Illicit Trade

Trends in Trade in Counterfeit and Pirated Goods

OECD

EUIPO
EUROPEAN UNION
INTELLECTUAL PROPERTY OFFICE

Trends in Trade in Counterfeit and Pirated Goods

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Foreword

Illicit trade in fake goods is a major challenge in an innovation-driven global economy. It has a negative impact on the sales and profits of affected firms, as well as broader adverse effects on the economy as well as public health, safety and security. Organised criminal groups are seen as playing an increasingly important role in these activities, using profits from counterfeiting and piracy operations to fund other illegal activities. Counterfeiters operate swiftly in the globalized economy, misusing free trade zones, taking advantage of many legitimate trade facilitation mechanisms and thriving in economies with weak governance standards.

To provide policy makers with solid empirical evidence for taking action against this threat, the OECD and the EU Intellectual Property Office (EUIPO) joined forces to carry out a series of analytical studies. The results have been published in a set of reports, starting with the 2016 Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact. The report showed that trade in counterfeit and pirated goods amounted to up to 2.5 % of world trade in 2013; when considering only the imports into the EU, they amounted to up to 5 % of imports.

Trade in counterfeit and pirated goods is a very dynamic and constantly changing phenomenon. Continuous measurement efforts are needed to monitor this risk. This report presents updated figures on the scale, scope and magnitude of trade in counterfeit and pirated goods, based on a statistical analysis of a unique database of half a million seizures of counterfeit goods. Structured interviews with trade and customs experts also contributed to the analysis.

The results are alarming. In 2016, counterfeit and pirated goods amounted to as much as 3.3% of world trade, and up to 6.8% of EU imports from third countries. These figure underscore once again the need for coordinated action against IP crime in general and trade in counterfeits in particular.

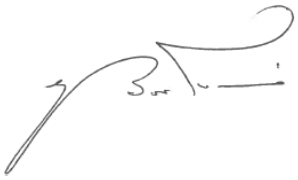
We are very pleased that our two institutions joined forces once again to update the results published in the 2016 OECD – EUIPO report Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact and to assess the scope and magnitude of damages to world trade caused by counterfeit and pirated goods.

At the OECD, this study was conducted under the Task Force on Countering Illicit Trade (TF-CIT) of the OECD High Level Risk Forum. The Forum focuses on evidence-based research and advanced analytics to assist policy makers in mapping and understanding the market vulnerabilities exploited and created by illicit trade. The study was shared with other policymaking OECD bodies with relevant expertise in the area of trade and innovation.

We are confident that the updated results will contribute to a better understanding of the risk that counterfeiting poses for global economy, and will assist policy makers in formulating effective solutions to combat and deter this scourge.

Christian Archambeau,
Executive Director,
EUIPO

Marcos Bonturi,
Director,
OECD Public Governance Directorate



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Executive summary

This study presents an updated quantitative analysis of the value, scope and magnitude of world trade in counterfeit and pirated products. The report uses a tailored, statistical methodology, originally developed for the OECD (2008) study, and elaborated for the OECD – EUIPO (2016) report, which was based on data for 2013.

This updated report, based on data for 2016, estimates that in that year, the volume of international trade in counterfeit and pirated products could amount to as much as USD 509 billion. This represents up to 3.3 % of world trade. This amount does not include domestically produced and consumed counterfeit and pirated products, or pirated digital products being distributed via the Internet. The previous OECD-EUIPO study, which relied on the same methodology, estimated that up to 2.5 % of world trade was in counterfeit and pirated goods in 2013, equivalent to up to USD 461 billion.

Between 2013 and 2016, the share of trade in counterfeit and pirated goods in global trade grew very significantly. Moreover, this growth was reported during a period of a relative slowdown in overall world trade. Consequently, the intensity of counterfeiting and piracy is on the rise, with significant potential risk for intellectual property (IP) in the knowledge-based, open and globalised economy.

Drawing on detailed EU data, this study also performs an in- depth assessment of the situation in the European Union. The results show that in 2016, imports of counterfeit and pirated products into the EU amounted to as much as EUR 121 billion (USD 134 billion), which represents up to 6.8 % of EU imports, against 5 % of EU Imports in 2013. It should be noted that these results rely on customs seizure observations and do not include domestically produced and consumed counterfeit and pirated products; nor do they include pirated digital content on the Internet.

Counterfeit and pirated products continue to follow complex trading routes, misusing a set of intermediary transit points. Many of these transit economies host large free trade zones that are important hubs of international trade.

The use of small shipments for trade in fakes also keeps growing. Small shipments, sent mostly by post or express services, are an example of greater trade facilitation; on the other hand, they are also a way for criminals to reduce the chance of detection and minimise the risk of sanctions. The proliferation of small shipments raises the cost of checks and detention for customs and introduces additional significant challenges for enforcement authorities. There is thus a need for co-ordinated examination of policies in this area.

Fake products can be found in a large and growing number of industries, such as common consumer goods, (footwear, cosmetics, toys), business-to-business products (spare parts or chemicals), IT goods (phones, batteries) and luxury items (fashion apparel, deluxe watches). Importantly, many fake goods, particularly pharmaceuticals, food and drink, and medical equipment, can pose serious negative health and safety risks.

While counterfeit and pirated goods originate from virtually all economies in all continents, China and Hong Kong, China continue to be by far the biggest origin.

The companies suffering from counterfeiting and piracy continue to be primarily registered in OECD countries; mainly in the United States, France, Switzerland, Italy, Germany, Japan, Korea and the United Kingdom. However, a growing number of companies registered in high-income non-member economies, such as Singapore and Hong-Kong, China, are becoming targets. In addition, a rising number of rights holders threatened by counterfeiting are registered in Brazil, China and other emerging economies. Counterfeiting and piracy thus present a critical risk for all innovative companies that rely on IP to support their business strategies, no matter where they are located.

To understand and combat this risk, governments need up-to-date information on the magnitude, scope and trends of counterfeit and pirated trade. This study aims to shed some light on illicit trade, but further analysis is needed to support policy and enforcement solutions, and enable governments and agencies worldwide to work together.

Chapter 1. Counterfeiting – The current landscape

Introduction

Globalisation, progressing trade facilitation and the rising economic importance of intellectual assets are important drivers of economic growth. This economic importance of intangible assets in the global context has in turn shifted industry and policymakers' attention onto intellectual property (IP). For modern industries, IP is one of the key value generators and enablers of success in competitive markets and, for policymakers, it plays a crucial role in promoting innovation and driving sustained economic growth.

However, in the globalised world, the rising importance of IP has also created new opportunities for criminal networks to free-ride on others' intellectual assets and pollute trade routes with counterfeits. The recently observed broadening scope and magnitude of counterfeiting and piracy, in particular in the trade context, is seen as a significant economic threat that undermines innovation and hampers economic growth.

In order to provide policymakers with reliable empirical evidence about this threat, the Organisation for Economic Co-operation and Development (OECD) and the European Union Intellectual Property Office (EUIPO) joined forces to develop an understanding of the scale and magnitude of the problem of IP infringement in the trade context. The results are published in a series of reports, such as: Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact (OECD-EUIPO, 2016); Mapping the Real Routes of Trade in Fake Goods (OECD-EUIPO, 2017); Trade in Counterfeit Goods and Free Trade Zones: Evidence from Recent Trends (OECD-EUIPO, 2018b); Why Do Countries Export Fakes? (OECD-EUIPO, 2018c); and Misuse of Small Parcels for Trade in Counterfeit Goods (OECD-EUIPO, 2018a).

Altogether these reports provide robust evidence of the significant volume of trade counterfeiting and piracy. They also document the large scope of this threat to efficient business and the well-being of consumers worldwide, and point at the damages it causes by reducing firms' revenues and undermining their incentives to innovate.

The existing studies triggered great policy attention on combating counterfeit and pirated trade. This has been paralleled by increased efforts by the private sector to raise awareness of this threat. However, the existing dataset is becoming dated, which could hamper understanding of the recent trends linked to trade in counterfeit goods.

In addition, several recent developments could also contribute to the overall picture that affects the state of the art of counterfeit trade. These include the boom in trade in small parcels and the recently reported a slowdown in world trade. All interrelated, they should have a joint impact on the illicit trade in counterfeits, calling for new analysis.

This report refreshes the picture of trade in counterfeit and pirated goods, and provides policymakers with an updated set of information about this threat. To do this, this report employs the methodology to measure the scale and counterfeiting developed in the OECD (2008) report and updated in OECD-EUIPO (2016). This methodology is used with a new

set of world data on seizures of counterfeit and pirated goods, and results in a set of objectives, a robust illustration of economy- and industry-specific patterns in trade in counterfeiters. Such information is crucially needed, not only for better understanding this threat but also for developing effective governance responses.

This study largely relies on statistical data on counterfeiting and piracy that, just like data on any other clandestine activity, are largely incomplete and limited. Consequently, the quantitative results presented in this study illustrate only certain parts of the phenomenon of counterfeiting and piracy. However, in order to make sure that this picture is factual, clear and unbiased, and to maximise its potential, the methodological apparatus was tailored to the available dataset.

