. It provides for the formation of FTAs and allows them to operate outside the MFN rule. Article XXIV defines an FTA and provides rules governing its operations. Article XXIV therefore permits a coalition of certain members of the WTO to cooperate and extend to each other preferential treatment not accorded to every other member of the WTO. Therefore, FTAs may develop their own legal instruments to liberalise and facilitate trade among their own members. An FTA can therefore legitimately implement more favourable trade facilitation measures if it does not impose additional trade barriers on third parties.

This paper has demonstrated the relevance of Customs in FTAs. The definition itself is comprised of customs and trade-related terms such as customs territories, elimination of customs duties, rules of origin and trade facilitation matters. An FTA represents a liberalised trading regime in respect of qualifying goods. Customs stands at the centre of trade facilitation and the movement of goods across borders and to ensure compliance with the rules agreed by the parties to the FTA. Customs is therefore obliged to ensure that it implements the agreed trade facilitation measures. It is also expected to cooperate to ensure that the movement of goods is not delayed. As such customs administrations play a major role in ensuring the success of an FTA.

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The Connection Formula in Classifying Goods Under the Harmonized System (HS) Convention

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Classification of goods for customs purposes, according to the Harmonized System Convention (HS), affects the tax rates that will or will not be imposed on them, as well as issues related to compliance issues, such as required government approvals, statistical needs, free trade agreements, and so on.

The HS language contains many Headings and Subheadings which relate to the degree of connection between the goods and their usage. These phrases use language such as exclusive use, primary use, special use, designed use of the goods, for example, which will be referred to in this article as the ‘connection formula’.

The HS seems to contain too many types of connection formulae, with the difference between them not always clear.

Therefore, it is suggested to eliminate non-defined terms, and to strive for a method that is as simple as possible. Alternatively, the World Customs Organization (WCO) should consider eliminating the ‘use’ condition and sticking to a narrow description.

1. Introduction

1.1. The Harmonized System Convention

Businesses involved in import of goods, especially customs agents, occasionally encounter dilemmas concerning the classification of goods according to the Harmonized System Convention (HS Convention) (Naujokė, 2023).

The common opinion in the literature is that the HS is a very successful international convention. The HS has 165 signatory states worldwide and is updated every five years. The HS, however, is used in more than 200 states as it is also used by some non-signatories (Allende, 2022; Lasinski-Sulecki, 2022; Oliver & Yataganas, 1987; Schueren, 1991; Vermulst, 1994; Weerth, 2008b, 2008c, 2008e, 2008g, 2008i, 2011, 2012, 2017b, 2017a, 2017c; Wind, 2007).

The HS convention divides goods into Sections, Chapters (2 digits), Headings (4 digits) and Subheadings (6 digits) and tries to implement a universal, worldwide language and rules to classify goods (Weerth, 2008f; World Customs Organization, 2022).

For example, HS code 85.17-13, a Subheading level (of Chapter 85, Heading 85.17) relates to ‘Smartphones’ in every member state that implements the convention.

1.2. The HS Convention in Israel

Israel implemented the HS in the Customs Tariff Order, which adopted the international convention at the six-digit level. The Israeli legislator added two more digits (7-8), called ‘paragraphs’ or ‘articles’ (Israel Tax Authority, 2022).

Classification of goods for customs purposes affects the tax rates that will or will not be imposed on them, as well as issues related to compliance issues, such as required government approvals, statistical needs, free trade agreements, and so on.

Classification of goods is not an easy task and frequently even the most experienced persons may encounter true dilemmas (Kawazoe, 2022).

Technology has been implemented to try and replace the human classifier in, for example, an algorithm or applications, and many steps in this direction have been made (Ding et al., 2015; Lee et al., 2021; Lukaszuk & Torun, 2022; Lux & Matt, 2021; Rotchin, 2022), but in this field, there remains no replacement for a human being.

In one of the famous Israeli Supreme Court Judgements in 2001, the court had to classify a cellular battery (*Eurocom Cellular Communication Ltd vs. The State of Israel – Customs and VAT Department*, 2001). The Israeli customs authority claimed a classification in Subheading 85.07-30, which related to ‘Electronic Accumulators. Nickel-cadmium’. The importer claimed a classification in Subheading 85.29-90, which related to ‘Parts suitable for use solely or principally with the apparatus of headings 85.24 to 85.28’. The judge needed to rule which description is more specific, according to General Interpretive Rule (GIR) 3(a) of the HS, and whether it was in simple language ‘a battery’ of Subheading 85.07-30 or ‘A cellular phone part’ of Subheading 85.29-90. GIR 3(a) rules: ‘The heading which provides the most specific description shall be preferred to headings providing a more general description’. The judge ruled in favour of ‘A cellular part’, but not before he compared customs classification to a Jewish biblical story, and noted that ‘Classification of goods is hard as the Crossing of the Red Sea’ (*Eurocom Cellular Communication Ltd vs. The State of Israel – Customs and VAT Department*, 2001, p. 579). The judge is referring to the story of the Israelites escaping Egypt, led by Moses. When they reached the Red Sea, a miracle happened. The sea divided in two and the Israelites escaped along the dry ground in the middle, while the Egyptians chasing them drowned as the sea engulfed them as they crossed.

1.3. The difference between ‘material’ and ‘usage’

If the HS Convention is a huge success worldwide, is classification a simple task, or a complicated one?

On the one hand, there are relatively simple customs Headings and Subheadings, which relate mainly to material and form and do not raise controversies, for example, Heading 70.09 - ‘Glass mirrors, whether or not framed, including rear-view mirrors’.

On the other hand, however, the HS language contains many customs Headings and Subheadings that relate to the degree of connection between the goods and their usage, such as exclusive use, primary use, special use, designed use; a term which will be referred to in this article as the ‘connection formula’.

This was well described in one of the articles, ‘Basically, goods can be classified by material condition and by function or usage (combinations are possible)’ (Weerth, 2008c, p. 61).

An excellent article by Professor Maureen Irish deals with Canadian and European cases related to customs classification and mentions:

Some tariff classifications refer to the use of the goods without being end use classifications. The goods are not ‘for use in’ a particular sector. Use is mentioned explicitly, however, as part of the description. Standard formulations are that the goods ‘of a kind used with’ some other goods or ‘of a kind used in’ a certain application’. (Irish, 2008, p. 27)

This review will discuss the following connection formulae: exclusive; exclusive or primary; primary; special; intended for; designed; suitable, adapted appropriate; of a kind used in/for/as.

As will be noted, the HS contains too many types of connection formulae with the difference between them not always clear, and the HS Convention itself does not provide a detailed explanation on these phrases. Therefore, it is suggested that non-defined terms be eliminated and a method that is as simple as possible be sought.

Connection formulae exist not only on the Headings and Subheadings level of the HS codes, but also on titles and explanatory notes. This article deals with the wording of the HS codes themselves (Headings and Subheadings) but not the explanatory notes.

The underlining of words within the Headings and Subheadings in this article is intended to emphasise the connection formula and does not appear in the original HS.

2. The basic connection formulae

The connections formulae will be presented in a hierarchical way, starting from the most limited formula, which demands one use of the goods, followed by a formula which allows several uses, and so on.

2.1. The ‘exclusive’ formula

This is the most powerful connection formula, requiring an exclusive one and only use of the goods to classify it in those HS codes. This formula can use the word ‘only’, ‘exclusive’, ‘of a kind used exclusively’, ‘solely’, etc.

‘Exclusive’, according to the dictionary definition (dictionary.com, n.d.), is defined as ‘Limited to the object or objects designated’. Examples of this connection formula can also be found worldwide, including in Israel.

On the international level, some examples are shown in [Table 1](#).

Table 1. HS codes including the ‘exclusive’ formula

Chapter	Heading	Subheading	Description
85	47	-	Insulating fittings for electrical machines, appliances or equipment, being fittings wholly of insulating material apart from any minor components of metal (for example, threaded sockets) incorporated during moulding <u>solely for purposes of assembly</u> , other than insulators of heading 85.46; electrical conduit tubing and joints therefor, of base metal lined with insulating material
88	06	20	Unmanned aircraft. Other, for remote-controlled flight <u>only</u>
94	05	31	Luminaires and lighting fittings including searchlights and spotlights and parts thereof, not elsewhere specified or included; illuminated signs, illuminated name-plates and the like, having a permanently fixed light source, and parts thereof not elsewhere specified or included. Lighting strings of a kind used for Christmas trees: <u>designed for use solely</u> with light-emitting diode (LED) light sources.

In Israel Customs Tariff, for example, ‘Other devices for the transmission or reception of sound, images or data... for reception only’ (Subheading 85.17-6950); ‘Buses which serve exclusively for tours and excursions for tourists’ (Subheading 211) and ‘Machine or Electrical or electronic instrument of the kind used exclusively in laboratories or industry for measure or for sampling of the pollution in air, sea, waterways or soil’ (Subheading 432).

As we all know, progress in technology is fast — every day new products are being invented, many of which may be multi-purpose. This may raise the question whether in 2023 there are products that have only one, exclusive use, and whether this ‘exclusive’ formula is still necessary.

2.2. Solely or principally formula

The next connection formula refers to exclusive or primary use.

Apparently, the HS wants to imply that this is an *almost* exclusive use, because if primary use was enough to classify the goods here, the word ‘exclusive’ is unnecessary. This formula is common in the HS codes as ‘solely or principally’.

Principally is defined as chiefly or mainly. Primarily is defined as essentially, mostly, chiefly and principally (dictionary.com, n.d.)

Examples of this connection formula can be found worldwide, as in [Table 2](#).

Table 2. HS codes including the ‘solely or principally’ formula

Chapter	Heading	Subheading	Description
84	09	91	Parts suitable for use <u>solely or principally</u> with the engines of heading 84.07 or 84.08. Other - Suitable for use <u>solely or principally</u> with spark-ignition internal combustion piston engines
84	86	-	Machines and apparatus of a kind used <u>solely or principally</u> for the manufacture of semiconductor boules or wafers, semiconductor devices, electronic integrated circuits or flat panel displays
84	73	-	Heading 84.73 - Parts and accessories...suitable for use <u>solely or principally</u> with machines of headings 84.70 to 84.72
85	03		Parts suitable for use <u>solely or principally</u> with the machines of heading 85.01 or 85.02.

In 2018, the Israeli Magistrate Court ruled that monitors equipped with a high-definition multimedia interface (HDMI) connector are of the type used solely or principally with computers, and their additional use with multimedia, for example, with TV converters, does not preclude this conclusion (*H.Y. Electronics and Components Ltd vs. The State of Israel, The Tax Authority, Customs and VAT Department*, 2018).

2.3. Primary/principal formula

The next connection formula is primary use, such as those shown in [Table 3](#).

Table 3. HS codes including the 'primary' formula

Chapter	Heading	Subheading	Description
12	11	-	Plants and parts of plants... <u>of a kind used primarily</u> in perfumery, in pharmacy or for insecticidal...purposes
29	36	-	Provitamins and vitamins, natural or reproduced by synthesis (including natural concentrates), derivatives thereof <u>used primarily</u> as vitamins, and intermixtures of the foregoing, whether or not in any solvent
71	12	-	Waste and scrap of precious metal or of metal clad with precious metal; other waste and scrap containing precious metal or precious metal compounds, <u>of a kind used principally</u> for the recovery of precious metal other than goods of heading 85.49.

This formula relates to main use (not exclusive use) therefore it differs in language from the previous one, 'solely or principally'. If, however, the HS convention has a connection formula of 'solely or principally', which includes the main, principal use, maybe it was unnecessary to create a different connection formula of primary/principal use.

2.4. The 'special' formula

The next connection formula differs in language from the previous hierarchy. It is the 'special' or unique use.

'Special', as defined in the dictionary, is having a specific or particular function, purpose, etc. (dictionary.com, n.d.). This definition raises the question of whether it more closely resembles the 'exclusive', or 'principal' formula, presented above.

This special formula exists also on the international level, as outlined in [Table 4](#).

Table 4. HS codes including the 'special' formula

Chapter	Heading	Subheading	Description
73	02	-	Railway or tramway track construction material of iron or steel, the following: rails, check-rails and rack rails, switch blades, crossing frogs, point rods and other crossing pieces, sleepers (cross-ties), fish-plates, chairs, chair wedges, sole plates (base plates), rail clips, bedplates, ties <u>and other material specialized for</u> jointing or fixing rails
86	05	-	Railway or tramway passenger coaches, not self-propelled; luggage vans, post office coaches <u>and other special purpose</u> railway or tramway coaches, not self-propelled (excluding those of heading 86.04)
95	04		Video game consoles and machines, table or parlour games, including pintables, billiards, <u>special tables for</u> casino games and automatic bowling equipment, amusement machines operated by coins, banknotes, bank cards, tokens or by any other means of payment.

It is also used in the Israeli Subheadings, as outlined in [Table 5](#).

Table 5. Israeli HS codes including the 'special' formula

Chapter	Heading	Subheading/ article	Description
38	19	0020	<u>Special</u> hydraulic fluid for supersonic aircrafts
84	81	3030	Valves <u>special</u> for air-conditioning machines
85	18	5020	Paging systems <u>of a kind used specially</u> for fire-engines, ambulances, police cars or civil-defence vehicles
85	28	7140	Reception apparatus...others, <u>specials for</u> reception from satellite or from terrestrial cables
94	04	9012	Cushion which can be attached to the seat of a motor vehicle <u>used specially</u> for elevating children.

The 'special' term has been a stumbling block in Israeli courts. The HS term 'special' has come up for discussion in these courts many times and sometimes contradictory decisions have been made. The courts are not sure what 'special' means: is it an exclusive use, or a primary use, as follows:

- In 1997, the Israeli Supreme Court ruled that the term 'special' refers to a distinct, dominant but non-exclusive use, and that the beeper device is 'special' for work uses and not for private/personal use (*Iturit Communication Services Ltd vs. The State of Israel*, 1997).
- In 2001 the Israeli Court ruled that radio splitters are not 'special' for a motor vehicle, since even if the splitters are pulled out of the vehicle, they do not lose their essence, they can be used for radios outside a vehicle. Thus, they differ from a steering wheel and a seat belt — the latter are special for vehicle (*Auto-Part Ltd vs. The State of Israel, Customs and VAT Department*, 1503/00, 2001).
- In 2009–2011, Israeli courts were required to decide what would be considered as special ironing machines for the textile industry. The goods were machines which could iron 60 shirts per hour, therefore the importer claimed it was special for the textile industry. The courts ruled that the meaning of the term special is dominant, primary, with a specification specific to that use. In the specific case, it was ruled

that the machines were not special to the textile industry, since it also served the laundering industry (*Tam.A.S. Industries Ltd vs. The State of Israel (Ashdod customs house)*, 2011; *Tam.A.S. Industries Ltd vs. The State of Israel (Ashdod customs house)*, 2009).

- In the years 2015–2017, the Israeli courts decided on the question of what would be considered a special filter for air-conditioning systems. The Magistrates' Court considered 'special' as exclusive, and the District Court considered 'special' as principal (*Filt Air Ltd vs. The State of Israel Tax Authority*, 2015; *The State of Israel vs. Filt Air Ltd*, 2017).
- In June 2021 the Central District Court was required to decide whether a communication device is 'special for cable reception'. The court ruled that 'special', means exclusive or almost exclusive (*Hot Telecom limited partnership vs. The State of Israel, The Tax Authority, Customs and VAT Department*, 2021).

2.5. The 'designed' formula

The next formula is 'design', meaning goods which are 'designed to...'.

Designed, as defined in the dictionary (dictionary.com, n.d.), means made or done intentionally, intended or planned. This phrase again raises the question of whether it is more exclusive, main, or special, as presented before.

The designed connection formula exists on the international level as outlined in [Table 6](#).

Table 6. HS codes including the 'designed' formula

Chapter	Heading	Subheading	Description
30	06	30	Opacifying preparations for X-ray examinations; diagnostic reagents <u>designed</u> to be administered to the patient
84	13	10	Pumps fitted or <u>designed</u> to be fitted with a measuring device
84	18	91	Furniture <u>designed</u> to receive refrigerating or freezing equipment
84	26	91	Ships' derricks; cranes, including cable cranes; mobile lifting frames, straddle carriers and works trucks fitted with a crane Other machinery – <u>Designed</u> for mounting on road vehicles
85	13	-	Portable electric lamps <u>designed</u> to function by their own source of energy (for example, dry batteries, accumulators, magnetos), other than lighting equipment of heading 85.12
87	04	10	Dumpers <u>designed</u> for off-highway use
90	13	10	Telescopic sights for fitting to arms; periscopes; telescopes <u>designed</u> to form parts of machines, appliances, instruments or apparatus of this Chapter or Section XVI
93	03	-	Other firearms and similar devices which operate by the firing of an explosive charge (for example, sporting shotguns and rifles, muzzle-loading firearms, Very pistols and other devices <u>designed</u> to project only signal flares, pistols and revolvers for firing blank ammunition, captive-bolt humane killers, line-throwing guns)
96	11	-	Date, sealing or numbering stamps, and the like (including devices for printing or embossing labels), <u>designed</u> for operating in the hand; hand-operated composing sticks and hand printing sets incorporating such composing sticks.

2.6. The ‘intended’ formula

The next connection formula uses the word ‘intention’, meaning goods which are intended for a use. Intended, according to the dictionary, is purposed or designed (dictionary.com, n.d.).

This formula exists in the following HS codes as shown in [Table 7](#).

Table 7. HS codes including the ‘intended’ formula

Chapter	Heading	Subheading	Description
24	04	-	Products containing tobacco, reconstituted tobacco, nicotine, or tobacco or nicotine substitutes, intended for inhalation without combustion; other nicotine containing products <i>intended</i> for the intake of nicotine into the human body
85	05		Electro-magnets; permanent magnets and articles <i>intended</i> to become permanent magnets after magnetisation; electro-magnetic or permanent magnet chucks, clamps and similar holding devices; electro-magnetic couplings, clutches and brakes; electro-magnetic lifting heads.

It appears from the relevant literature that the European Union Court of Justice (ECJ) sometimes uses the ‘intended use’ formula to classify goods even when the word ‘intended’ is not listed in the HS codes themselves, as noted, ‘The ECJ also relies on an “intended use” criterion in its interpretive rulings under Rule 1’ (Vermulst, 1994, p. 1271).

On the other hand, there were cases where the ECJ ignored the intended use and explained it is a difficult parameter to conclude:

The method employed for producing the article and the actual use for which the article is intended cannot be adopted by [customs] authorities as criteria for tariff classification, since they are factors which are not apparent from the external characteristics of the goods and cannot therefore be easily appraised by the customs authorities...

The Court argues that such criteria are too subjective: they are not inherent characteristics of the goods, so customs authorities cannot rely on them at the time of importation.’ (Vermulst, 1994, pp. 1282, 1283)

Irish states:

According to this approach, if the intended use is not inherent in the physical characteristics of the goods, it should not be a factor in determining classification. (Irish, 2008, p. 5)

Since ‘intention’ is relatively subjective — one importer can use the goods in one way, while another importer can use the goods in a different way — the intention parameter for classifying goods seems to be problematic.

2.7. The ‘suitable’ formula

The following connection formula uses the word ‘suitable’, meaning goods which are suitable for a purpose. ‘Suitable’ is defined as appropriate, fitting or becoming (dictionary.com, n.d.).

The differences between suitable, intended, designed and special may raise interpretation questions.

The ‘suitable’ HS codes include those outlined in [Table 8](#).

Table 8. HS codes including the ‘suitable’ formula

Chapter	Heading	Subheading	Description
35	06	10	Products <u>suitable</u> for use as glues or adhesives, put up for retail sale as glues or adhesives, not exceeding a net weight of 1 kg
43	01	90	Heads, tails, paws and other pieces or cuttings, <u>suitable</u> for furriers' use
59	-	-	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind <u>suitable</u> for industrial use
70	07	21	Safety glass, consisting of toughened (tempered) or laminated glass. – Of size and shape <u>suitable</u> for incorporation in vehicles, aircraft, spacecraft or vessels.

There is also ‘equally suitable’, see Subheading 84.73-50 — Parts and accessories equally suitable for use with the machines of two or more of the headings 84.70 to 84.72.

2.8. ‘Of a kind’ formula

As presented above, there are goods of the type used solely or principally. The next formula deals with goods which are ‘just’ of the type/kind used, without a requirement of primary or exclusive, but of the type used in..., of the type used for..., or of the type used as...

‘Of a kind’ is defined as of some sort, but not a typical or perfect specimen (dictionary.com, n.d.).

The HS codes which include this connection formula are outlined in [Table 9](#).

Table 9. HS codes including ‘of a kind’ formula

Chapter	Heading	Subheading	Description
12	09	-	Seeds, fruit and spores, <u>of a kind used</u> for sowing
32	06		Other colouring matter; preparations... inorganic products <u>of a kind used</u> as luminophores, whether or not chemically defined
40	12	13	Re-treaded or used pneumatic tyres of rubber; solid or cushion tyres, tyre treads and tyre flaps, of rubber – <u>Of a kind used</u> on aircraft
48	02	20	Paper and paperboard <u>of a kind used</u> as a base for photo-sensitive, heat-sensitive or electro-sensitive paper or paperboard
63	05	-	Sacks and bags, <u>of a kind used</u> for the packing of goods
84	13	11	Pumps for dispensing fuel or lubricants, <u>of the type used</u> in filling-stations or in garages
84	25	41	Pulley tackle and hoists other than skip hoists; winches and capstans; jacks. Built-in jacking systems <u>of a type used</u> in garages
85	12	10	Lighting or visual signalling equipment <u>of a kind used</u> on bicycles
87	09	-	Works trucks, self-propelled, not fitted with lifting or handling equipment, <u>of the type used</u> in factories, warehouses, dock areas or airports for short distance transport of goods; tractors of the type used on railway station platforms; parts of the foregoing vehicles.

In the literature it is mentioned that the phrase ‘of a kind used’ does not demand a primary or special use:

Standard formulations are that the goods are ‘of a kind used with’ some other goods or ‘of a kind used in’ a certain application...

