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Interactions between goods and services in international trade: Implications for customs valuation and rules of origin

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This paper investigates the implications of goods-services interactions in international trade for customs valuation and rules of origin. It proposes a framework to categorise relevant configurations of goods-services trade and applies it to discuss potential challenges and options for policy action.

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Executive Summary

The interaction between goods and services is a common feature of production and trade. However, in recent decades increasing tradability of services, technological change, and the internationalisation of supply chains have all contributed to the expansion of the scope and variety of trade configurations that feature goods-services combinations. In this changing economic environment, the question arises whether existing practices and procedures for international trade, often based on separate rules for goods and services, continue to offer a coherent and predictable structure for doing business and achieving legitimate policy objectives.

This question is particularly relevant for customs valuation and origin determination. Valuation systems set the basis for the application of *ad valorem* customs duties and rules of origin differentiate between different sources of supply of the elements within a transaction. As such, they are necessary for the application of a wide range of trade policies, from preferential commitments to multilaterally negotiated agreements. If customs valuation systems and rules of origin are not sufficiently attuned to current commercial realities, there is a risk they will no longer be fit for purpose in implementing agreements and may even risk becoming obstacles to the development of new business strategies.

Different types of goods-services trade configurations are likely to pose specific challenges for the determination of value and origin in trade transactions.

When services are embodied as inputs in the production of traded goods, they contribute to the tax base for the application of customs duties. Other things being equal, goods embodying more services value added become more expensive, their customs value increases and with it the amount due for the same *ad valorem* import tariff. It can be argued, therefore, that customs duties on traded goods become indirect barriers to the use and development of services inputs.

From an origin perspective, economic actors might have the incentives to accurately capture the value of embodied services when determining the origin of traded goods. However, developing complex rules to do so comes with the risk of introducing burdensome requirements to prove origin.

Other challenges arise from trade configurations where there is a services transaction that is identifiable and separable. This is the case with complementary services bundled and traded with manufactured products. Assessing whether and how the value of these services should be included in the customs value of the accompanying good is a difficult task. The existing general principles for valuation in this area often leave a large measure of discretion to customs authorities, which in turn creates uncertainty for companies.

Determining the origin of services may also be a challenging exercise, and the difficulties are likely to vary depending on the mode of services supply. The current rules may not be sufficient in some circumstances to clearly identify the origin of a services transaction. These origin issues apply to goods-services trade configurations with complementary services but also to those where goods are only temporarily admitted into the importing jurisdiction to enable the services to be performed.

Many goods-services trade configurations are not well captured by trade statistics, making it difficult to pin down the scope and potential impact of these challenges. However, the growing body of research on the interactions between goods and services in international trade suggests taking them seriously.

Overall, trade configurations featuring goods-services combinations do not call for a radical restructuring of the existing trade rules architecture which continues to provide a solid multilateral foundation for doing business and achieving trade policy objectives. Against this background, options for policy responses to specific challenges can still be identified. Additional rules, guidelines, or implementation standards to fine-tune the determination of value and origin for well-defined goods-services trade configurations often appear as effective solutions. Multilateral openness, harmonisation of the rules and practices for customs valuation and origin determination, and transparency of the relevant jurisprudence should also be considered as policy options to improve the functioning of the rules-based international trading system.

Key messages

This paper examines whether the customs valuation systems and rules of origin are sufficiently attuned to the changing landscape of commercial realities characterised by new and diverse configurations of goods-services trade.

Building on a framework that identifies the relevant categories of goods-services trade configurations, this analysis delivers three main messages.

- Goods-services interactions do not require a reconfiguration of the existing trade rules architecture based on separate disciplines for goods and services. Multilateral rules provide a solid foundation for doing business and achieving trade policy objectives.
- Goods-services trade, however, presents specific challenges to customs valuation and origin determination. These are likely to vary across types of interactions between goods and services and call for targeted policy responses.
- Efforts to strengthen multilateral openness, to promote harmonisation of rules and practices for customs valuation and origin determination, and to increase transparency of the relevant jurisprudence are policy options for many goods-services trade configurations.

1. Introduction

International markets are increasingly populated with trade configurations that are characterised by interactions of goods and services. Goods traded internationally embody the services used as intermediate or primary inputs in their production process.[1] While this is not a new phenomenon, as services have always been used as inputs in manufacturing processes, their variety and potential for value creation to the final manufactured output have grown in recent decades (Lodefalk, 2013[1]; Lodefalk, 2014[2]; Thangavelu, Wang and Oum, 2018[3]; Chun, Hur and Son, 2021[4]). Given that services inputs are also often bought on international markets, traded goods today increasingly embody traded services (Miroudot and Cadestin, 2017[5]; Miroudot and Cadestin, 2017[6]).

Goods are also traded with complementary services, meant to facilitate the supply or use of goods (e.g. installation and maintenance services imported with an elevator), as well as to enhance or adapt their functionality for the customer (e.g. computer services supplied with a tractor to store and process the data collected by the tractor itself). Contrary to those services embodied in production, complementary services are neither undertaken nor consumed during the production process of a manufactured output, but instead are consumed by the customer once the good has been produced; as such, these services can be identified and separated in a specific transaction. Finally, services can completely substitute ownership of the good (e.g. printing services can substitute ownership of a printer). In these cases, the service becomes the only element in the transaction, and it might be accompanied by the international movement of certain goods required for the service to be performed (Cusumano, Kahl and Suarez, 2014[7]; Cadestin and Miroudot, 2020[8]).

Overall, the landscape of trade configurations that involve goods-services interactions is heterogeneous and rapidly changing. This pattern reflects the higher cross-border tradability of a broad range of services and their growing role as inputs and outputs across many sectors of manufacturing production (World Trade Organization, 2019[9]; Benz, Jaax and Yotov, 2022[10]). It also entails new incentives and challenges for economic actors involved in international trade.

This presents a potential challenge for practices and procedures for international trade, which might not necessarily continue to offer a coherent and predictable structure for doing business in a changing environment. In recent years, academic and policy debates have emerged to investigate the landscape of goods-services interactions in international trade and their implications for trade policy instruments, which are often built on separate rules for goods and services (Cernat and Kutlina-Dimitrova, 2014[11]; Sauvé, 2019[12]; National Board of Trade Sweden, 2020[13]; Peng, 2020[14]; von Spankeren, 2022[15]). The main questions tackled by these debates centre on the capacity, or lack thereof, of existing trade policies to attain their objectives both effectively and efficiently in the context of new and diverse goods-services interactions.

This paper focuses on customs valuation and rules of origin. Valuation systems allow to determine the basis on which *ad valorem* customs duties are applied. Rules of origin serve to differentiate between different sources of supply of the elements within a transaction, and they are necessary for the application of a wide range of trade policy rules, from preferential disciplines to multilaterally negotiated agreements. It is therefore of paramount

[1] Intermediate inputs are the goods and services that are used in the production process to produce other goods or services rather than for final consumption. Primary inputs refer to factors of production, such as capital and labour, that can be used over several production cycles. Services can be used as intermediate inputs during production (e.g. logistics services, engineering services, insurance services) or contribute to production as capital (e.g. research and development).

importance that customs valuation and rules of origin are in line with commercial realities, and do not serve as obstacles to the development of new business strategies.

This paper reviews how the current approaches and practices for customs valuation and origin determination apply to trade configurations involving the interactions between goods and services. It investigates the challenges that may arise and how policy discussions can be usefully structured to offer solutions. To do so, the paper introduces a taxonomy framework to analyse the complex landscape of goods-services trade. This framework categorises different configurations to allow for a better understanding of the challenges posed by the specific interactions between goods and services for existing customs valuation procedures and rules of origin.

The present analysis suggests that, while goods-services interactions in international trade do not require a radical restructuring of existing trade law, challenges for the current approaches and practices for customs valuation and origin determination call for policy solutions specific to each type of goods-services configuration. Horizontal areas for policy action are also identified, including efforts to strengthen multilateral openness, harmonisation, and transparency.

This paper is organised as follows. Section 2 introduces the framework for categorising trade configurations involving interactions between goods and services, and examines whether and how the identified categories can be captured by trade statistics. Section 3 provides a brief historical overview of the main principles and objectives behind valuation systems and origin rules. Section 4 reviews how the current rules and practices in these areas apply to goods-services trade configurations and identifies policy challenges and implications. Section 5 concludes.

2. Goods-services trade configurations: a basic framework

2.1. The taxonomy matrix

The landscape of trade configurations that involve goods-services interactions has changed significantly over the last decades, becoming more complex and heterogeneous. This paper develops a basic framework to identify and distinguish relevant trade configurations where the interaction between services and goods can have implications for custom valuations and rules of origin. This approach consists of characterising any trade involving both goods and services according to two key parameters: (i) the type of interaction between goods and services, and, when relevant, (ii) the mode of provision of traded services.

In combining these two dimensions a taxonomy matrix is generated, where each cell represents a specific type of trade configuration (Table 1).[2]

[2] Table A.1 in the Annex provides examples for each cell of the taxonomy matrix.

Table 1. Taxonomy matrix

		Type of interaction between goods and services		
		(1) Services are embodied as inputs in the production of traded goods Configurations with embodied services	(2) Services and goods are traded together Configurations with complementary services	(3) Goods cross an international border accompanying a services trade transaction Configurations with substitute services or ancillary goods
Mode of services provision	Mode 1			
	Mode 2			
	Mode 3			
	Mode 4			

Note: The four modes of services provision are: mode1: cross-border supply, mode 2: consumption abroad, mode 3: commercial presence, and mode 4: presence of natural persons.

The types of interaction between services and traded goods constitute the columns of the matrix. The framework distinguishes between three types of good-services combinations in trade configurations.

The first type of interaction (column 1) consists of cases where services are embodied as inputs into traded goods. Embodied services can be performed domestically or imported from a foreign supplier. However, when the production process is concluded, only the good is traded. The services, even when they account for much – if not most – of the value of certain goods, are not directly identifiable in the transactions through which these goods are traded, precisely because they were undertaken and consumed during the production process. Typical examples of services used as inputs are engineering, logistics and R&D services.[3]

The second type of interaction (column 2) includes those trade configurations where services are traded alongside the good, usually in a bundle specified in a contract. In these cases, services are an element of the transaction that can be distinguished and separated from the physical good so that the importer could theoretically acquire ownership of the traded good without the services. These configurations feature services which are complementary to the traded goods.

Complementary services include those that facilitate sale and usage of the good without altering its functionality (e.g. financing or insurance services bundled with a laptop or a car; maintenance and repair sold with an elevator), as well as services that modify and extend the scope of the good's functions, possibly tailoring new uses to the customer's needs (Cusumano, Kahl and Suarez, 2014[7]). This is the case, for example, for software installation or activation, updating, and other computer services which allow for data collection and processing in 'smart products', from thermostats to tractors.

Complementary services can also include specific types of transport and advertising services that are usually inputs in the production process, but can also be billed separately

[3] Research and development (R&D) services are regarded as capital services (e.g. investment) and not intermediate inputs in the System of National Accounts 2008. As such services are not fully consumed during the production process but are assets that are used over several production cycles, it is more difficult to regard them as 'embodied' and to assess their contribution to the value of traded goods. Nevertheless, discussions on customs valuation sometimes cover such services without referring to the distinction between intermediate inputs and capital services.

to customers as a bundle with goods transactions. Such cases are further discussed below as they raise questions for customs valuation.