Scope of the study

Counterfeiting and piracy are terms used to describe a range of illicit activities related to intellectual property rights (IPR) infringement. Following the OECD (2008) and OECD-EUIPO (2016) studies, this study refers to the definitions as described in the World Trade Organisation Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement). Consequently, this report focuses primarily on the infringement of copyright, trademarks, design rights and patents; the term "counterfeit" used in this report refers to tangible goods that infringe trademarks, design rights or patents; and the term "pirated" to describe tangible goods that infringe copyright.

Such use of terms "counterfeit" and "pirated" implies that substandard, adulterated or mislabelled pharmaceutical products that do not violate a trademark, patent or design right are thus beyond the scope of the study, as are, for example, replacement automotive oil filters and headlamps that are made by firms other than the original equipment manufacturer (provided the replacement parts do not violate a patent, trademark or design right).

Two important things should be kept in mind in this context. First, this wording is used for the purpose of this report only and does not constitute any definition outside its scope. Second, this study does not include intangible infringements, such as online piracy or infringements of other intellectual property rights.

Trade in counterfeits: What we know so far?

The updated analysis based on available data provided a detailed set of pictures about the volume of trade in fakes, its scope and trade routes. They also provide additional information about drivers of trade in fakes and some of its damaging effects.

Volumes and industry scope of trade in fakes are significant.

The OECD-EUIPO (2016) study presented a set of quantitative pictures of trade in counterfeit and pirated products. The magnitude of the problem is very significant; in 2013, international trade in counterfeit and pirated products could be as much as USD 461 billion. This represented up to 2.5% of world trade. The magnitude of the phenomenon for a group of developed countries, such as the European Union, could be twice as high as on a world scale. In 2013, imports of counterfeit and pirated products into the EU amounted to as much as USD 116 billion (EUR 85 billion), which represented up to 5% of EU imports.

In terms of industry scope, infringed products are found in numerous industries, such as luxury items (e.g. fashion apparel or luxury watches), intermediary products (such as machines, spare parts or chemicals) and consumer goods that have an impact on personal health and safety (such as pharmaceuticals, food and drink, medical equipment or toys).

The trade routes are very complex

Regarding the economies of origin of fakes in world trade, existing studies show that trade routes of fakes are very complex. Parties that engage in the trade of counterfeit and pirated products tend to ship infringing products via complex routes, with many intermediary points. The transit points are used to facilitate falsification of documents in ways that camouflage the original point of departure, establish distribution centres for counterfeit and pirated goods, and repackage or re-label goods. In addition, while imports of counterfeit goods are, in most cases, targeted by local enforcement authorities, goods in transit are often not within their scope, which means they are less likely to be intercepted.

These trade routes were studied in a report by OECD-EUIPO (2017) that used a set of statistical filters to go further in clarifying the role of important provenance countries. It identified key producing economies and key transit points for ten main sectors that are particularly vulnerable to counterfeiting. These sectors span a wide range of IP-intense, tradable goods, from fast-moving consumer goods, such as foodstuff or cosmetics, to business-to-business products, such as spare parts and computer chips.

The People's Republic of China (hereafter "China") emerges as the top producer of counterfeit goods in nine out of ten analysed categories. In addition, several Asian economies, including India, Malaysia, Pakistan, Thailand, Turkey and Viet Nam are important producers in many sectors, although their role is much less significant than China's. Turkey appears to be an important producer in some sectors – such as leather goods, foodstuffs and cosmetics – which are conveyed by road to the EU.

The report also identifies several important transit points for trade in counterfeits, including Hong Kong (China), Singapore and the United Arab Emirates, which are handling trade in counterfeit goods in all the analysed product categories. Fake goods arrive in large quantities in containers and are sent further in small parcels by post or courier services.

In addition, there are some important regional transit points. For example, several Middle Eastern economies (e.g. Saudi Arabia, the United Arab Emirates and Yemen) are important transit points for sending fake goods to Africa. Four transit points – Albania, Egypt, Morocco and Ukraine – are of particular significance for redistributing fakes destined for the EU. Finally, Panama is an important transit point for fakes on their way to the United States.

Counterfeiters thrive in poor governance environments and misuse many good trade solutions

Regarding the question of why some economies emerge as important hubs for trade in counterfeits, there are five main drivers that determine an economy's propensity to become an active actor in the trade in fake goods (OECD-EUIPO, 2018c):

- Governance: high levels of corruption and poor intellectual property protection are factors that greatly influence the degree of exports of fake goods from an economy.
- Free trade zones (FTZs) that offer a relatively safe environment for counterfeiters, with good infrastructure and limited oversight. The share of fake goods from

economies hosting the 20 biggest FTZs is twice as big as from economies that do not host any FTZs. The existence, number and size of FTZs in a country correlate with increases in the value of counterfeit and pirated products exported by that country's economy. An additional FTZ within an economy is associated with a 5.9% increase in the value of these problematic exports on average (OECD-EUIPO, 2018b).

- Production facilities: low labour costs and poor labour market regulations are important drivers of trade in counterfeit and pirated goods. Improving working conditions, by raising the minimum wage or increasing paid leave, would decrease the share of counterfeit and pirated products exported, especially by economies with weak governance.
- Logistics capacities and facilities: the ability to trace and track consignments is the key factor for reducing the share of counterfeit and pirated products in exports. However, other factors increase this trade, including: low shipping charges; fast, simple and predictable customs formalities; and good quality trade and transport-related infrastructure (e.g. ports, railroads, roads and information technology). These factors tend to be also much more important drivers in economies that are highly corrupt.
- Trade facilitation policies that refer to the fact that enhancing transparency is likely to reduce the likelihood that an economy will export fakes: this includes the availability of detailed information on trade flows; the degree of involvement of an economy in the trade community; transparent and regular review of fees and charges imposed on imports and exports; and sound internal co-operation between border agency and other government units. Other factors tend to encourage counterfeit trade, such as advance rulings (i.e. where the administration asks traders about the classification, origin, valuation methods, etc., applied to specific traded goods) and the possibility to appeal administrative decisions by the border agencies. Importantly, the factors that potentially encourage counterfeit trade tend to be particularly pronounced in highly corrupt economies.

Of these five drivers, gaps in governance, especially high levels of corruption and gaps in intellectual property rights enforcement, are the crucial factor for trade in fakes, multiplying the effects of FTZs, logistic facilities or trade facilitation policies. For instance, the presence of FTZs is a particularly strong driver of trade in counterfeit and pirated goods in economies with weak governance, high corruption levels and a lack of intellectual property rights (IPR) enforcement.

While all the factors identified above matter, it is important to note that none of these factors *alone* can explain the intensity of exports of fakes from a given economy – it is the combination of numerous factors that allows important nodes in counterfeit trade to emerge.

Also, important to note is that many of the factors presented above can actually be extremely beneficial for trade in general, such as good logistics facilities. It is the misuse of these facilities that can result in higher flows of trade in fake goods. The degree to which this misuse occurs greatly depends on governance issues, particularly levels of corruption and IPR enforcement. The policy challenge is to reduce the scope for misuse while keeping open the possibility of benefiting from trade.

The effects of counterfeiting are damaging

The effects of trade in counterfeit goods challenge the well-being of consumers, efficient businesses and effective governance. For consumers, counterfeiting poses dangers to health, safety and privacy (e.g. counterfeit mobile phones with pre-installed malware). It may also lower consumer satisfaction, notably when low-quality fake goods are purchased unknowingly. For right holders and their authorised vendors, rising counterfeiting increases revenue losses, while trademark infringements continuously erode brand value. For governments, counterfeiting means lost tax revenues, higher unemployment and greater expenses incurred – both to ensure compliance with anti-counterfeiting legislation and to react to public safety threats and labour market distortions.

In some cases, certain short-term damaging effects of counterfeiting can be estimated, providing an indication about the gauge of the damages it causes. For example, in Italy, at least 88 000 jobs were lost altogether due to counterfeiting and piracy. That represents 2.1% of full-time equivalent employees in sectors directly affected by counterfeiting in Italy. In 2016, in Italy, forgone tax revenues from the retail and wholesale sector amounted to EUR 4.3 billion. That same year, forgone tax revenue from Italian right holders to the Italian government amounted to EUR 6 billion. Altogether, trade in counterfeit and pirated goods resulted in a reduction in Italian public revenues equal to almost EUR 10.3 billion, the equivalent of 3.2% of the taxes were collected on value-added, personal and corporate incomes as well as social security contributions, or 0.62% of Italian gross domestic product (GDP).

A changing economic landscape

Markets for infringing products develop dynamically and have been affected by several economic developments over the past ten years. Some of these major patterns are likely to shape the overall economic background for the evolution of trade in counterfeit goods. The main patterns include:

- Reduction in volumes of manufactured trade in recent years.
- Rapid growth of trade in small parcels.
- Strengthening of the role of FTZs.