According to the tribunal [the Canadian International Trade Tribunal], if Parliament [of Canada] had intended to require that the imports be designed to be used primarily in a certain way, the description would have stated it specifically. To be classified in the tariff item, imports had to be capable of, or suitable for, use with the listed goods, but there was no need to demonstrate primary use or any actual use at all. (Irish, 2008, pp. 27, 28)

In one EU case mentioned in the literature (Vermulst, 1994, p. 1271), the ECJ needed to interpret the phrase ‘of a kind used in..’ and applied the ‘intended use’ formula as an assisting rule.

It is interesting to note that in an old case in 1998 the Israeli Court needed to interpret whether an imported machine could be classified as ‘of a kind used for selling bus tickets’ (*Haim Brunstein vs. Customs, VAT and Purchase tax Director*, 1998). In reality, it was undisputable that the machine could not fulfil this purpose at the time of importation. It had to be adjusted to do this in Israel in a relatively simple process. The court ruled that the term ‘of a kind used as...’ shall be interpreted as goods having the potential use, even if at time of importation the goods are unable to serve this purpose.

2.9. The ‘for’ formula

The next connection formula will demonstrate that even one short word, such as ‘for’, can create a formula. Apparently, this is the loosest connection formula. It does not require exclusive, primary, special, or intended use. If the goods can be used for the purpose defined, even if they have many other uses, they can be classified in this description.

Some examples of this loose connection formula are outlined in [Table 10](#).

Table 10. HS codes including the ‘for’ formula

Chapter	Heading	Subheading	Description
90	06	91	Photographic cameras...Parts and accessories – <u>for</u> cameras
92	09	91	Parts and accessories <u>for</u> pianos.

In Canada it was ruled that ‘for’ is a similar formula to the phrase ‘of a kind used for...’: ‘The tribunal said that the phrase ‘of a kind used for domestic purposes’ had the same meaning as ‘for domestic purposes’ (Irish, 2008, p. 28).

In 2007, the Israeli Court ruled that in the Subheading relating to ‘machinery and electrical appliances... for television’, it is sufficient that one of the uses of the goods is for television to be classified in this item, and there is no need to prove exclusive or primary use (*Bi-Sat Ltd vs. The State of Israel, Customs department, 2009*; *Bi-Sat Ltd vs. The State of Israel, Customs department, 2007*). The court further explained that the HS had many types of connection formulae, which are organised by a hierarchy, from exclusive use through to any use:

The plaintiffs rightly claim in their summaries that the enactor of the customs tariff distinguishes between several types of use of goods. When an exclusive use of goods is required for a particular purpose, this is explicitly stated. For example, it is stated in Subheading 90.06-5120 regarding cameras ‘whose sole use is in automatic data processing machines.’ Less stringent use, sufficient for a particular primary use. For example, subheading 85.04-2110 refers to a particular transformer of the type ‘whose sole or primary use is for welding or soldering’, and for example subheading 85.18-1010 refers to ‘special telephone’ microphones. The loosest degree of use is when the definition is satisfied that the goods will be used for a particular use, without it having to be a unique or exclusive use. For example, subheading 84.52-1000 refers to sewing machines of the household type. It does not have to be the sole or primary use. (*Bi-Sat Ltd vs. The State of Israel, Customs department, 2007, p. 7*)

While in Canada, a relatively different approach was noted: ‘It may be natural to expect that when goods are to be ‘for’ a certain purpose, that purpose should be their primary purpose’ (Irish, 2008, p. 29).

3. The integrated connection formulae

Up until now, one- or two-word connection formulae have been presented. When looking deeper into the HS wording, however, more complicated connection formulae can be found. Either these formulae use new concepts, or they combine a few formulae.

3.1. Normal use, or usually?

The connection formulae so far discussed have included, among others, an exclusive, primary, or of a kind used. This new formula deals with a common/normal use. Commonly is defined as often, frequently, usually or generally. Normally is defined very similarly, as ordinarily or usually (dictionary.com, n.d.).

The HS codes in [Table 11](#) use this formula.

Table 11. HS codes including the 'normal' formula

Chapter	Heading	Subheading	Description
25	17	10	Pebbles, gravel, broken or crushed stone, <u>of a kind commonly used</u> for concrete aggregates, for road metalling or for railway or other ballast, shingle and flint, whether or not heat-treated
42	02	30	Articles <u>of a kind normally</u> carried in the pocket or in the handbag.

It seems that this formula is like 'of a kind used...', and the addition of the word 'normally' or 'commonly' does not change its meaning.

3.2. Special or principal design

Formulae previously presented dealt with special goods, goods used principally for... and designed goods. Some combinations of these formulae can be found in the HS codes in [Table 12](#).

Table 12. HS codes including the 'specially designed' formula

Chapter	Heading	Subheading	Description
42	03	21	Gloves... <u>specially designed</u> for use in sports
84	28	31	Other lifting, handling, loading or unloading machinery (for example, lifts, escalators, conveyors, teleferics) – <u>Specially designed</u> for underground use
84	52	-	Sewing machines, other than book-sewing machines of heading 84.40; furniture, bases and covers <u>specially designed</u> for sewing machines; sewing machine needles
86	09	-	Containers (including containers for the transport of fluids) <u>specially designed</u> and equipped for carriage by one or more modes of transport
87	03		Motor cars and other motor vehicles <u>principally designed</u> for the transport of persons (other than those of heading 87.02), including station wagons and racing cars
90	06	30	Cameras <u>specially designed</u> for underwater use, for aerial survey or for medical or surgical examination of internal organs; comparison cameras for forensic or criminological purposes
90	30	40	Other instruments and apparatus, <u>specially designed</u> for telecommunications (for example, cross-talk meters, gain measuring instruments, distortion factor meters, psophometers).

The ‘specially designed’ phrase concerning gloves was also discussed in a Canada court case, where it was ruled that it covers gloves used and designed for the sport of target shooting (Irish, 2008, p. 31).

If the HS already has a formula for goods that are ‘special’ for a purpose, and different codes for goods ‘designed’ for a purpose, perhaps there was no rationale for creating a formula of ‘specially designed’.

3.3. The actual use

The Israeli Customs Tariff, it should be noted, also includes definitions that demand the actual, de facto use of the goods, not only potential use, to classify the goods in these Subheadings. In Israel, these are called ‘conditional exemption’ Subheadings, in which the importer must file a request, in advance, to classify the goods in these Subheadings. Section 6(f) of the Israeli Customs Tariff, rules:

For the purposes of this Section, if goods were classified according to a conditional subheading, due to a certain use or designation, the conditionality of the subheading shall apply only if the said use or designation is fulfilled.

After importation, the Israeli customs authority occasionally conducts audits to verify the post-importation use of the goods. Some examples are outlined in [Table 13](#).

Table 13. HS codes including the actual use formula

Chapter	Heading	Subheading	Description
22	08	9040	Undenatured Ethyl Alcohol...that the director-general of the ministry of health has approved that it is intended for medical needs in hospitals, health maintenance... <u>if used</u> (conditional)
85	01	4092	Electric motors and generators...other, <u>if used</u> for the manufacture of ventilators (conditional)
85	28	4910	Monitors and projectors... <u>if it serves</u> an industrial plant, scientific institutions...(conditional).

For comparison, the Canadian Customs Tariff also includes ‘actual use’ items, as noted in Irish:

The items depended on the actual use of the imported goods, not on evidence of chief or principal use in the general market. Such end use items are not part of the six-digit nomenclature of the HS...

Instead of drafting very detailed descriptions of relevant goods so that only a given industry or activity could benefit, the legislator provided for the end use directly and stipulated that the use had to be met in order for the goods to qualify...

Classification under end use items depended on the actual use of the goods imported, not on their primary, normal, or ordinary use. (Irish, 2008, pp. 3, 18, 19)

3.4. Combination of four connection formulae

The following Subheading is unique to Israel. It combines four connection formulae (exclusive, main, special, of a kind). Subheading 40.08-1110 of the Israel Customs Tariff refers to ‘Plates, sheets and strips...which are specialy and are exclusively or mainly used with a certain kind of machine or device, of any Heading of Section XVI or Chapter 90 of Section XVIII’.

4. The HS needs less connection formulae, or none

As discussed, the HS, both at the international 6-digit level and the Israeli articles, include many types of connection formulae between the goods and their use.

The connection formulae begin with exclusive, then solely or principally, followed by primary use. The HS contains concepts like special, designed, of a kind used and intended, and it is not clear in the end what the difference is between the concepts.

Moreover, there are customs Subheadings which combine two or more definitions, and even four definitions together. These connection formulae continue to create incessant discussions between importers and customs authorities in Israel and across the world. Even the courts have difficulties regarding the interpretation of these terms and sometimes conflicting rulings are pronounced.

In truth, it seems that as part of the support crew of importers, on top of the accountant, lawyer, tax consultant and customs agent, importers may soon have to hire linguists — experts in language — to interpret the language as a basis for classifying goods (Feichtner, 2008; Irish, 1994).

It is well known that many countries allow importers to apply for a pre-ruling classification decision to minimise the uncertainty (Gavier & Rovetta, 2009; Makarenko, 2019; Savage, 2022, 2023; Vermulst, 1994, pp. 1261, 1315; Weerth, 2008h).

This tool is important, but apparently is insufficient, since pre-ruling may solve the specific importation of goods, but it cannot solve the deeper interpretive question, the difference between all the connection formulae which occur in different Subheadings. Pre-ruling regime has additional problems, as was noted:

There is still a long way to go for most nations because the introduction of binding advance tariff classification rulings is not an easy task. It is not only about customs laboratories or capacity building. The introduction of binding advance rulings on tariff classification requires sound training and an infrastructure that ensures that the requests are answered in an adequate timeframe and binding information is issued (and possibly revoked) according to the current HS rules and classification decisions. (Weerth, 2008a, p. 44)

Despite the success of the HS worldwide, it seems that there are many non-defined terms and connection formulae that should be amended. Therefore, it is suggested that the definitions of the connection formulae should be reduced to three groups:

1. Group 1: Exclusive use — exclusively. Goods that have only one use. If they have more than one, even if the additional use is negligible, they will not be classified in this group. There is no longer a need for the definition of ‘exclusive or primary/principally’. It should be noted that with the advancement of technology, products designed for single use are declining.
2. Group 2: Main use — the definitions of main, principal, special, intended, designed and suitable should be removed and will be included under the new definition — main.
3. Group 3: Any use. Goods that can be proven to be used for this purpose will be classified here, even if it is not their primary use; the main issue being that it is one of their uses. This is as long as there are no other customs headings describing the main use.

Ultimately, it is recommended that the difference in definitions be minimised and all connection formulae deleted, leaving only three definitions. The HS convention mentions explicitly that its purpose was to reduce controversies in customs classification. The HS Convention states that contracting parties are:

Desiring to facilitate intentional trade.

Desiring to reduce the expense incurred by redescribing, reclassifying and recoding goods as they move from one classification system to another in the course of international trade and to facilitate the standardization of trade documentation and the transmission of data.

It is well known that the WCO amends the HS when it is deemed necessary (Grooby, 2022; Thomas, 2021; Weerth, 2008d). Therefore, to produce legislation and customs classification as clear and simple as possible, as the HS was intended to be, all non-defined connection formulae should be deleted.

Clarity is of course not the only factor in classifying goods, but it is a very important one. If the language of the HS is unclear, problems will continue to appear.

Alternatively, since ‘connection formulae’ are subjective and many cannot be determined from the physical parameters of the goods, the WCO could consider eliminating the ‘use’ condition and instead use a narrow descriptive method.

It is worth mentioning that there are scholars who believe otherwise that the ‘use’ condition should be kept:

With the adoption of the HS, it would be a mistake to abandon all consideration of use and attempt to classify goods solely according to physical properties...

A focus directed solely to physical characteristics does not, in fact, provide a secure guarantee against circumvention. (Irish, 2008, pp. 15, 16, 17)

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Improving the Assessment of the Solvency of Authorized Economic Operators in Bulgaria

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In achieving a balance between the ever-increasing requirements on customs administrations regarding the security and safety of international trade on the one hand, and the desire of merchants for easy and quick customs clearance of their goods on the other, so-called ‘simplified customs procedures’ and in particular, Authorized Economic Operator (AEO) status, play an important role. To obtain AEO status, several requirements (criteria) must be fulfilled, including proof of their financial solvency. To date, the Bulgarian customs administration has not developed a single method that allows a more accurate assessment of solvency. This paper presents an analytical method designed to achieve this aim.

1. Introduction

Modern European customs administrations strive to reduce customs procedures for economic operators who are honest in their dealings with them. Simplified customs procedures are increasingly being used in the European Union, and one of the ways to access them, with the highest degree of security for customs administrations and with the greatest benefits for companies, is via AEO status. By determining that certain members of the trading community are compliant, that is, ‘low risk’, the administration can focus its attention on those for which the risk has yet to be assessed. The World Customs Organization’s AEO program, which embodies the principles of risk management, encourages administrations to actively identify low-risk members of the international trading community for this reason (Widdowson, 2020). AEO status provides an opportunity for economic operators to access simplified customs procedures and helps to build reliable global supply chains (Antov, 2017).

Considering the importance of AEO status, its policies and procedures should be studied thoroughly with a view to improving their reliability and efficiency. The statutory criteria for providing economic operators with AEO status include: compliance with customs legislation and taxation rules, including zero records of serious criminal offences relating to the economic activity of the applicant; a satisfactory system of managing commercial and, where appropriate, transport records, which allows appropriate customs

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controls; practical standards of competence or professional qualifications directly related to the activity carried out; appropriate security and safety standards and proven financial solvency.

The fulfilment of the first four criteria is assessed through documentary and material checks generally accepted in the field of customs control and should not be considered a challenge for the customs authorities. However, the situation is different with the criterion of proven financial solvency of economic operators because the control mechanisms provided for it go beyond the scope of conventional customs control. In practice, solvency is proved using predominantly financial analysis, which can be regarded as an underused method in customs theory and practice.

2. The problem

The proven financial solvency criterion should not be underestimated, bearing in mind that the AEO certificate is issued for a future period, and it must guarantee with a reasonable degree of certainty the solvency of economic operators during the next three-year minimum period set by the legislation. Such decisions should be the result of a detailed study of the solvency of the economic operators, that is, of a thorough and expedient analysis, because the AEO companies can be considered to be a privileged user of simplified customs procedures. These persons receive easier access to customs facilities and preferential treatment in the execution of procedures under customs control throughout the territory of the European Union, and not only in the member state in which they have settled or are certified as an AEO.

According to the provisions of Art. 38 of the Union Customs Code¹, companies applying for AEO status and those already certified should meet certain criteria for honesty and security in their relations with customs authorities throughout the EU, including the criterion of proven financial solvency. To prove the financial solvency of economic operators, the European Commission (EC) recommends that customs authorities consider two key financial indicators:²

- Net short-term asset value. This indicator is calculated by subtracting the short-term liabilities of the economic operator from the short-term assets.
- Net asset value. It is calculated by subtracting the total liabilities from the total assets owned by a given economic operator.

The two main indicators recommended by the EC, however, do not sufficiently prove the solvency of the AEOs. The grounds for this statement are as follows:

1 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 10, 2013).

2 TAXUD/B2/047/2011 – Rev.6. Authorised Economic Operator Guidelines. European Commission, Directorate-General Taxation and Customs Union. Brussels, 11 March 2016, p. 44.

- Regarding the first indicator, the positive net worth of short-term assets (the difference between short-term assets and short-term liabilities of the company) only proves the presence of working capital. However, it is entirely possible that even with an increase in working capital during the three consecutive years laid down by the legislation, there may be difficulties in payments. Thus, for example, low-liquidity short-term assets (inventories and overdue receivables) may represent a relatively predominant portion of short-term assets.
- Regarding the second indicator, positive net worth of assets, defined as the difference between the total assets and the total liabilities, only indicates the presence of equity ($E > 0$). However, there is such ready-to-use information in the balance sheet and in practice, there is no need to calculate it additionally. Moreover, the equity may be a positive value, but the company may have in practice lost its economic independence (the relative share of all liabilities may be many times greater than the equity share).

A specific economic operator may meet the recommendations of the EC on both main absolute indicators, but despite this, its solvency may not be proven. Similar comparisons based only on absolute indicators are made in financial analysis, but they are significantly more in number (Mihaylov et al., 2013) and are used only for the most general (initial) assessment of the financial position of the companies. In some of these comparisons, the equity is compared with non-current (long-term) assets and total liabilities, after which key balance sheet ratios are analysed — basic ratios are calculated, which by their nature are relative indicators. Even if the financial position of the company is assessed through six ‘conditions for financial sustainability’ based on absolute indicators, these conditions are considered ‘extremely insufficient’ (Todorov, 2014, pp. 215–219). Therefore, the two main absolute indicators recommended by the EC can be defined as a general assessment of the solvency of economic operators. However, the general assessment should be supplemented (extended) with an analysis of relative indicators, which should be part of a future methodology for analysing the solvency of economic operators.

Therefore, the two main absolute indicators recommended by the EC cannot be regarded as sufficient conditions (guarantees) for future repayment of the obligations of economic operators, including the obligations to the customs administration. They must instead be regarded as the beginning of a more detailed study aimed at proving the past and future solvency of a specific economic operator. The current requirements within the proven financial solvency criterion can be characterised as highly underestimated, due to which the risk of unjustified AEO certification is quite real. The prevailing approach for proving solvency testifies to an underestimation of this criterion in AEO certification. The customs administration granting the AEO certificate should guarantee to the public with a much higher degree of certainty that the

economic operator is solvent not only at the date of granting the certificate, but also in the foreseeable future (the next three-year period for which the AEO certificate is valid). The need for a more substantiated proof of solvency is also caused by the fact that the AEO certificate enhances the image of the economic operator.

Studying the positive net worth of short-term assets and total assets does not provide a definitive answer to the question: did the economic operator have solvency problems during the past period for which it had AEO certification? Moreover, using these two absolute indicators does not give an answer to the much more important question — will the economic operator be solvent during the next three-year certification period? By developing a suitable methodology for solvency analysis, not only can these questions be answered, but also the reasons for changes in solvency can be highlighted. When developing the methodology for analysing economic operators' solvency, a comprehensive approach focused on the use of a system of relative indicators in three directions should be applied:

- First direction: forming an integral indicator of economic operators' solvency. The analysis in this direction provides the opportunity to obtain a clearer picture of the solvency of a specific economic operator during the past certification period.
- Second direction: calculating an integral indicator which determines the probability of economic operators' bankruptcy. Such calculation is necessary to increase the degree of certainty regarding the operation of the company during the next certification period.
- Third direction: studying the specific indicators used in the formation of the two integral indicators.

An advantage of the proposed two integral indicators is that they represent a generalised expression of several specific financial indicators, which reduces the likelihood that the results of the analysis will be influenced by manipulation of the financial statements (Todorov, 2014). Studying the specific indicators contributes to the characterisation of solvency and the probability of bankruptcy from different points of view.

3. Forming an integral solvency indicator

As regards the first direction (forming an integral indicator of economic operators' solvency), the suitable methods are ones for preparing complex assessments. Their advantage is in the possibility of carrying out a comparative analysis by multiple indicators, differing in the metrics used and in the way of interpretation with the same direction of change. This group includes: the taxonomic method; the method of sums; the method of geometric mean; the method of coefficients and the method of distances (Bakanov & Sheremet, 1995). The comparisons can be made based on absolute and relative indicators, but significantly greater weight is given to comparisons made using relative indicators (Kovalev & Volkova, 2002).

The taxonomic method is one of the most frequently used methods for preparing complex assessments. For the purposes of this paper, it is used to assess the financial solvency of Aurubis Bulgaria PLC. It is necessary to emphasise that the main point is not to analyse the current state of the company, but to present a methodology for assessing the solvency of AEOs. Therefore, actual data for a period of four consecutive calendar years, which are not specifically stated, are used. The analytical procedures are carried out in the following order:

Stage 1. A matrix X is created, in which n years³ participate with m indicators. When forming the integral solvency indicator, it is necessary to include specific relative indicators that reflect the main aspects of the financial position:

- total liquidity ratio (TLR), calculated as the ratio of current assets to current liabilities
- solvency ratio (SR), which is the ratio of equity to liabilities
- interest coverage ratio (ICR), giving an idea of the company's ability to pay interest expenses from the amount of gross profit (ratio of gross profit to interest expenses)
- current asset turnover ratio (TR), calculated as the ratio of net sales to current assets
- return on equity (ROE), which is a percentage ratio of net income to equity.

The values of the given relative indicators are obtained after processing the data in absolute terms from [Table 1](#) and are presented in matrix X in [Table 2](#), in which the five indicators are calculated for each of the four years.

Stage 2. Matrix X is replaced by matrix H . The members of the H matrix are found as the difference between the level of each indicator (for each year) of the X matrix and the average value of the corresponding indicator (\bar{x}) is referred to the mean square deviation of the corresponding indicator (σ). The mean values and mean square deviations of the indicators are calculated in [Table 2](#), and the new matrix H is differentiated in [Table 3](#).

Stage 3. [Table 3](#) presents a combination of data for a benchmark year (ideal state of solvency) — the optimal results of the company are selected for each specific indicator. In contrast to the ideal state, the most unfavourable levels of the indicators are arranged and a state of solvency, which is at a maximum distance from the benchmark, is distinguished. In the presence of such a

³ In the original version of the taxonomic method, matrix X is compiled by selecting n number of companies, which are compared according to m indicators. This is because the method is mostly used when rating the financial state of several companies or when comparing the results of homogeneous objects within a specific company. The present study compares four consecutive years: XXX1 – the year preceding the first audit of Aurubis Bulgaria PLC for the purpose of AEO certification; XXX4 – the year preceding the second audit of the economic operator and the two intermediate years (XXX2 and XXX3).

Table 1. Input information using data from the Republic of Bulgaria Registry Agency (n.d.)