The third type of interaction (column 3) refers to cases where a services trade transaction is accompanied by goods crossing an international border to support the supply of the service. What is traded here is the service only as the buyer does not acquire ownership of the goods used to enable the service. These configurations include substitute services, otherwise called 'solutions', 'product-service systems', or 'usage-/outcome-oriented systems', where services fully substitute the purchase of a good (Baines et al., 2007[16]). The photocopier industry offers a good example of this business model. Manufacturers in this sector can sell 'document solutions' consisting of services that supply and maintain printers in the office of the buyer, without the latter acquiring ownership of the printers and related equipment (Cadestin and Miroudot, 2020[8]).

This third category also includes transactions where the services supplier, while retaining ownership of machines and equipment required to perform the services, needs to temporarily move these goods into the country that is importing the service. This is the case for clean-up and temporary storage equipment, instruments for scientific measurements, and equipment required by providers of marine debris collection services (Nordås and Steenblik, 2022[17]). Finally, column 3 covers trade configurations where services are performed for a good which temporarily crosses an international border precisely to "receive" the traded service. An example of this are repair services.

The rows in the matrix identify the mode of services provision whenever services are identifiable in the trade transaction. Here the framework does not depart from the structure set out in the General Agreement on Trade in Services (GATS) and distinguishes between the four modes of services supply (mode 1, cross-border supply; mode 2, consumption abroad, mode 3, commercial presence, and mode 4, presence of natural persons). As noted above, embodied services (column 1) cannot be identified in the transaction; the distinction between modes of services trade therefore does not apply to column 1.[4]

The proposed taxonomy matrix partitions the heterogeneous landscape of trade configurations involving goods and services into smaller clusters. The focus on the type of interaction between goods and services allows for the creation of groups of trade configurations that are homogenous in terms of the elements identifiable in the trade transaction. The extent to which goods and services are identifiable and thus separable within a transaction is a key parameter for customs valuation and origin determination. Therefore, the trade configurations in a column of the taxonomy matrix are likely to pose similar challenges to the current design and implementation in these two trade policy areas. Moreover, even though with less implications, the mode of services provision can also be relevant in pinning down specific trade policy challenges in configurations where services are actually traded, in particular for rules of origin.

As a corollary outcome, the taxonomy matrix depicted in Table 1 also provides a common framework to position the terminology used in academic and policy debates around the theme of interactions, and the blurred distinction between goods and services transactions. This includes, in particular, terms such as 'servicification', 'mode 5', and 'servitisation'.

'Servicification', denoting the pattern in production activities to (increasingly) rely on services, whether as inputs (performed within or often sourced from outside the firm) or as outputs sold as a complements or substitutes for manufactured goods (National Board of

[4] Embodied services can be domestic or foreign and are traded according to the four modes of supply when they are imported. However, the mode of supply is no longer relevant once they are embodied, as trade rules will apply to the good.

Trade, 2012[18]; National Board of Trade, 2016[19]), is an overarching phenomenon behind many of the trade configurations captured by the taxonomy matrix.

'Mode 5' identifies the subset of those configurations where services are either embodied as intermediate inputs in traded goods or sold with goods but without being identified as a separate element within the transaction (Cernat and Kutlina-Dimitrova, 2014[11]). This corresponds to configurations mainly in column 1 (embodied services), and possibly column 2 (complementary services not identified in the transaction), of the taxonomy matrix. The expression 'mode 5' suggests that the proponents and users of this terminology consider the services in those configurations as being traded, even if indirectly, and therefore through a mode of provision that does not fall within the scope of the modal possibilities introduced by the GATS (Cernat and Antimiani, 2018[20]). However, read through the lenses of the framework proposed here, 'mode 5' clearly identifies types of services-goods interactions rather than a mode of services trade.

Finally, the term 'servitisation' denotes the fact that firms in manufacturing sectors sell services bundled with goods (Vandermerwe and Rada, 1988[21]; Baines et al., 2009[22]; Cadestin and Miroudot, 2020[8]). As such, 'servitisation' identifies a phenomenon behind a specific type of interaction between goods and services in trade, which corresponds to column 2 of the taxonomy matrix.

2.2. The statistical landscape

Interactions between goods and services are generally difficult to capture in statistics. In the case of trade statistics, there is a separate collection of data for goods (generally through customs data) and for services (through balance of payments data).[5] When services are embodied in goods (column 1 in the matrix), the transaction is recorded as trade in goods without any information on the services embodied. When services and goods are bundled together (column 2), two transactions are likely to be recorded and to go into different export statistics for goods and services without any indication of the link between the two. Lastly, goods crossing borders as part of services trade transactions are generally recorded in merchandise trade statistics but are not regarded as traded goods in the balance of payments if there is no change of ownership.[6]

In national accounts, goods are distinguished from services as products. However, when it comes to activities of firms producing both goods and services, they are classified as part of manufacturing or services industries based on the 'principal activity'. Firms that produce mostly goods are manufacturing firms and their exports are regarded as manufacturing exports, even if they are combined with services. However, distribution services for manufacturing goods are still accounted for in the distribution sector (which is a service activity) and the picture is further complicated by contract manufacturing, merchanting and other complex production and distribution arrangements set up by multinational firms. It is therefore very challenging to identify and quantify the interactions between goods and services described in Table 1.

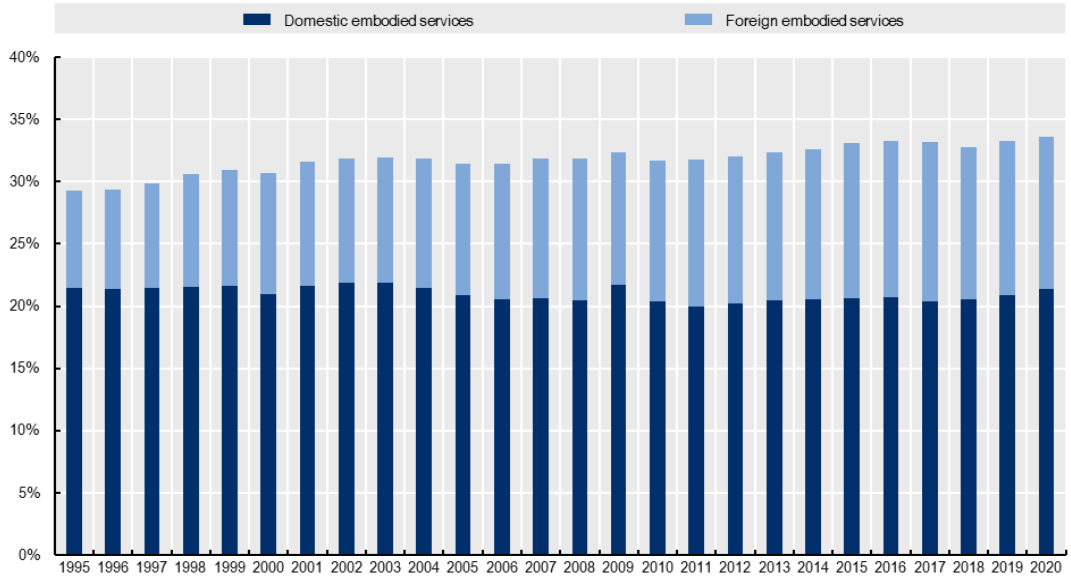
[5] International merchandise trade statistics (IMTS) are compiled based on customs data. In most countries, they also serve as a basis for the compilation of balance of payments data on trade in goods. With respect to the compilation of trade in services statistics in balance of payments, see the *Manual on Statistics of International Trade in Services* (2010).

[6] In the current system of national accounts (SNA 2008) and balance of payments (BPM6), a transaction is considered as international trade only if there is change of ownership between a resident unit and non-resident unit.

With respect to services embodied in goods (column 1), national accounts offer some useful information through their input-output or supply-use tables. Inter-country input-output (ICIO) tables are created by linking national input-output or supply-use tables across countries using trade data. Calculations with ICIO tables can provide reasonable estimates of the services content of goods manufactured or exported. The OECD Trade in Value Added (TiVA) database includes such information and can be used to illustrate the increasing value of services embodied in exports of goods as intermediate inputs. On average, the share of value added originating in services industries in exports increased from 50% to 58% between 1995 and 2020.

There are, however, limitations to such statistics, as they are available only at a rather aggregated industry level. In addition, distribution services that take place after manufacturing are not accounted for and cannot be linked to the exports of goods. Capital services are visible in this framework as part of the gross fixed capital formation in final demand, but are not taken into account in the calculation of the services content of exports.

Figure 1. Growing embodied services in OECD countries



Note: The figure plots the percentage share of services value added (domestic and foreign) embodied in gross exports of goods. The OECD aggregate value is computed through a trade-weighted average of OECD countries.
Source: OECD TiVA database (2022).

On average in OECD countries, services embodied as intermediate inputs in exports of goods have increased from 29% of the value of gross exports in 1995 to 34% in 2020 (Figure 1). The share of domestic embodied services (i.e. domestic services inputs used by exporters of goods) has remained relatively constant at about 21% of the value of gross exports. The increase in embodied services comes from the foreign services value added in gross exports of goods, corresponding to imported services inputs and reflecting the internationalisation of supply chains.

Other configurations of goods and services are more difficult to capture in statistics. Services that are bundled with goods (column 2) should be recorded in trade in services statistics, but the link with trade in goods cannot be established. A possible empirical approach is to rely on firm-level data to identify manufacturing firms that export services. However, the information included in firm-level datasets is generally not specific enough

to indicate that goods and services are really bundled (and not exported separately). Empirical studies generally find that a majority of manufacturing firms sell services in addition to producing goods and that the share of services in manufacturing output has increased (Crozet and Milet, 2017[23]). Such studies, however, do not provide estimates of services and goods traded together.

With respect to goods crossing borders in relation to services trade transactions (column 3), there are statistics on temporary imports and information collected by customs (including on goods for processing) that could potentially lead to some quantification. However, the issue is that the link with services transactions is not known. Data can only cover specific services that fully fall under the third configuration of the matrix, such as maintenance or repair services (with the limitation that very disaggregated sectoral services trade data are generally not available). One of the few empirical studies looking at product-service systems finds that in a sample of German SMEs, 22% of the firms sell integrated solutions (Aquilante and Vendrell-Herrero, 2021[24]). These firms export more than firms selling goods and services separately.

3. A brief overview of the principles of customs valuation and origin determination

To prepare the analysis of current rules and practices for customs valuation and origin determination that are relevant for goods-services trade configurations, this section provides an overview of the basic principles behind these rules. Section 3.1 covers customs valuation, while Section 3.2 focuses on rules of origin.

3.1. Valuation systems

The current rules on valuation in international trade – negotiated primarily to set the basis for the application of *ad valorem* customs duties and to ensure that negotiated outcomes on trade tariffs are not undermined – have their roots in the mid-1940s[7]. Post-war conferences and negotiations from 1945-1946 resulted in the signing of the General Agreement on Tariffs and Trade (GATT) in 1947. Liberalisation of trade through the reduction of import tariffs and trade barriers was a key objective of international negotiations. However, reductions in tariffs and trade barriers can be weakened and offset by rules and procedures which affect the tax base to which tariffs are applied. The tax base for the application of trade tariffs was therefore deemed important, and it is for this reason that GATT Article VII – which laid down the general principles for an international system of valuation – was adopted.

Within the overall context and objectives of the GATT, Article VII stipulates that the value for customs purposes of imported merchandise should be based on "the actual value of the imported merchandise", defined as "the price at which, at a time and place determined by the legislation of the country of importation, such or like merchandise is sold or offered for sale in the ordinary course of trade under fully competitive conditions" [GATT Art. VII, 2(a) and 2(b)].