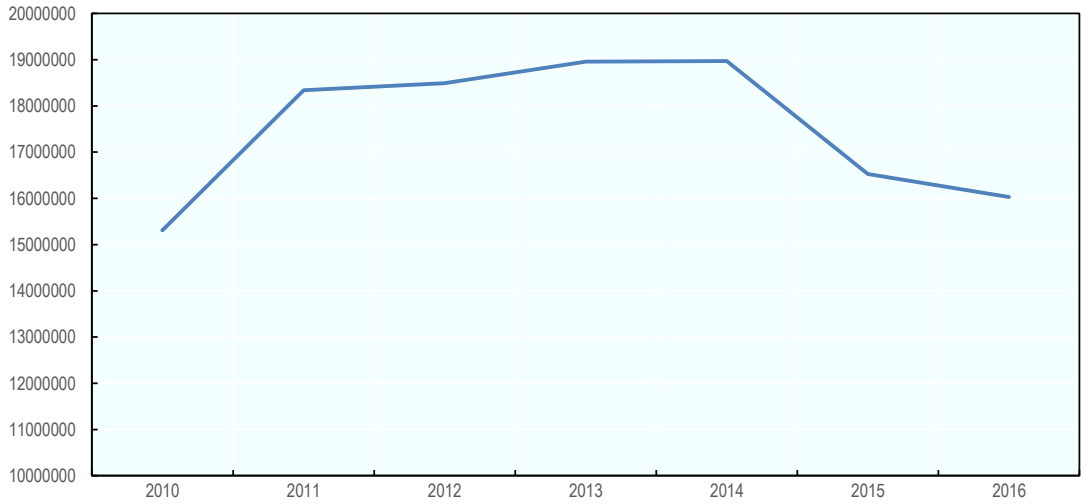
Correction in volumes of world trade

International trade has been a powerful engine of global economic growth and convergence in living standards between countries. Trade liberalisation has contributed to large economic gains of emerging market economies and to poverty decline. Following the 2008 crisis, OECD economies were faced with a major change in trade patterns. Even though the crisis hit the development of global trade hard, these patterns have resumed in recent years.

However, the general re-birth of trade stopped in 2014 when some reductions in trade volumes were reported. World merchandise trade in value terms fell sharply by 13% in 2015 and then by 3% in 2016 (see Figure 1.1).

Figure 1.1. World trade flows, merchandise trade

Annual, USD million

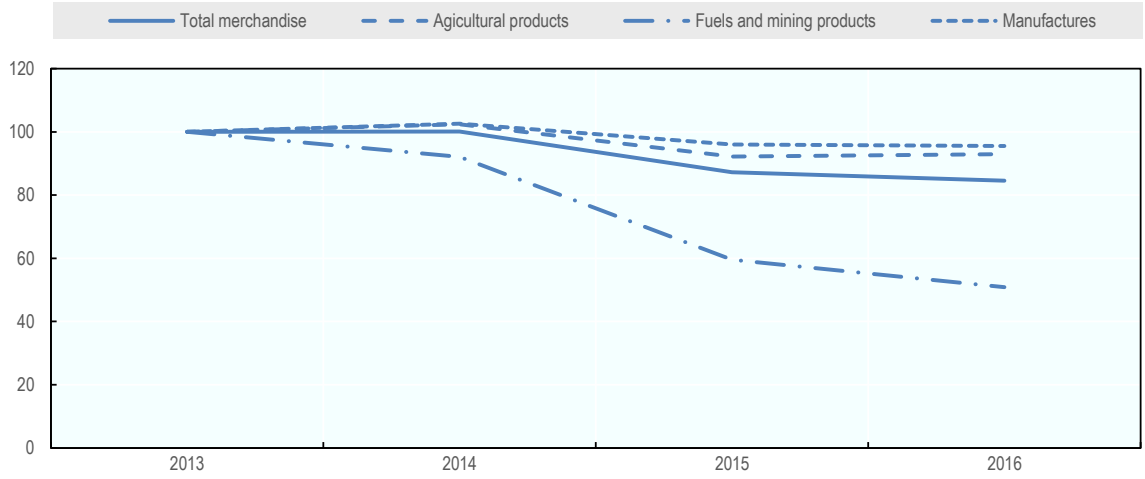


Source: WTO (2019), *Statistics on Merchandise Trade*, www.wto.org/english/res_e/statis_e/merch_trade_stat_e.htm.

This decrease was mostly caused by the continuing decline in exports of fuels and mining products (see Figure 1.2). However, exports of agricultural and manufactured products also declined, although to a smaller extent.

Figure 1.2. Index of world trade by sector

Annual, 2013 = 100



Source: WTO (2019), *Statistics on Merchandise Trade*, www.wto.org/english/res_e/statis_e/merch_trade_stat_e.htm.

Within the manufacturing sector, it is also important to note that product categories where world trade declined the most between 2013 and 2016 are not particularly sensitive to counterfeiting. Those include iron and steel, and chemicals (except pharmaceuticals).

The marked decline in commodity prices in 2015 mostly halted in 2016. However, in 2016, the volumes of trade were still lower than in 2013 across virtually all sectors that suffer from counterfeiting, for example machinery, chemicals, food, textiles and office equipment. Only pharmaceuticals and automotive products recorded slight increases in trade flows.

Table 1.1. Index of world trade by main product category

Annual, 2013 = 100

Product/sector	2014	2015	2016
Agricultural products	102.42	92.15	92.98
Food	102.40	92.15	93.75
Raw materials	95.26	82.84	81.73
Fuels and mining products	92.09	59.54	50.86
Manufactures	102.57	96.02	95.49
Iron and steel	104.34	84.38	76.23
Pharmaceuticals	106.00	102.08	103.78
Other chemicals	101.37	89.68	87.20
Other semi-manufactures	102.71	94.47	92.98
Office and telecom equipment	100.95	96.75	93.41
Automotive products	104.20	99.19	101.73
Other transport equipment	103.47	101.26	99.37
Other machinery	104.20	95.73	94.35
Textiles	103.44	96.64	94.21
Clothing	106.83	100.67	99.03
Other manufactures	106.30	99.62	98.66
Total merchandise	100.07	87.17	84.57

Source: WTO (2019), *Statistics on Merchandise Trade*, www.wto.org/english/res_e/statis_e/merch_trade_stat_e.htm.

Boom in small parcels

The digital transformation has led to unprecedented reductions in the costs of engaging in international trade, changing both how and what we trade (López-González and Jouanjean, 2017). This has contributed to a reduction in trade costs, leading to a dramatic increase in the number of parcels crossing borders. While parcel trade has long been a common feature of international trade, the widespread adoption of digital technologies is now enabling firms to internationalise at lower cost. One feature of this evolving environment is a move from offline to online sales. Often, these take place through digital platforms which help connect supply and demand globally; provide greater convenience for shoppers; facilitate payments, whether electronic or not; and, increasingly, support the logistics of the delivery process. This has contributed to considerable reductions in the costs of engaging in international trade and led to a dramatic increase in the number of parcels crossing borders (UPU, 2016).

Small parcels can be transported cross-border via sea, road, rail and/or air. These movements can be carried out by individuals or a range of companies that handle freight. Two of the more important parties involved are national postal authorities and express and courier services, which together account for most of the movement of small shipments.

Counterfeit and pirated products tend to be shipped by virtually every means of transport, including small parcels. Between 2011 and 2013, in terms of value, counterfeits transported by container ship clearly dominated. In terms of the number of seizures, trafficking fakes by small parcels is growing, becoming a significant problem in terms of enforcement. The small parcels used by counterfeiters for trafficking are shipped either through postal or express services.

In terms of industry-specific patterns, virtually all industry sectors prone to counterfeiting are concerned, albeit to different degrees. For example, 84% of seized shipments of counterfeit footwear, 77% of fake optical, photographic and medical equipment (mostly sunglasses) and 66% of customs seizures of information and communications technology (ICT) devices involved postal parcels or express shipments. This is also the case for more than 63% of customs seizures of counterfeit watches, leather articles and handbags, and jewellery.

As noted in the UPU (2016) and OECD (2017b) reports, strong growth in trade in small parcels continued beyond 2013, which is likely to impact the patterns for trade in counterfeits in that period. Indeed, the misuse of small parcels creates significant challenges for customs authorities and has led to calls for increased attention at the international level.

Free trade zones – Important hubs of trade

Many countries have set up free trade zones (FTZs) to boost business activity and reap the benefits of free trade. These zones have been instrumental in the evolution of trade routes for the integrated supply chains of the global economy. However, FTZs may also facilitate illegal and criminal activities such as trade in counterfeit and pirated products, by providing a relatively safe environment, good infrastructure and light oversight.