Indicators (million EUR)	Symbols	Years			
		XXX1	XXX2	XXX3	XXX4
Current assets	CA	537.671	431.200	431.957	514.373
Current liabilities	CL	278.080	164.867	200.801	282.142
Total assets	A	752.459	648.317	633.669	706.540
Liabilities	L	358.427	178.884	211.191	293.443
Equity	E	394.032	469.432	422.478	413.097
Earnings before interest and taxes	EBIT	198.154	109.789	23.706	87.340
Net earnings	NE	115.693	102.816	19.382	61.138
Retained earnings	RE	244.537	317.378	266.708	267.892
Sales revenue	SRev	2,388.720	2,207.674	2,272.074	2,112.555
Interest expenses	IE	5.597	4.318	3.857	0.520

Table 2. Values of the specific indicators included in forming the integral solvency indicator

Indicators	Matrix X					
	Years				\bar{x}	σ
	XXX1	XXX2	XXX3	XXX4		
TLR	1.93	2.62	2.15	1.82	2.13	0.30
SR	1.10	2.62	2.00	1.41	1.78	0.58
ICR	35.40	25.43	6.15	167.97	58.74	63.94
TR	4.44	5.12	5.26	4.11	4.73	0.48
ROE	29.36	21.90	4.59	14.80	17.66	9.14

Table 3. Converted values of the specific indicators

Indicators	Matrix H					
	Years				Maximum	Benchmark
	XXX1	XXX2	XXX3	XXX4		
TLR	-0.65	1.60	0.07	-1.01	-1.01	1.60
SR	-1.17	1.44	0.37	-0.64	-1.17	1.44
ICR	-0.36	-0.52	-0.82	1.71	-0.82	1.71
TR	-0.61	0.82	1.11	-1.32	-1.32	1.11
ROE	1.28	0.46	-1.43	-0.31	-1.43	1.28

condition, the distance to the most unfavourable combination of indicators characterising the solvency of the studied economic operator can be calculated. On this basis, a distance scale is developed, through which more complete information on the solvency of the economic operator is obtained.

Stage 4. Additional calculations are performed using the method of least squares. In [Table 4](#) for each of the indicators the squared differences between their converted values by years and the converted values of the benchmark year are calculated. The same is done in relation to the year with the maximum remoteness from the benchmark. The sums of these differences (distances) give

Table 4. Distances of the converted values of the specific indicators to the converted values of the benchmark year

Indicators	Years				Maximum
	XXX1	XXX2	XXX3	XXX4	
<i>TLR</i>	5.04	0.00	2.34	6.81	6.81
<i>SR</i>	6.82	0.00	1.14	4.34	6.82
<i>ICR</i>	4.30	4.97	6.41	0.00	6.41
<i>TR</i>	2.96	0.09	0.00	5.89	5.89
<i>ROE</i>	0.00	0.67	7.35	2.54	7.35
<i>Sum of distances</i>	19.12	5.72	17.24	19.57	33.27

an idea of the remoteness of solvency for each year from the solvency of the benchmark year. The solvency of the economic operator is the highest during the year with the minimum sum of distances to the benchmark year.

Stage 5. Developing a scale of distances from the benchmark solvency. Depending on the sums of the distances of each year from the benchmark year and their positioning on the scale, the corresponding assessments in terms of solvency are drawn up. The offered scale is five-level — with two positive, one neutral and two negative intervals. Each year can receive one of five possible assessments. The assessment is favourable (very good or good) in the first two intervals, where the degree of remoteness tends to the minimum (zero). An average assessment is obtained at a moderate remoteness from the ideal state. The assessment is unfavourable (low or very low) in the last two intervals, characterised by the maximum remoteness from the benchmark year.

The scale of distances is developed in the following order:

- determining the initial point on the scale: it is always zero (this is predetermined by the minimum probability of a year existing with optimal levels of all indicators)
- setting the end point on the scale: it matches the sum of the distances of the year with the maximum remoteness from the benchmark year ($D_{Max}=33.27$)
- calculating the size of the scale interval (I): it is obtained by referring the sum of distances from the benchmark year to the year with the maximum distance from the benchmark to the number of intervals:

$$I = \frac{D_{Max}}{5} = \frac{33.27}{5} = 6.65$$

- intermediate points positioning (Ip) on the scale:

$$\begin{aligned} Ip_1 &= I = 6.65 \\ Ip_2 &= 2 \times I = 2 \times 6.65 = 13.31 \\ Ip_3 &= 3 \times I = 3 \times 6.65 = 19.96 \\ Ip_4 &= 4 \times I = 4 \times 6.65 = 26.62 \end{aligned}$$

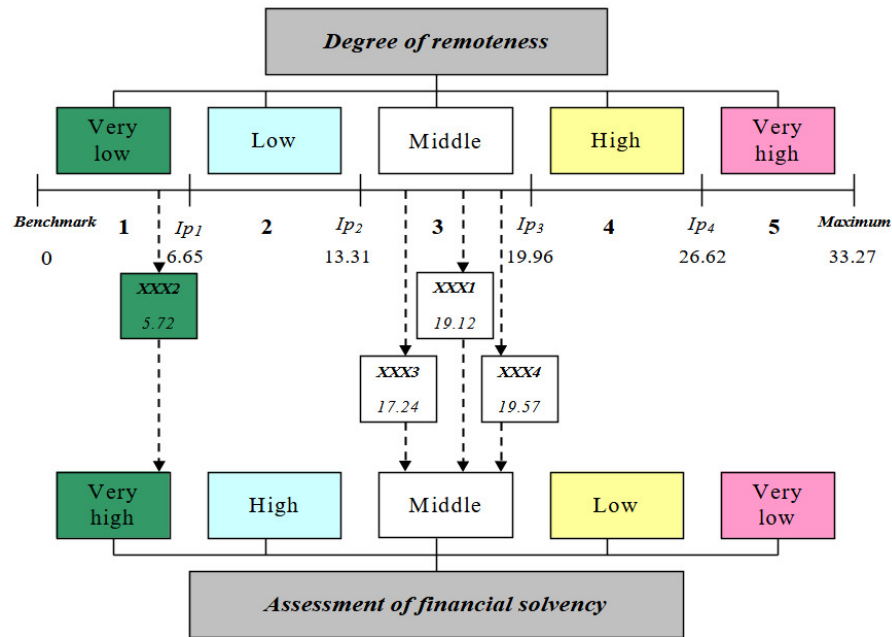


Figure 1. Scale of distances from the benchmark solvency

The developed scale, the solvency positions over the four years and the corresponding assessments for each of the scale intervals are presented in [Figure 1](#).

When comparing the sums of distances, some conclusions are drawn regarding the change in the solvency of the economic operator. In year XXX2, the company’s solvency is the highest (compared to the other three years). It is positioned in interval 1 of the scale with a sum of distances of 5.72 units. The year concerned is the only one falling in this interval (from 0 to 6.65 units), which is characterised by a very low degree of remoteness from the benchmark year and, accordingly, with a very good assessment. Solvency in the remaining years varies in interval 3, bounded by intermediate points 2 and 3 ($Ip_2 = 13.31$ and $Ip_3 = 19.96$). The solvency of the economic operator is the lowest in year XXX4 (compared to the other three years) — the sum of the distances (19.57) is the most remote from the benchmark solvency. The absence of values in the last two intervals of the scale, in which it would receive an unfavourable assessment, is considered a positive side in the analysis of the economic operator’s solvency.

4. Calculating an integral indicator which determines the probability of bankruptcy

The second direction of the analysis (calculating an integral indicator, which determines the probability of economic operators’ bankruptcy) is used to study the possibility of problem-free operation of the company during the next period of AEO certification. The Z-score model of Professor Edward Altman is suitable for this purpose. It was created in 1968 and updated in 2004 by the team of Professor Steven Skiena. Although this model is not designed specifically for the Bulgarian situation, it is reliable in forecasting bankruptcy

Table 5. Application of the Z-score model

Indicators	Values of indicators by years				Weights	Weighted values of indicators by years			
	XXX1	XXX2	XXX3	XXX4		XXX1	XXX2	XXX3	XXX4
	0.34	0.41	0.36	0.33	1.200	0.41	0.49	0.44	0.39
	0.32	0.49	0.42	0.38	1.400	0.45	0.69	0.59	0.53
	0.26	0.17	0.04	0.12	3.300	0.87	0.56	0.12	0.41
	1.10	2.62	2.00	1.41	0.600	0.66	1.57	1.20	0.84
	3.17	3.41	3.59	2.99	0.999	3.17	3.40	3.58	2.99
Integral indicator Z						5.57	6.71	5.93	5.16

up to 80 per cent. It should be emphasised that the risk of bankruptcy always exists and there is no absolute guarantee for the future solvency of the economic operator. The model can complement (Todorov, 2014) the analysis of the economic operator's solvency in the first direction and increase the degree of certainty when performing certification. In addition, the period for which the forecast is prepared using the Z-score model coincides with the certification period of the economic operators, three years. The Z-score model has the following form:

$$Z = X_1 \times 1.2 + X_2 \times 1.4 + X_3 \times 3.3 + X_4 \times 0.6 + X_5 \times 0.999$$

Where:

X_1 : ratio between net working capital (CA-CL) and total assets (liquidity indicator)

X_2 : ratio between retained earnings and total assets (self-financing indicator)

X_3 : ratio between earnings before interest and taxes and total assets (profitability indicator)

X_4 : ratio between equity and liabilities (indebtedness indicator)

X_5 : ratio between sales revenue and total assets (turnover indicator).

With a value of the integral indicator $Z < 0.91$, the economic operator is at risk of bankruptcy within two to three years. Good financial health is observed at $Z > 2.07$. To increase the degree of certainty when assessing financial solvency, combinations of analytical models can also be used to determine the probability of bankruptcy, since over 130 models of this type are known in financial analysis (Kostova, 2019). For example, in another study by the author (Kulchev, 2021), a good interaction is established between a version of Professor Altman's Z-score model and one of the models of the Polish Academy of Sciences (Parkitna & Blaszczyk, 2012). [Table 5](#) presents the results of the use of the Z-score with the data of Aurubis Bulgaria PLC. In the last year (XXX4) the value of the integral indicator Z has the lowest value (5.16). However, this value is above the recommended value, 2.07 units, that is, bankruptcy of the economic operator is not expected within the next three-year period for which it is AEO certified.

Table 6. System of specific indicators used in the formation of the two integral indicators

Models	Recommended values	XXX1	XXX4	Dynamics	Assessment
<i>Specific indicators used in forming the integral indicator of the economic operator's solvency during the past certification period</i>					
$TLR = \frac{CA}{CL}$	1.0 - 3.0	1.93	1.82	-0.11	-
$SR = \frac{E}{L}$	> 1.0	1.10	1.41	+0.31	+
$ICR = \frac{EBIT}{IE}$	> 1.5	35.4	167.97	+132.56	+
$ROE = \frac{NE}{E} \times 100$	In dynamics	29.36	14.8	-14.56	-
$TR = \frac{SRev}{CA}$	In dynamics	4.44	4.11	-0.34	-
<i>Specific indicators used in forming the integral indicator, which determines the probability of the economic operator's bankruptcy during the next certification period</i>					
$X_1 = \frac{CA - CL}{A}$	In dynamics	0.34	0.32	-0.02	-
$X_2 = \frac{RE}{A}$	In dynamics	0.32	0.38	+0.05	+
$X_3 = \frac{EBIT}{A}$	In dynamics	0.26	0.12	-0.14	-
$X_4 = \frac{E}{L}$	> 1.0	1.10	1.41	+0.31	+
$X_5 = \frac{SRev}{A}$	In dynamics	3.17	2.99	-0.18	-

5. Studying the specific indicators used in the formation of the integral indicators

A more detailed characterisation of the solvency during the past certification period and the probability of bankruptcy of the economic operators is carried out in the analysis in the third direction (studying the specific indicators used in the formation of the two integral indicators). Six of the nine⁴ specific indicators calculated in [Table 6](#) are characterised by unfavourable dynamics in year XXX4 compared to year XXX1. These changes, which refer to indicators with recommended values, are not beyond the established norms. Thus, for example, the *TLR* drops by 0.11 points (from 1.93 to 1.82) but is within the recommended values, from 1.0 to 3.0. This decline is the result of the increased value of current liabilities in year XXX4 (compared to year XXX1) with the parallel reduction of current assets.

The $SR > 1.0$ and the $ICR > 1.5$ are also within the recommended values. In addition, the *SR* increases by 0.31 points, and the *ICR* is not only characterised by favourable dynamics, but also repeatedly exceeds the recommended value. This is an indicator of the economic operator's ability to smoothly repay the interest on its obligations through the realised profit.

⁴ The values of solvency ratio and of X_4 coincide - $SR = X_4 = \frac{E}{L}$

The *ROE* and the current assets turnover are lower in year XXX4 compared to year XXX1. The reasons for the decreased profitability should be sought in the simultaneous decline of net earnings and equity growth. The reduced current assets turnover is due to the outpacing rate of decrease in net revenue from product sales ($88.44\% = 2,112.555 \text{ million } \text{€} / 2,388.720 \text{ million } \text{€} \times 100$) compared to the rate of decrease in current assets ($95.67\% = 514.373 \text{ million } \text{€} / 537.671 \text{ million } \text{€} \times 100$). It is also necessary to point out that the values of four of the five specific indicators used in the formation of the integral solvency indicator in year XXX4 are below the average values for the past certification period of the economic operator (see [Table 2](#)). Only the *ICR* in year XXX4 exceeds the average value for the period.

An analogous research approach can be applied to the specific indicators used in the formation of the integral indicator, which determines the probability of an economic operator's bankruptcy during the next certification period. An advantage of this direction of the analysis is the highlighting of the specific indicators that have led to the deterioration of the economic operator's solvency. Summarising the results of the three directions analysed; the following conclusions can be drawn.

First, the solvency of Aurubis Bulgaria PLC deteriorated in the period between the two audits conducted for the purpose of its AEO certification. The observed deterioration of the solvency during the past certification period is not beyond the permissible limits (in none of the four studied years did the values of the integral solvency indicator fall into the last two intervals of the scale of the distances from the benchmark solvency, in which it would receive low or very low assessment).

Second, the payments of the economic operator during the next three-year period of AEO certification are not at risk (bankruptcy of the economic operator is not expected — the value of the integral indicator *Z*, which is used to determine the probability of bankruptcy, in year XXX4 is 5.16 with the recommended value above 2.07 units).

Third, an increase in solvency should be sought as regards current assets liquidity, turnover and *ROE*. In the case studied, these directions for improving solvency should not be accepted as restrictions for AEO certification.

6. Conclusion

In conclusion, to a certain extent the issues discussed are manifested not only on a national but also on a pan-European scale, as the AEO status of an economic operator is recognised by all EU member states. This, in turn, is related to the development and implementation of corrective measures, first by the Directorate-General of the Taxation and Customs Union of the EC (from the AEO group) and then by the customs administrations of the individual member states. The objective of the Revised Kyoto Convention (RKC) is to simplify and harmonise customs procedures. This objective has already been met and is working well in many areas that are regulated by the Convention (Wolffgang et al., 2020). At the same time, a comprehensive review of the RKC

is needed for modern and efficient customs procedures, including the status of AEO, the criteria for its granting and the evaluation of the performance of AEOs.

Since solvency is a multi-faceted object of study, it should not be assessed by customs administrations through two absolute indicators alone, which necessitates the use of an extended system of indicators. Despite the variety of indicators for studying financial solvency, it is possible to configure a system of indicators, the use of which will allow customs authorities to prove with a higher degree of certainty the fulfilment of the considered criterion when granting AEO status. The present study proposes a system of relative indicators, which includes the calculation of indicators for liquidity, self-financing, profitability, indebtedness and turnover. The system of relative indicators enables a more complete characterisation and assessment of the solvency of economic operators. This system, in accordance with the complex approach intrinsic to financial analysis, is implemented in three mutually complementary directions — formation of an integral solvency indicator, calculation of an integral indicator that determines the probability of bankruptcy and analysis of the specific indicators used in the previous two directions. The overall approach contributes to making a reasoned conclusion regarding the fulfilment of the proven financial solvency criterion by the economic operators.

As a result of the study, a method for analysing the solvency of economic operators is proposed, which includes the following stages:

- I:** providing the necessary information and its pre-analytical processing
- II:** generally assessing the solvency of economic operators through the two main absolute financial indicators recommended by the EC
- III:** forming an integral indicator of solvency of economic operators during the past certification period
- IV:** calculating an integral indicator, which determines the probability of bankruptcy of economic operators
- V:** studying the specific indicators used in the formation of the integral indicators
- VI:** drawing up a conclusion on the solvency of economic operators.

The proposed method will contribute to increasing the efficiency of customs control regarding the proven financial solvency criterion of the AEOs, while at the same time allowing the complete automation of the process through the development of specialised software. In this way, on the one hand, any problems with the qualifications of customs officials in the field of financial analysis are solved, and on the other, the possibilities of mistakes when applying the criterion and incorrect decisions regarding the granting of the status would be reduced to an objective minimum.

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Can Robotic Process Automation Technology Enable Risk Data Analysis for Customs' Post-Clearance Audit: A China Customs Case Study

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With the diversified application of big data, cloud computing, artificial intelligence (AI) and other technologies in various management scenarios, technology-enabled management has received more and more attention. Robotic process automation (RPA) refers to business process software technology applied in various industries, including the accounting and auditing industry, to automate well-defined, repetitive tasks. However, its application in customs management has lagged because of the unique nature of this field. This study outlines the introduction of RPA technology into post-clearance audit, discusses the concept, functions, foundations and application values, constructs a framework model and explains its research and development (R&D) process. The application and implementation of RPA is elaborated using unit consumption data analysis.

1. Introduction

Continuous developments in science and technology, particularly the new generation of information technology represented by big data, AI, mobile internet and cloud computing, are driving the expansion of the global digital economy. Digital transformation has entered a stage of development. With the deep integration of the digital and physical economy, enterprises' production and operation methods, and import and export trade methods, rely increasingly on digital resources to enhance the integration and analysis of data. In the digital era, the use of new technologies to explore the value behind government regulatory data, corporate financial and operational data has attracted widespread attention from all sectors of society. The ubiquitous application of digital technology and an emphasis on data resources are also present in the customs management scenario. For example, China Customs is trying to promote the construction of 'Smart Customs' to realise the digitisation, automation and intelligence of customs clearance and management, and to create an all-inclusive and chain-wide supervision system.

Post-clearance audit, as the current internationally accepted follow-up supervision and enforcement after customs clearance and release, is mainly through the audit of non-physical forms of enterprises' import and export documents, account books, financial statements and related information. This audit is designed to allow Customs to access the whole process of import and export activities, including production, distribution, sales and use, forming an organic combination of pre-, on-site and follow-up management of the regulatory system. Post-clearance audit can be seen as a comprehensive interdisciplinary method that integrates modern customs management and

audit. Therefore, in the era of 'leading by scientific and technological innovation, applying the latest technology and equipment to customs management, realising informationisation and intelligence of management means and management methods' (General Administration of Customs of the People's Republic of China, 2019), opening up and integrating enterprise data using big data theory, mobile internet technology, AI and other new technologies and concepts, we continue to develop new systems of customs inspection. Through these new technologies and concepts, customs inspection is redefined in technological terms, including process re-engineering, intelligent audit analysis, remote control, system upgrade, risk prevention and control and intelligent decision-making. Achieving a new way of inspection of intelligent decision-making — intelligent supervision — is the current trend in customs development. Robotic process automation and artificial intelligence (RPA + AI) are the key driving forces for intelligent data analysis of customs inspection risk, reshaping the process structure with technical content and promoting the upgrade of customs risk analysis and subsequent regulatory analysis.

RPA, which refers to configuring software-based robots to automate repetitive, routine business processes (Aguirre & Rodriguez, 2017), is an emerging approach that can be adopted in various domains, such as public accounting, auditing, banking and public administration (Leshob et al., 2018). Applying RPA technology in the accounting management systems of government administrative areas can not only ensure the timeliness and convenience of government accounting department operations but also reduce costs (Xu & Kong, 2022). Similarly, RPA technology is highly compatible with the digital transformation of tax administration in terms of digital concepts, application scenario and data empowerment, and has the practical effectiveness of optimising experience, improving efficiency, integrating and standardising management (Research Group of Shenzhen Longhua District Taxation Bureau et al., 2021). Based on RPA technology, Cheng et al. (2018) collected and analysed the financial data of enterprises from several perspectives, explored the optimisation and improvement measures of the multi-dimensional financial analysis report generation process and stated that the application of RPA technology was more comprehensive and scientific for analysing and predicting the financial operation of enterprises. For auditing in corporate practice, integrating RPA technology can upgrade the audit process by automating it to combine the audit process and cognition, thereby increasing innovation and achieving new developments with new information technologies (Gong, 2021).

The current theoretical-level research involves developing financial analysis and the application of intelligent methods for it. The application-level research mainly focuses on case studies of RPA and BI (Business Intelligence) in data analysis, while the application of RPA technology in the analysis of financial and regulatory network data is scarce. In view of this, this paper explores the

possibility of introducing RPA in customs risk data analysis for post-clearance audit, builds a framework model, and discusses an R&D strategy for risk data analysis of customs inspection based on intelligent RPA technology.

2. Core idea of the audit risk data analysis robot for post-clearance based on RPA

2.1. Concept and main functions

RPA is a type of intelligent software that can simulate and enhance the interaction process between users and computer systems according to predefined business processing rules and operational behaviours and automatically complete a series of specific workflows and expected tasks, to effectively realise the integration of human and business information systems (Cheng, 2021; Cooper et al., 2019). A post-clearance audit risk data analysis robot is designed as an intelligent analysis program that relies on RPA technology and combines the automation of data analysis processes. It follows established rules and procedures and adopts RPA technology that simulates, enhances, and expands the interaction process between inspectors and computer systems to automate the collection, cleaning, analysis, and visualisation of enterprise financial data and trade data of import and export links. Thus, automatic risk data analysis reports are generated to assist customs inspection staff efficiently complete the analysis tasks with a high degree of standardisation, repetitiveness, and reduced workload.