Two important clarifications were offered in the notes to Article VII under GATT Annex I. First, an embryonic notion of what would become the standard of transaction value as a basis for the application of tariffs was laid down: "(i)t would be in conformity with Article VII to presume that 'actual value' may be represented by the invoice price, plus any

[7] A useful reference for a more detailed historical perspective on customs valuation is Rosenow and O'Shea (2010[35]).

non-included charges for legitimate costs which are proper elements of 'actual value' and plus any abnormal discount or other reduction from the ordinary competitive price" [GATT Annex I, Ad Art VII, 2(1)]. Second, clear indication was given that trade transactions between non independent parties needed special attention [GATT Annex I, Ad Art. VII, 2(2)]. The transaction value standard and the focus on buyer and seller that were not independent of each other were elaborated in the subsequent Agreement on Implementation of Article VII GATT concluded in 1978 as part of the Tokyo Round of GATT negotiations.

Although GATT Article VII has been considered to set out both a principle and a concrete definition of 'actual value', in practice Contracting Parties continued to use widely differing methods of valuing goods. The basic principle for having a stable and predictable basis for charging import tariffs required a more detailed set of rules, which were not part of GATT 1947.

Following 30 years of discussions, international consultations, and negotiations including within the UN, new rules were introduced through the Tokyo Round Valuation Code, or the Agreement on Implementation of Article VII of the GATT, in 1978. An emerging principle was that the determination of value to establish the base for the application of customs duties must be based on a fair, uniform and neutral system that conformed to commercial realities.[8] A cornerstone of the new system was the so-called 'transaction value', which was intended to reflect the full value of traded goods and defined in such a way as to be largely captured by the price actually paid or payable for the imported goods, subject to important adjustments to ensure a real measure of the actual economic value of goods.

As a stand-alone agreement, the Tokyo Round Valuation Code was signed by 40 contracting parties between 1980 and 1993. It was replaced by the Customs Valuation Agreement (CVA) in 1994 as part of the Uruguay Round and the creation of the WTO in 1995. However, no real changes took place and the CVA is essentially the same as the Tokyo Round Customs Valuation Code. Therefore, the same Code negotiated and concluded in 1978 became the agreement which is in force today for all WTO Members.

The draft valuation principles used as a basis for the negotiations in the Tokyo Round are embedded in the CVA, where signatory parties recognise "that the basis for valuation of goods for customs purposes should, to the greatest extent possible, be the transaction value of the goods being valued" (CVA, General Introductory Commentary).

The policy toolkit of customs valuation is defined for and applicable to the elements in a trade transaction that are potentially subject to an *ad valorem* custom duty. This is not the case for services, which remain outside the scope of application of customs valuation.

3.2. Origin determination

Origin determination is a necessary exercise to differentiate between different sources of supply of the element(s) within a trade transaction. Depending on the specific rationale and context of such differentiation, two types of rules of origin are identified: preferential and non-preferential rules. Preferential rules are designed to grant enhanced market access opportunities to entities associated with specific sources of supply, usually within the framework of a preferential trade agreement (PTA). Non-preferential rules of origin are used when trade is conducted on a most-favoured nation (MFN) basis. They generally serve the purpose to apply multilaterally agreed trade policy instruments, as happens with

[8] For a recent and comprehensive discussion of customs' objectives, see Perez Azcarraga et al. (2022[42]).

countervailing duties, antidumping and related anti-circumvention actions, or quotas. Non-preferential rules are also used for "made-in" labelling, "buy-from" regulations as well as to compile trade statistics (Hoekman, 1993[25]). Given these rationales, origin determination is in principle equally relevant for goods and services.

3.2.1. Rules of origin for goods

The design of origin rules for goods centres around the distinction between goods which are wholly obtained or entirely produced within a single jurisdiction and those with intermediate inputs or stages of production that have more than one source. In the latter case, the origin is usually attributed to the jurisdiction where the last substantial transformation in the production of the good took place.

Utilised by a few jurisdictions in the mid-20th century, the principle of the last substantial transformation was included in the Convention on the Simplification and Harmonization of Customs Procedures (commonly known as the Kyoto Convention) of 1974. The Convention specified the three main criteria to be used to operationalise the rather vague notion of substantial transformation. These consist in identifying the jurisdiction where the last substantial transformation took place based on: (i) a change of tariff heading; (ii) specified manufacturing or processing operations; and (iii) value added content requirements.

Several factors – including the high degree of discretion in origin determination implied in the Kyoto Convention, its relatively low uptake, the increasing number of preferential trade arrangements with various rules of origin, and of cases featuring origin issues related to quotas, anti-dumping and its circumventions – led to the discussions of rules of origin during the Uruguay Round with the objective of harmonising this field. The main outcome of these negotiations was the WTO Agreement on Rules of Origin (ARO) in 1994.

The main objective of the ARO was to standardise the criteria used for the determination of non-preferential rules of origin. In other words, the Agreement launched negotiations for the harmonisation of non-preferential rules of origin. After the negotiation and adoption of such rules, all WTO Members would be expected to apply identical rules of origin in their non-preferential trade instruments. These negotiations, however, were never finalised. As a result, WTO Members can currently set their own non-preferential rules of origin provided they abide by the binding principles and standards set by the ARO.

Largely based on the criteria specified in the Kyoto Convention, the ARO laid down the principle of transparency in origin determination, requiring that WTO Members not use rules of origin to restrict or distort international trade and to ensure that their rules of origin did not have any trade-disruptive effect. Moreover, the Agreement mandates that rules of origin be administered in a consistent, uniform, impartial, and reasonable manner. Finally, the ARO prescribed that origin rules be based on positive standards (i.e. they should state what confers origin, rather than what does not) (World Customs Organization, 2017[26]; Hoekman and Inama, 2018[27]).

Regarding preferential rules of origin, the ARO leaves WTO Members relatively free to design and implement any methodology for origin determination, only identifying certain disciplines as applicable (WTO Agreement on Rules of Origin, Annex II). Annex K of the 2006 revised Kyoto Convention offers the most recent definitions, standards, and recommended practices for the rules of origin without differentiating between preferential and non-preferential. However, Annex K is voluntary for signatory parties and does not stipulate how to determine the origin of individual products in detail. Overall, while the landscape of origin rules remains relatively fragmented across preferential trade agreements (Inama, 2009[28]), some basic principles such as the rule of last substantial

transformation and the main criteria for its identification laid out in the ARO, are recognised and used widely as templates for preferential rules of origin.

3.2.2. Rules of origin for services

As in the case of goods, the rationale behind the rules to identify and differentiate between sources of services supply arises from the need to apply trade policy measures, either liberalizing or restricting services trade with specific partners. However, the principles and criteria behind origin rules for goods are not necessarily applicable to services. The literature has highlighted how the inherent features of services and services trade have brought the exercise of origin determination for services to focus also on the origin of the services supplier, as reflected in the GATS (Hoekman, 1993[25]; Beviglia Zampetti and Sauvé, 2006[29]; Fink and Nikomborirak, 2007[30]).

The intangible nature of services makes the principle of last substantial transformation irrelevant or at least difficult to operationalise. Indeed, as noted by Hoekman (1993[25]), services are themselves "substantial transformations" as they do not exist before they are performed. As opposed to tangible products, services are not typically produced through a sequence of physical transformations, but rather "wholly obtained" when they are performed.

For most services traded through consumption abroad (mode 2), information on where the services are performed can be sufficient for a complete and precise determination of origin. The cross-border movement of the supplier (in modes 3 and 4), however, makes *where* services are performed only one parameter for origin determination. *Who* performs the services and its legal or economic relationship with a certain jurisdiction also becomes important. The same can apply to services traded through a cross-border exchange (mode 1), over the internet or by phone for instance. The jurisdiction from which the data flow or the phone-call originates might not be the only factor that is relevant to determine the origin of the services. On the contrary, if the services provider accessing the internet or making the phone call to perform the services is not related, neither legally nor economically, to that jurisdiction, information on the origin of the provider is more useful to determine the origin of the service.

Fink and Nikomborirak (2007[30]) compiled a list of the main criteria that can be used to determine the origin of a services supplier depending on whether it is a juridical or a natural person (i.e. a company or an individual). This list is presented in Box 1.

Rules of origin for services can also be based on value added requirements, which, as argued by Hoekman (1993[25]), can be applied when looking at the services themselves and when the focus is instead on the services providers. However, the same author warns that a value added criterion can be complex to implement; indeed "(i)n the services context, it is likely to lead to greater arbitrariness and offer more discretion to investigating authorities, simply because the invisibility of the production process will usually inhibit an objective determination of how much value was added in a specific location" (Hoekman, 1993, p. 12[25]).

Box 1. Key criteria for rules of origin of services suppliers

For juridical persons

Incorporation/establishment. The origin is identified in the jurisdiction under whose laws the services supplier is incorporated, constituted, or otherwise organised.

Ownership and/or control. Origin of a juridical person is set to be equal to the origin of the entity (either an individual or a firm) that has the ownership and/or that exerts control over the juridical person. This is usually defined through the equity share in a company or the voting rights controlled by shareholders.

Substantive business operations. Origin is defined by the possession of a business or of a services license in a certain jurisdiction. Additional options include the payment of local profit taxes, the owning or renting of premises, a minimum sales requirement that the export of services to the importing country be of the same nature as the services supplied in the exporting jurisdiction.

Employment. The origin is determined based on a minimum share of employees in a certain jurisdiction.

For natural persons

Nationality. Origin is defined based on passport nationality.

Residency. Origin is determined based on residency. A residency approach is broader than a nationality one, as it might include some foreign nationals present (resident) in the jurisdiction. Options would depend on the forms of residency available in that jurisdictions. For example, a rule of origin could include permanent residents, but exclude temporary ones.

Centre of economic interest. This is akin to the concept of substantive business operations in the case of juridical persons. An individual's centre of economic interest can be defined by a minimum number of years of residency, the payment of local income taxes, or the owning or renting of a dwelling.

Source: Adapted from Fink and Nikomborirak (2007[30]).

Different combinations of these principles and criteria have been used in PTAs featuring services provisions and for the application of other trade policy tools that target services trade (Hoekman and Sauvé, 1994[31]). To promote harmonisation and consistency in this area, as well as to build multilateral instruments for origin determination at the multilateral level, the 1991 draft final act embodying the results of the Uruguay Round of trade negotiations instructed the parties to formulate rules of origin in services in connection with the rules of origin for goods. Despite this call, no separate agreement on origin rules for services was concluded after the Uruguay Round. The GATS was the first multilateral agreement dealing with origin determination for services, although the term 'origin' is never mentioned for this purpose in the text (Abu-Akeel, 1999[32]; Wang, 2010[33]).

The disciplines on origin determination for services in the GATS consists of general origin rules specified in GATS Article XXVIII, and rules of origin for the special circumstances of benefits denial (GATS Article XXVII) and economic integration, covering the development of services provisions in PTAs (GATS Article V). General rules of origin apply by mode of supply. For modes 1 and 2, the GATS generally prescribes to identify

the origin of a service in the jurisdiction *from which* (in the cross-border case) or *in which* (in the consumption abroad case) the service is provided [GATS Art. XXVIII (f)(i)].[9] For modes 3 and 4 instead, the origin of the service depends on the origin of the services supplier [GATS Art. XXVIII (f)(ii)].

The GATS criteria for origin of suppliers distinguish between natural and juridical persons. In the first case, origin is determined in the jurisdiction where the natural person supplying the services has either its nationality or the right of permanent residence.[10] The GATS also requires that the natural person resides in the territory of a WTO Member [GATS Art. XXVIII (k)]. If the supplier is a juridical person, the origin criteria vary according to the mode of supply:[11] incorporation/establishment and substantive business operations for mode 4 [GATS Art. XXVIII (m)(i)]; and ownership or control for mode 3 [GATS Art. XXVIII (m)(ii)].