Free trade zones are perceived by governments as great tools to facilitate international trade in their ports, boosting investment and employment and enhancing welfare. Consequently, FTZs continue to grow worldwide, in all different forms. They range from large industrial areas focusing on assembly and manufacturing to specially designated storage warehouses. Their common feature is that they are geographically delimited, usually physically secured areas that offer benefits based upon physical location within the zone and represent separate, duty-free customs areas (FIAS, 2008; Siroën and Yücer, 2014).

Two studies by the OECD and EUIPO (OECD-EUIPO, 2018b and 2018c) confirm the links between FTZs and trade in counterfeit products. The existence, number and size of FTZs in a country correlate with increases in the value of counterfeit and pirated products exported by that country's economy. An additional FTZ within an economy is associated with a 5.9% increase in the value of these problematic exports on average.

Given that lightly regulated zones are attractive to parties engaged in illegal and criminal activities, the continued growth of zones makes an important context for trade in counterfeit and pirated goods. Some zones can indivertibly facilitate trade in counterfeit and pirated products, especially when governments do not police zones adequately.

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Chapter 2. How to update the picture?

Information on the magnitude, scope and trends of counterfeit and pirated trade is critical for understanding the nature of the problems being faced and how the situation is evolving. Information is also essential for designing and implementing effective policies and measures to combat illicit operations. One of the principal objectives of this report is to employ the existing methodologies to further the measurement of the magnitude of counterfeit trade, both overall and in specific sectors.

Data

Following the approach taken in the OECD (2008) and then in the OECD-EUIPO (2016) reports, the analysis in this report is based on two sources of information:

- International trade statistics.
- Customs seizures of infringing products.

Trade statistics

The trade statistics are based on the United Nations (UN) Comtrade database (landed customs value). With 171 reporting economies and 247 partner economies (76 economies in addition to reporting economies), the database covers the largest part of world trade and is considered the most comprehensive trade database available. Products are registered on a six-digit Harmonised System (HS)[1] basis, meaning that the level of detail is high. Data used in this study are based on landed customs value, which is the value of merchandise assigned by customs officials. In most instances, this is the same as the transaction value appearing on accompanying invoices. Landed customs value includes the insurance and freight charges incurred when transporting goods from the economy of origin to the economy of importation.

Seizure data

Data on customs seizures originate from national customs administrations. In each analysed year (2014, 2015 and 2016), the total number of customs seizures of counterfeit and pirated goods worldwide consistently exceeded 130 000. Overall, the unified database on customs seizures of IP-infringing goods includes almost 465 000 observations, as compared to the 428 000 recorded for the 2011-13 period (OECD/EUIPO, 2016).

In terms of data sources, this report relies on customs seizures data received from:

- The World Customs Organization (WCO).
- The European Commission's Directorate-General for Taxation and Customs Union (DG TAXUD).

- United States Department of Homeland Security (DHS) that submitted seizure data from US Customs and Border Protection (CBP), the customs agency of the United States, and from the US Immigration and Customs Enforcement (ICE).

Table 2.1. Datasets on customs seizures

	DG TAXUD	CBP-ICE	WCO
Years covered	2014-16	2014-16	2014-16
Time reporting	Quarterly data	Exact date of seizure	Exact date of seizure
Geographical coverage (number of reporting economies)	European Union	United States	Worldwide (the number of reporting economies varies per year; the total number is 92)
Voluntary reporting?	No	No	Yes
Taxonomy of product categories	35 product categories + other (description of "other available")	HST, 8-digit level	18 product categories with a complementary and exact description of the detained product
Seizure values?	Yes (replacement value)	Yes (replacement value)	Yes (for some economies only; no specific guidelines)

Importantly, DG TAXUD, CBP-ICE and WCO datasets rely on data entries collected and processed by customs officers. These data are primarily designed to improve the work of customs, e.g. prepare risk profiling processes and share national experiences. As with any other administrative data they need careful consideration before application in quantitative analysis.

A detailed analysis of these data revealed a set of limitations. Some of them refer to certain discrepancies between the datasets other to product classification levels or outliers in terms of seized goods or provenance economies. All limitations were thoroughly discussed in the OECD-EUIPO (2016) report and a methodological way forward was proposed for each limitation. This report also relies on the same methodology presented and discussed in the 2016 study and it employs the same solutions to the seizure data limitations.

Methodological and statistical aspects: The GTRIC methodology

The GTRIC[2] methodology employed in this report relies on the one used in the OECD-EUIPO (2016) study. This methodology in turn followed the one used in the OECD (2008) report. Given the overall data improvements, a set of methodological amendments was made to the 2008 methodology to take advantage of these data improvements. The key amendments are outlined in Table 2.2.

Table 2.2. Improvements as compared to the 2008 and 2013 methodologies

	2008	2016	2019
Time dimension	No (pooled dataset)	Yes (three years, 2011-13)	Yes (six years, 2011-16)
Construction of GTRIC-p and GTRIC-e	Based on values of seized goods, numbers of seizures and numbers of seized goods. Strong assumptions on: • Conversions from numbers of seizures and numbers of seized goods to values. • Minimal levels of counterfeiting in each provenance economy and in each product category.	Based only on values of seized goods. No strong assumptions made on conversions and on minimal levels of counterfeiting.	Based only on values of seized goods. No strong assumptions made on conversions and on minimal levels of counterfeiting.
Estimation of total value (fixed point)	Chosen following informal interviews with customs and industry representatives.	Refined after structured interviews and focus groups with customs and other enforcement officials.	Refined further after structured interviews and focus groups with customs and other enforcement officials.

A brief discussion of these key components is presented below and more discussion can be found in the OECD-EUIPO (2016) report. Detailed, technical and methodological notes can be found in Annex A at the end of this report.

Industry overview (GTRIC-p)

The identification of sensitive goods relies on a customs data system that includes the 96 two-digit product modules included in the Harmonised System (HS). In particular, if any of the reporting customs authorities registered a fake good in a given HS category, the whole category is treated as "sensitive".

GTRIC-p is then constructed in two steps. In the first step, the seizure intensities in each product category are weighted by the respective share of each reporting economy in total imports of these products. This reflects the sensitivity of product infringements occurring in a particular product category, relative to its intensity of imports of particular products by every reporting economy. In the second step, these indices are transformed statistically to take into account a number of known biases related to seizure techniques and propensities for which products in international trade are counterfeit and/or pirated.

The final result, GTRIC-p represents the relative likelihood for products in one category to be counterfeit in comparison with another. Of course, within any category, there could be considerable variation among products and the relative counterfeiting propensities must, therefore, be seen as averages for the hundreds of goods covered by each HS chapter.

Provenance economies (GTRIC-e)

As described in the OECD (2008) and OECD-EUIPO (2016) studies, a provenance economy is an economy detected and registered by any reporting customs agency as a source of any item that has been intercepted in violation of an IP right, whatever the amount or value concerned. In this study, a provenance economy refers to those economies of origin where the actual production of infringing goods is taking place, as well as those economies that function as ports of transit through which infringing goods pass prior to the economy of destination.

Similar to GTRIC-p, the propensity for a given provenance economy is obtained by relating the weighted average of its seizure percentages to its respective import share of its total imports. From this, a GTRIC-e is established along the same lines as GTRIC-p and indicates the relative propensity of importing infringing goods from different provenance economies.

Total counterfeit trade (GTRIC)

The general propensity framework (GTRIC) assigns the relative likelihood of containing counterfeit products to each pair: "product category" and "provenance economy".

The GTRIC index itself can be represented as a matrix table in which provenance economies are listed across the rows and in which the two-digit HS modules are listed in columns. Each element of the matrix, i.e. the value of GTRIC, denotes the relative propensity of a given provenance economy to export infringing products covered by a given HS module. These propensities can only be interpreted relative to each other and GTRIC itself does not provide any information about the absolute magnitude of counterfeiting and piracy in world trade. Instead, the index should be considered as a tool to aid better appraisal of the problem of counterfeit and pirated trade.

To go one step further and calculate the absolute value of counterfeit and pirated products in international trade, it is important to identify at least one probability of containing counterfeit and pirated products in a given product category from at least one provenance economy. This could be established through surveys or structured interviews with enforcement officials.

Note

[1] The Harmonised System (HS) is an international commodity classification system, developed and maintained by the WCO.

[2] General Trade-Related Index of Counterfeiting.

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OECD-EUIPO (2016), Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact, Illicit Trade, OECD Publishing, Paris, https://doi.org/10.1787/9789264252653-en.

Chapter 3. Trade in counterfeit goods at first glance

This chapter presents a set of initial snapshots of trade in fakes based on raw customs seizure data.

Overview of seizures of counterfeit goods

In each analysed year (2014, 2015 and 2016), the total number of customs seizures of counterfeit and pirated goods worldwide consistently exceeded 130 000. Overall, the unified database on customs seizures of IP-infringing goods includes almost 465 000 observations. These data provide a wealth of information about provenance economies, industry scope of counterfeit trade and economies of registration of the right holders whose IP rights are infringed.