The robot can realise a series of functions, such as data collection, recording, calculation, analysis and reporting, and replacing the traditional manual functions to realise the automation of the regulatory data analysis process. RPA technology can be implemented into the task processing of each of these operations, tracking the process steps in detail and in real time, and excels in completing many repetitive, clearly defined and fixed logical tasks. Powered by AI technology, the risk data analysis robot can automatically focus on the financial data and business logic of the connected supervised enterprises, precipitate data value through data analysis, form data analysis services and provide analytical support for customs supervision scenarios. This can not only solve the problems of complicated financial and customs clearance data, time-consuming and laborious manual data analysis foundation work and the inability to extract values from data accurately and in a timely manner, but also promote customs business departments to better realise intelligent auditing, reshape process architecture, and improve the quality and efficiency of enterprise risk data analysis work.

2.2. Legal and technical foundations

Although the application of RPA into post-clearance risk data analysis scenarios can add value in terms of efficiency, quality and cost savings, the technical and legal aspects in achieving such functions also need to be seriously considered. For example, according to customs law in China:

The post-clearance audit department may verify the accounts, documents and other relevant information of enterprises and units directly related to import and export goods and the relevant import and export goods to supervise the authenticity and legality of their import and export activities within three years from the date of release of import and export goods or within the period of customs supervision of bonded goods or duty-free imported goods and within three years thereafter...(State Council of the People's Republic of China, 2016, item 1)

This provides support to acquire data for risk data analysis at the jurisprudential level. In addition, in terms of business data acquisition techniques, data provided from enterprises to China's customs currently is fully to realise the unit consumption data exploration case presented in this paper.

2.3. Practical value

Implementing the post-clearance audit risk data analysis robot can bring value to the full implementation of follow-up supervision by customs, which can be measured by efficiency, quality, cost savings and value added. In terms of efficiency, the robot can largely imitate manual operations; complete simple and repetitive operations, such as data entry and data calculation, and speed up data processing and analysis. In terms of analysis quality, the robot can avoid various low-level errors made by inspection and enforcement officers, and its operation is based on preset rules, which eliminate the variability of output to a certain extent and provide a high degree of standardisation. Regarding cost savings, the robot can achieve unified management of multi-process automation tasks, reducing labour costs. As for adding value, the application of robots promotes changes in the organisational structure of customs supervision, the intelligent transformation and upgrading of customs, and the optimisation of the human resource management of the post-clearance audit team.

3. Construction of the robot model

3.1. Theoretical framework

The post-clearance audit risk data analysis robot is an application of RPA in the field of inspection risk data analysis involving collaboration between customs and enterprises. The development strategy of the customs inspection risk data analysis robot includes five stages: determining the analysis theme, clarifying the analysis content and ideas, automating data collection and processing, automating data analysis and presentation, and automating data analysis reports.

The analysis theme refers to the established analysis objective of the risk data analysis robot and determining the analysis theme should clarify the application scenario and analysis purpose. Application scenario refers to the scenario of the risk data analysis theme, including clearance data, financial, and industry data and the problems existing currently, and should be centred

on solving the pain points of the scenario. The analysis purpose is centred on solving the problem. Establishing the analysis purpose determines the analysis value of the risk data analysis robot. Before beginning the risk data analysis, it is necessary to categorise the analysed data, determine why the data analysis should be implemented, and what should be solved through the analysis. Moreover, whether the purpose of the analysis is to understand the current situation, its causes, or predictions need to be clarified. To evaluate the current situation, the analysis process should focus on cleaning, summarising and refining the data; to analyse the causes, the reasons behind the phenomenon need to be examined; to conduct predictive analysis, the accuracy of historical data and prediction methods also need to be considered.

After clarifying the purpose of the analysis, we need to determine the content and ideas of the analysis and build an analytical framework. Analysis methods, such as parametric analysis, comparative analysis, structural ratio analysis and cross analysis, are commonly used. According to the different analysis requirements and data characteristics, the choice of analytical methods has a significant impact on the effectiveness of risk data analysis. Based on the analysis method, the analysis purpose is deconstructed into several different points, and the entry point of the analysis is clarified and then refined for the specific content. For example, the parametric analysis method enables comparative analysis of standardised parameters, while the structural analysis method looks at the 'cross-section' of the data and explore its relative relationships. To analyse the data from the enterprise side, we need to focus on data calculations and the entire process of import and export, to promote customs supervision. The content framework of the post-clearance audit risk data analysis robot is divided into two parts: standardised data analysis by enterprises and customs risk discriminant analysis, which includes parameter, trend, structural ratio and ratio-compared analyses. Customs risk discrimination analysis includes industry, customs clearance data and security control category analyses. Each analysis is clear and constitutes the content architecture of the post-clearance audit risk data analysis robot, as shown in [Figure 1](#).

3.2. Model construction

The risk data analysis robot model for post-clearance audit is constructed as a guide for intelligent data analysis that clarifies the construction goals of the robot and its specific applications. The model also discusses the data processing mechanism and visualisation generation mechanism of RPA technology, to guarantee the feasibility, rationality and compliance of the system's implementation. Risk data analysis is essentially a process of data collection, screening, calculation and analysis. Based on the characteristics and advantages of RPA + AI technology in processing, rapid deployment and multi-terminal compatibility, this study constructs the framework model of the customs inspection risk data analysis robot. The framework model specifically includes different layers of infrastructure, data, service, platform and application, as shown in [Figure 2](#).

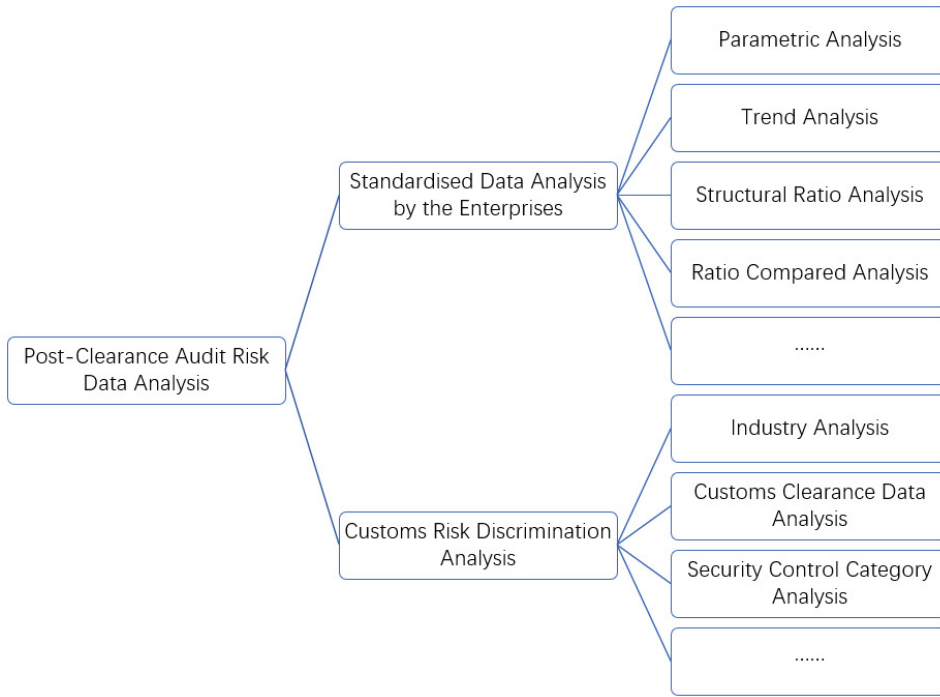


Figure 1. Contents of post-clearance audit risk data analysis robot
 ‘.....’: some of the specific information and risks analysed are omitted due to the size of the figure.
 Source: authors.

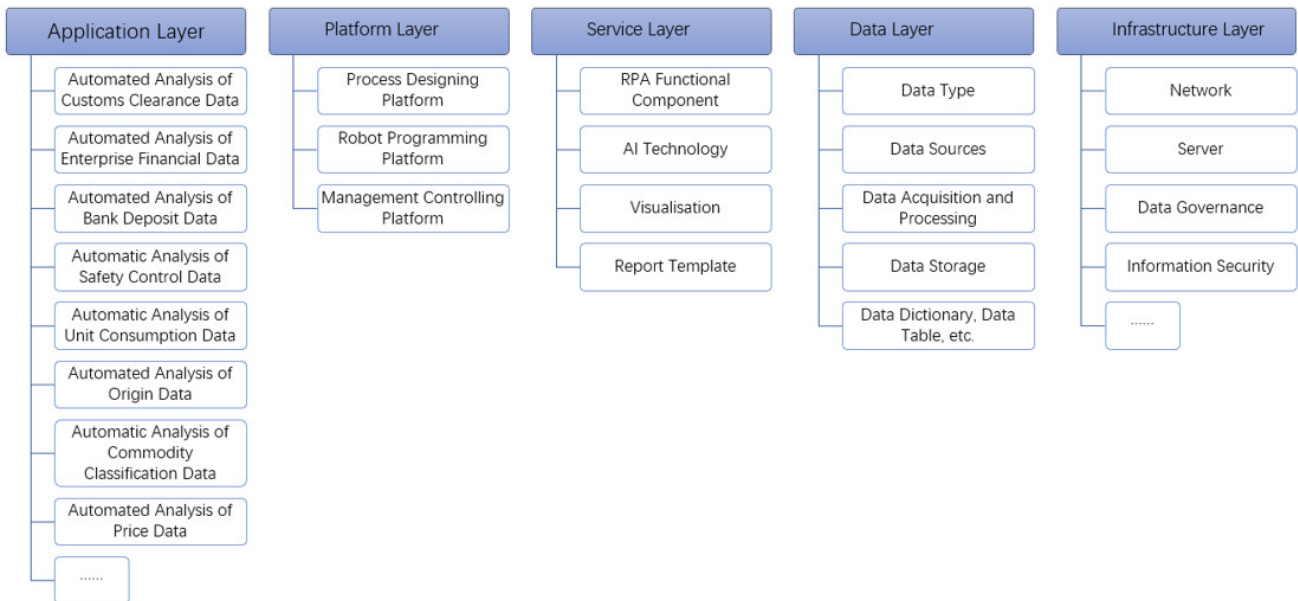


Figure 2. Model framework of the post-clearance audit risk data analysis robot
 Source: authors.

The infrastructure layer is the foundation of the data, service, platform and application layers, providing basic services for each layer, including servers, networks, storage, data governance and information security, which guarantees the security of the operating environment for the risk data analysis robot. The data layer is the foundation of the data for the post-clearance audit risk data analysis robot, including the original enterprise financial, trade and customs

clearance data, the mechanism of data collection and processing, and the formation of data storage, data dictionaries, data tables and other documents. The original enterprise and customs data are structured, semi-structured and unstructured data with various sources, including data of various information systems supervised by enterprises and customs, files and electronic documents. The service layer provides RPA functional components, AI technology, visualisation services and data analysis reporting services for the customs audit risk data analysis robot. The platform layer includes three parts: the process design platform, robot program and management control platform. This layer is mainly responsible for designing risk data analysis robots. The application layer is a specific application of RPA and AI technology in the field of post-clearance audit risk data analysis and is a specific application scenario for robots to realise automation, which consists of an organic combination of analysis robot clusters. In the work of audit risk data analysis, this layer can realise the automated analysis of enterprise customs clearance data, industry average data and enterprise bank deposit data.

4. An exploratory case study: unit consumption data analysis robot

This study presents an exploratory case of the analysis of unusual unit consumption data in processing bonded trade verification risk monitoring.

4.1. Analysis theme

Unit consumption verification plays an important role in the bonded trade audit of Chinese customs. Unit consumption refers to bonded trade enterprises, in normal production conditions, processing production units of finished products exported (including deep processing of finished products and semi-finished products) consumed by the number of imported bonded materials. Unit consumption includes net consumption and process losses. The principle of unit consumption supervision is 'enterprise truthfully declared', that is, the processing trade enterprises must report unit consumption records to Customs. At present, problems in the bonded supervision of unit consumption management focus on the use of early recorded unit consumption, fuzzy declaration, concealment of interception, and other methods of overstatement or understatement of bonded materials unit consumption. Therefore, in the process of post-clearance audit, attention should be paid to the processing trade enterprises to perform reasonable control and analysis of unit consumption. The first step is to analyse the rise and fall of unit consumption in each period using cost statements and compare it with consumption quota, determine the period that deviates from the consumption quota to a great extent, review the cost calculation account in this period, then determine unusual consumption, trace it back to the material receipt according to the voucher number of this matter, and examine whether there is any misrepresentation on the material receipt. This enables effective management of the production and operation activities of the processing trade enterprises and provides recommendations for bonded supervision.

4.2. Analysis contents and methods

After defining the theme of unit consumption data analysis, the specific related content is determined according to the analysis logic and methods. The analytical methods used include parameter comparison, structural ratio analysis and balance analysis. Combined with the needs of customs supervision from the Chinese government, the unit consumption data analysis robot is divided into standardised data analysis for enterprises and customs risk discrimination analysis, where the standardised data analysis includes standard parameter, structural ratio and balance analyses. Customs risk discriminant analysis includes industry, overall trend, ratio-compared and digital empowerment analyses. For example, structural ratio analysis is a credibility analysis, performed by calculating the reasonable degree of the composition ratio of raw material consumption, finished product output, defective products and scrap. To determine the credibility of the consumption of an enterprise's customs declaration, the balancing analysis method helps to calculate the relevant items in accordance with the accounting standards and bookkeeping principles, as well as the intrinsic dependence between economic activities. Risk discrimination analysis uses the industry average, the overall production technology trend of enterprises and a comparison year-on-year to determine whether the unit consumption declaration is unusual. This includes, for example, whether there is a long-term unchanged or higher than industry average, if the unit consumption adjustment change rate is large, or the declared loss rate is high.

4.3. Automated data acquisition and processing

The post-clearance audit risk data analysis robot accesses networked enterprise data files to extract and store serial ledger information, but the raw data collected often has duplicate values, empty rows, empty columns and abnormal values. These illogical relationships can cause a reduction in data quality and need to be further examined. The data can be organised in various ways, and the subsequent statistics and analyses are performed on the premise of standard formats; therefore, the data needs to be standardised. The accuracy and completeness of the acquired data are checked and analysed by converting data types, removing duplicate information, identifying abnormal data and identifying early warning signs to ensure the quality of data analysis. The robot screens the keywords involved in unit consumption and extracts the corresponding analysis data according to preset rules, completes the automatic screening work, saves the data to the data centre and narrows the scope of data for additional processing and analysis.

4.4. Automated data analysis and visualisation

This phase of automated data analysis focuses on defining the unit consumption data analysis process and automating the analysis using intelligent RPA technology. The analysis process includes the analysis theme and methods to be applied, the specific content of the standardised data analysis from enterprises and customs risk discrimination analysis and explores

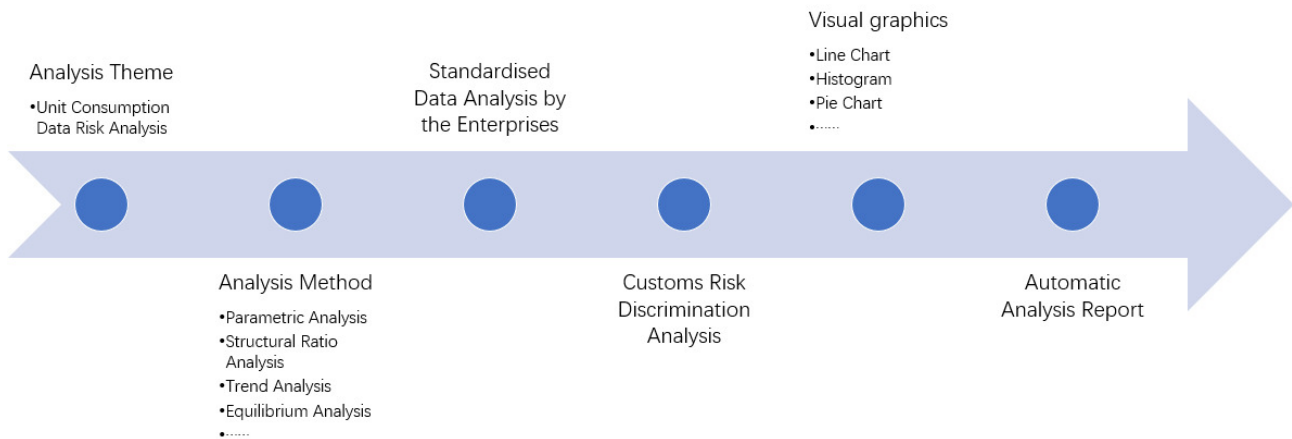


Figure 3. Process of unit consumption data risk analysis

Source: authors.

the type of visual graphics for representation. The post-clearance audit risk data analysis robot optimises the specific process of the analysis model, sets logical analysis rules according to the focus of the task, calculates data and completes the corresponding data analysis by means of data tables, arrays and dictionary-related activities, and algorithms, such as loops and traversals. For example, trend analysis of unit consumption provides an analysis of the overall situation of unit consumption, such that customs officers can understand the status of the enterprise's unit consumption. The visualisation graph is in the form of a line graph to allow clear and intuitive understanding of the unit consumption's trend. The flow of unit consumption data analysis is shown in [Figure 3](#).

At the automated data presentation stage, the data analysis visualisation template is predefined according to the analysis theme, and different visualisation graphics are selected for different analysis contents. The post-clearance audit data analysis robot inputs the data analysis results into a Microsoft Excel analysis template in the running process to realise data presentation automation. For example, a line graph can be chosen for trend analysis to show its data direction because it connects individual data points and can simply and clearly show the trend of data changes; in structural ratio analysis, a pie chart can be chosen to present the enterprise in the processing trade under the composition of raw material consumption, finished product output, defective products, scrap and other ratios. This allows information to be conveyed more clearly and intuitively.

4.5. Automated report

When conducting a post-clearance audit risk data analysis, it is often necessary to write an analysis report to present the results, making it easier for the users to understand. The post-clearance audit risk data analysis report presents the current situation of the enterprise under audit, the problems and their causes and conclusions of the specific analysis project. The automated report is a key method that helps customs officers understand the current

situation of the enterprise's operation and problems, grasp the information and use it for decision-making. The automation stage of the data analysis report is essential, and the analysis report template file needs to be developed before the specific application is carried out. For example, in the unit consumption risk data analysis, the report structure is divided into title page, table of contents, summary and body. The title page should be concise and straightforward to indicate the content of the analysis report. The table of contents is a tool to reveal the analysis report and help inspectors understand the main content of the risk data analysis report. The summary is an excerpt of the important analysis points and includes basic elements, such as background, purpose, ideas and conclusions, specifically the main objective and scope of the risk data analysis work, results and important conclusions. The main body is the core part of the risk data analysis report, which systematically and comprehensively expresses the process and results of the data analysis. This main text of the analysis report is divided into four parts: background and purpose, ideas, content, conclusions and recommendations.

For example, the unit consumption data analysis robot can set different analysis rules according to different analysis contents. When it starts to analyse standard parameters, it can set a reasonable range of differences, analyse the abnormal fluctuations that deviate from the standard unit consumption parameters, focus on the unit consumption data with unreasonable fluctuation ranges and analyse specific risk factors in a targeted manner.

4.6. Further discussions on the case study

In this exploratory case study, we focused on the technical implementation path of the robot. Here we will further discuss the data collection and risk prevention issues that need attention when using the robot. One of the core issues to the proper operation of the case robot is the integration of the customs data information platform (e.g. customs declarations, unit consumption declarations, etc.) with the financial data of the enterprise. The robot is required to access the electronic networking data of the processing trade enterprises in the customs data information platform as well as the enterprise financial data collected through the enterprise financial data to match and integrate. There may be certain data fraud risks as well as machine discriminatory risks in this process. At present, in view of the relevant risks, the General Administration of Customs of the People's Republic of China has issued 'Customs big data resources sharing management rules', and some relevant management measures, while the post-clearance audit department has also recently proposed to rely on Cloud Engine, GBase,¹ and other systems to bring together internal and external information to strengthen risk prevention through the 'system + technology' approach.

¹ Cloud engine is the big data searching engine designed by China Customs to search and analysis data on trade. GBase is a Chinese self-branded database product launched by Nanda General Data Technology Co.

5. Conclusions

Traditional risk data analysis methods and technologies can no longer efficiently match the digital era in which customs operates, and customs management needs to introduce emerging technological tools and intelligent automated thinking to meet current challenges. The application of RPA technology in risk data analysis provides a good environment for collaborative regulatory data to empower enforcement management. Post-clearance audit risk data analysis is not only limited to enterprise data analysis but is increasingly integrated with national gate security and trade security to provide standardised and visualised data analysis for data demanders. Furthermore, it can also be extended to provide relevant suggestions for the development and management decisions of external customs business departments (e.g. taxation departments, business administration departments, etc.).

Based on RPA technology, this study constructs a robot framework model for customs post-clearance audit risk data analysis considering five levels: infrastructure, data, service, platform and application layers. The case exploration of the post-clearance audit risk analysis robot is elaborated in five steps: determining the analysis theme, specifying the analysis content and methods, automating data collection and processing, automating data analysis and visualisation and automating the data analysis report. The unit consumption data analysis robot is used as an example to explore the application implementation process and provides a useful exploration and feasible path for the automated processing of customs supervision risk analysis.

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ARTICLES

Innovation, Regulation, and Excise Taxation

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Innovation and regulation may reduce the harm arising from the production and consumption of excisable goods, which may warrant lower excise rates. However, countries often rely on excise revenues and may face conflicting interests in supporting innovation through differential excise rates and regulation on reduced harm goods and collecting sufficient tax revenues. This paper summarises recent innovations and regulations of excisable goods, discusses their potential implications for the design of excise regimes, and calls for further debate on excise taxes in the face of recent innovations and regulations.

1. Introduction

Excise taxes play an essential role to improve the accuracy of information provided by the market by raising market prices to reflect social costs and benefits, rather than private costs and benefits. Where market prices accurately reflect (net) social costs, producers and consumers can make better informed decisions. Improved decisions may contribute towards improved market, economic and social outcomes. It is for this reason that towards efficient taxation, the rate of excise taxes should be based on the external and internal costs not reflected in the price of goods, where these costs are significant.¹²

Recent innovation and regulation aim to reduce the costs of products not reflected in price. Much innovation in and regulation of smoking and nicotine, alcohol, energy and vehicles, sugar, and other products aim to reduce the harm to individuals and the environment from their production and consumption. Where innovation and regulation reduce harm, the social costs not reflected in price should be less.