Special rules of origin in the GATS are less detailed than the general ones. The GATS disciplines prescribed to guide origin determination in the framework of PTAs, for example, only cover origin rules for suppliers in the form of juridical persons. The criteria proposed here are those of incorporation/establishment and substantive business operations (GATS Art. V). This leaves WTO Members with wide flexibility to design the rules of origin for services in their PTAs as they see fit: countries can potentially adopt an approach based on the services themselves (like the GATS disciplines for mode 1 and mode 2) or on the services suppliers (as for mode 3 and mode 4 in the GATS), or even a combination of the two across different modes of supply. Different rules of origin have different implications in terms of stringency or restrictiveness of the associated requirements. Considering for example rules focusing on the origin of natural person suppliers, a permanent residency requirement is less restrictive than a nationality requirement. Similarly, among the rules that target juridical person suppliers, those that only include an incorporation/establishment requirement are likely to be less demanding than those adding a substantive business operation test.[12]

4. Rules, challenges, and policy implications for goods-services trade configurations

Having reviewed the general principles and objectives of valuation systems and rules of origin in Section 3, this section examines the current rules and practices which are relevant for the trade configurations that feature goods-services interactions as categorised in the taxonomy framework introduced in Section 2. For each configuration, the present analysis investigates whether and how challenges exist in current systems of valuation and origin determination that introduce obstacles for goods-services trade. Policy solutions are

[9] Different provisions are applicable in the case of maritime services [GATS Art. XXVIII (f)(i)].

[10] Permanent residency is an acceptable substitute of nationality if the jurisdiction under scrutiny does not have nationals or accords substantially the same treatment to its permanent residents as it does to its nationals in respect of measures affecting trade in services and has made a notification in this sense [GATS Art. XXVIII (k)(ii)].

[11] The relevant article here is GATS Art. XXVIII (m). For a discussion of the relationship between subparagraphs (i) and (ii), which determines whether specific criteria are exclusively defined for mode 3, the reader can refer to Wang (2010[33]).

[12] In previous OECD work, Miroudot, Sauvage and Sudreau (2010[41]) review services schedules of commitments in 56 regional trade agreements, discuss the implications of different rules of origin in full detail, and propose a taxonomy of origin rules for services suppliers, ranking them from the most liberal to the most restrictive.

proposed to maximise the benefits of open markets and to preserve a rules-based international trading system in good working order. Section 4.1 focuses on customs valuation, while Section 4.2 covers rules of origin.

4.1. Customs valuation

As noted above, customs valuation is inherently related to the application of *ad valorem* customs duties. The application of customs duties in the context of international trade does not generally apply to services, which therefore remain outside the scope of customs valuation. However, the underlying concepts and the specific rules to determine the value of traded goods generally account for the value of services embodied in or complementary to those products which are (potentially) subject to *ad valorem* customs duties.

4.1.1. Configurations with embodied services (column 1)

Relevant rules and practices

The primary method to determine the customs value of goods – namely, the transaction value method – identifies the price actually paid or payable as the basis for valuation [CVA Art. 1(1)]. All inputs, including services, either provided internally or externally to the firm(s) involved in production, must be captured by the sale price of the final goods according to commercial logic and market forces. Therefore, the method of transaction value makes it clear, even if only implicitly, that services inputs are included in the value of traded goods and thereby providing a clear basis for customs valuation of configurations with embodied services (those under column 1 of the taxonomy matrix in Table 1). This approach also applies with regard to services inputs that imply royalties and license fees related to the imported good which the buyer must pay as a condition of sale of the good [CVA Art. 8.1(c)]. A typical example is engineering services used to develop and update a patented process used in the manufacturing of an imported good.

The rules for valuation further dictate conditions that should apply when market forces are distorted in such a way that the price paid or payable fails to reflect the true value of the traded goods. This could be the case when the importer (buyer) supplies inputs to the exporter (seller) for use in connection with the production and sale of the imported goods at a price too low to be consistent with commercial logic, thereby creating a situation where the buyer relieves the seller of an expense that would otherwise have been incurred and normally included in the transaction price of the goods (Báscones and Diaz Gavier, 2014[34]). To correct this, the CVA provides a list of inputs (referred to as 'assists' in customs valuation terminology), including services, whose value must be added to the price paid or payable for the imported good when they are supplied by the buyer to the seller free of charge or at reduced cost, and when they are necessary for the production of the imported goods.

The list includes activities that can represent embodied services: engineering, development, artwork, design work, plans, and sketches [CVA Art. 8.1 (b)(iv)]. Notably, the value of these assists does not have to be included in the transaction value if they are undertaken in the country of importation [CVA Art. 8.1 (b)(iv)]. According to some observers this exemption, which does not apply to the goods-type of assists listed by CVA [in sub-paragraphs (i), (ii), and (iii) of CVA Art. 8.1 (b)], may have reflected a willingness by negotiating members in the 1970s to support domestic services sectors (Rosenow and O'Shea, 2010[35]; Báscones and Diaz Gavier, 2014[34]).

Challenges and policy options

The approach towards trade configurations with embodied services that comes with the transaction value method can lend itself to criticism based on the differential treatment of goods and services with regard to customs duties. The argument behind this criticism can be summarized as follows. Contrary to goods, when services are identifiable and sold as the only elements of an international transaction, their value is not subject to customs duties. If the same services are embodied in a traded good, their value as reflected in the price of the good becomes dutiable (where *ad valorem* duties apply) as per the rules illustrated above. Other things being equal, goods embodying more services value added become more expensive, their customs value increases and with it the amount due for the same ad valorem import tariff. Given the documented increase of the value of embodied services in merchandise trade (Section 2.2), the transaction value of traded goods, i.e. the tax base for *ad valorem* import tariffs, is increasingly constituted by elements that are free from such duties.[13]

While this can be considered as an inconsistency or even a paradox, it is important to highlight how there is nothing substantially different from the case of a manufactured intermediate input that is subject to a different tariff rate than its final good. Within the logic of this criticism, however, imports tariffs downstream in the supply chain can be seen as indirect barriers to the use of services intermediates and the development of related industries.[14]

A potential solution to this issue would then be to make the value of embodied services systematically deductible from the price of the final good (Cernat and Antimiani, 2018[20]). Any such approach would necessarily imply additional disciplines to correct the valuation based on the price actually paid or payable. This would not be a complete innovation for customs valuation; indeed, as noted above, the CVA already includes provisions for the inclusion or exclusion of specific services from the transaction value of a good (mainly to avoid circumvention when services are supplied by the buyer that artificially reduce the cost of the good). However, while those provisions apply to exceptional situations where market forces are likely to be distorted, virtually any traded good embodies services inputs. Therefore, as highlighted by von Spankeren (2022[15]), under such a solution the transaction value method would never be sufficient for a correct valuation.

[13] Due to the intangible nature of services, this argument does not apply to a system of specific tariffs assigned based on the quantity (number of units or weight) of the imported goods.

[14] This argument is largely conceptual. While there exists a growing literature on the downstream effects of trade policy, showing for instance that liberalization (tightening) reforms targeting intermediate goods or services upstream can have positive (negative) impacts on downstream sectors' performance (Amiti and Konings, 2007[45]; Halpern, Koren and Szeidl, 2015[46]; Beverelli, Fiorini and Hoekman, 2017[47]), less is known about its upstream effect. The question of how upstream services industries could react to downstream tariffs has received so far only limited attention. Moreover, there exists no robust evidence of the causal effect that the contribution of embodied services to the tax base for *ad valorem* customs duties might exert on firms' incentives to use services in the production of those goods to which duties apply. The impact is likely to vary across goods and the scale of their production and could also depend on whether embodied services are performed only one time or in a repeated fashion (e.g., design vs. logistics services). For example, customs duties will probably be material on a bespoke, low-volume product that includes a high share of services value added (e.g., a custom computer chip). However, for high-volume products, the costs of services may be distributed over units delivered, and their contribution to the tax base of *ad valorem* tariffs may have a negligible impact.

Moreover, the exercise of identifying, monitoring, and computing the appropriate value of services inputs along the supply chain of a traded good might generate considerable administrative costs for companies, and a corresponding additional burden for national customs administrations engaged in verification and control. The advantage of not having to deal with this kind of procedure was one of the main reasons that made, and still makes, the transaction value standard so attractive for legislators aiming for trade liberalisation and facilitation. Moreover, this solution entails a risk of discriminatory impacts on developing countries. As these generate lower shares of services value added embodied in merchandise trade, the gains accruing from deducting the value of services inputs from the transaction value of traded goods would be much lower than for developed economies. Another discriminatory impact might stem as well from differences in services prices across countries. Finally, related costs of verification and control for customs authorities might also be more pronounced in developing countries.

An alternative solution to support the services industry from indirect barriers would be to reduce *ad valorem* tariffs and promote trade facilitation policies on goods that embody high value services inputs (von Spankeren, 2022[15]; Cernat and Antimiani, 2018[20]). This option would fully preserve the scope and applicability of the transaction value method for customs valuation. Moreover, it would not require the introduction of a new mode of services provision to formalise the intuition that embodied services are actually traded whenever the embodying good is exported.

Overall, if tariff on goods are considered to be indirect barriers to embodied services, the introduction of a new mode of services trade to capture embodied services and allow their value to be excluded from the customs value of the embodying goods might not be the most effective or efficient solution. A selective approach to exclude services inputs from the customs value of goods would pose new problems in terms of the conceptualisation, interpretation, and administration of the current rules, potentially undermining the principles of neutrality, transparency, and predictability in valuation embedded in the transaction value standard currently applied to the majority of international trade.[15]. Focusing on reducing tariffs and streamlining administrative processes at the border for goods appears to be a more pragmatic policy option.

Beyond the general challenge of adjusting trade policy rules to the growing role of embodied services in international trade, it is worth mentioning a few specific issues related to the CVA provisions on services assists summarised above. The first pertains to the scope of the list of services assists provided under CVA Art. 8.1 (b)(iv). The nature and the range of those services that were deemed to be relevant assists when the valuations rules were formulated in the 1970s have changed. This implies that the disciplines to determine the customs value applicable to such services must be administered and applied in the context of new technologies. This is likely to create challenges for customs administrations in the analysis, assessment, and rulings that must be made with respect to such assists, and in turn to companies that are likely to face a more uncertain policy environment.

Secondly, it has been noted that the rule to exclude those services undertaken in the country of importation from the scope of dutiable assists is not sufficiently clear concerning how the origin of the service is determined (Báscones and Diaz Gavier, 2014[34]). Depending on the interpretation of the word ‘undertaken’ used in the CVA, the relevant origin criteria might be those applying to the services themselves or to the services provider. If, as indicated by WCO Decision 2.1 (World Customs Organizations, 2014[36]), ‘undertaken’

[15] The introduction of a new mode of supply could also create the opportunity for additional barriers that are not customs duties to be placed on services that have been unencumbered by trade restrictions until now.

should be interpreted as 'carried out', the actual place where the services are performed seems to be relevant. Still, uncertainty could remain regarding certain services performed outside the importing country by suppliers that satisfy residency or other requirements which would grant them origin in the importing country.

In this respect, US legislation for example prescribes that services performed by a supplier domiciled in the United States and which is acting as an employee or agent of the buyer of the imported merchandise, are not considered as dutiable assist, irrespective of the jurisdiction where these services are undertaken, if they are incidental to similar services undertaken in the United States [Title 19 U.S. Code 1401a(h)(1)(B)]. This has implications on the modes of provisions accepted for the traded services assists that are not added to the customs value of the final good. In the US case, both modes 1 and 4 would be compatible with this exemption.