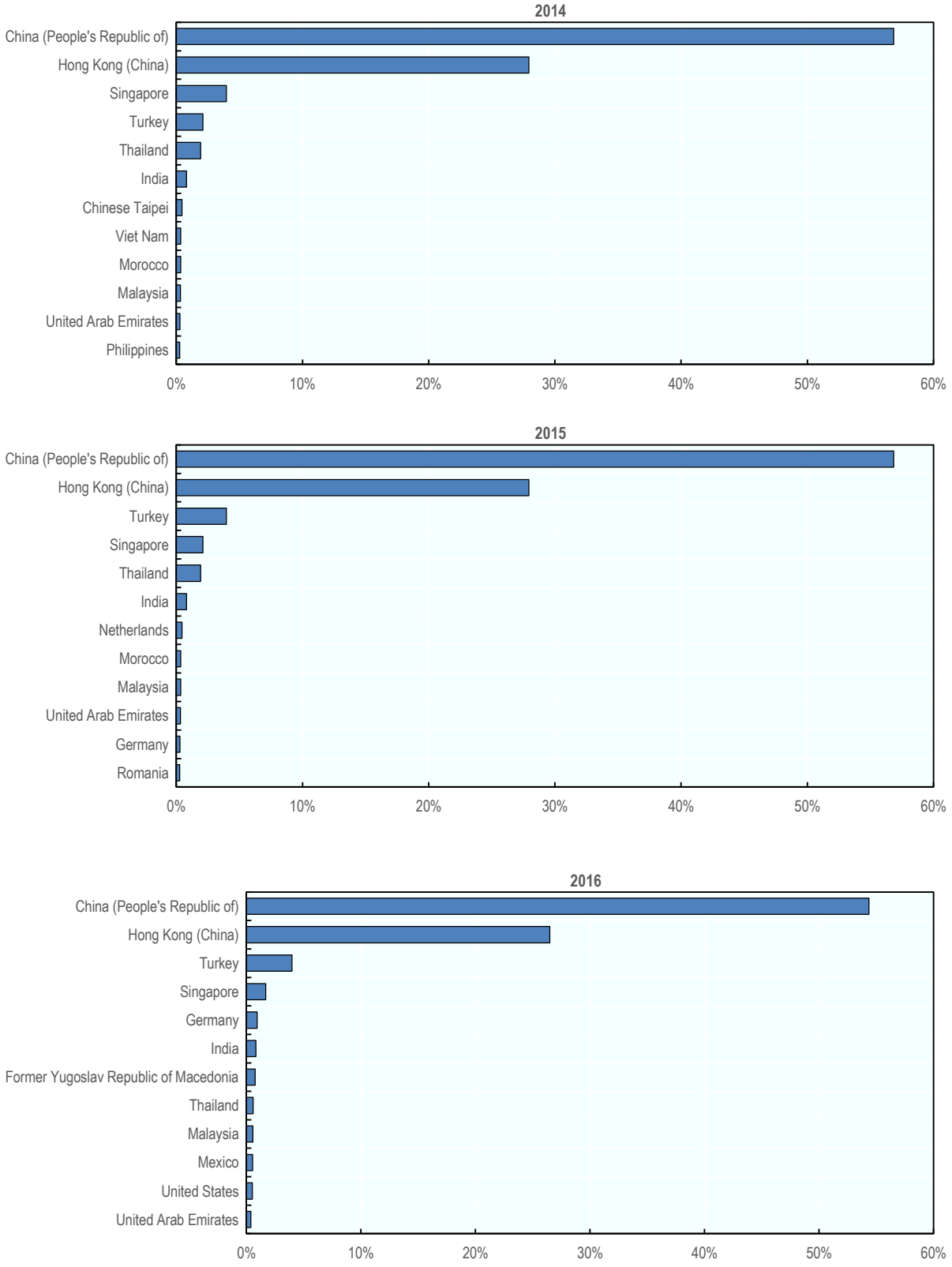
In most cases, the data do not allow distinguishing whether seized goods come from the original point of manufacturing or from a transit point. Therefore, as detailed in the OECD-EUIPO (2016) report, the term "provenance economies" has been used. This term refers to economies where actual production of infringing goods is taking place and economies that function as ports of transit, through which infringing goods pass.

Provenance economies

Virtually any economy can be the provenance of counterfeit and pirated trade, and the scope of these provenance economies is being broadened. This is supported by a descriptive analysis of the unified dataset of customs seizures identifying 184 provenance economies of counterfeit and pirated products between 2014 and 2016, as compared to 173 for the 2011-13 period.

While the scope of provenance economies is broad, the raw seizures statistics also show that interceptions originate from a relatively concentrated set of provenance economies. In other words, some economies tend to dominate the global trade in counterfeit and pirated goods. The highest number of counterfeit shipments being seized originates from East Asia, with China and Hong Kong (China) at the top of the ranking (see Figure 3.1).

Figure 3.1. Seizures of counterfeit and pirated goods: Top provenance economies, 2014, 2015 and 2016



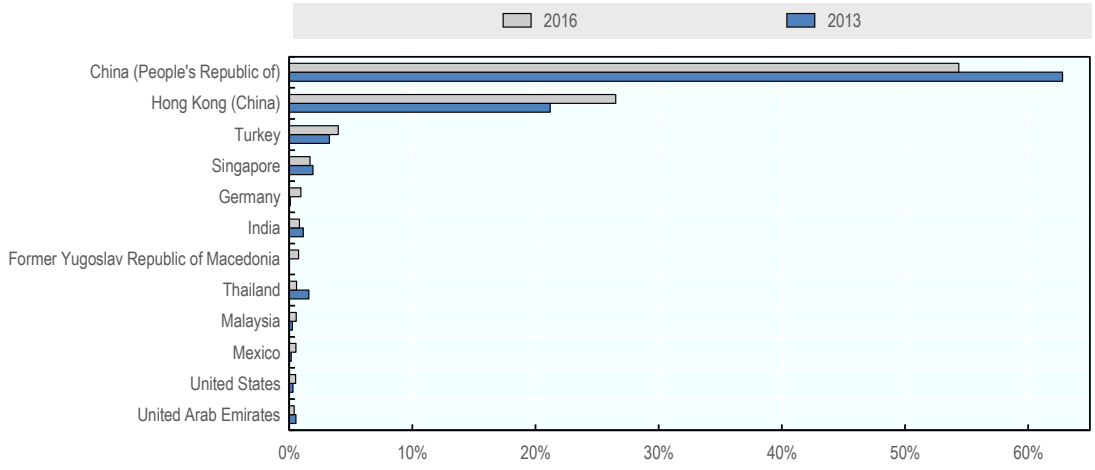
China and Hong-Kong (China) have been dominating global trade in counterfeit goods during the 2014-16 period and as well as during 2011-13. It should be noted, however, that China's share has been progressively decreasing while the one for Hong-Kong (China) has been rising.

The increasing importance of Hong Kong (China) as a transit point is likely to be associated with some general trends in counterfeit trade documented by previous OECD-EUIPO studies. First, trade routes in fake goods are complex and few prominent transit points are intensely misused, including Hong Kong (China). Second, Hong Kong (China) has been also identified as an important economy of source for small parcels that carry counterfeit and pirated goods. With the constant growth of misuse of small parcels in counterfeit trade, this could also contribute to the growing role of Hong Kong (China) in the global trade in fakes (OECD-EUIPO, 2018a; OECD-EUIPO, 2018c).

India, Malaysia, Mexico, Singapore, Thailand, Turkey and the United Arab Emirates remain among the top provenance economies for counterfeit and pirated goods traded worldwide between the two periods.

Figure 3.2. Differences in provenance economies in counterfeit and pirated trade, 2013 and 2016

Share of global customs seizures of IP-infringing goods



Product categories

The unified dataset can be used to draw quantitative illustrations regarding infringed product categories. The scope of products being counterfeited and pirated is very broad and is being broadened. It ranges from luxury to common products (see Box 3.1). Based on available statistics from 184 economies between 2014 and 2016, customs detected articles in violation of intellectual property rights in 88 of the 96 HS chapters (92% against 80% for the 2011-13 period).