If innovation and regulation reduce social costs not reflected in price, an efficient excise regime should reflect these cost reductions by lower excise rates on innovated or greater regulated goods. Without such a regime, market prices will not communicate to producers and consumers that certain products are

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¹ Since there are costs involved in administering and complying with taxes, taxing goods with small social costs not reflected in price may give rise to economic losses.

² In terms of neoclassical welfare economics, the existence of external costs or negative externalities gives rise to market failure and excise taxes can correct this market failure. In terms of this theory, consumers have all the necessary information and internalise this information correctly to make fully rational decisions; all internal costs are therefore reflected in consumer demand. Behavioural welfare economics, however, provide firm evidence that consumers do not have all the necessary information, rarely internalise information correctly, and do not make fully rational decisions. It is therefore likely that consumer demand does not accurately reflect internal costs and, therefore, prices do not reflect these costs. Again, an excise tax can correct for this failure. Other economic theories, such as post-Keynesian theory, do not rely on demand and supply curves to establish prices but cost-plus pricing; prices are set by producers. Also under this theory of price are excise taxes desirable since they avoid 'false prices' in the market and allocate costs to individuals that give rise to these costs, which aligns with general principles of justice. There are, therefore, different reasons for excise taxes within different economic theories.

comparatively less harmful. Without this information, producers and consumers may continue making decisions that are more harmful to themselves, others and the environment — decisions that may not align with broader government objectives.

However, the revenue needs of many countries may give rise to hesitancy in reducing excise rates on reduced harm products. Excise taxes often pose less political opposition than other tax instruments, are comparatively easy to administer, and can provide substantial revenues — revenues that can aid in meeting government objectives. If a government's rationale for excise taxes is primarily to raise revenues, arguments surrounding the reduced costs not reflected in the price of certain products may not be relevant.

Further debate is therefore required regarding the rationale of excise taxes in the face of changing technologies and increased regulation of excisable products. Towards this debate, this paper summarises recent innovation in and regulation of products that are often subjected to excise taxes. It considers how these innovations and regulations affect social costs not reflected in price and presents the economic argument on how an efficient excise regime should reflect this impact.

2. Recent innovations in excisable goods

Due to increased scientific evidence, technological improvements, improved access to information, changes in social norms and changes in consumer preferences and other factors, there has been extensive innovation in excisable goods in recent years. This section surveys some of these innovations in smoking and nicotine, alcohol, energy and vehicles, sugar and other goods that may warrant an excise. It does not include telecommunication since these services provide external benefits, so an excise is not warranted from an economic viewpoint.³

2.1. Smoking and nicotine

The form in which nicotine is consumed has undergone significant innovation in recent years. The primary aim of this innovation is to reduce individual harm by limiting or eliminating other toxins when consuming nicotine through smoked or combusted tobacco.⁴ Cigarettes, for instance, contain approximately 600 ingredients that when burned create over 7,000 chemicals, of which many are toxic and 69 cause cancer.⁵ Innovative, non-combusted nicotine products have fewer and lower levels of toxins and includes electronic nicotine delivery systems (ENDS), heat-not-burn (HnB) systems and tobacco-free oral nicotine pouches (NPs).

³ Where substantial rents exist, a rent tax may be appropriate. Where such a tax cannot be administered, using the excise as a proxy may be warranted in certain contexts. For further discussion, see Matheson and Petit (2021).

⁴ The influence of new nicotine products on effective demand and harm at the societal level should not influence the efficient rate of the excise.

⁵ See <https://www.lung.org>.

By reducing the number of toxic chemicals consumed, or assisting to cease smoking,⁶ non-combusted nicotine products can reduce the internal and external costs of individual consumption. A systematic, independent review by Glasser et al. (2017) of the literature on ENDS finds that although evidence on population use and long-term health consequences is lacking, ENDS are increasing in use, particularly among current smokers, pose substantially less harm to smokers than cigarettes, and are being used to reduce or quit smoking. Another review of the evidence commissioned by Public Health England (2018) states that ‘based on current knowledge, stating that vaping is at least 95% less harmful than smoking remains a good way to communicate the large difference in relative risk unambiguously...’. The National Academies of Sciences, Engineering, and Medicine state that ‘Laboratory tests of e-cigarette ingredients, in vitro toxicological tests, and short-term human studies suggest that e-cigarettes are likely to be far less harmful than combustible tobacco cigarettes’ (National Academies of Sciences, Engineering, and Medicine, 2018, p. 1).

This reduced harm translates into ENDS having an estimated cancer potency as low as less than one per cent of smoking tobacco (Stephens, 2018). Recent independent research finds that using non-combustible nicotine products also present a lower risk of cardiovascular disease compared to cigarettes (Choi et al., 2021).

HnB tobacco products are also often found to be less harmful than cigarettes, although these products have been much less independently studied than ENDS. There is, however, some evidence that the harm of tobacco consumed by HnB may be less than that consumed by smoking a cigarette. An independent review by Simonavicius et al. (2019) finds that HnB products delivers up to 83 per cent of nicotine of cigarettes with at least 62 per cent less harmful toxicants. However, out of the 11 trials on HnB use by humans, only one was not affiliated with a tobacco manufacturer.⁷ Another review by Drovandi et al. (2020) also finds reduced biomarker exposures in HnB compared to cigarette and calls for further independent research. A recent review by Begić et al. (2023) identified 25 random controlled trials for inclusion and found that HnB products significantly reduce biomarkers of exposure and biological effects related to cardiovascular disease, compared to cigarettes. Stephens (2018), in a seemingly independent study, finds that most HnB products have less than 10 per cent the cancer potency of smoking tobacco and the relative risk per stick is about 20 per cent.

Since NPs are smokeless and tobacco-free, comprising a nicotine-containing cellulose matrix inside a fibre pouch, their toxicant profiles are comparable to nicotine replacement therapy (NRT) products, such as nicotine gum and lozenges, which are considered as the nicotine products with the lowest health

⁶ Adkison et al. (2013), for instance, finds that 85.1% of respondents used electronic nicotine delivery systems to help them quit smoking.

⁷ This review finds no difference between the results funded by the tobacco industry and independent studies.

risks (Azzopardi et al., 2021). NPs, however, offer users faster uptake of nicotine than NRTs and potentially improved flavouring, which may increase the likelihood of users considering NPs as a substitute to cigarettes. Substitution is further supported since the amount of nicotine uptake in NPs replicates the nicotine uptake from cigarettes (McEwan et al., 2022).

A challenge with the existing literature on ENDS and HnB products is that, as with other innovative products, there has been limited time to study their long-term harm. There are studies that estimate long-term consequences, such as Lee et al. (2022), that estimate a substantial reduction in death even under pessimistic assumptions if cigarettes were largely replaced by ENDS. However, without longitudinal studies the long-term effects of ENDS and HnB products remain uncertain.

2.2. Alcohol

Innovation in the alcohol beverage industry to reduce harm of consumption is challenging. Ethyl alcohol is generally the most harmful toxicant that an individual ingests when consuming an alcoholic beverage. This means that the most effective method for reducing harm of consumption is to reduce the alcoholic content of beverages. Therefore, innovation has primarily focused on providing low alcohol or alcohol-free alternatives with a similar taste to higher alcohol beverages. Other innovations include sugar-reduced alcoholic beverages, natural or organic wines and biodegradable packaging.⁸

Besides reducing the alcoholic content of a beverage, other potentially promising innovations are medicines that reduce alcohol uptake or improve the body's ability to metabolise alcohol and, thereby, lower blood alcohol content. Y. Liu et al. (2013), for instance, provides evidence that nanotechnology can reduce blood alcohol levels in mice. Limited evidence suggests that probiotic nutritional supplements may inhibit absorption of alcohol (Pfützner et al., 2022), which has contributed to the release of a supplement often used for this purpose.⁹ If these technologies can be developed to lower blood alcohol content in humans consistently, it may substantially reduce the internal and external costs of alcohol consumption.

2.3. Energy and vehicles

Innovations in energy have predominantly aimed to reduce the environmental impact of energy use by providing energy through alternative sources and improving efficiency of existing energy sources. Well-known examples of so-called green technologies include solar panels, wind energy, hydro energy, LED lighting and batteries. By reducing the greenhouse gas (GHG) emissions involved in energy production and consumption, these technologies reduce the external costs of energy use.

⁸ There have also been similar innovations to farming and foodstuffs for the inputs used in the industry.

⁹ See <https://www.myrkl.co.uk/>. It should be noted that the manufacturer does not claim that the supplement reduces alcohol absorption.

Recent technologies also show potential for further reductions in external costs. Carbon upcycling technologies have the potential to capture carbon in the atmosphere and convert this carbon into fuels or consumer products. When used to produce fuels, this technology might provide for carbon-neutral gasoline, which will significantly reduce the external costs of fuel use by combustion vehicles. Other alternative fuels such as biodiesel and hydrogen also have the potential to provide near carbon-neutral power to vehicles.

Improvements in the effectiveness of energy storage also show promise to lower external costs from home and vehicle energy consumption.¹⁰ Extensive research focuses on improving lithium batteries, but the use of alternative raw materials is also studied. Sodium-ion batteries, for instance, might be produced at much lower cost to lithium batteries, with decreased GHG emissions linked to mining and improved recyclability.¹¹ Li et al. (2022) also show how a molten salt battery can, through freeze-thaw thermal cycling, keep 90 per cent of its energy over two months.

With current technology, however, the external costs from using electric vehicles will be context-specific and largely depend on the carbon intensity of the power grid. A battery electric vehicle charged with electricity produced with fossil fuels will have a similar environmental impact to a combustion vehicle over its lifetime, including emissions because of vehicle production, fuel production and fuel consumption. In this context, a hybrid electric vehicle will contribute fewer total emissions than a battery electric vehicle. Where vehicles are charged with renewable energy, a battery electric vehicle can contribute less than 20 per cent of the total lifetime emissions of a combustion vehicle (Massachusetts Institute of Technology, 2019).

2.4. Sugar

Although many foodstuffs may give rise to social costs not reflected in price, existing excise regimes overwhelmingly focus on sucrose and especially sugar-sweetened beverages. Although the design and effectiveness of such an excise can be questioned, its existence motivates innovation to produce sucrose alternatives.

Existing alternatives include saccharin, aspartame, acesulfame-K, sucralose, allulose, xylitol, tagatose and erythritol. These alternatives provide a sweet taste, but their biochemical structure is such that our bodies do not have the enzyme to convert most or all of their molecules into digestible carbohydrates (carbohydrates that provide energy to the human body). They can act as a substitute for sucrose with a comparatively lower level of energy uptake.

¹⁰ This is as a result of lower GHG emissions in the production and disposal or recycling of batteries and reduced battery discharge when not in use.

¹¹ See <https://cen.acs.org>.

Whether these alternative sugars are less harmful than sucrose is an area of ongoing research. Since they provide fewer digestible carbohydrates, substituting sugar with an alternative may reduce total digestible carbohydrate intake of individuals. This may reduce the prevalence of diseases associated with excessive consumption of carbohydrates.¹²

However, certain alternative sugars have been associated with health risks. Saccharin, aspartame, acesulfame-K and sucralose, for instance, have been connected to metabolic changes that may contribute to obesity (Rother et al., 2018). Allulose can be used by certain potentially harmful bacteria as a substrate (Hauner et al., 2022). That these alternative sugars may cause harm that is unrelated to the excessive consumption of carbohydrates calls for further research to support an efficient excise regime.

Other sugar alternatives such as xylitol, tagatose and erythritol are, at the current state of knowledge, associated with health benefits. Besides providing fewer digestible carbohydrates to sucrose, xylitol stimulates the immune system, digestion, lipid and bone metabolism, and reduce certain infections (Benahmed et al., 2020). Tagatose has been extensively studied as a potential type 2 diabetes drug since it reduces blood glucose levels in the liver and has a positive effect on gut bacteria (Roy et al., 2018). Erythritol has been shown to have endothelial protective effects (Boesten et al., 2015).

Although the higher costs of production of sugar alternatives associated with health benefits to sucrose has been a barrier to adoption, biotechnology and its related production processes can reduce costs of production. Ongoing research is likely to give rise to production techniques that allow for competitively priced, healthy alternative sugars.

2.5. Other

Goods that warrant, but are less often subjected to excise taxes, are also undergoing innovation. Innovation in cement, which contributes about 8 per cent of global CO₂ emissions (Ellis et al., 2020), has produced reduced carbon alternatives that are made from industrial by-products like fly ash, aluminosilicates, silica and iron. Cement can also be produced by a mix of seawater and CO₂, or by using magnesium ions in seawater (Badjatya et al., 2022).¹³ By reducing production emissions through alternative ingredients or techniques, the environmental impact from cement can be significantly reduced.

Fertiliser and especially synthetic nitrogen fertilisers, which contribute about 2.5 per cent of global GHG emissions and about 20 per cent of total agricultural emissions (Menegat et al., 2021), are also a focus for climate technology. One approach, for instance, is to edit the genetics of nitrogen-producing bacteria to increase their nitrogen production and use these bacteria

¹² For a meta-analysis on the association between carbohydrate consumption and diseases see Seidelman et al. (2018) and Reynolds et al. (2019).

¹³ Also see <https://theconstructor.org>.

as fertiliser.¹⁴ Another approach is to produce ammonia, which is a base material for fertiliser, sustainably. Doing so without the use of high volumes of pre-treated water, however, remains a challenge (Ghavam et al., 2021).

New methods of genetically modifying plants also show promise to reduce the use of fertilisers, pesticides and fungicides. Minichromosome technology, for instance, provides the opportunity to enhance some aspects of a plant without altering its genes. This can allow for plants that are more nutritious and less reliant on chemicals, without the negative consequences of the current generation of genetically modified foods.

Technology is also changing how other foodstuffs are produced. Additive manufacturing, with the use of a 3D printer, allows for the production of foodstuffs with personalised nutritional values and can address malnutrition. Proteins can also be printed as meat alternatives or real meat with the use of stem cells. Further, with biomanufacturing, meat can be grown in a laboratory. These technologies have the potential to reduce the demand for livestock farming and the environmental impact of meat consumption.

Innovations in waste management are also assisting to establish a circular economy, which aims to ‘design out’ waste and pollution. Using AI and robotics to identify, sort, and recover recyclable waste at scale shows promise to increase the efficiency of recycling and the extent of relying on recycled inputs. Rather than burning waste, recent innovations allow for waste to be converted into fuels (S. Liu et al., 2021). Decreasing costs and increasing availability of biodegradable plastics and packaging are also reducing the need to recycle, by using these plastics and packaging as compost.

3. Regulation of excisable goods

Regulation of excisable goods will generally lower costs not included in price by internalising some of these costs,¹⁵ reducing consumer demand in the formal market of excisable goods, motivating innovation in reduced harm alternatives, and motivating substitution towards less regulated and, if appropriately designed, less harmful existing alternatives. The extent that regulation will lower social costs not reflected in price depends on the effectiveness of these regulations. Therefore, this section provides a brief survey of recent regulations and their known effectiveness within the markets of smoking and nicotine, alcohol, energy and vehicles, sugar and other excisable goods.

3.1. Smoking and nicotine

Smoking and nicotine tend to be highly regulated. Common regulations prohibit certain harmful ingredients, only allow individuals above a certain age to purchase nicotine products, limit advertising of nicotine products, set health warning requirements on packaging and advertisements, and place restrictions on where nicotine products can be consumed. Recent regulatory trends in

¹⁴ See <https://research.umn.edu>.

¹⁵ An example of this type of internalisation is a smoking room at an airport. The smoker incurs additional costs, be it time, discomfort, or second-hand smoke, to be able to smoke.

nicotine set permissible levels of tar and nicotine, require plain packaging, require explicit graphics as health warnings, and ban advertising. Perhaps the strongest regulation is in New Zealand, which aims to ban cigarette purchases over the lifetime of individuals of a certain age. These regulations are generally effective in reducing cigarette consumption and therefore lower social costs not reflected in price (DeCicca et al., 2022; Jha et al., 2006; Markowitz, 2008).

Reduced harm nicotine products, such as ENDS, have also been subject to stricter regulations.¹⁶ In particular, flavoured products have been restricted or banned, likely because of a perception that flavoured products increase youth uptake of smoking and ENDS increase cigarette smoking. Although early evidence supports this perception, more recent analysis, for instance, Pesko and Warman (2022) and Cotti et al. (2022), find that ENDS and cigarettes are economic substitutes, rather than complimentary goods. Where this finding holds, it implies that consuming ENDS does not result in the consumption of cigarettes, which is a common concern of regulators.

Restrictions or bans of ENDS can reduce youth consumption but may cause youth substituting towards more harmful nicotine products, such as cigarettes. Using a difference-in-difference analysis, Friedman (2021) finds that San Francisco's ban on flavoured nicotine products led to increased cigarette smoking among youth.¹⁷ Similarly, Dave et al. (2019), also using a difference-in-difference analysis, find that legal age sale laws applied to ENDS increased youth cigarette smoking. Survey evidence by Posner et al. (2022) also find that if ENDS flavours are banned, 39 per cent of respondents indicate they will substitute tobacco-flavoured ENDS and 33 per cent of respondents indicate they will substitute cigarettes. They further find that if all ENDS were banned, 39 per cent of respondents indicate they will substitute cigarettes. These findings suggest that care is required in designing regulations aimed at youth users of ENDS to avoid adverse implications and increasing social costs not reflected in price.

The lower harm from the second-hand exposure to ENDS and HnB compared to smoke from cigarettes may warrant differential regulation. Although limited independent evidence is available, it indicates that harm from second-hand exposure to ENDS is much lower than cigarettes. Czogala et al. (2014) found that ENDS exposes others to nicotine but not to other combustion toxicants. The amount of exposure to nicotine was found to be about 10 times lower than for cigarettes. Protano et al. (2016) found that exposure to submicron particles by others are four-times lower for ENDS and HnB compared to cigarettes.

Regulations to encourage substitution by adults from cigarettes to reduced harm nicotine products are less prevalent. Wu et al. (2022) study the impact of ENDS introduction on cigarette consumption in six regions and find that

¹⁶ Similar common regulations for cigarettes are generally applicable to ENDS and, although there is limited evidence, advertisement restrictions seem to be effective (Hansen et al., 2018; Mantey et al., 2018; Padon et al., 2018).

¹⁷ There are studies with a weaker design that find flavour restrictions reduce nicotine consumption (Kingsley et al., 2019; Pearlman et al., 2019).

stronger regulations that support substitution of cigarettes with ENDS are associated with a decrease in overall cigarette consumption. Since recent evidence suggests that ENDS and similar reduced harm nicotine products are substantially less harmful than cigarettes, such regulations may reduce the costs of smoking and nicotine and motivate further innovation.

3.2. Alcohol

Alcohol is also highly regulated. Common regulations set age restrictions, limit advertising, require on-package and advertisement health warnings, restrict the place and circumstances of consumption, including recent consumption, of alcohol and provide licensing laws to limit the sale of alcohol to certain businesses and times. Recent regulatory trends prohibit the sale of alcohol to intoxicated persons, regulate digital and cross-border alcohol marketing (World Health Organization [WHO], 2022), regulate density of alcohol suppliers, and implement a minimum price per unit of alcohol.

These regulations can be effective to reduce the social costs not reflected in the price of alcohol. A review of the evidence suggests that besides taxation and price regulations, regulations that limit marketing can reduce the probability that a person begins to drink, or reduce the amount of alcohol consumed. Prohibiting late-night on-premise sales of alcohol and measures to prevent driving under the influence can reduce harm due to alcohol consumption. Other regulations aimed at managing the place and circumstances of consumption are less effective and measures to manage the drinking environment (e.g. plastic cups) may cause a net economic loss (Burton et al., 2017; Chisholm et al., 2018).

An important area of regulation in developing countries in particular is the regulation surrounding home brewing, home distillation, undenatured ethanol, and higher alcohols (e.g. propanol, isobutanol and isoamyl). Non-commercial alcohol, which can involve home distillation of spirits and mixing of ethanol and other alcohols with beverages, substantially raises the social costs from alcohol consumption, not reflected in the price (International Center for Alcohol Policies, 2008; Mkuu et al., 2019).¹⁸

Although enforcement of regulations that limit or prohibit home brewing or distillation of alcohol may be challenging, regulations aimed at reducing the consumption of undenatured ethanol and higher alcohols may be successfully enforced.¹⁹ These alcohols are often imported or produced in the formal domestic economy. The cost of domestic ethanol production may be greater than the benefits (Hahn & Cecot, 2009). Regulations may require a licence

¹⁸ Although higher levels of lead are sometimes observed, it is generally not the case that home-made alcohol, without adding other alcohols, is more toxic than alcohol beverages made by industry (Rehm et al., 2014). However, not accurately controlling or being informed of the amount of ethanol in beverages, together with a much lower cost-to-ethanol ratio that eases excessive consumption, raises the cost of alcohol consumption.

¹⁹ There is no high-quality evidence on the success of these regulations.

to purchase undenatured ethanol and higher alcohols and require adding bittering agents to consumer products. Regulations that limit the amount of alcohol in medicines can also reduce the costs of alcohol consumption.

3.3. Energy and vehicles

The production, supply and use of energy tends to be highly regulated. Regulations generally regulate the structure of and competition in the market; mining rights and operating licences; the location of operations; the operation, use and maintenance of equipment and power systems; the performance and compliance of right holders and licensees; technical and safety standards; property and land rights; tariffs and charges; tradable emission permits; rights and protection to consumers; rural electrification and the imports and exports of electricity.

Some countries have implemented separate regulations relating to renewable energy. Besides the regulations discussed above, regulations may introduce an auction system for renewable sources, limit installation areas of renewable energy equipment, require the adoption of certain technologies, manage the feed-in of electricity into the grid, regulate the sale of energy between tenants, support research and development, provide fiscal incentives and establish feed-in tariffs and other remuneration schemes. Many of these regulations lower the social costs not reflected in the price of energy.