More generally, the exclusion of assists undertaken in the country of importation from the customs value is a notable example of differential treatment. In a situation where the value generated by those assists that fall within the scope of this exemption tend to increase (because of a widening scope and range of such services activities, and/or because of a growing tendency in official rulings by the relevant trade or customs decision-making authorities to adopt origin criteria also based the location or residence of the services suppliers), the question of whether the application of a differential treatment remains consistent with the objectives of the CVA becomes a relevant theme for policy discussion.[16]

Overall, these considerations suggest that the disciplines on services assists might represent an area where policy action can contribute to reducing uncertainty and ensuring alignment of valuation systems to evolving commercial realities. Such a policy action could take the form of guidelines developed by customs agencies providing information on how the list of services assists can be mapped with standard services classifications (e.g. the Central Product Classification system) and on the rules of origin that can be used to identify the services assists not to be added to the customs value. Discussion of the relevant administrative jurisprudence, which should be accessible and transparent, could also be offered to increase predictability in this area. Furthermore, multilateral discussions at the WTO and WCO should continue to aim at monitoring and harmonising existing approaches toward services assists, and to examine whether differential treatment provisions in this area remain the best solution to achieving the underlying objectives of valuation systems.

Finally, the relationship between buyer and seller and the presence of separate services transactions between them can introduce additional challenges for customs valuation of trade configurations featuring embodied services. For example, parent company A produces and sells a certain good to subsidiary B in another jurisdiction. To produce the good, A uses services inputs including accounting, marketing, logistics, management, and computer services. The cost of these embodied services has to be included in the customs value of the traded good. In a separate transaction A sells the same services to B, which uses them as inputs to produce other goods in its jurisdiction. In order to pay less duties on the good, A and B might trade the good at a lower price by registering the value of its embodied services under the separate services transaction.

[16] According to Advisory Opinion 4.14 of the Technical Committee on Customs Valuation this differential treatment does not apply to licenses (World Customs Organizations, 2014[36]). In its opinion, the Committee clarifies that "…the mere fact that royalties or licence fees are paid to a licensor who is a resident in the country of importation would not preclude such royalties or licence fees from falling within Article 8.1 (c)", i.e. from being included in the customs value of the imported good if they represent a condition of sale.

To avoid this behaviour, the custom authority of B's jurisdiction can require detailed documentation to determine the exact value of the services B received from A that were not embodied in the good. Appropriate instructions and guidelines concerning this requirement, including information on which party should bear the duty of producing the relevant documentation, possibly supported by discussion of relevant jurisprudence and harmonised with international guidelines and practices in other jurisdictions, would contribute to reducing uncertainty and the accounting or administrative burden potentially falling on firms. An example of guidelines on this issue are the guidelines on customs value and transfer pricing published by the Norwegian Customs Authority on its website.[17]

4.1.2. Configurations with complementary services (column 2)

Relevant rules and practices

In trade configurations featuring complementary services (those under column 2 of the taxonomy matrix presented in Table 1), the services element(s) in the transaction are clearly identifiable and separable from the goods. In many cases, the services can be traded through a separate transaction, without therefore being part of the paid or payable price of the accompanying goods. All modes of services provision can apply to complementary services in these configurations depending on the movement of the parties and on the cross-border tradability of the specific service [see von Spankeren (2022[15]) for a comprehensive discussion of all cases where complementary services can be covered by GATS rules]. An example is the supply of computers sold by company A to importer B through transaction X, and an insurance scheme on those computers also sold by A to B, but through a different transaction Y.

Notwithstanding separability of complementary services from their accompanying goods, companies might decide, based on commercial incentives, to include the services in the same transaction, with one price covering both the good and the services. The same supply of computers could be exported by A to B as inclusive of the insurance scheme within the same transaction Z.

Given these premises, the principle of the transaction value would lead to very different valuation outcomes depending on the specific decision of the firms. However, the CVA includes the necessary disciplines to make the valuation of complementary services subject to other criteria than just the contractual arrangement between trading parties. The first relevant rule here consists of a further characterisation of the price actually paid or to be paid as including "…all payments actually made or to be made as a condition of sale of the imported good, by the buyer to the seller, or by the buyer to a third party to satisfy an obligation of the seller" (CVA Annex III, para.7). As long as complementary services represent a *condition of sale* of the good, even if the contractual arrangement between the buyer and the seller is such that these services are exchanged through a dedicated transaction under GATS rules, possibly even including a third party, their value must be included in the customs value of the good.

This can be referred to as the "condition of sale principle", which also applies to complementary services which imply the payment of royalties and licence fees as per CVA Art. 8.1 (c). Also in this case, the complementary services that give rise to these payments must be a condition of sale of the good being valued (WTO CVA Art. 8.1). An example of a trade configuration featuring this type of complementary services is the case where

[17] The relevant discussion can be found in Section 6.2 of the guide available at https://www.toll.no/en/corporate/import/calculating-customs-duty-and-taxes/customs-value/customs-value-and-transfer-pricing/.

importer I in country X buys a machine from seller S of country Y. This machine is such that it can perform a patented production process developed through engineering services that S buys from L. The importer, in addition to the price paid for the machine also pays to S a licence fee for the right to use the patented production process, which S then transfers to L. Provided that the machine has been purchased specifically to carry out the patented production process, the license fee should be added to the price paid for the machine and included in its customs value.[18]

Moreover, the WTO CVA explicitly prescribes a specific treatment for the following complementary services.

- Services undertaken on the imported good *after importation* and when their costs are distinguished from the price actually paid or payable for the imported goods, including construction, erection, assembly, maintenance, technical assistance, and transport. The value of these services should not be included in the customs value of the goods [WTO CVA para. 3 (a), (b) note to Article 1 Annex I].
- Complementary services related to the sale of the imported goods including commissions and brokerage, the cost of containers and packing services. The value of these services should be included in the customs value of the goods [WTO CVA Art. 8.1 (a)].
- Transport services up to the port or the place of importation, including related loading, unloading and handling charges, and insurance services. Whether these services, in whole or in part, should be included in or excluded from the customs value of the imported goods, must be decided by each Member and disciplined in the relevant legislation (WTO CVA Art. 8.2).[19]

Challenges and policy options

In general, these rules provide a comprehensive toolkit to deal with trade configurations featuring complementary services. However, a few challenges do exist and policies can contribute to improving coherence and predictability in this area. The main potential issues centre around the condition of sale principle. In view of the importance and legal significance of flexibility in designing specific contractual conditions and the resulting scope for variations in the relationship between different elements within the same or in related contracts, the task of assessing what represents a condition of sale can lead to some ambiguity.

This is particularly true for configurations involving complementary services. From the customer's perspective, complementarity between the service and the good can vary on a continuous scale from perfect complementarity (i.e. a good cannot serve any purpose without being accompanied by a specific service) to a situation where, while a service enhances the functionality of the good, the customer can still fully benefit from ownership of the good without combining it with that specific service. Although in the second situation the service can be interpreted as being at least less of a condition of sale than in the case of perfect complementarity, the incentives of the parties might be such that the importer would not buy the good without the service.

Beyond the risk of raising uncertainty on valuation when trading goods together with services, in certain circumstances the condition of sale principle could amplify existing

[18] This case is adapted from the business case discussed in the advisory opinion 4.12 of the Technical Committee on Customs Valuation (World Customs Organizations, 2014[36]).

[19] The majority of WTO Members decided to include these services in the customs value.

trade barriers. Indeed, a service can become a necessary condition for the sale of a good for reasons that pertain to requirements in national regulations for the importation of that specific good. Under regulatory heterogeneity across export destinations, the condition of sale principle could risk adding to the trade distortions already embedded in having to comply with different regulatory requirements (see the case illustrated in Box 2).

Moreover, the timing dimension in the performance of complementary services can add inconsistency to the application of the condition of sale principle. It is well established that customs duties are generally intended to apply to the value (price) of a good prior to its circulation in the economic environment of the importing jurisdiction. Some complementary services including construction, erection, assembly, maintenance, technical assistance, and transport services are explicitly excluded from the transaction value if conducted after importation [CVA para. 3 (a), (b) note to Article 1 Annex I]. As noted by von Spankeren (2022[15]), these services may very well also represent a condition of sale. A complementary service which is a condition of sale and which is performed after importation might actually add value to the imported good before it reaches the importing country. Assessing whether and to what extent this is the case becomes another source of uncertainty for valuation of trade configurations involving complementary services.

The complementarity between certain services and the traded goods can also arise from the specific business strategy adopted by a company to contest foreign markets, such as a franchise set up. For example, an importer I of a certain manufactured good from exporter E is also a franchisee of E to benefit from specific services performed by E (including professional services, distribution, or any services required to develop and maintain a trademark). Determining whether the services performed by E – and paid for by I through a franchising license – represent a condition of sale of the imported good can be very difficult. Disagreements over valuation decisions and country variances in interpretation can therefore easily arise, representing a potential trade barrier for companies. Several advisory opinions of the Technical Committee on Customs Valuation analyse and provide guidance on specific cases, e.g. Advisory Opinion 4.5 (World Customs Organizations, 2014[36]). Further assessment would be useful to clarify a broader range of situations.

Similarly, the assessment of whether services transactions between members of the same multinational enterprise (MNE) are conditions of sale for the goods traded amongst these related parties is not straightforward. This can be further complicated by the problem of establishing whether the price paid for the services is subject to distortions that are likely to arise when associated enterprises transact with each other.[20]

The question then arises as to whether a clause such as the condition of sale alone provides a sufficient degree of standardisation to address valuation of evolving trade transactions involving complementary services. The uncertainty and inconsistency that arises from the implementation of the condition of sale principle call for a careful assessment of the different degrees and sources of complementarity that characterise the relationship between

[20] Relevant for cases where trading parties belong to the same Multinational Enterprise (MNE), the OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations (OECD, 2022[43]) is a regularly updated tool on harmonisation of administrative practices and includes guidelines for services transactions. Beyond methods to correct for potential distortions affecting the price of services traded within a MNE group, the Guidelines also provide principles to assess whether the service provides the receiver with economic or commercial value, as well as criteria to identify those services performed by the provider to its own benefit. Any effort to increase actual uptake by national customs authorities of the Guidelines' disciplines when dealing with complementary services traded within a multinational enterprise group would contribute to increasing predictability and consistency for business operators.

goods and complementary services. Such an analysis could serve as the basis for additional implementation guidelines to better distinguish between configurations where complementary services do or do not represent a condition of sale.

When, for example, a service becomes a necessary complement of a good to satisfy national regulatory requirements in the importing country, the possibility to exclude the cost of such service from the customs value of the good could contribute to increasing trade openness without generating unfair undervaluation. Box 3 provides an example from the car industry. While further analysis beyond the scope of this paper is required to investigate all implications of this approach, it represents a case for potential policy discussion.

Another direction for policy action is to increase transparency and accessibility around existing bodies of customs rulings and legal decisions, which notably represent critical tools to enhance predictability and clarity for companies. The Customs Ruling On-Line Search System (CROSS) of the US Customs and Border Protection (CBP) and its related tools provides a good example of best practices in this area.[21]

Box 2. Complementary services in the car industry: The type-approval process

Complementary services in the car industry

The share of complementary services embedded in the transaction value of cars can be high enough to have a significant impact on the customs tariffs due for imports. One reason for this is linked to the modernity of cars. Characteristically, cars of the 21st century are equipped with technical devices that have various digital functions (e.g. air conditioning, control units, electric window lifter, seat heating, integrated navigation system), including in some cases autonomous driving. It is the software of these different devices that enables these functionalities. The costs to develop, programme, install and update the software can either be embedded in the transaction value of a car if the functions are enabled at the time of supply, or excluded if it is the final customer who decides which functions to activate and use after importation (e.g. functions on demand).