Box 3.1. The widening scope of counterfeiting and piracy

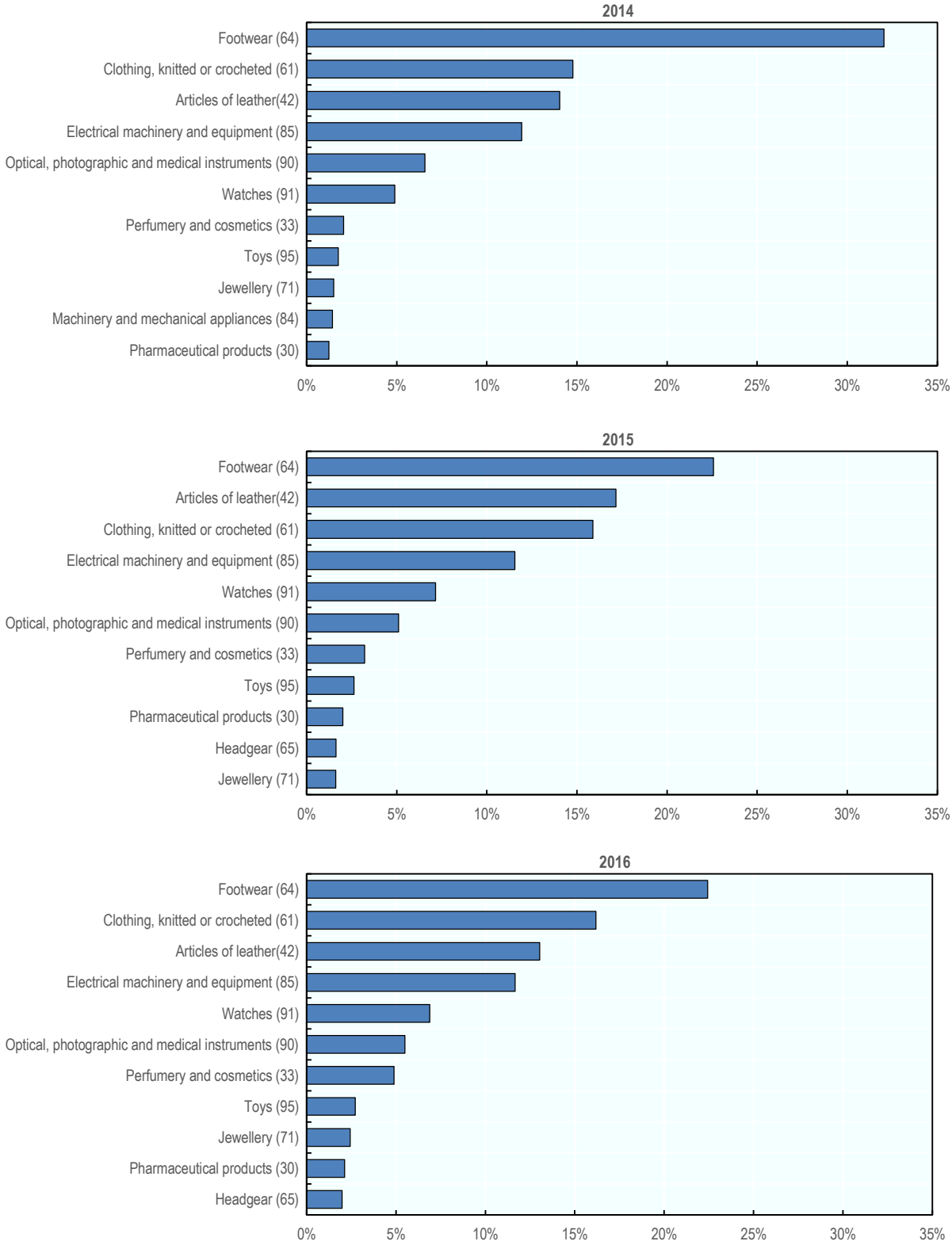
As long as a given product is protected with a trademark, patent, design right or copyright that adds economic value to its right holder, it is likely that this product suffers from counterfeiting and piracy. The scope of counterfeiting and piracy is broad and covers almost all products that are protected by the four IP rights mentioned above. Existing statistics report on seizures of counterfeit (trademark infringing) fresh ginger, potatoes, peaches and, just as for the 2011-13 period, counterfeit fresh strawberries, cinnamon and coconut oil.

There are several new product categories in which counterfeits were detected, including, for example: fur skins and artificial fur (43); salt; sulphur; earth and stone; lime and cement (25) and ores, slag and ash (26). Examples of products that were reported to be counterfeited to a much larger scale included guitar, or construction materials, for example. This constantly expanding industry scope of counterfeiting proves that counterfeiters apply very aggressive strategies, dynamically looking for all kinds of profit opportunities.

While the scope of goods sensitive to infringement is broad, several sectorial studies suggest that the intensity of counterfeiting and piracy differs greatly across different types of goods and hence HS categories. This is supported by seizure statistics indicating that interceptions are not uniform and tend to concentrate in a certain subset of product categories.

The most frequently seized counterfeit goods are footwear, followed by clothing, leather goods and machines (including ICT devices). Luxury goods including luxury watches, perfume, high-end leather goods and branded sunglasses can be found in these categories (Figure 3.3).

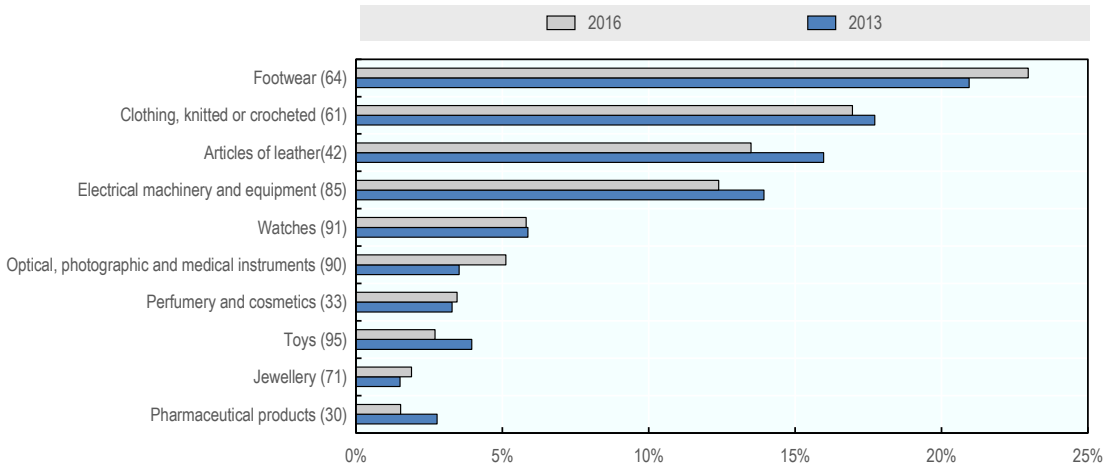
Figure 3.3. Seizures of counterfeit and pirated goods: Top industries by Harmonised System (HS) code, 2014, 2015 and 2016



In terms of the number of seizures, the top 8 product categories most subject to counterfeiting and piracy remain the same in 2014-16 and in 2011-13. Once more, footwear (64), clothing (61), articles of leather (42), electrical machinery and equipment (85), watches (91), sunglasses (90), perfumes and cosmetics (33,) and toys and games (95) were the main product categories subject to counterfeiting (see Figure 3.4).

It should be noted that a growing scope of counterfeit products can pose significant threats to the environment or to consumer health and safety. For example, counterfeit chemical products, pesticides or fungicides that do not correspond to safety norms often pose serious environmental hazards. Health and safety risks are often generated by substandard counterfeit pharmaceuticals, toys, chemicals (organic and inorganic), food and drink, batteries, etc. Customs officers seized such potentially dangerous fake goods as contact lenses, dental equipment, tanning products and baby formulas. Importantly, the intensity of trade in fake goods that can lead to environmental or consumer health and safety risks keeps growing in almost all sectors impacted by counterfeiting.

Figure 3.4. Differences in product categories most subject to counterfeiting and piracy, 2013 and 2016



Right holders impacted

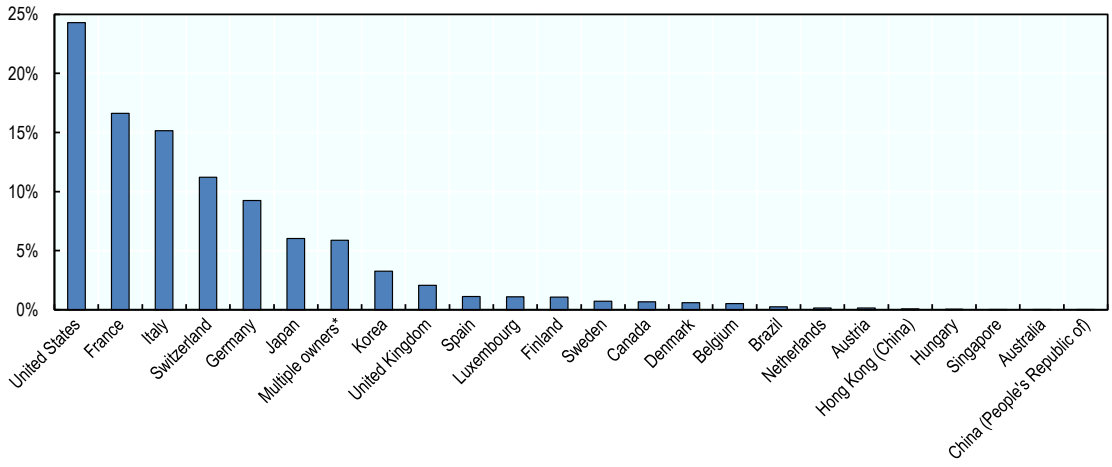
This part of analysis looks at economies in which the right holders whose IP rights are infringed are located. Location refers to the place where the headquarters of a right holder is registered.Almost 24% of the total value of seized products refers to IP rights of holders registered in the United States, followed by France (16.6%), Italy (15.1%), Switzerland (11.2%) and Germany (9.3%) (see Figure 3.5). These are exactly the same top five economies most impacted by counterfeiting and piracy as described in OECD-EUIPO (2016) for the 2011-13 period.