Different renewable energy regulations and policies also affect innovation in renewable technologies, which may indirectly lower social costs not reflected in price. Hille et al. (2020) find that research, development and demonstration programs are associated with the greatest innovation in renewable technologies in a sample of 194 countries and territories. Fiscal incentives such as public spending, capital subsidies and low-cost loans and the announcement of government renewable energy targets are also associated with increased innovation.²⁰ The impact of regulation on innovation may, however, vary with the level of economic development of a country (Du et al., 2021).

The production of motor vehicles is predominantly regulated to meet safety, environmental and theft-protection standards, which lower social costs not reflected in price. To meet these standards, there are specific regulations that vehicle components need to comply with, such as for doors, steering wheels, seats, seat belts, roof strength, breaks and so forth. Regulations also set speed, noise and other limits. Some countries further require the electric vehicle manufacturer to implement warning sounds when these vehicles travel at low speeds.

Vehicle market regulations are also increasingly implemented to meet environmental objectives. Some countries, such as Zimbabwe, Nepal and India, regulate or prohibit the importation, purchase or registration of vehicles older than a certain age. Regulations that limit the driving time of certain

²⁰ In a smaller sample, Nicolli and Vona (2016) find that reducing entry barriers has the greatest effect on innovation in renewable energy. Also see Johnstone et al. (2010).

vehicles are sometimes implemented.²¹ Developed countries and states, such as Norway, Germany, the United Kingdom and California have set target dates to ban combustion vehicles or zero-emission vehicle mandates that require manufacturers to produce a specific number of electric vehicles.²² Besides those limiting driving time, the effectiveness of these regulations has received little empirical attention and will depend on the enforcement capacity of a specific country.²³

Incentives may also assist in consumer substitution towards electric vehicles, which, depending on the country, can reduce the cost of vehicle use. These incentives include tax benefits, subsidies on purchase, on charging or to industry, free tolls and parking and travel and parking priorities. Reviewing the empirical literature, Song and Potoglou (2020) find that incentives that close the price between electric and combustion vehicles are most effective towards consumer substitution. However, the benefit of subsidy incentives tends to shift from consumers to producers in the short term and onto infrastructure improvement in the long term.

3.4. Sugar

Although regulating sugar production is challenging, especially in less-developed countries with informal farming, once sugar cane is processed and enters formal markets, regulation becomes more feasible. Common regulations follow command-and-control approaches to set hygiene, transport and other requirements to ensure food safety and quality. Recent regulatory trends focus on communicating and improving health outcomes from sugar consumption. These may involve ingredient labelling and warnings of nutritional content, advertising of foods high in sugar, and school food and tuck shop products. Public awareness campaigns are also increasingly common.

There is little high-quality evidence available on the effectiveness of these recent regulations. The evidence suggests that such regulations can be effective, but the effectiveness is context-specific (Barbour et al., 2022; Micha et al., 2018; Popkin & Hawkes, 2016). Where effective, these regulatory trends will reduce the costs of sugar consumption.

3.5. Other

Cement production is often regulated to meet environmental and health standards and, thereby, reduce its social costs not reflected in price. To manufacture cement, raw materials (e.g. limestone, clay and iron) are ground and heated in a rotary kiln, which is a large furnace fuelled by coal and coke, oil, gas and/or various waste materials. Besides emissions from the burning of these fuels, hazardous air pollutants are emitted in this process.²⁴ Regulations can

21 These regulations can be found in, among others, populous Latin American cities such as Mexico City, Buenos Aires and Sao Paulo.

22 Policies that require public procurement of electric vehicles are also applied.

23 Studies on limiting driving time indicate that these restrictions can be easily avoided (Guerra & Millard-Ball, 2017).

24 See <https://www.epa.gov>.

limit the fuel types used and/or set limits for the different emissions produced (e.g. mercury and nitrogen oxides).²⁵ Production restrictions can also limit production to certain times or areas, such as the off-peak production mechanism applied in China.²⁶ Empirical evidence on the effectiveness of these regulations could not be found.²⁷

Similar to cement, fertiliser production is regulated to meet environmental and health standards and reduce social costs not reflected in price. The importation, number of producers and suppliers, input materials, manufacturing procedures, output of certain chemicals or toxic contaminants, manure management and packaging and labelling can be regulated. In particular, inorganic fertilisers can contain potential toxic elements such as cadmium and uranium, which pose a risk to human, animal and plant health and warrant regulation.²⁸ Technical and enforcement challenges and a lack of knowledge on manure management have resulted in these regulations being ineffective in some countries (Liverpool-Tasie et al., 2010; Ndambi et al., 2019; Simiyu et al., 2013).

Common regulations to reduce the costs of agriculture follow command-and-control approaches to set quality and safety standards for inputs and outputs, protect lands, habitats or species, require the removal of invasive species and limit agricultural activities to certain areas. A more recent trend is agri-environmental instruments; regulation aimed at reducing the negative environmental impact of agriculture and schemes that do not rely on command and control, such as the International Organization for Standardization (ISO) 14001 series for environmental management systems. This is a scheme that compensates for costs incurred due to modifying production processes, or certification of outputs if certain processes were followed.

A key difference between command-and-control and other agri-environmental schemes is that, unlike command-and-control instruments, these schemes are voluntary. They provide incentives towards compliance by either direct payment when meeting certain contractual obligations, or potential increases in demand from consumers who prefer environmentally friendly products.

It is not clear whether command-and-control approaches should be preferred to agri-environmental schemes to reduce the negative impact of agriculture. There is a lack of empirical evidence. The findings of Sauer and Walsh (2011) and Sauer et al. (2012) suggest that for less formal farming, command-and-control instruments are more costly and less likely to influence producer behaviour. But the effectiveness of agri-environmental schemes seems

²⁵ Such regulations also influence the selection of raw materials used to manufacture cement since these contain different levels of air pollutants.

²⁶ Wang et al. (2021) find that this regulation has a negative effect on firm performance.

²⁷ Rahman et al. (2015) find that the adoption of alternative fuels in cement manufacturing has had a positive impact on the environment.

²⁸ See <https://nutrیمان.net>.

to depend on context, showing effectiveness in some countries and ineffectiveness in others (Tyllianakis & Martín-Ortega, 2021; Uthes & Matzdorf, 2013).

Waste management tends to be strongly regulated. Common regulations specify which waste management activities require a licence, how waste should be treated, where waste may be disposed of, and what type of waste may be disposed. Recent regulations have focused on e-waste management, often limiting trans-boundary e-waste movement and recycling requirements of e-waste (Ilankoon et al., 2018). Stronger regulation of single-use plastics is also common, with many countries prohibiting the use of plastic bags and straws or setting a minimum price for these items.

The regulation of waste management can be effective. Kuang et al. (2022) finds that regulating e-waste in China significantly reduced the exposure to pollutants associated with e-waste within a sample of 860 individuals.²⁹ In a systematic review, Adeyanju (2021) finds that regulations based on the thickness of plastic bags are not effective, but regulations that prohibit the use of plastic bags significantly reduce plastic bag consumption. In another review, Borg et al. (2022) find that regulation of plastic is effective, but a combination of approaches may be required to give rise to sustained behavioural change.

4. An efficient excise regime

Towards improved decisions by producers and consumers, market prices should be based on social costs. For excisable goods, this requires excise rates that accurately internalise social costs not reflected in price into market prices. Although the exact social costs not reflected in price will be different in every country and context, comparable social costs not reflected in price between traditional and innovative goods may be similar for most countries.

The interplay between excise taxes and regulation also requires consideration. For governments to meet their objectives, a difficult balance between supporting innovation through excise taxes and regulation, collecting sufficient tax revenues to meet government objectives, and meeting government objectives through the excise regime and regulation is required.

This section provides an economic argument on the design of an excise regime for smoking and nicotine, alcohol, energy and vehicles, sugar and other products in the face of recent innovations and regulations. The argument is already reflected in the excise regimes of some countries. However, in many countries, uncertainty remains around the appropriate design of an excise regime if adopting an economic approach.

²⁹ Bhaskar and Turaga (2018) find that e-waste regulation in India gave rise to a small increase in the appropriate recycling of e-waste.

4.1. Smoking and nicotine

Although there is strong toxicological evidence that ENDS are likely to be less harmful than cigarettes and the existing evidence supports the same for HnB products, the long-term effects of these products remain uncertain. Two approaches to excise and regulation policy have been adopted or recommended in the face of this uncertainty:

- Treat these products equivalent to cigarettes.³⁰ Because of the lack of evidence that these products are equally harmful to cigarettes over the short or long term, there is little evidence supporting a claim that the external and internal costs of these products are the same as for cigarettes, and the rationale for this approach does not closely follow that economic approach to excise taxes. Only if there is strong evidence that cigarettes are a complementary good to ENDS and HnB, will the internal and external costs of cigarettes be relevant to the treatment of ENDS and HnB products. However, as indicated above, the evidence of whether these products are complimentary or substitutions for cigarettes are mixed.
- Treat these products differently to cigarettes. Underlying this approach is a recognition that science is never fully developed, and science-based policy is always limited by unknowns and, therefore, based on available evidence. Because of the lack of evidence that ENDS and HnB have similar harm to cigarettes, it is not assumed that the internal and external costs of ENDS, HnB and cigarettes are the same. These products are viewed as separate products to cigarettes and an estimate, based on available evidence, of their internal and external costs are made, which includes considering if they have strong substitution or complementary goods, for which the evidence is mixed. The existing estimates of the costs of smoking and comparative harm between ENDS, HnB and cigarettes are useful evidence for this estimate. This approach closer represents the economic approach to excise taxes.

Relying on this economic approach and based on the available evidence that indicates the availability of less harmful substitutes for cigarettes, balancing excise revenues and regulation while motivating substitution away from cigarettes is important. Towards this balance, setting an efficient excise rate on cigarettes and combustible tobacco is the first requirement. In general, this

³⁰ This approach is not necessarily risk-adverse. It may result in fewer individuals, including youth, starting to consume ENDS or HnB products and potentially smoking cigarettes. However, individuals who would have consumed nicotine irrespective of these products are more likely to prefer cigarettes under this approach, which may be more harmful. Further, it heightens the risk that existing smokers will continue smoking cigarettes rather than substituting towards ENDS or HnB products, which may be less harmful.

should be a specific rate per gram of combustible tobacco, used to calculate the specific rate per unit for cigarettes.³¹³² This approach avoids substitution between cigarettes and combustible tobacco motivated by the excise regime.

The specific rate has benefits over an *ad valorem* rate. An *ad valorem* rate is susceptible to trade mis-pricing and under-valuation of ex-factory prices and will not convey accurate information to consumers since it taxes higher quality cigarettes at a higher effective rate than lower quality cigarettes, suggesting that lower quality cigarettes are less harmful. In general, *ad valorem* rates can only be preferred in the context of high inflation where indexation of the specific rate would not provide stable real revenues.

The specific rate should consider the extent that smoking is regulated, since these regulations have been effective in reducing smoking and, therefore, reducing social costs not reflected in price. The rate should be higher in less regulated environments and lowered as regulation is increased. However, the prevalence of smuggling and price of cigarettes and tobacco in neighbouring countries may limit the ability of a country to apply such a rate.

Having established a rate on combustible tobacco, differential taxation for reduced harm alternatives is may be warranted. Our current knowledge indicates that ENDS are about a twentieth as harmful as smoking tobacco such as cigarettes. Independent evidence on HnB products is more limited but indicate that these products may be about a fifth as harmful as cigarettes per stick, which, based on typical amounts of tobacco in a stick equals about half the harm per gram of tobacco.³³ If the same regulations apply to these products as smoking tobacco, excise rates that reflect comparable harm would be about 40 per cent of the specific rate per gram of tobacco per millilitre of ENDS liquid.³⁴ For HnB products, setting a rate per stick at about 20 per cent of the specific rate per cigarette may be appropriate.³⁵ Considering the comparative harm from waste of cigarette butts and disposable ENDS, where a plastic excise is not administered, may further refine these rates.

Differential regulation between cigarettes and less harmful substitutes may warrant revision of these rates. Such regulation may support substitution towards non-combusted nicotine products and, based on our current knowledge, accelerate the achievement of public health objectives. Since the

31 A cigarette generally includes about 0.8 grams of tobacco.

32 This rate should not change depending on where the tobacco is produced or the raw materials used, a practice often observed in African and Asian countries.

33 HnB generally contains less than half the amount of tobacco per stick of cigarettes. The harm differential therefore largely represents the difference in amount of tobacco consumed.

34 A cigarette contains about 0.8 grams of tobacco. A millilitre of ENDS liquid is about equivalent to 10 cigarettes in terms of number of puffs. The harm is estimated at about five per cent of a cigarette for the same number of puffs.

35 These rates do not consider the substitution effect from cigarettes to ENDS or HnB or the complementary effect of ENDS or HNB on cigarette consumption since the evidence on these effects is mixed. If there is substitution, a lower rate on non-combustible tobacco may be warranted since it provides a positive externality of reduced cigarette smoking. The opposite is the case if it is found that non-combustible tobacco is complementary to cigarettes.

harm from second-hand exposure to non-combusted nicotine is estimated to be less than cigarettes, differential regulation regarding public smoking may be warranted in certain circumstances.

Regulation should be careful to not motivate substitution towards cigarettes by current users of non-combusted nicotine products. The existence of such regulation may increase the total social costs not reflected in the price of smoking and nicotine. Since the evidence suggests that regulation that aims to reduce youth smoking of ENDS may have adverse effects, and that ENDS and cigarettes may be substitutes rather than complementary goods in certain cases, information campaigns may be preferred in certain contexts. Such an approach will also be aligned with the latest evidence, as summarised in McNeill et al. (2022).

4.2. Alcohol

Since alcohol has high-harm substitutes such as undenatured ethanol, home brewing and home distillation, balancing excise revenues, regulation, information campaigns and support for low-alcohol alternatives is important. To remove undenatured ethanol as a substitute, limiting the import and purchase of undenatured ethanol to license holders and requiring the addition of bittering agents by regulation may be preferred to excise taxation.

Since regulations aimed at limiting or eliminating home brewing and distillation may struggle with enforcement challenges, the price difference between informal and formal alcohol is a policy concern in many countries. Since limiting smuggling and supporting substitution to formal alcohol may raise tax revenues and reduce the consumption of high-risk alcohol, an excise rate below the optimal rate may be preferred where smuggling, home brewing and/or distillation is prevalent. Where these practices are not prevalent, the rate should reflect the social costs not included in the price of alcohol consumption.

Whether the rate is set at or below the optimal level, a specific rate per litre of 100 per cent alcohol is generally appropriate. Many countries set excise rates on alcohol based on beverage type, place of production, raw materials used and other factors. Countries that do not experience high inflation also use *ad valorem* rates. Since a percentage of pure alcohol gives rise to similar social costs not reflected in price, irrespective of beverage type, place of production and raw materials used, only a specific rate that disregards these variables will provide accurate information to consumers. The specific rate should, however, consider the extent of regulation of alcohol, especially where regulation limits marketing of alcohol, limits late night sales and prevents driving after alcohol consumption.

Such a specific rate will also, appropriately, tax reduced alcohol and alcohol-free beverages at rates that reflect their reduced harm for the same volume of beverage. Since an alcohol-free beverage does not contain alcohol, it should not be taxed under the alcohol excise. However, low and alcohol-free beverages often include sugar, and this component of the beverage may warrant an excise in certain contexts.

4.3. Energy and vehicles

To meet the Nationally Determined Contributions under the Paris Agreement, most countries will have to support innovation in energy and vehicles. Part of this support could be through differential excise rates on energy and vehicles and regulation that motivates substitution towards lower harm alternatives.

A first step is an excise that internalises the social costs not reflected in price of electricity by either taxing harmful inputs (e.g. coal, diesel and gas) with a specific rate based on their greenhouse gas emissions or, if inputs are not taxed or insufficiently taxed, electricity as output with a specific rate based on the emissions per kilowatt-hour.³⁶ Taxing inputs may be preferable towards a differentiated excise regime on electricity since changes in electricity generation will immediately change the total excise on electricity. Where electricity as output is taxed, the rate would have to be adjusted as the process and inputs of electricity generation changes.

A differential approach, as outlined above, will create an incentive to substitute for greener electricity. Regulation that supports green energy and feed-in by producers can also motivate substitution.

Besides electricity, motor fuels should be taxed at a specific rate per litre to internalise the environmental, pollution and noise costs of fuel combustion into fuel prices.³⁷ Fuel excises are often set to include other external costs, such as vehicle accidents, congestion, road damage and space consumption of vehicles. However, with the introduction of electric vehicles that do not consume fuel, it may be preferred to account for these externalities under the vehicle excise. If not, the excise on fuel may exceed the costs not reflected per litre of fuel consumption.³⁸

The excise taxes above on electricity and fuels are important for an efficient excise regime on vehicles. If the excise on electricity and fuel does not internalise social costs not reflected in price, these costs would have to be accounted for under the vehicle excise, giving rise to complexities differentiating between combustion and electric vehicles. However, where the excise on electricity and fuels internalises costs, the vehicle excise can represent other social costs not reflected in price, contributed by all vehicle types. These costs include vehicle accidents, congestion, road damage and space consumption.

³⁶ Another option is a separately administered carbon tax. The design of this tax is beyond the scope of this paper. Its introduction should, however, reduce the excise on electricity and fuels if these excises already include all social costs not reflected in price.

³⁷ Besides accurately reflecting costs not included in price, a specific rate also has the benefit of less fluctuation in the price of fuels compared to the *ad valorem* rate and, thereby, be a more stable source of revenues.

³⁸ This is the case since there are non-fuel consuming vehicles giving rise to social costs not reflected in price, such as road damage.

Since costs arising from vehicle accidents, congestion, road damage and space consumption are correlated with distance travelled, the excise regime on vehicles needs to take this into consideration.³⁹ A potential policy is to have a weighted specific rate per kilometre or mile travelled, with the weight being based on the weight of the vehicle, or another variable that is correlated with size and weight.⁴⁰ This approach would provide that all vehicles can be subjected to the same policy, and the excise paid periodically, perhaps during licence renewal. In addition, a separate excise may have to be levied at the purchase stage based on the age of a vehicle, with new vehicles not paying the excise.^{41,42}

The combined policy on electricity, fuel and vehicles will support the adoption of reduced harm energy and vehicles that are smaller, newer and rely on a less harmful source of fuel. Where electricity generation is less harmful than fuel combustion, the excise burden will be comparatively less on electric vehicles. Further, since the excise on vehicles does not raise the purchase price of new vehicles, substitution towards these vehicles is more likely.⁴³ Consumers may also prefer smaller vehicles to lower the periodical excise tax based on weight and distance travelled, which would reduce the costs of road damage, congestion and space consumption.⁴⁴

4.4. Sugar

An excise on sugar may not be needed or warranted in certain countries. Both low and high percentages of carbohydrate⁴⁵ consumption are associated with increased all-cause mortality (Seidemann et al., 2018). This suggests that sugar consumption is beneficial as a source of sustenance and harmful when excessively consumed. The excise on sugar, or carbohydrates more generally, will only be warranted in countries where excessive consumption thereof gives rise to substantial social costs not reflected in price, such as public health care costs.

If there are substantial social costs not reflected in price due to sugar consumption, an excise at a specific rate per gram of sugar may be appropriate. However, if those people with low incomes rely on sugar as sustenance, the tax may not be equitable and information campaigns and regulation may be preferred. Where the public health system is weak, the external cost of sugar

39 Such an approach may prove to be challenging in some developing countries, especially to limit evasion by adjusting odometers on older vehicles. However, the same countries generally do not have many electric vehicles and the traditional approach to fuel and vehicle excises can be applied.

40 This cannot be engine capacity since it is not relevant to electric vehicles.

41 Many existing regimes also consider the carbon emissions of a vehicle. However, with efficient excises on fuels this may not be required. The reason is that fuel consumption and carbon emissions, after controlling for vehicle age, weight, and distance travelled, tend to be closely correlated.

42 In regions where vehicle smuggling is common, regulation may be preferred to an excise on old vehicles.

43 Newer vehicles are less prone to breaking down and generally have improved safety features, which reduces the costs of road accidents.

44 Where governments wish to further motivate the adoption of electric vehicles, further regulation and incentives as outlined in Section 3 could assist.

45 Sucrose is a carbohydrate consisting of a glucose and fructose molecule.

consumption may be higher and warrant stronger regulation and taxation, preferably on all foodstuffs that contribute to nutrition-related diseases, if administratively feasible.

Since innovation can provide a sugar substitute to those people with low incomes and lower external costs, regulation, taxation and information campaigns to support innovation may be beneficial. Currently, there is insufficient scientific evidence to allow precise estimates of the comparative harm of sucrose and its various alternatives. Setting an excise rate on sugar alternatives is therefore challenging. It may be appropriate to, in the short term, rather rely on information campaigns and differential regulation, such as advertising, for sugar alternatives that are currently only associated with health benefits, such as xylitol, tagatose and erythritol.

4.5. Other

The toxins and emission from cement production is seldom taxed under an excise. Although a substitute may not yet be readily available, an excise on cement may be warranted towards environmental objectives, especially where regulations cannot be effectively enforced.⁴⁶ An excise on cement may also motivate innovation towards an alternative that is produced in a manner that is more environmentally friendly, as well as motivating substitution towards this cement once it enters the market.

Regulation may be preferred to taxation to avoid the potential toxic elements in inorganic fertiliser and its potential impact on human, animal and plant health. Since fertiliser contributes GHG emissions but is also essential to food security, subjecting it to an excise will depend on context. In countries without food security, the external benefits from fertiliser may exceed the external costs and therefore not warrant an excise. Where environmental objectives are a greater priority than food security, an excise on fertiliser may be warranted. Such an excise will also motivate innovation and improved manure management by farmers.⁴⁷

Although the agricultural sector is the largest contributor to GHG emissions in many countries, these emissions are seldom taxed.⁴⁸ This sector is also difficult to regulate in many countries. Where enforcement challenges are common, the existing evidence suggests that agri-environmental schemes might be preferred to command-and-control strategies. Where farming is informal, a preferred balance within this sector may be to have policies that support innovation, together with agri-environmental schemes.⁴⁹ Such an approach may assist formalisation of the sector and, thereby, raise revenues from other taxes.