A second factor explaining the high share of complementary services in the customs value of cars relates to the increasing number of technical regulatory requirements to which a car must conform. Cars must be evaluated in a type approval process, i.e. a complex process which verifies that all national technical, safety and security standards are met for each model type. The necessary testing services vary from market to market in relation to the regulatory requirements. The associated costs are embedded in the transaction value of cars.

The case of type-approval services

A car manufacturer of country A plans to export cars to country B. The cars are produced in A and can be of different model types. Before the cars can be exported to country B, they have to be type approved. In this regard, one to two cars of each model type (per engine variant) must undergo several safety and security tests (e.g. emissions, passive and active safety) locally in country B. Parts which have broken down during the testing must be substituted by new parts imported from country A to B. These parts must also

[21] The Customs Ruling On-Line Search System (CROSS) of the US Customs and Border Protection (CBP) and its related tools are available at the https://www.cbp.gov/trade/rulings (accessed on 25 January 2022).

be certified for the market in country B. In addition to the testing conducted in B, several safety and security tests (e.g. crash test) are conducted at a research centre of the car manufacturer in country A, witnessed by official inspectors of the importing market (B). At the end of testing, the test vehicles are scrapped and recycled.

The costs for this type-approval process include those for testing services and for the manufacturing goods (cars, parts and components) required to perform the services in country B. As a necessary requirement for market access in country B, the type-approval process is considered a condition of sale for cars and its costs must be embedded in the customs value of the exported vehicles. Similar requirements might apply for market access in other jurisdictions, possibly implying different testing services and costs. While the value of the cars remains the same across destination markets, the tax base for the application of custom duties will change due to regulatory heterogeneity.

The costs of a type-approval process are easily distinguishable in a trade transaction as they mostly consist of complementary services, thus making it relatively easy for car manufacturers to separate them from the price of the cars. Therefore, the possibility to exclude the costs of type-approval processes from the customs value of the exported vehicles is not likely to imply additional administrative burdens in the trade commercial practices of the automotive industry.

4.1.3. Configurations with substitute services or ancillary goods (column 3)

Relevant rules and practices

In trade configurations that feature substitute services or ancillary goods (column 3 of the taxonomy matrix in Table 1), the services are the only elements sold in the transaction. The goods instead temporarily move across borders to enable the services to be performed. The services elements are traded under GATS rules (all four modes of provision can arise in these configurations) and are not subject to any customs duty.

The goods elements, even if not sold for importation, are still subject to customs procedures. The relevant disciplines here are those that regulate the temporary admission of goods. At the multilateral level, the main provision is given in the Trade Facilitation Agreement (TFA), which prescribes members to exempt goods in whole or in part from import duties when they are temporarily brought into their customs territory for a specific purpose (TFA Art. 10, para.9.1). The TFA leaves full discretion regarding the implementation of this provision to national governments. However, international systems existed before the TFA, featuring detailed disciplines on customs procedures for temporary admission. The most successful international scheme for temporary admission is the ATA system, which is also considered a relevant tool for implementation of TFA Article 10.9.1 (Box 3 provides a brief description of the ATA system).

Box 3. The ATA system

Using an acronym that combines the first letters of the French “Admission Temporaire” and of the English “Temporary Admission”, the ATA system was established by the Customs Convention on the ATA Carnet for the Temporary Admission of Goods (better known as ATA Convention) in 1963. The ATA system is a widely used international scheme which allows temporary admission of goods into customs territories of the contracting parties of the ATA convention simply by presenting specific documents, the

ATA carnets, which embed internationally valid securities and replace customs formalities. The ATA carnets are issued by national associations approved by national customs agencies.

Thanks to these securities, no import tariffs are collected for the temporary admission of the goods covered by the system. If importation becomes permanent, the security is used to pay the relevant custom duties. A wide variety of goods are entitled to this system, such as goods for trade fairs, shows, exhibitions, professional equipment, commercial samples, and those temporarily admitted in connection with a manufacturing operation as defined by ATA convention. The ATA system is also incorporated in the Istanbul Convention of 1993, which consolidates several existing instruments and conventions for temporary admission.

Approximately 80 customs territories accept the ATA system, and about 190 000 ATA Carnets are issued annually worldwide.

Note: More information on the ATA system, related conventions and latest developments is available on the websites of the International Chamber of Commerce (ICC) (https://iccwbo.org/resources-for-business/ata-carnet/) and the World Customs Organization (https://www.wcoomd.org/en/topics/facilitation/instrument-and-tools/conventions/pf_ata_system_conven.aspx).

Challenges and policy options

By substantially simplifying customs procedures on temporary admission, the ATA system deals with the customs implications of trade configurations involving substitute services or ancillary goods in such a way to effectively achieve the underlying objectives of market openness and trade facilitation. However, the ATA system is not accepted everywhere and many countries manage temporary admission through more burdensome customs procedures. This represents a challenge for companies importing or exporting product-service systems or services that require the temporary cross-border movement of goods. Nordås and Steenblik (2022[17]) report how these procedures create significant trade barriers for clean-up services providers when exporting marine-debris collection services; they note that the adoption of the ATA carnet system would be a good solution to minimise administrative burdens and liquidity requirements for small and medium enterprises (SME). This recommendation applies to any other sector where trade involves substitute services or ancillary goods and therefore offers a sensible direction for policy action in this area.

Finally, to the extent that temporary admission requires valuation of the goods, absent any price paid or payable the transaction method cannot be applied. However, the existence of a services transaction related to the temporarily admitted goods poses no challenge to the application of the subordinate valuation rules prescribed by the CVA when the transaction value method cannot be used.

4.2. Rules of origin

The rules of origin – whether for goods or for services – that are relevant for each type of goods-services configurations will depend on what is actually identified in the trade transaction.

4.2.1. Configurations with embodied services (column 1)

Relevant rules and practices

What is traded in configurations with embodied services is the good. The services are not directly distinguishable in the transaction. Therefore, to identify the relevant rules and practices of origin determination, one needs to look at how embodied services can be accounted for in rules of origin for goods. The focus can be restricted to the four types of origin rules for goods mentioned in Section 3.2.1: the wholly obtained rule and the three main criteria to implement the principle of the last substantial transformation, i.e. the change of tariff classification, the specified process requirement, and the value added content requirement. These are the types of non-preferential origin rules set in the ARO. Moreover, even under wide heterogeneity on a textual basis across PTAs,[22] these standards are often used as templates for preferential rules of origin.

Wholly obtained rules generally identify lists of products that can be considered as obtained or produced entirely within a jurisdiction without any input from other sources. In most cases, eligible goods include live animals born and raised within a territory, mineral products extracted from the ground, and food products grown and harvested on a territory.[23] Wholly obtained rules do not allow to directly account for the origin of services inputs used to produce or to obtain the good. In other words, these rules of origin do not distinguish between a wholly obtained good embodying services performed by a local supplier and the same good produced using services inputs performed by foreign providers. Moreover, any services input performed abroad and traded to become an input into the production of goods is not accounted for in origin determination by the wholly obtained principle[24].

Similarly, the sources of embodied services are not directly identified and accounted for when using rules of origin based on changes of tariff classifications or specified process requirements. The first criterion establishes that origin will be set in the jurisdiction where the change from the HS code of the non-originating components to the HS code of the final product takes place,[25] while the second confers origin in the jurisdiction where non-originating materials undergo a specific production operation.[26] Both criteria can indirectly

[22] According to the IITC-WCO-WTO Rules of Origin Facilitator, there are 54 075 textually different product specific rules observed in 370 PTAs.

[23] Fisheries or other marine life-related products also tend to be eligible under the wholly obtained principle. In their case, the rule usually requires to be obtained by nationally registered ships.

[24] Mineral products extracted within the territory of a certain jurisdiction are an example of goods that are usually eligible for origin in that jurisdiction according to the wholly obtained principle. Mode 1 imported services used to provide engineering consultancy to the mining company involved in the extraction of those products, or even to operate the relevant mining facilities or provide training services for the mining personnel imported via mode 2 (i.e. the personnel of the mining company receiving the training abroad), cannot be taken into account to determine the origin of the mineral product under wholly obtained rules.

[25] Different types of changes might be required, from a change of HS sub-heading to a more demanding change of HS chapter.

[26] An example of rules of origin following a specified process requirement is given by the EFTA-Indonesia Comprehensive Economic Partnership Agreement. Paragraph 11 of Annex I of that agreement states that "(a) product falling within Chapters 28 to 40 of the HS obtained in a Party by fermentation shall be considered as originating in that Party. "Fermentation" means a biotechnological process in which human, animal, plant cells, bacteria, yeasts, fungi or enzymes are used to produce a product falling within Chapters 28 to 40 of the HS."

confer origin in the territory where a certain embodied service is performed. This is the case only if that service contributes to the necessary change of tariff classification or to the specific process prescribed by the rule of origin. However, the origin of the supplier of that service cannot be considered in these types of rules. Moreover, if what counts is the last, as opposed to any, substantial transformation, these rules might not take into account other services inputs used at earlier stages of the production process.[27]

To be identified as originating in a certain jurisdiction under a rule based on value added content requirements, a good must receive at least a specified share of its value in that jurisdiction. Computing how much of the value of a traded good is added in a jurisdiction is not as straightforward as acknowledging a change of tariff classifications or registering that a specified process has taken place: it requires to measure a potentially very large number of variables which is further complicated by fluctuating prices and exchange rates.

Different formulas have been introduced for value added based rules. They can vary according to how the total value of the good is defined (the denominator in the share) as well as according to the formula used to compute the value added in a certain jurisdiction (the numerator). Depending on the specific choices over these parameters, value added based rules of origin can allow to account for embodied services directly or indirectly (Box 4).

Box 4. Embodied services in value added based rules

Generally, the main element in a value added based origin rule is the percentage share of the total value of a good that can be associated to a certain jurisdiction. The formula that expresses this percentage share is a fraction multiplied by 100. The denominator in the fraction is the total value of the good used for origin determination and the numerator is the part of such value that can be associated to the relevant jurisdiction.

$$\frac{\text{Part of total value associated to jurisdiction A}}{\text{Total value}} \times 100$$

The rule then establishes that the good is originating in jurisdiction A if this percentage share is larger than a specified percentage value (e.g. 50%, 60%).

The value of embodied services can be *indirectly* taken into account by those formulas that define the numerator as the total value of the good minus the value of non-originating materials (those that are sourced outside jurisdiction A). This approach is known as the 'build-down' formula.

$$\frac{\text{Total value - value of non-originating materials}}{\text{Total value}} \times 100$$

In this case the numerator contains the value of all embodied services accounted for in the total value of the good, which therefore indirectly contribute to the amount of value

[27] Ancillary provisions in the toolkit of preferential rules of origin can allow to indirectly account for services embodied at other stages of production. This can be the case with accumulation or cumulation provisions, and with roll-up or absorption rules. Depending on the specific version of accumulation, such provisions can allow to consider intermediate processing (including embodied services) as originating, even if they take place in a country different from the jurisdiction that is tested to be the origin of a traded product. Similarly, under a roll-up rule, any embodied service is considered originating, irrespectively of the country where it has been undertaken, once the embodying good has obtained the originating status.

associated to jurisdiction A. It is important to notice that the origin of these services (whether for example they are performed in the territory of A and/or by suppliers of country A) cannot be accounted for by these formulas: the value of all embodied services captured by the total value of the good contributes in the same way to increasing the numerator, irrespectively of the origin of the services.