Right holders in China and Hong Kong (China) also frequently have their IP rights infringed. Hong Kong (China) and China indeed ranked 19th and 23rd in the list of economies most impacted by global counterfeiting and piracy respectively (Figure 3.5). This contrasts sharply with China being the top economy of provenance in counterfeit and pirated products. It also indicates a very strong threat of counterfeiting and piracy that

undermines the innovative efforts of Chinese companies relying on knowledge-based capital and using IP rights in their business strategies.

The top six economies of origin of right holders whose IP are infringed remain the same in 2011-13 but it should be noted that the United States' share has significantly increased (+5 percentage points) between the two periods. The case of Korea is another relevant point. This country ranks 9th on the 2014-16 list while it did not appear in the 2011-13 ranking.

Figure 3.5. Seizures of counterfeit and pirated goods: Top economies of origin of right holders whose IP rights are infringed, 2014-16



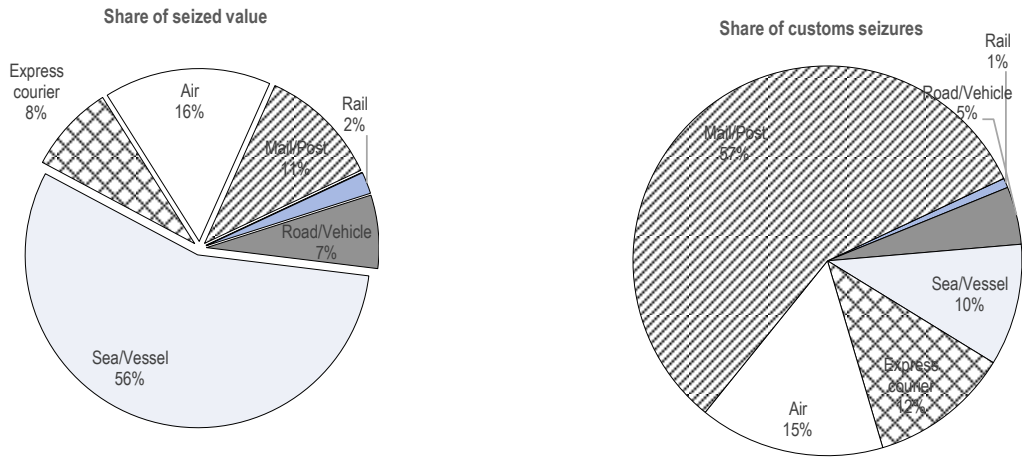
Note: The term "multiple" refers to seizures of IP-infringing products, for which right holders are registered in multiple economies. Data are based on the value of global customs seizures of counterfeit and pirated products from 2014 to 2016. Note that further refinement of the database on customs seizures since November 2018 has led to slight changes in the ranking of the top economies of origin of right holders whose IP rights are infringed as compared to the figure presented in OECD (2018).

Conveyance methods and size of seizures

A review of data highlighted that postal parcels are the most popular way of shipping counterfeit and pirated product (Figure 3.6). Between 2014 and 2016, an average of almost 57% of seizures worldwide concerned postal shipments and 12% express courier. Air transport and sea transport followed, with slightly more than 15% and 10% of seizures respectively. Finally, seizures concerning vehicle transport amounted to about 5%. Other conveyance modes of counterfeit product, such as products carried by pedestrians or by rail, reported negligible shares.

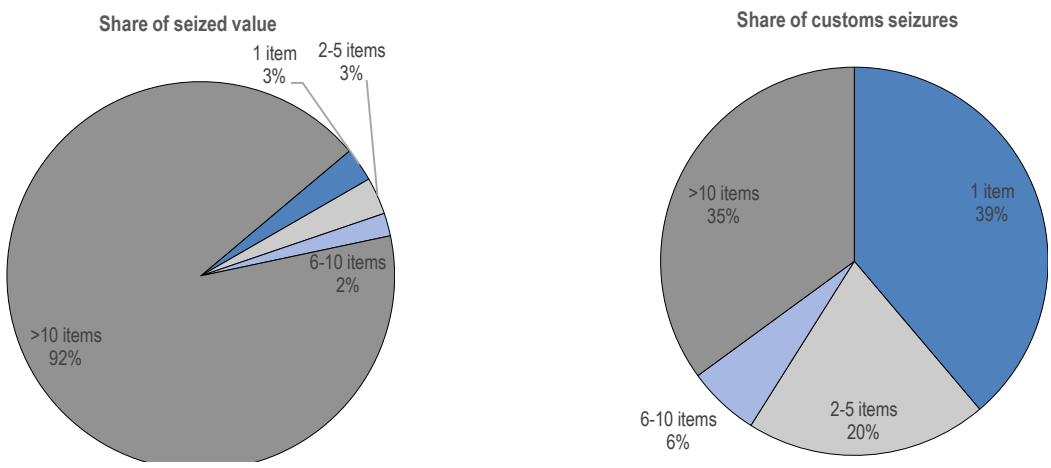
Together, small parcels carried either by postal or express services account for 69% of customs seizures of IP-infringing products for the 2014-16 period, against 63% for the 2011-13 period.

Figure 3.6. Conveyance methods for counterfeit and pirated products, 2014-16



The sizes of seized shipments tend to be smaller: shipments with fewer than 10 items accounted for about 85% of the total number of shipments on average, against 43% for the 2011-13 period (Figure 3.7). This corresponds to the finding that, in terms of the number of seizures, small parcels usually containing few items remain the most popular conveyance method of counterfeit and pirated products.

Figure 3.7. Seizures by size, 2014-16



Additional observations

Primary-secondary markets

The WCO and DG TAXUD databases report on infringed trademarks and can thus be used to draw some quantitative illustrations about the market segments being targeted by counterfeit products.

In principle, there are two market segments that counterfeiters target: primary markets and secondary markets. In primary markets, prices are expected to be close to those of legitimate products, whereas larger price dispersions are expected in secondary markets. Consumers that knowingly purchase an IP-infringing product may expect to pay a lower price for it than for a genuine product.

Several submarkets can be observed, especially for products that are intensely targeted by counterfeiters (and hence for which large data samples are available). These submarkets correspond to primary and secondary submarkets and are characterised with different price ranges of IP-infringing products.

The distinction between primary and secondary markets described is critical. Every sale of a fake item on a primary market clearly represents a direct loss for industries. In secondary markets, however, only a share of consumers would have deliberately substituted their purchases of counterfeit products for legitimate ones. This is because in secondary markets consumers know what they are buying is fake and they decide to proceed with the purchase for a number of possible reasons (see Box 3.2).

Box 3.2. Why do people buy fakes knowingly?

There are numerous reasons identified in the scientific literature for why people buy fakes. First, if the genuine product is hard to get hold of, this might greatly increase the perception of its value. Furthermore, the willingness of consumers to purchase a counterfeit product seems to increase if they can rate its quality before purchase and appears to decrease if they cannot. The situation surrounding the purchase also determines purchase intentions. The situational mood explains why some people are more prone to buy counterfeits even if that is illegal or they experience post-purchase dissatisfaction with a low-quality product. Recent psychological research illustrates a number of other motivations, such as the "thrill of the hunt" for what is fake, being part of a "secret society" and genuine interest. Buyers of counterfeit products also try to legitimise and justify their behaviour.

Specific brands among the diverse selection of infringed trademarks, seem to be more intensely targeted by counterfeiters. The relatively high frequency of certain trademarks allows this report to perform some statistical checks on the type of markets that may be targeted by an IP-infringing brand – product pairs. The methodology used to calculate the share of primary and secondary markets is presented in Annex A.1, while Table 3.1 below identifies the secondary and, consequently, primary markets for some selected industries.

This shows that 58.5% of counterfeit and pirated products traded worldwide in 2016 were sold to consumers who actually knew they were buying fake products, with the remaining share purchased unwittingly. The share of fakes destined for secondary markets varies significantly by sector, with relatively low values for products directly threatening consumer health and safety (e.g. 31.3% for pharmaceuticals) and high value for luxury products (e.g. 65.4% for fake watches).

Table 3.1. Estimated share of secondary markets for selected counterfeit and pirated products traded worldwide, 2014-16

Product category (HS code)	Share secondary markets (%)
Pharmaceutical products (30)	31.3
Perfumery and cosmetics (33)	65.5
Articles of leather (42)	56.3
Clothing, knitted or crocheted (61)	55.9
Footwear (64)	57.8
Jewellery (71)	61.0
Electrical machinery and equipment (85)	60.4
Optical, photographic and medical instruments (90)	58.1
Watches (91)	65.4
Toys (95)	58.4
Total HS categories	58.5

Labels and packaging

The descriptive analysis of the seizures database shows a large number of seized IP-infringing packaging and labels. For the 2014-16 period, the unified dataset includes 5 023 cases of customs seizures of counterfeit labels (around 1% of the total number of customs seizures) associated with a total reported value of almost USD 64 million (1.1% of the global seized value). For the same period, 3 179 cases of customs seizures of fake packaging are reported (0.6%) associated with a reported value of USD 38 billion (0.7%).