⁴⁶ The rate of the excise may not be at an efficient level where there is a concern of substituting cement with wood. The rate should also consider the extent that fuels used to produce cement are already subjected to excise taxes.

⁴⁷ Information campaigns may also be important to improve manure management by farmers.

⁴⁸ In less-developed countries, enforcement challenges often prevent taxation. Further, taxing the agriculture sector tends to be politically challenging in many if not most countries.

⁴⁹ A fee-bate approach to taxing agriculture can be considered where there are larger businesses and available data.

To reflect the environmental costs of waste in prices, goods that contribute to these costs may warrant an excise and regulation. E-waste and plastics may require a combination of excise taxation, regulation and information campaigns to effectively reduce their environmental harm. The excise rate needs to reflect the strength of regulation with lower rates where regulation is stronger. Differential excise taxation between biodegradable and non-biodegradable plastics may also motivate substitution towards reduced harm plastics.

5. Conclusion

For market prices to provide accurate information to producers and consumers, applying different excise rates on goods based on their internal and external costs not reflected in price is important. Although this practice is already adopted to some extent in many countries, consistent application of the economic approach on all excisable products is seldom observed.

For many countries, the economic approach would require adopting a specific rate, increasing their excise rates on cigarettes, smoking tobacco and alcohol, redesigning the regime on electricity and its inputs, fuels and vehicles, administering lower rates on the reduced harm alternatives to excisable goods, and improving international cooperation to reduce illicit trade. The base of the excise regime may also have to be widened in certain contexts to include sugar, cement, single-use plastics and fertiliser, where sufficient administrative capacity exists.

Regulation and information campaigns that support innovation and substitution towards reduced harm excisable goods by consumers can lower social costs not reflected in price. This is especially the case for the regulation of reduced harm nicotine products to assist substitution from smoking tobacco, undenatured ethanol to avoid substitution, renewable energy to assist substitution, and fertilisers to avoid intoxication, which can have significant influence over the total external costs of smoking, alcohol, energy and vehicles and other excisable goods.

An excise regime, as outlined, would represent an economic rationale for excise taxes. It is, however, unlikely that excise regimes in practice will consistently implement lower rates as reduced harm innovations and stronger regulations are introduced. Further debate is therefore required on the rationale and future of excise taxes in the face of innovation and regulation that will continue to reduce social costs not reflected in price.

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ARTICLES

The European Commission's Proposal for a Modernised Union Customs Code: A Brief Introduction

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The European Union (EU) Customs Union has existed since 1968, but to this day it is not fully harmonised. Although customs law is Union law, there are 27 different national customs administrations, resulting in the customs legislation not being uniformly applied. To remedy this, the European Commission has proposed a comprehensive customs reform, the Modernised Union Customs Code (MUCC), a draft of which was presented by the Commission on 17 May 2023 (COM (2023)258 final). The following innovations are worth highlighting:

- establishing the new European Customs Authority to pool expertise and competence and support national customs authorities
- establishing a Union-wide Customs Data Hub to ensure the monitoring of the movement of goods, including the supply chain, on the one hand, but at the same time allowing for the simplification of procedures
- an independent legal regime for e-commerce: platform operators in e-commerce will become importers and customs debtors ('deemed importers') in the future. This is intended to reduce compliance costs and at the same time improve Union-wide risk analysis
- the new 'Trust and Check Trader (TCT)' (which will be alongside the Authorized Economic Operator [AEO] until the TCT permanently replaces it), will communicate electronically via the Customs Data Hub with Union-wide effect. TCTs can benefit from further facilitations, such as performing certain controls themselves. In return, complete electronic monitoring of the TCT's supply chain must be always ensured through real time access to the company's internal data.

The reform should be implemented within the next 10–15 years. The reform is to be welcomed. However, there are still pitfalls hidden in the details. The standardisation of IT systems is necessary for Union-wide centralised customs clearance. Better risk analysis can be performed on a Union-wide data platform, both to protect the EU's financial interests and to enforce import and export restrictions to protect the Union and its citizens. An EU customs authority can reduce divergent administrative practices across member states through governance and support. The further development of the AEO, the TCT, can establish better cooperation between administration and business, and the ability of companies to perform certain controls and release the goods

themselves can speed up customs procedures. Harmonised sanctions for misconduct by economic operators will lead to a level playing field. Much will depend on the concretising legal acts that are now being drafted and discussed.

1. Introduction and background

On 17 May 2023 the European Commission (the 'Commission') published its proposal to reform the Union Customs Code.¹ The Commission described the proposal as 'the most ambitious and comprehensive reform of the EU Customs Union since its establishment in 1968',² intended to 'take the Customs Union to the next level'.³ The proposal puts the administration, application and enforcement not only of the customs legislation but also of 'other legislation applied by the customs authorities'⁴ on a new footing. The reform of the Union Customs Code has also resulted in the need for several other proposed reforms, in particular, to address the issue of e-commerce,⁵ but the main focus of this paper is the MUCC.

The proposal is based on three core principles: making the Customs Union more efficient by simplifying and modernising customs procedures; creating a 'geopolitical Customs Union', which will harmonise inter alia risk prioritisation and the application of customs controls, enabling the Union to 'act as one'; and future-proofing the Customs Union to make it more agile, adapting flexibly and rapidly to changes in the supply chain.⁶ The Commission summarises the objectives of the reform: the reduction of compliance costs and enabling EU Customs 'to better protect the financial and non-financial interest of the EU and its member states as well as the Single Market, based on common, EU-wide risk management and more harmonised controls'.⁷ Two of the primary innovations for accomplishing these objectives are centralising key functions and establishing new institutional and technological capacities at the Union level. Thus, the European Union Customs Authority ('EUCA')⁸ –

¹ European Commission, Proposal for a regulation of the European Parliament and of the Council establishing the Union Customs Code and the European Customs Authority, and repealing Regulation (EU) No 925/2013, COM(2023) 258 final, hereinafter referred to as the Proposal or MUCC for Modernised Union Customs Code. The Union Customs Code (Regulation (EU) No 952/2013 of the European Parliament and of the Council of 9 October 2013 laying down the Union Customs Code, Official Journal of the European Union, L 269, 10 October 2013, p. 1, as amended), on the other hand, is the currently prevailing basic regulation which the MUCC intends to reform and shall be referred to hereinafter as the UCC.

² European Commission, *EU Customs Reform*, [EU Customs Reform \(europa.eu\)](https://europa.eu), visited 19 June 2023.

³ European Commission, *Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee, customs reform: Taking the Customs Union to the next level*, COM(2023) 257 final, 17 May 2023.

⁴ The expression 'other legislation applied by the customs authorities' is defined in Article 5 No 3 MUCC as 'legislation other than customs legislation [this is defined in Arts. 5 No 2 of the Proposal] applicable to the goods entering, exiting, passing through the customs territory of the Union, or to be placed in the Union market, in the implementation of which the customs authorities are involved'. Within this context it should be noted that the definition of 'customs legislation' under the Proposal (Art. 5 No 2 of the Proposal) differs from the definition under the UCC (Art. 5 No 2 UCC): The wording of point d) is slightly different to the UCC, but is likely not to have an effect on the interpretation or application. Point e) of the Proposal, which concerns the EU Single Window (EU Customs Single Window Certificates Exchange System, or EU CSW-CERTEX), is entirely new, but in our view is best understood as a clarification, as it could arguably also be understood as falling within the scope of point a).

⁵ See Section B.III.3. below on e-commerce.

⁶ Cf. European Commission, note 3.

⁷ European Commission, note 3.

⁸ Title XII, Arts. 205-238 MUCC governs the EUCA as an institution, setting out the principles, tasks, organisational structure, and laying down provisions relating to the budget and staff. Chapter 6 contains the general and final provisions.

a new EU body⁹ – will be established and the European Union Customs Data Hub ('EUCDH')¹⁰ – the new Union-level database and IT environment for customs operations – will be set up and put into operation.

Risk assessment and analysis will be 'supply-chain-based', rather than 'consignment-by-consignment', as now. The 'new partnership among EU customs authorities and between customs and business'¹¹ is key to the success of this new approach: it will only succeed if supply chains are transparent and first-hand data from multiple actors involved in the customs operation is entered into the EUCDH. The new partnership has two overarching, inherently linked objectives: the reduction of compliance costs and improving the protection of the financial and non-financial interests of the EU and the member states as well as the Single Market.¹² The 'non-financial interests' referred to include in particular regulatory matters (e.g. health, environment, security, and safety) and embargoes and export control.¹³ Customs acts as the gatekeeper and is the first – and often last – line of defence in respect of these interests.

For businesses the trade-off is greater transparency in return for greater efficiency and increased simplifications and facilitations for customs operations. Some of the most strategically significant benefits for businesses¹⁴ include only having to submit the customs data only one time for multiple consignments and dealing with one single system, namely the EUCDH,¹⁵ the realisation of the EU Customs Single Window Certificate Exchange (EU CWS-CERTEX), Import Control System (ICS2) and the Digital Product Passport,¹⁶ and a greater harmonisation of the application of customs controls.¹⁷

The changes in the field of customs are linked to other fields, in other words 'other legislation applied by the customs authorities'. For example, the customs authorities are tasked with preventing any of the goods mentioned in

⁹ Art. 205(1) MUCC.

¹⁰ Title III, Arts. 29-40 MUCC governs the EUCDH. Many of the provisions concern the storage, processing, access to, deletion etc. of personal data. Other provisions concern data sharing. However, there are few provisions protecting commercially sensitive data. One may criticise this as an imbalance since very little personal information is gathered in comparison to sensitive commercial information. However, this criticism may not be entirely fair insofar as such information must be shared to realise the Customs Single Window, one of the key elements for increasing customs efficiency for traders. The Customs Single Window can therefore be understood as a core element in the 'new partnership between customs and business', at the heart of which is a trade-off between security concerns and improvements in customs operations for traders. From this perspective, it is difficult to justify sharing information which was provided within the framework of the Single Window for customs purposes (see Art. 29(1) sentence 1 MUCC) with law enforcement as the information was not intended for law enforcement purposes.

¹¹ European Commission, note 3.

¹² European Commission, note 3, p. 4.

¹³ It bears noting that the Commission's European economic security strategy (*European economic security strategy*, JOIN (2023) 20 final, 20/06/2023), also focusses on national security and economic security. It remains to be seen whether the new strategy will remain defensive or will be used at least *de facto* as a means to achieve other policy goals, such as in the field of emissions. Ultimately, the answer to such questions will likely depend on one's point of view. From a GATT legal perspective, the policies should be designed and applied in a manner consistent with the applicable WTO legislation to avoid a dispute settlement proceeding. It is open to question whether, even if no violation can be found, a non-violation complaint may be successful.

¹⁴ Many of the benefits contained in the MUCC and mentioned by the Commission in its Communication (note 3) are already foreseen in the UCC, e.g. the single window, one-stop shop, self-assessment and centralised clearance, but have not been implemented due to IT issues.

¹⁵ Cf. European Commission, note 3, p. 5.

¹⁶ Cf. European Commission, note 3, p. 10.

¹⁷ Cf. European Commission, note 3, p. 11.

the Carbon Border Adjustment Mechanism Regulation from being imported by anyone other than an authorised CBAM declarant.¹⁸ Access to the registrant database to automatically verify that the importer is authorised would save significant time and effort for all parties. Similarly, direct access to the database of the European Chemicals Agency (ECHA) would allow for controlling the existence of a valid registration number for each substance imported and allow the customs authorities to check authorisation decisions when the Commission has granted an exemption for substances prohibited under the REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) legislation.¹⁹ Such access would improve both safety and efficiency. Another example is the Commission's proposed regulation to prohibit products made from forced labour from the EU market.²⁰ The proposal covers products made in the EU for domestic consumption and exports, and imported goods. Customs will be in charge of enforcement at the EU borders.²¹

2. A new body, a new IT infrastructure and new definitions

2.1. The EU Customs Authority

The EUCA will have its own legal personality (Art. 205(1) MUCC).²² Its mission is set out in Article 207(2) MUCC and can be summarised as contributing to the operational management of the customs union; coordinating and supervising operational cooperation between customs authorities; pooling and providing technical expertise; developing, operating and maintaining information technologies to implement the procedures laid down in the MUCC; making optimal use of the available data for customs supervision, control and risk management purposes; supporting customs authorities in achieving a uniform implementation of customs legislation, in particular by harmonising customs controls and risk management; and contributing to the enforcement of other legislation applied by the customs authorities (Art. 207(2) MUCC). The EUCA will be established as of 2026 and become fully operational on 1 January 2028 (cf. Art. 238(1) MUCC).²³

18 Cf. Art. 25(1) of Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism, Official Journal of the European Union, L 130, 16.5.2023, p. 52.

19 Cf. European Commission, note 3 at footnote 36. For additional examples ranging from deforestation to slave labour European Commission, note 3 see p. 2.

20 See European Commission, Proposal for a Regulation of the European Parliament and of the Council on prohibiting products made with forced labour on the Union market, 14 Sept. 2022, COM(2022) 453 final. For a brief summary of the proposed regulation see European Commission, Commission moves to ban products made with forced labour on the EU market, 14 September 2022.

21 See European Commission, Proposal for a Regulation of the European Parliament and of the Council on prohibiting products made with forced labour on the Union market, 14 September 2022, COM(2022) 453 final. For a brief summary of the proposed regulation see European Commission, Commission moves to ban products made with forced labour on the EU market, 14 September 2022.

22 On the contractual liability of the EUCA see Art. 236 MUCC. The non-contractual liability will presumably be governed by the generally applicable rules as elaborated by the Court of Justice of the European Union.

23 The EUCA will be established as of 2026. In the interim period the Commission will be responsible for the operation of the EUCA (Art. 238(2) MUCC).

The EUCA's core tasks are carrying out risk management tasks (Art. 208(1) MUCC), tasks in relation to restrictive measures and the (new) crisis management mechanism (Art. 208(2) MUCC),²⁴ tasks that can largely be summarised as 'coordinating and harmonising activities' (Art. 208(3) MUCC),²⁵ issuing an opinion on whether granting an authorisation for processing would adversely affect the interest of the Union producers²⁶ (Art. 208(3)(h) MUCC), and carrying out the data management and processing activities necessary for the member states' customs IT systems to connect with the EUCDH (cf. Art. 208(4) MUCC).

At the intra-Union-organisational level the role of the EUCA can formally be described as support for the Commission, for example by preparing reports, developing common standards and approaches or making recommendations, in addition to its activities in respect of the EUCDH.²⁷ The Commission remains the formally responsible institution.

The EUCA will also be responsible for ensuring that a greater degree of harmonisation of the application of customs law is achieved across the member states. In this respect it bears noting that the lack of uniform application of customs law across the EU member states, as required under Article XXIV in conjunction with Article X: 3(a) GATT, has been the subject of WTO dispute settlement proceedings²⁸ and the EU's failure to achieve full compliance with these obligations remains a problematic issue. It is therefore interesting that Arts. XXIV and X GATT were not expressly cited in the proposal given that the reform may significantly contribute to compliance.

The EUCA's primary function in relation to the member state's customs authorities is, in our view, to establish integrated, Union-wide risk management strategies and programs and ensure that they are implemented in a uniform manner. The EUCA will be responsible for issuing control recommendations to national customs authorities; they must justify not applying those recommendations. Thus, a common, EU-wide risk analysis will underpin control recommendations and a common risk management will be put into place,²⁹ thereby leading to a more harmonised application of customs controls by the customs authorities of the member states, which in turn will

²⁴ This new mechanism will be addressed below.

²⁵ Examples include carrying out diagnostics and monitoring of border crossing points and other control locations, develop common standards and issue recommendations for best practices (point a), carrying out performance measurement for the customs union (point b), elaborating and disseminating operational manuals for the practical application of customs processes and working methods and develop common standards in this regard (point g), coordinating and supporting the operational cooperation between customs authorities and between customs authorities and other authorities at national level (point j), and organising and coordinating the joint controls (point k).

²⁶ See Arts. 102(3)-(5) MUCC.

²⁷ Numerous provisions empower the Commission to delegate specific tasks to the EUCA.

²⁸ See for example Appellate Body Report, *European Communities – regime for the importation, sale and distribution of bananas*, WT/DS27/AB/R, *Bananas III*, Appellate Body Report, *European Communities – measures affecting the importation of certain poultry products*, WT/DS69/AB/R, (*EC – Poultry*), Appellate Body Report, *European Communities – selected customs matters*, WT/DS315/AB/R, (*EC – selected customs matters*) and Panel Report, *European Union and its member states – certain measures relating to the energy sector*, WT/DS476/R, (*EU – Energy Package*). There is additional case on the matter where the EU was not the respondent.

²⁹ However, the member states will still perform their own national risk analysis and management tailored to their respective specific profile, cf. European Commission, note 3, p. 11.

be monitored by the EUCA. In line with the Commission's views expressed in its economic security strategy paper, the new approach to risks involves a shift away from process compliance of individual consignments towards a focus on the problems and risks of overall supply chains.³⁰ The risks to be addressed include not only financial risks but also non-financial risks, which implies sharing data with and involving other authorities.³¹

Although the EUCA's recommendations, *et cetera*, formally appear to be advisory vis-a-vis the member states' customs authorities, in practice the latter are likely to treat them as binding. For example, where a national customs authority must seek the EUCA's opinion on whether granting an authorisation for a processing operation would adversely affect the essential interests of Union producers, they may disregard the EUCA's opinion, but then they must give reasons for their decision (Art. 102(5) sentence 3 MUCC). Similarly, they must provide a justification to the EUCA if a control recommendation was not executed (Art. 51(6)(h) MUCC). When this is combined with the EUCA's monitoring and reporting tasks, it can be expected that the customs authorities will enjoy less autonomy.

The EUCA will also coordinate cooperation between the customs authorities. This will be facilitated by the EUCDH. For example, non-compliant supply chains detected in any member state can directly feed into the common risk analysis, improving the intelligence for the control decisions of all member state.³² Finally, the EUCA may conclude non-binding working arrangements with the authorities of third countries and international organisations (cf. Art. 243 MUCC) and exchange and share certain data with these (cf. Art. 244 MUCC).³³

2.2. The EU Customs Data Hub

The EUCDH will 'act as the engine of the new system.'³⁴ Article 29 MUCC lays down the functionalities and purpose of the EUCDH. As the EUCDH's operational capacity progressively comes online importers,³⁵ carriers, warehouse operators, e-commerce platforms and others will have to make their relevant information for the customs operation available to the EUCDH. In other words, multiple parties will be providing first-hand information on the same consignment, which the Commission regards as critical to the 'supply-

³⁰ On the new focus on supply chains see European Commission, note 3, p. 6.

³¹ This is a necessary consequence of implementing the Customs Single Window.

³² European Commission, note 3, p. 10.

³³ This is without prejudice to Regulation (EC) 515/97 on mutual assistance between the administrative authorities of the member states and cooperation between the latter and the Commission to ensure the correct application of the law on customs and agricultural matters. Article 244(5) MUCC contains a clerical error and refers to Regulation (EC) 517/97.

³⁴ European Commission, Press Release of 17 May 2023.

³⁵ The term 'importer' will be examined below.

chain-based risk strategy'. Perhaps due to there being multiple parties providing the customs declaration information the rules for modifying and/or invalidating the data provided have been revised.³⁶

The relationship with member state IT systems and the ultimate fate of these remain unknown.³⁷ However, the Commission has expressed the view that only IT systems where national specificities or integration require customisation would be maintained nationally and even in those cases it would be done using the EUCDH capabilities.³⁸

The risk analysis, risk management, *et cetera* should be data driven. It is important to recall that the risks are not only financial but also non-financial. The interoperability with other systems (i.e. non-customs systems, e.g. ECHA) is thus a *sine qua non*. It is therefore significant that Article 29(1)(f) MUCC expressly mentions the EU CWS-CERTEX as one of functionalities the EUCDH will provide. Article 40(3) MUCC is designed to avoid having to duplicate certain information for customs purposes where that information has already been provided to a non-customs authority and the customs authority is able to obtain that information via the EU CWS-CERTEX. Where the supply chains are stable, the same information may be used for multiple consignments, meaning that they will have to submit the data only once for multiple consignments insofar as a single portal is used.³⁹ In this context it is also worth mentioning that the single window principle means that importers and other persons affected will not need to deal with the current multitude of IT environments. Finally, the Commission envisages that the EUCDH will have connectivity with the systems of other authorities, which will enable the realisation of the one-stop shop principle.

As of 1 March 2032 importers, exporters and holders of a transit procedure may start using the EUCDH; as of 1 January 2038 use of the EUCDH becomes mandatory (cf. Art. 63(2) MUCC). Deemed importers (see B.III.3 below) should make use of the EUCDH already as of 2028.

2.3. New definitions

Article 5 MUCC sets out a number of new definitions,⁴⁰ for example 'other legislation applied by the customs authorities', 'data', 'risk signal', 'risk signal result', 'control recommendation', 'common priority control area', 'common risk criteria and standards', 'supervision strategy', 'consignment', 'manufacturer', 'product supplier' 'simplified treatment for distance sales' and 'crisis'. These new definitions follow in particular from the new focus on the overall supply chain and use of the EUCDH.

³⁶ See Arts. 62, 82 MUCC. In respect of the modification and invalidation of pre-departure information see Art. 96 MUCC.

³⁷ On the integration of the national IT systems into the Union-wide IT infrastructure see especially Article 30 MUCC.

³⁸ European Commission, note 3, Legislative financial statement, 1.4.3.

³⁹ Cf. European Commission, note 29. This is a significant improvement for businesses.

⁴⁰ There are some other legal definitions in the MUCC not contained in Article 5 MUCC, e.g. Art. 102(2)(g) defines the expression 'examination of the economic conditions'. The expression 'advance cargo information', which is governed by Articles 79, 80 MUCC, is given a quasi-legal definition in Recital 34 to the MUCC.