Which embodied services are indirectly considered depends on the choice of the total value relevant for origin determination. If, for example, the denominator is chosen to be equal to the customs value of the good, all embodied services captured in the customs value are considered. Other approaches set the total value of the good relevant for origin determination to be equal to the price of the good net of certain costs, which can explicitly include the costs associated to specific embodied services.

Examples of the 'build-down formula' can be found in RCEP (Regional Comprehensive Economic Partnership) or CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership).

The value of embodied services can be *directly* taken into account when the numerator consists of the value of all domestic cost elements ('build-up' formula).

$$\frac{\text{Value of cost elements sourced within jurisdiction A}}{\text{Total value}} \times 100$$

In this case the numerator can explicitly include cost elements associated to embodied services, such as engineering or logistics services. Generally, these rules do not provide further disciplines as to how the origin of these embodied services shall be determined. Therefore, even if these rules can directly reflect the value of embodied services, they may fail to account for their origin. An example of such a rule is found in the ASEAN Trade in Goods Agreement.

Note: The treatment of embodied services in value added based rules is discussed in greater detail by Dinh (2017[37]) and von Spankeren (2022[15]).

Challenges and policy options

Given the growing contribution of embodied services to the value of traded goods, economic actors may have incentives to account for these services in determining the origin of the embodying goods. In general, the flexibility embedded in origin determination allows to use rules of origin designed to better reflect the role of embodied services. However, complex value added based rules would probably be needed, which could imply a more cumbersome administrative burden for companies. This, in turn, could trigger preference underutilisation. Further complexity might be added if, beyond accounting directly for embodied services, rules of origin introduced criteria to disentangle the origin of services suppliers.[28] As far as non-preferential rules are concerned, the focus on the last substantial transformation embedded in the ARO prevents considering embodied services beyond those connected to the last transformation. Violating that principle to look at the entire production process of traded goods would necessarily complicate the exercise of non-preferential origin determination and verification.

Overall, a trade-off clearly exists for rules of origin between accuracy in accounting for embodied services and ease of application. Given the well-documented risks of preferences

[28] Challenges specific to rules of origin for services suppliers are discussed in the next Sub-section 4.2.2.

underutilisation and of trade distortionary effects embedded in complex rules of origin [see Kniahin and de Melo (2022[38]) for a recent review of the relevant mechanisms], this trade-off should be carefully considered by any policy effort aiming to bring rules of origin closer to commercial realities where embodied services account for large shares of the traded goods' value. Academic debates and policy practices have identified useful solutions, however, to minimise the potential effect of rules of origin as non-tariff barriers to trade, while aligning them with modern production processes.

First, if complex value-added rules are introduced to reflect the role of embodied services, these could be accompanied by simpler alternatives with proven uptake and straightforward applicability such as the change of tariff classification criterion (von Spankeren, 2022[15]). Second, disciplines on rules of origin can be made eligible for timely revisions and amendments through transparent and open consultations to account for changes in the structure of production and to ensure effective administration and uptake of the origin rules. In this spirit, various PTAs have introduced provisions for consultations, revisions, and fast-track amendments in their rules of origin chapters.[29] Finally, efforts should be made to coordinate and harmonise policy choices intended to better reflect embodied services in rules of origin for goods. Discussions in this area should be encouraged and promoted at the multilateral level through the WTO and the WCO. Possible fora to explore these matters include the WTO Committee on Rules of Origin (CRO) and the WCO Technical Committee on Rules of Origin (TCRO).

4.2.2. Other configurations (column 2 and 3)

From a rules of origin perspective, configurations featuring complementary services can give rise to two cases. First, to the extent to which complementary services are not traded through a separate transaction but rather bundled with a good, origin determination will focus on the latter. Similar considerations as the ones made for embodied services apply in this case. In particular, complex value added based rules can be designed to account for complementary services in origin determination under the same trade-off between accuracy and simplicity discussed above (Section 4.1.1). However, complementary services can also be identified and treated separately in the trade configuration, thereby giving rise to a services trade transaction alongside the one through which the good is sold. In the second case, rules of origin for services will apply to the services transaction and rules of origin for goods will apply to the traded good.[30]

Similarly, configurations with substitute services or ancillary goods also involve a services trade transaction; the only difference is that they do not give rise to any goods trade as the good crossing the border is not imported, but only temporarily admitted into a foreign jurisdiction. In view of this, this sub-section discusses under the same heading configurations that feature complementary services and those with substitute services or ancillary goods (columns 2 and 3 of the taxonomy matrix). Both involve a services trade transaction and the relevant rules and practices for these configurations are those applied for origin determination of traded services. As noted in Section 3.2.2, the disciplines set in the GATS provide a framework for services rules of origin in a multilateral setting, as well

[29] Examples include USMCA (Article 3.10 of Chapter 4 Appendix on provisions related to the product-specific rules of origin for automotive goods), CPTPP (Article 3.32 of Chapter 3), and the Japan-Thailand Economic Partnership Agreement (Article 171).

[30] While rules of origin for goods raise important challenges *per se*, there is nothing in those challenges that is specific to trade configurations featuring both a good and a services transaction. A discussion of rules of origin for goods with no specific implication on goods-services trade remains outside the scope of this paper.

as some explicit guidelines for origin rules in preferential trade policy contexts.[31] However, substantial discretion is left in this area to negotiating parties to design the preferential rules of origin as they see fit.

Challenges and policy options

Several challenges arise from the current landscape of rules of origin for services. First, while the GATS framework provides countries with a high degree of flexibility to design the rules of origin for services that best reflect their preferences and incentives, the associated risk of fragmentation in the landscape of origin criteria for services may generate unnecessary costs for services trade.

The second challenge lies in the potential incompleteness of available tools to determine the origin of a service. Policy practitioners as well as operators from the private sectors interviewed for this study tend to agree that the GATS disciplines on rules of origin for services do not always provide a robust and consistent template for appropriate origin determination of traded services.

With respect to criteria targeting the services themselves, the territorial aspect that defines origin for mode 1 may be very hard to ascertain. As noted before, in the case of services traded through a digital transmission the jurisdiction from which the data flow originates might not be the only factor that is relevant to determine the origin of the services. For example, a service performed by company A in country X might be supplied to the importing country Y through a server located in country W, with no juridical nor economic relationship to company A. With the advent of cloud computing, origin might also be shared across different jurisdictions.

Other critiques centre around the provisions that focus on the origin of suppliers. Wang (2010[33]) identifies four defects in these disciplines that reflect these criticisms.[32] First, the ownership and control criteria alternatively required by the GATS for determining the origin of a juridical person exporting services via commercial presence might not be sufficient with certain shareholding structures of the supplier. Under GATS Article XXVIII(n), ownership of a juridical person consists in owning more than 50% of the equity interests in that company (sub-paragraph i). Control entails the power to name a majority on the supplier's board of directors or to otherwise legally direct that company's actions (sub-paragraph ii). If two or more persons of different nationalities own equal shares of a services supplier, none of those shares will account for more than 50% of the supplier's equity. If these persons do not have the power – individually – to name a majority on the supplier's board of directors, it will be impossible to determine origin according to the ownership or control criteria.[33]

Second, the GATS disciplines may prove insufficient for origin determination of services jointly supplied by multiple providers. As noted by Wang (2010[33]), transnational consortia of suppliers collaborating on the same provision are common in many services sectors,

[31] Section 3.2.2 provides a review of these disciplines and guidelines.

[32] Some of the issues summarised by Wang (2010[33]) were already laid out in the note prepared by the GATT Secretariat to guide discussions of the negotiating parties around the design of origin rules for services (GATT Secretariat, 1991[44]).

[33] The WTO dispute *Canada-Autos* offers an example of a supplier with an equal shareholding structure whose nationality was eventually not identified either by the WTO panel or the Appellate Body (*Canada — Certain Measures Affecting the Automotive Industry*, WTO Panel Report, WT/DS139/R, WT/DS142/R, 19 June 2000). The supplier in *Canada-Autos* was CAMI, a 50/50 joint venture between General Motors of Canada Limited and Suzuki Motor Company.

including construction, engineering, architecture, and computer services. Facing co-suppliers of different nationalities, the ownership and control criteria may not allow to identify the prevailing nationality for origin purposes.

Third, the legal owner or controller of the supplier as defined by the GATS provisions may have a different nationality than the person directly performing the economic activity of services performance. This might be the case for instance under outsourcing, generating difficulties for the GATS framework to capture the economic origin of a service. Finally, the GATS disciplines do not go beyond the 'first-tier' owner or controller. This can be a limitation to accurately reflecting value chain economic relationships in origin determination when companies establish a juridical person under a different jurisdiction with the sole purpose of owning or controlling a specific supplier.

There is academic debate on whether complementing the focus on the supplier with value added based criteria applied to the services themselves could correct for the defects embedded in the GATS disciplines when facing problematic situations as those mentioned above (Wang, 2010[33]). This debate deserves policy attention. In particular, the increasing complexity of implementation and the arbitrariness embedded in value added based rules that focus on the services themselves should be carefully taken into account when considering adding those rules to the more straightforward criteria such as those based on the origin of the supplier. Moreover, even though challenging, additional analysis should be conducted to better quantify the scope of the actual economic costs associated with these defects.

In general, promoting the development of practical guidelines at the multilateral level for the implementation of existing rules in specific situations could be a valid option to increase coordination and predictability in dealing with origin determination for configurations that feature a services trade transaction. Similarly, implementation guidelines on services rules of origin may provide useful templates for PTAs to converge, and eventually reduce the risk of fragmentation and the associated compliance and administrative costs for companies. Exploratory consultations, exchanges of experiences, and knowledge sharing discussions can be conducted within the framework of the WTO's CRO and the WCO's TCRO.

Finally, policy efforts to increase market openness on a Most Favoured Nation (MFN) basis for complementary and substitute services would greatly contribute to address these challenges by reducing the need for origin determination. For instance, proposals have been put forward to complement the GATT's Information Technology Agreement with a list of related information and communication technology (ICT) services (Lee-Makiyama, 2011[39]; Sauvé, 2019[12]).[34] In the same spirit of promoting a holistic negotiating approach, this would allow for market openness beyond the goods-services divide without restructuring the basic architecture of the multilateral trading system. The trade policy agenda on environmental goods and services could represent a rich reference base for MFN commitments on trade configurations with complementary or substitute services, or with ancillary goods (National Board of Trade, 2014[40]; Sauvé, 2019[12]).

4.3. Summary and discussion

Goods-services trade configurations present specific challenges to customs valuation and rules of origin. These challenges tend to vary by type of interaction between goods and

[34] ICT services play an important role as complementary services, but also as inputs embodied in manufacturing. This makes these proposals also relevant for addressing the rules of origin challenges pertaining to configurations with embodied services.

services (the column dimension in the taxonomy matrix). For configurations that feature an identifiable and separable services trade transaction (columns 2 and 3 the taxonomy matrix), specific issues can also depend on the mode of services supply (the row dimension in the taxonomy matrix). For example, equal or scattered shareholding structure of a services supplier can raise difficulties in origin determination mostly for services traded through commercial presence (mode 3).

Overall, these challenges can increase the risk that valuation systems and rules of origin may become less effective in achieving trade policy objectives and that they may introduce non-necessary obstacles to doing business. For this reason, they call for policy responses.

Table 2 provides a schematic overview of the challenges and policy options by type of goods-services interaction. Due to the summary nature of the exercise, the variation dimension which depends on the mode of supply is not integrated in the table.