2.3.1. *Importer*

The proposal also defines the term ‘importer’, which is left undefined in the UCC.⁴¹ Whereas under the UCC the importer is considered to be the person who submits the customs declaration or in whose name and whose behalf the customs declaration is submitted, Article 5 No 12 MUCC defines the importer as ‘any person who has the power to determine and has determined that goods from a third country are to be brought into the customs territory of the Union or, except otherwise provided, any person who is considered a deemed importer’.⁴² Furthermore, the importer must be established in the customs territory (Art. 20(2) MUCC) unless one of the exceptions enumerated in Article 20(3) MUCC applies.

The importer’s primary obligations are providing, keeping and making available to customs authorities, prior to the release of the goods, all the information required;⁴³ ensuring the correct calculation and payment of customs duties and any other charges applicable; ensuring that the goods entering or exiting the customs territory of the Union comply with the relevant other legislation applied by the customs authorities; and any other obligation on the importer established in customs legislation.⁴⁴ Importers should note that release for free circulation is not proof of conformity with the relevant other legislation applied by the customs authorities (cf. Art. 88(2) MUCC).

2.3.2. *Advance cargo information*

Advance cargo information must be provided in order for the goods to enter the customs territory (Art. 79 MUCC).⁴⁵ The minimum information that must be provided is the importer responsible for the goods,⁴⁶ the unique reference for the consignment, the consignor, the consignee, a description of the goods, the tariff classification, the value, the data on the route and the nature and identification of the means of transport bringing the goods and the transportation cost (Art. 80(2) MUCC). In essence, the advance cargo information will replace the Entry Summary Declarations (ENS) under the UCC.⁴⁷ It is the carrier (defined in Art. 5 No 25 MUCC) who must provide the information (Art. 80(1) MUCC). However, the importer may also provide

41 Under the current customs legislation there is significant difficulty in determining the financial and non-financial compliance obligations of the persons involved in the customs operation. The new definition of ‘importer’ is intended to remedy this situation, see Recital 7 MUCC. Also in this way Michael Lux, *Die Reform des UZK*, AW-Prax 2023, 303.

42 This definition is modelled on the definition of the exporter, which has been revised and moved to Article 5 No 14 MUCC. Also in this way Lux, note 39.

43 In the case of release for free circulation the minimum required information is the importer responsible for the goods, the seller, the buyer, the manufacturer, the product supplier where this is different from the manufacturer, the economic operator in the Union responsible for compliance with EU general product safety rules, the value, the origin, the tariff classification and a description of the goods, the unique reference of the consignment and its location, and the list of relevant other legislation applied by the customs authorities (cf. Art. 88(3)(a) MUCC).

44 Cf. Art. 20(1) MUCC.

45 Article 80(6) MUCC enumerates those cases in which the obligation to provide advance cargo information shall be waived. The counterpart to advance cargo information when exporting is pre-departure information, see Article 95 MUCC.

46 The importer must be named in the advance cargo information to identify the person responsible for compliance.

47 Sandra Rinnert, *Die Zollunion der Zukunft*, AW-Prax 2023, 267.

part of the advance cargo information, in which case the carrier must link its own additional information to the importer's (Art. 80(3) MUCC) and the importer will be notified (Art. 80(4) MUCC).

2.3.3. *Deemed importer*

A 'deemed importer' is 'any person involved in the distance sales of goods to be imported from third countries into the customs territory of the Union who is authorised to use the special scheme laid down in Title XII, Chapter 6, Section 4 of Directive 2006/112/EC'.⁴⁸ In other words, this concerns a platform involved in business-to-consumer (B2C) online sales from a third country.

There are two primary reasons for introducing new rules for e-commerce where the seller is located outside the customs territory. First, the consumer should have greater transparency and not have to deal with unexpected costs (e.g. customs duties) and customs formalities.⁴⁹ Second, there are significant financial and non-financial risks involved in e-commerce under the current legislation. Currently goods having a value of EUR150 or less are exempt from customs duties. About 65 per cent of e-commerce consignments understate the value of the goods or consignments are artificially split to exploit the duty exemption.⁵⁰ The Commission also cites studies suggesting that about 66 per cent of products purchased online do not meet EU safety requirements.⁵¹

In brief, the MUCC introduces a 'tailor-made customs regime for e-commerce'. Deemed importers shall be responsible for all customs formalities and payments (cf. Art. 159(3) MUCC) and the duties and VAT will be charged at the moment of sale and paid by the deemed importer to the respective member state (cf. Art. 21(1) MUCC). The EUR150 *de minimis* threshold for imposing customs duties will be abolished,⁵² but in return the deemed import may apply to have the new simplified '5-bucket system' for calculating the customs duties owed, ranging from 0 per cent to 17 per cent, depending on the classification of the good.⁵³ There are both advantages (e.g. the product need only be classified to the 8-digit level, it is not necessary to state the origin (Art. 149(4) MUCC) and disadvantages (e.g. a higher duty rate, no deductions for transportation after the frontier has been crossed). The simplified system applies only to those goods listed in the Annex and even then, does not apply if, for example the goods are subject to anti-dumping duties.

⁴⁸ Art. 5 No 13 MUCC.

⁴⁹ Cf. European Commission, note 3, p. 6. See also e.g. Recital 7 MUCC.

⁵⁰ Cf. European Commission, note 3, p. 3.

⁵¹ Cf. European Commission, note 3, p. 3.

⁵² European Commission, Proposal for a Council Regulation amending Regulation (EEC) No 2658/87 as regards the introduction of a simplified tariff treatment for the distance sales of goods and Regulation (EC) No 1186/2009 as regards the elimination of the customs duty relief threshold, COM(2023) 259 (final), Article 2.

⁵³ This will be done by amending the Combined Nomenclature to add a new Point G of Annex I, Part I Section II, see European Commission, note 50, Article 1. For the details concerning goods in the respective 'buckets' see European Commission, note 50, ANNEX.

3. The Trust and Check Trader: a new status for Economic Operators

During the transitional period the AEO status under the UCC will remain in effect; the customs authorities may continue to grant this status to applicants until 1 March 2032.⁵⁴ However, the customs authorities must assess the status AEOs by no later than 31 December 2037 to check whether they may be granted Trust and Check trader ('TCT') status.⁵⁵ AEO authorisations will remain valid until that cut-off date or the outcome of the reassessment, whichever is earlier (Art. 26(3) MUCC). There are two outcomes of the reassessment: either the AEO status is revoked without TCT status being granted, meaning that the economic operator is a 'normal' trader, or AEO status is revoked and replaced by the new TCT status.

TCT is sometimes also referred to as 'AEO-plus': the conditions for granting this status are identical to those for AEO, but, in addition, the TCT applicant must have conducted regular customs operations in the course of their business for at least three years (Art. 25(1) MUCC) and have an electronic system providing or making available to the customs authorities real time all data on (a) the movement of the goods (including e.g. customs records, accounting system, commercial and transport records, licences and authorisations granted under other legislation applied by the customs authorities) and (b) compliance with all requirements applicable on those goods (cf. Art. 25(3)(f) MUCC). The TCT applicant will also need to give the competent customs authority access to the relevant data of the applicant for the last three years to assess compliance (cf. Art. 25(2) MUCC).⁵⁶

The advantages of TCT status are set out in Article 25(7)-(9) MUCC. The authorisations available to TCTs largely correspond to simplified declarations, periodic payments, deferred payments, entry in the declarant's records, self-assessment and centralised clearance. Thus, they will, for example, be able to provide part of the data after the release of the goods (Art. 25(7)(a) MUCC),⁵⁷ perform certain controls and release the goods themselves at their premises (Art. 25(7)(b) MUCC), are deemed to have provided the necessary assurance of the proper conduct of operations to obtain authorisations for special procedures (Art. 25(7)(c) MUCC), determine themselves the total amount of customs debt they owe for up to 31 calendar days (cf. Art. 25(7)(d) in conjunction with Article 181(4) MUCC) and defer payment of the customs debt for up to 30 days (Art. 25(7)(e) in conjunction with Article 188(1) MUCC).

⁵⁴ Art. 26(1) in conjunction with Art. 265(4) MUCC.

⁵⁵ Art. 26(2) in conjunction with Art. 265(3) MUCC.

⁵⁶ A customs representative's status as TCT can only be recognised if they are acting as an indirect representative; in the case of direct representation their status as a TCT can only be recognised if the represented party is a TCT, cf. Art. 27(3) MUCC.

⁵⁷ This does not affect the required data for the advance cargo information, however.

Furthermore, TCTs are to 'enjoy more facilitations than other economic operators in respect of customs controls according to the authorisation granted, including fewer physical and document-based controls', and their TCT status is to be 'taken into account favourably for customs risk management purposes' (Art. 25(8) MUCC).

One of the main benefits of these authorisations for TCTs is that they will have only one single customs administration as a partner, namely the responsible customs office at the place where they are established, irrespective of the member state in which the goods are imported or sent.⁵⁸ The intent is that TCTs will not have to use the transit procedure to bring the goods to their place of business.⁵⁹ Another significant benefit is that they will be liable for payment of the customs duties, other taxes and other charges only in their own member state.⁶⁰

On the Commission's view the key to these facilitations and simplifications is transparency. The Commission's vision of the trade-off is that '[t]ransparent trade flows will be able to move via 'green lanes' without formal customs interaction and free of administrative burden, while customs will request a control only if necessary.'⁶¹

'Tis a consummation devoutly to be wished. Indeed, many businesses see the simplifications and facilitations provided in the reform as a gamechanger, for example periodically determining the customs debt corresponding to the total amount of import or export duty relating to all the goods released by that trader, thus avoiding having to lodge individual customs declarations, or performing certain controls and releasing the goods themselves at their place of business.⁶² However, many of these benefits depend on implementing the new IT system(s). If the past is any guidance, this will prove to be a challenge and delays should be expected. In respect of customs controls and risk management, these advantages already exist for AEOs on paper, but the practical application has been at best disappointing in the eyes of industry. The MUCC has not incorporated any incentives to encourage the customs administrations of the member states to act otherwise. It therefore remains to be seen whether the MUCC will lead to a different result.

58 Cf. Art. 25(9) MUCC. See also European Commission, note 3, p. 5. Pending a review in 2035 this approach may be extended to all traders, *ibid*, p. 6.

59 However, unless the VAT System Directive is also amended, they will have to continue using the Code 42 import procedure in order to avoid the import VAT arising in the country of import while the customs duties arise in the member state where they are established. Also in this way *Lux*, note 39, pp. 303, 304.

60 Cf. Art. 29(9) MUCC. In contrast, pursuant to Article 169(1) subpara. 2 MUCC traders who are not TCTs incur a customs debt at the place where the customs declaration was lodged.

61 European Commission, note 3, p. 7.

62 As noted above, however, for this to have the desired effect for businesses work still needs to be done, e.g. in respect of VAT and national prohibitions and restrictions.

4. Temporary storage and release for free circulation

Prior to being released for a customs procedure non-Union goods are put in temporary storage. 'Temporary storage' means the situation of non-Union goods temporarily stored under customs supervision in the period between the moment in which the carrier notifies their arrival to the customs territory and their placement under a customs procedure (Art. 5 No 50 MUCC). Non-Union goods are in temporary storage from the moment the carrier notifies their arrival to the customs territory, until they are placed under a customs procedure (Art. 86(1) MUCC), or the customs authorities regularise their situation by disposing of them (Arts. 86(6), 75-78 MUCC).⁶³ The importer must place the goods under a customs procedure no later than three days after the notification of their arrival or no later than six days after the notification of their arrival in the case of an authorised consignee (cf. Art. 86(5) MUCC).⁶⁴ Goods arriving in transit are also regarded as being in temporary storage after they have been presented to the customs office of destination in the customs territory (cf. Art. 86(2) MUCC).

If an importer brings goods into the customs territory and these goods remain in temporary storage, the importer does not need to be established in the customs territory (Art. 20(3)(b) MUCC).⁶⁵

5. Incurrence of a customs debt

Essentially, a customs debt is incurred when the goods are released for free circulation, or for the end-use procedure, or for the temporary admission procedure with partial relief of duties, or, in the case of e-commerce (Art. 159(1) MUCC), when payment for the distance sale is accepted (Art. 159(3) MUCC).

Typically, the importer requests that the goods be placed under release for free circulation procedure. Article 88(3) MUCC lays down four conditions for placing goods under that procedure:⁶⁶ the required data has been provided or made available to customs authorities (point a);⁶⁷ any import duty or other charges due, including anti-dumping duties, countervailing duties or safeguard measures have been paid or guaranteed (point b);⁶⁸ the goods have arrived to the customs territory (point c); and the goods comply with the relevant other legislation applied by the customs authorities (point d).

⁶³ Special rules apply in respect of the transit and customs warehouse procedures (Art.86(2), (3) MUCC).

⁶⁴ As Lux, note 39, 304, points out, if the goods are to be stored for a longer period of time, then the goods must be placed under the customs warehouse procedure unless the delay is because the customs authority has ordered that they be presented to them.

⁶⁵ A similar rule applies to exporters (Art. 22(3)(b) MUCC, where the goods are exported from temporary storage).

⁶⁶ Special rules apply to distance sales. However, a detailed presentation is beyond the scope of this paper.

⁶⁷ This information must include at least the importer, the seller, the buyer, the manufacturer, the product supplier where this is different from the manufacturer, the responsible economic operator in the Union, the value, the origin, the tariff classification and a description of the goods, the unique reference of the consignment and its location, and the list of relevant other legislation applied by the customs authorities.

⁶⁸ Unless the goods are the subject of a drawing request on a tariff quota, or the importer is a Trust and Check trader. In Germany there has recently been some debate as to whether anti-dumping duties are customs duties under the customs legislation and for the purposes of Section 370 of the German Tax Code. The German Federal Court of Justice (*Bundesgerichtshof, BGH*) affirmed both questions in its judgment of 6 September 2022 (BGH, 1 StR 389/21). The inclusion of customs duties owed due to the application of trade remedies in this provision tends to confirm the BGH's interpretation.

The importer is the debtor when the goods are released for free circulation⁶⁹ (Art. 159(2) MUCC). Unless the importer is a TCT (see Section C above), the customs debt is incurred at the place where the customs declaration has been lodged.⁷⁰

Article 161 MUCC lays down special rules governing the incurrance of a customs debt in the case of non-compliance upon import;⁷¹ Article 169(1) subparas. 3, 4 (3), (4) MUCC sets out the rules governing the determination of the place where the customs debt is incurred in the case of non-compliance. In both cases the rules are essentially the same as the existing rules under the UCC.

6. Crisis management mechanism

The MUCC has put a crisis management mechanism in place (Title XI, Arts. 201-204 MUCC), largely as a response to the COVID crisis. The EUCA is to be the pivotal actor: maintaining crisis response readiness, and preparing, coordinating and monitoring the implementation of the practical measures and arrangements that the Commission decides to put in place when a crisis occurs.⁷² A 'crisis' is defined as 'an event or a situation that suddenly endangers the safety, the security, the health and life of the citizens, economic operators and personnel of customs authorities and requires urgent measures as regards the entry, exit or transit of goods' (Art. 5 No 64 MUCC).

7. Extinguishment of a customs debt

Article 199 MUCC governs the extinguishment of a customs debt.

Both the general three-year-notification rule as well as the limitation range of between five and 10 years in the case of criminal conduct were left in place (cf. Art. 182(1); (2) MUCC).⁷³

Article 193(7) subpara. 1 MUCC clarifies an issue that is controversial under the UCC: where repayment or remission were granted in error, the original customs debt is to be reinstated insofar as it is not time-barred under Article 182 MUCC. However, under certain circumstances interest may have to be reimbursed (Art. 193(7) subpara. 2 MUCC).

8. Sanctions

Title XIV concerns customs infringements and non-criminal sanctions. Although the MUCC introduces some harmonisation, jurisdiction over customs infringements remains with the member states (Art. 250 MUCC).

⁶⁹ Where an indirect representative is used, both that representative and the party represented are joint and several debtors, as under the UCC.

⁷⁰ Or would have been incurred but for the modification of the customs declaration (Art. 169(1) subpara. 2 MUCC).

⁷¹ Unfortunately, a detailed presentation of these rules is beyond the scope of this paper. On the incurrance of a customs debt in the case of non-compliance in the case of exports/outward processing, see Art. 164 MUCC.

⁷² See Recital 52 MUCC.

⁷³ Lux, note 39 expresses dismay that the limitation was not more fully harmonised and refers to the ten-year period foreseen in the draft of a Modernised Customs Code.

Article 252 MUCC sets out a non-exhaustive list (Art. 252(2) MUCC) of customs infringements, thereby contributing to a greater degree of harmonisation.⁷⁴ Article 254 MUCC lays down the minimum, albeit mandatory, non-criminal sanctions applicable to the customs infringements mentioned in Article 252 MUCC. Extenuating and mitigating circumstances (Art. 247 MUCC) and aggravating circumstances (Art. 248 MUCC) are to be considered when determining the level of the penalty. Clerical and minor errors do not constitute a customs infringement unless they were committed intentionally or as the result of obvious negligence (Art. 246(4) MUCC). Customs infringements due to what amounts to force majeure (cf. Art. 246(5) MUCC) are also exempted.

The sanctions may take one or more of several forms and must be effective, proportionate and dissuasive: a pecuniary charge (fine); the revocation, suspension or amendment of customs decisions; or the confiscation of the goods and means of transport (Art. 254 MUCC). Very basically, the amount of the fine is to be between 100 per cent and 200 per cent of the eluded customs duties and other charges where the infringement was committed intentionally and between 30 per cent and 100 per cent in other cases (Art. 254(a)(i)(1), (2) MUCC). Where the customs infringement does not relate to specific goods the fine shall be between EUR150 and EUR150,000. In addition, the acts or decisions on sanctions will be uploaded to the EUCDH (cf. Art. 254 MUCC). Article 249(1) MUCC establishes a limitation of between five to 10 years for initiating proceeding for a customs infringement mentioned in Article 252 MUCC.

One especially problematic area is the application of sanctions in respect of TCTs who have performed controls and released the goods themselves at their premises and determined themselves the total amount of customs debt they owe, that is, availed themselves of their rights. Already today there are issues when the customs authority releases the goods without examination and subsequently take a view other than the declarant's.⁷⁵ If a TCT now has to expect that they will face non-criminal sanctions where they have taken a reasonable view and undertaken all the measures necessary to become a TCT, including demonstrating their trustworthiness and sharing sensitive business data in real time, merely because the competent customs authority takes a different view, then the trade-off has effectively been undermined.⁷⁶ In our opinion, the proposal should be amended accordingly as it moves through the legislative process.

⁷⁴ Where a member state provides for additional acts or omissions that constitute a customs infringement subject to sanctions, it must notify the Commission (Art. 252(3) MUCC). They may also provide for additional sanctions; these must also be notified to the Commission (Art. 253 MUCC).

⁷⁵ These typically concern the origin of the goods, their classification for customs purposes, the applicability of prohibitions and restrictions or the basis for calculating the customs debt.

⁷⁶ In our view this is the case even where a court rules in favour of the customs authority's interpretation or view. Lux, note 39, 305 expresses a similar view.

9. Moving forward: the next steps

Under the proposal the MUCC is to apply from 1 January 2028, but in practice will only become applicable in several stages. Essentially, the provisions relating to distance sales and deemed importers should apply from 1 January 2028 (cf. Art. 265(2) MUCC). Although economic operators may start fulfilling their reporting obligations under the MUCC as early as 1 March 2032 (cf. Art. 265(4) MUCC), the EUCDH is not scheduled to become fully operational until 31 December 2037 (cf. Art. 265(3) MUCC). Without the EUCDH being fully operational, it is unlikely that some of the key benefits foreseen for TCTs will be available in practice.

The Commission drafted this proposal on its own and would have benefited from closer cooperation with the business community. While many of the proposals are to be welcomed and others are long overdue, there is still significant room for improvement. In addition to those points we have already highlighted, the potential for liberally sharing sensitive business information should be reined in. Similarly, sharing information with other authorities not involved in the customs operation where this is not necessary for the customs procedure (e.g. in the context of the Single Window) is concerning, particularly where this triggers a criminal investigation of a TCT. Another issue is the failure to address reconciliation in transfer pricing in the wake of the ECJ's *Hamamatsu* judgment.⁷⁷ The business community has already criticised the proposed timetable for realising the benefits for TCTs as being too long.

The reform is heavily focused on addressing financial and non-financial risks. The new e-commerce regime seems at first glance to be at the forefront of gaining better control over the financial risks (lost revenue due to incorrect customs declarations), but a closer look reveals that the application of trade remedies (in particular, anti-dumping duties) is also in focus. In respect of the latter, anti-dumping (or countervailing) duties are usually dependent on the non-preferential origin of the imported goods, which is often misstated, unbeknownst to the importer. A transparent supply chain could show changes in trade patterns, thus more efficient and effective application of these duties under customs law.⁷⁸

It is apparent from the proposal that non-financial risks (generally known as prohibitions and restrictions) are becoming increasingly important and that this trend will likely only increase. There are, however, certain challenges that will need to be worked out if the desired efficiency in customs operations and necessary legal protections and certainty are to be achieved for businesses. For example, where centralised clearance is used issues may arise in respect of national prohibitions and restrictions. An additional issue which will need to

⁷⁷ For a specific legislative proposal see Michael Lux and Sandra Rinnert, *Are flat rate adjustments of the customs value possible on the basis of a transfer price arrangement?*, Global Trade and Customs Journal 2023, 126.

⁷⁸ It could also lead to a circumvention proceeding under the Basic Anti-Dumping (or Anti-Subsidy) Regulation to be initiated.

be resolved is the precise responsibility of the respective authority in respect of goods subject to prohibitions and restrictions: Customs or the other agency, for example the food and health administration.

The proposal now moves to the European Parliament and Council in accordance with the ordinary legislative procedure (cf. Arts. 289, 294 Treaty on the Functioning of the European Union) for debate and adoption. The member states will now be more involved in the drafting and discussion of the proposal. Businesses and their representative federations should therefore use this opportunity to make their views known so that they can be considered accordingly when amending and adopting the legislation.

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