Table 2. Challenges and policy options

Type of interaction between goods and services		
(1) Services are embodied as inputs in the production of traded goods Configurations with embodied services	(2) Services and goods are traded together Configurations with complementary services	(3) Goods cross an international border accompanying a services trade transaction Configurations with substitute services or ancillary goods
Customs valuation Challenge: tariffs argued to be indirect barriers to embodied services Policy options: reduce tariffs and promote trade facilitation on the embodying good. Challenge: outdated list of services, differential treatment, and unclear rules of origin in CVA provisions on assists Policy options: (i) develop rules or guidelines or implementation standards to update and clarify the scope of services assists also in the context of trade between related companies; (ii) increase transparency and accessibility of jurisprudence; (iii) promote multilateral discussions at the WTO's CCV and WCO's TCCV to coordinate and harmonise approaches to (i) as well as to reassess differential treatment embedded in assists provisions. **Rules of origin (ROO)** Challenge: embodied services not necessary well captured by ROO for goods; trade-off between accuracy in accounting for embodied services and ease of application of ROO for goods; potential fragmentation of policy solutions. Policy options: when value added based ROO are introduced to better reflect the role and origin of embodied services (i) accompany complex rules that with simpler alternatives; (ii) allow for timely revisions of rules of origin informed by open consultations with stakeholders; (iii) promote discussion at WTO's CRO and WCO's TCRO to coordinate and harmonise policy choices intended to better reflect embodied services in ROO for goods.	**Customs valuation** Challenge: uncertainty related to the condition of sale principle, and to its interactions with other parameters such regulatory heterogeneity, the timing of services performance, and the relationship between trading parties. Policy options: (i) develop rules or guidelines or implementation standards to further characterise the condition of sale principle and streamline its application; (ii) increase transparency and accessibility of relevant jurisprudence; (iii) promote multilateral discussions at the WTO's CCV and WCO's TCCV to coordinate and harmonise approaches to (i); (iv) promote uptake and implementation of OECD transfer pricing guidelines. **Rules of origin (ROO)** Challenge: potential defects of existing approaches to establish the origin of services in a precise and predictable way under specific circumstances and across modes of supply; trade-off between precision and complexity of ROO for services; potential fragmentation of policy solutions Policy options: (i) better quantify the economic costs of these defects; (ii) develop rules or guidelines or implementation standards to correct the defects of existing ROO for services under the specific circumstances where such defects tend to be binding; (iii) promote multilateral discussion at WTO's CRO and WCO's TCRO to coordinate and harmonise approaches to (ii); (iv) increase market openness on an MFN basis for services also by adopting a holistic negotiating approach.	**Customs valuation** Challenge: burdensome customs procedures for temporary admission of goods accompanying the services transaction Policy options: promote higher uptake of existing international systems to simplify customs procedures for temporary admission (e.g. the ATA system), in compliance with the relevant provisions in the TFA. **Rules of origin (ROO)** Challenge: potential defects of existing approaches to establish the origin of services in a precise and predictable way under specific circumstances and across modes of supply; trade-off between precision and complexity of ROO for services; potential fragmentation of policy solutions Policy options: (i) better quantify the economic costs of these defects; (ii) develop rules or guidelines or implementation standards to correct the defects of existing ROO for services under the specific circumstances where such defects tend to be binding; (iii) promote multilateral discussion at WTO's CRO and WCO's TCRO to coordinate and harmonise approaches to (ii); (iv) increase market openness on an MFN basis for services also by adopting a holistic negotiating approach.

Note: the table summarises the challenges and policy options by type of goods-services interaction. It does not further distinguish by mode of supply.

Table 2 shows that some policy solutions can apply horizontally to more than one type of trade configuration and to both customs valuation and origin determination. These include efforts to strengthen multilateral openness, to promote harmonisation of rules and practices for customs valuation and origin determination, and to increase transparency of the relevant jurisprudence.

Reducing *ad valorem* import tariffs on an MFN basis can contribute to removing indirect trade policy barriers to services embodied in goods, promoting greater use of high value services inputs. Moreover, eliminating policy restrictions to services transactions at the

multilateral level would facilitate trade in those configurations that feature complementary and substitute services, also by shrinking the scope for preferential liberalisation and the associated need to design potentially challenging rules of origin for services. Harmonisation of policy responses across countries is likely to minimise the risk that implemented solutions will raise variability in customs valuation and fragmentation of rules of origin. Finally, transparency and accessibility of the relevant jurisprudence, in particular regarding valuation decisions across customs agencies, would increase predictability for firms engaged in goods-services trade.

Increasing transparency, openness, and harmonisation of trade policy tools at the multilateral level are ambitious targets with a long history in international trade negotiations. The existence of specific challenges within the area of goods-services interactions in trade can represent an additional motivation to strengthen existing initiatives to achieve these goals. For example, within past and ongoing discussions around transparency of non-preferential rules of origin and harmonization in specific chapters of the Harmonised System (HS), the extent to which manufacturing sectors in specific HS chapters play a role in goods-services trade configurations can be proposed as an argument to support or prioritise higher transparency and harmonisation.

Preliminary insights to gauge the role of a sector in contributing to goods-services trade configurations can come from an assessment of the services content of its gross exports using trade in value added data such as the OECD TiVA database, as well as from exercises that map firms in that sector with services sale activities as proposed by previous OECD work (Cadestin and Miroudot, 2020[8]).

Finally, the promotion of consultations, dialogues, and further analysis to better assess the scope of issues related to goods-services interactions in international trade and to quantify the potential benefits associated to their solution is a concrete and feasible step, complementary to more politically ambitious responses.

5. Conclusions

The interaction between services and goods is a common feature of production and trade. In recent decades, the increasing services tradability, technological changes, and internationalisation of supply chains have all contributed to expanding the scope and variety of trade configurations that feature goods-services combinations. Against this background, this paper has addressed the question whether current approaches for customs valuation and rules of origin are well attuned to the changing landscape of commercial realities characterised by new and diverse configurations of goods-services trade.

A simple framework that identifies distinct categories of goods-services trade configurations has been used as the basis with which to review the main disciplines for customs valuation and rules of origin. This analysis highlights that customs valuation systems and origin rules are often flexible enough to account for goods-services trade configurations, providing a solid foundation for doing business and achieving legitimate trade policy objectives. In general, a rebooting or radical reconfiguration of the existing trade law architecture does not seem to be in order.

Specific goods-services trade configurations, however, can present challenges for customs valuation and origin determination, and call for targeted policy solutions. The policy options reviewed in this paper can serve as a basis for granular discussions in these areas. Efforts to strengthen multilateral openness, to promote harmonisation of rules and practices for customs valuation and origin determination, and to increase transparency of the relevant jurisprudence are horizontal principles for policy action.

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Annex A. The taxonomy framework with examples

Table A.1. Taxonomy matrix with examples

		Type of interaction between goods and services		
		(1) Services are embodied as intermediate inputs in the production of traded goods Configurations with embodied services	(2) Services and goods are traded together Configurations with complementary services	(3) Goods cross an international border accompanying a services trade transaction Configurations with substitute services or ancillary goods
Mode of services provision in the relevant trade transaction	Mode 1		**Relevant trade transaction(s):** company A exports a tractor from country X to consumer B in country Y. The tractor can be connected to the internet and is equipped with sensors to collect data. Within the same transaction A exports computer services necessary for data collection, storage and processing required for the smart functionalities of the tractor. Computer services are performed by A in country X and exported through the internet. **Complementary services:** computer services are complementary to the tractor. They are exported through Mode 1 within the scope of the relevant trade transaction. Complementary services are identifiable and separable in the relevant trade transaction: the underlying contract could be theoretically redefined to allow the consumer to acquire ownership of the tractor without acquiring the services required to enable its smart functionalities.	**Relevant trade transaction(s):** company A exports a document solution from country X to company B in country Y. The document solution consists of supplying and maintaining printers owned by company A in the offices of B in country Y for a certain period of time. Within the same transaction A exports technical services to assist B while using the printers. These services are performed by technicians working in As headquarters in country X through dedicated online chats and telephone lines. **Substitute services:** all services necessary to supply and maintain the printers in company Bs offices, substitute for Bs ownership of the printers. Among those, the technical services to assist Bs use of the printers are traded through Mode 1. The main transaction does not include the sale of the printers .

	Mode 2	**Relevant trade transaction(s):** company A exports cars from country X to customer B in country Y. **Embodied services:** Company A produces cars in country X using domestic engineering services. To coordinate the production process A also uses logistics services imported through Mode 3 from country W and telecommunication services imported through Mode 1 from country Z. These embodied services are not identified in the main transaction: they have been already consumed by A during the production process of the cars. The engineering, logistics and telecommunication services used in the production of a car are considered embodied services. These services are not separable from the relevant trade transaction: B cannot acquire ownership of the car without the engineering services which have been used to produce it. During the production process (therefore outside the scope of the main transaction) embodied services can be either domestic or imported through any Mode of provision. However, since embodied services are not traded through the relevant trade transaction, the modal distinction in the rows of the matrix does not apply.	**Relevant trade transaction(s):** company A in country X sells a boat to a resident B of landlocked country Y. B keeps the boat in a port in country X. In a separate contract A commits to perform maintenance services to Bs boat every year for the subsequent 5 years. **Complementary services:** maintenance services are complementary to the boat. They are traded through Mode 2 as a separate transaction in the trade configuration.	**Relevant trade transaction(s):** Company A in country X exports repairing services to company B in country Y. The repairing services are performed at As facilities in country X and concern a machine owned by B and used in Bs production facility in country Y. For the services to be performed the machine needs to temporarily move from country Y to country X. **Ancillary goods to services transaction:** the temporary admission of the machine to be repaired is ancillary to the performance of repairing services. The machine is not traded. The only transaction in this configuration is a services trade transaction where services are supplied through Mode 2
	Mode 3		**Relevant trade transaction(s):** company A exports escalators from country X to a consumer B in country Y. In a separate contract, company C, an affiliate of company A in country Y, sells construction services to B required to install the escalators. **Complementary services:** construction services are complementary to the escalators. They are traded through Mode 3 as a separate transaction in the trade configuration.	**Relevant trade transaction(s):** company A in country X exports debris collection services to customer B in country Y Services The services are performed on a river within the territory of country Y and are exported through an affiliate of company A in country Y. Part of the technical equipment required to perform the collection services needs to be temporarily brought into country Y from As headquarters in X. **Ancillary goods to services transaction:** the temporary admission of technical equipment into Ys territory is ancillary to the performance of debris collection services. The equipment is not traded. The only transaction in this configuration is a services trade transaction where services are supplied through Mode 3.

	Mode 4		**Relevant trade transaction(s):** company A exports a customized machine to company B from country X in country Y. B uses the machine for its manufacturing activities in country Y. Within the same transaction, A exports technical services required to install the machine within Bs production facility. Installation is performed by technical personnel of company A temporary moving to country Y. **Complementary services:** technical services are complementary to the machine. They are exported through Mode 4 within the scope of the relevant trade transaction. Complementary services are identifiable and separable in the relevant trade transaction: the underlying contract could be theoretically redefined to allow the company B to acquire ownership of the machine without acquiring the services required to install it within its production facility.	**Relevant trade transaction(s):** company A exports debris collection services from country X to customer B in country Y. The services are performed on a river within the territory of country Y, by company As personnel temporarily moving to Y. As necessary to the performance of the services, As personnel temporarily moves its technical equipment from X to Y. The equipment includes instruments for scientific measurements as well as clean-up and temporary storage equipment. **Ancillary goods to services transaction:** the temporary admission of technical equipment into Ys territory is ancillary to the performance of debris collection services. The equipment is not traded. The only transaction in this configuration is a services trade transaction where services are supplied through Mode 4.