This confirms findings about the domestic assembly of counterfeit and pirated products from imported materials, formulated in a study by OHIM-Europol (2015). This finding merits further attention, as packaging and labels have a significantly lower value than the final products.

All counterfeit packaging and labels will not be taken into account in the following GTRIC methodology.[1] The results could vary significantly depending on the approach taken towards the product classification of these categories and hence are difficult to fully confirm. This calls for a more detailed analysis of trademark infringing packages and labels.

Notes

[1] In the OECD-EUIPO (2016) report, all counterfeit packaging and labels were treated as "packaging" and represent the value of packaging.

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Chapter 4. Trade in fakes – The current picture

Broader economic context is needed to generate a set of the relevant, industry- and economy-specific pictures of the magnitude of counterfeit and pirated trade, both worldwide and in specific economies. The raw seizure data as presented in the previous chapter do not take into account the general economic context but can be used as an input in further statistical analysis. This analysis relies on a basic statistical toolbox called GTRIC. It produces counterfeiting-related indices that assign high scores of counterfeiting to provenance economies or industries in two contexts:

- When a given economy is reported to be a source of high values of counterfeit and pirated products in absolute terms or when a given product category can contain high values of counterfeit and pirated products in absolute terms (e.g. in USD).
- When a large share of trade from a given economy is counterfeit and pirated products or a large share of products in a given product category is counterfeit and pirated (in percentage terms).

This chapter presents the main results of GTRIC analysis to gauge our understanding of trade in counterfeit and pirated goods. There are three areas of GTRIC analysis:

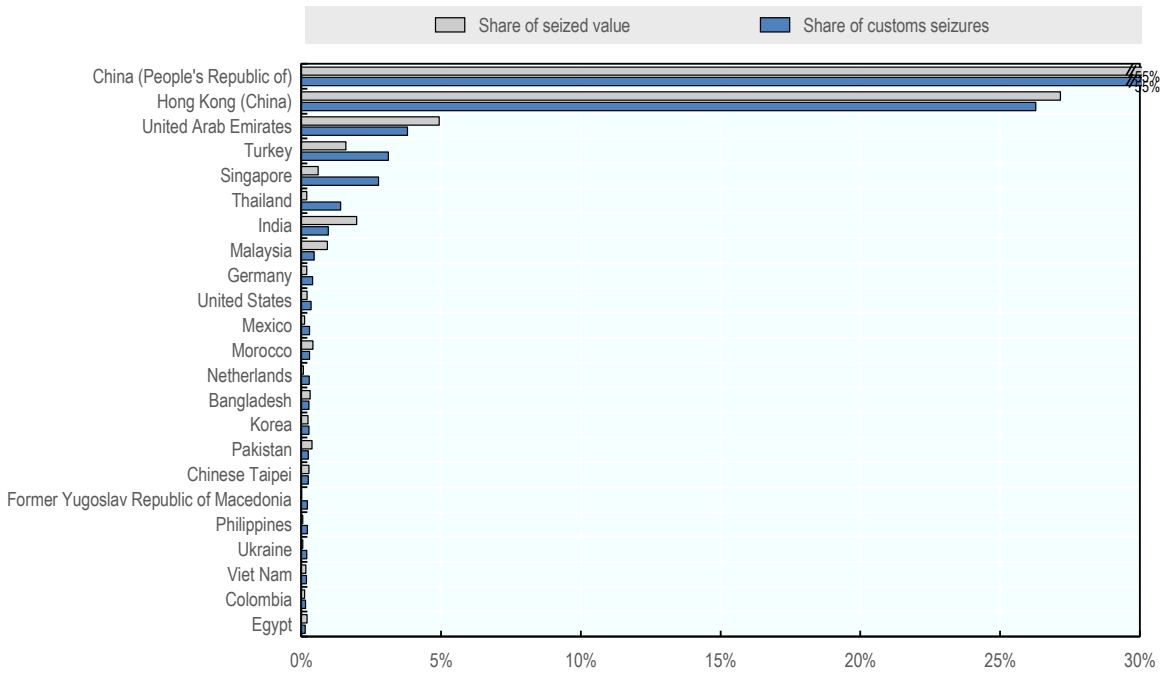
- Identification of key economies of provenance (GTRIC-e).
- Industry scope of trade in counterfeit and pirated goods (GTRIC-p).
- Estimates of the total value of trade in counterfeit and pirated products.

Provenance economies

As mentioned in Chapter 3, information developed during this study suggests that virtually any economy can be the provenance of counterfeit and pirated trade, either as places that produce infringing goods or as points of transit through which infringing goods pass. In addition, this scope is being broadened.

However, customs seizures statistics indicate that some provenance economies tend to dominate global trade in counterfeiting and piracy. This is illustrated by Figure 4.1 below, which indicates that, on average, most interceptions originated from a small group of economies. These include China, Hong Kong (China), the United Arab Emirates, Turkey, Singapore, Thailand, India and Malaysia respectively.

Figure 4.1. Top 25 provenance economies for counterfeit and pirated goods, 2014-16



The large number of provenance economies of counterfeit and pirated products provides indications of the significance of counterfeiting and piracy in international trade. Developing an economy-specific index that follows the methodology presented in the previous chapter can provide some precision. This is undertaken for all reporting economies by taking into account seizure percentages and trade flows. From this, similarly to the product categories above, a General Trade-Related Index of Counterfeiting for economies (GTRIC-e) is established, which indicates the relative propensity of importing infringing goods from different provenance economies.

Table 4.1 shows the top 25 provenance economies of counterfeit goods for 2014-16, with Hong-Kong (China), China and the United Arab Emirates at the top of the ranking (see Annex B for a complete list). Contrary to raw seizure statistics outlined in Figure 3.1, a high GTRIC-e score implies either that a given economy is reported to be a provenance of high values of counterfeit and pirated products in absolute terms (e.g. USD) or that a large share of total imports from that economy is counterfeit and pirated products.

Table 4.1. Top 25 provenance economies in terms of their propensity to export counterfeit products

GTRIC-e, average 2014-16

Provenance economy	Grand total
Hong Kong (China)	1.000
China (People's Republic of)	1.000
United Arab Emirates	0.995
Morocco	0.989
Pakistan	0.955
Turkey	0.946
Panama	0.901
Uruguay	0.859
Bangladesh	0.821
Mauritania	0.753
Djibouti	0.742
India	0.718
Lebanon	0.709
Egypt	0.675
Cambodia	0.567
Syrian Arab Republic	0.561
Bahrain	0.553
Dominican Republic	0.529
Honduras	0.450
Qatar	0.441
Benin	0.424
Jordan	0.413
Sri Lanka	0.410
Malaysia	0.402
Singapore	0.393

Note: High GTRIC-e is a weighted value of two sub-components: the value of exports of counterfeit and pirated products from that economy in absolute terms and the share of trade in counterfeit and pirated products from that economy.

In 2011-13, China and Hong Kong (China) were already the provenance economies with the highest propensity to export counterfeit products. Turkey, which has fallen in the ranking between 2011-13 and 2014-16 has been replaced by the United Arab Emirates at the third place in the 2014-16 ranking. The propensity of Morocco and Panama have increased while several countries present in the 2016 study have dropped from the list. This includes, for example, Greece, Nepal and Tokelau. Most likely these economies were more or less significant, seasonal points of transfer on the map of world trade in fakes. They lost their importance either due to the application of effective anti-counterfeiting policies by enforcement authorities in these economies, or due to other factors, such as the evolution of trade flows in general or the emergence of other, more convenient routes of trade in fakes.

It is important to note that GTRIC-e presents key provenance economies of counterfeit trade, i.e. both economies where the actual production of infringing goods is taking place and economies that function as a point of transit through which infringing goods pass. Some of these provenance economies are more important sources of infringing goods than others, because they are important producers of IP-infringing goods or because they are strategic points of transit (see Box 4.1).

Box 4.1. Complex routes of counterfeit trade

GTRIC-e presents key provenance economies of counterfeit trade, i.e. economies where the actual production of infringing goods is taking place and economies that function as a point of transit through which infringing goods pass.

Counterfeiters and pirates tend to ship counterfeit products via complex trade routes, using several transit points. This is done for several reasons, including:

- "Cleansing" of all the documents and camouflaging the original point of production and/or departure.
- Establishing distribution centres for counterfeit and pirated goods (e.g. in free trade zones) and for transhipping them in smaller orders to their final destination points.
- Processing of products, usually in free trade areas, often by adding counterfeit trademarks and/or repackaging or re-labelling goods.

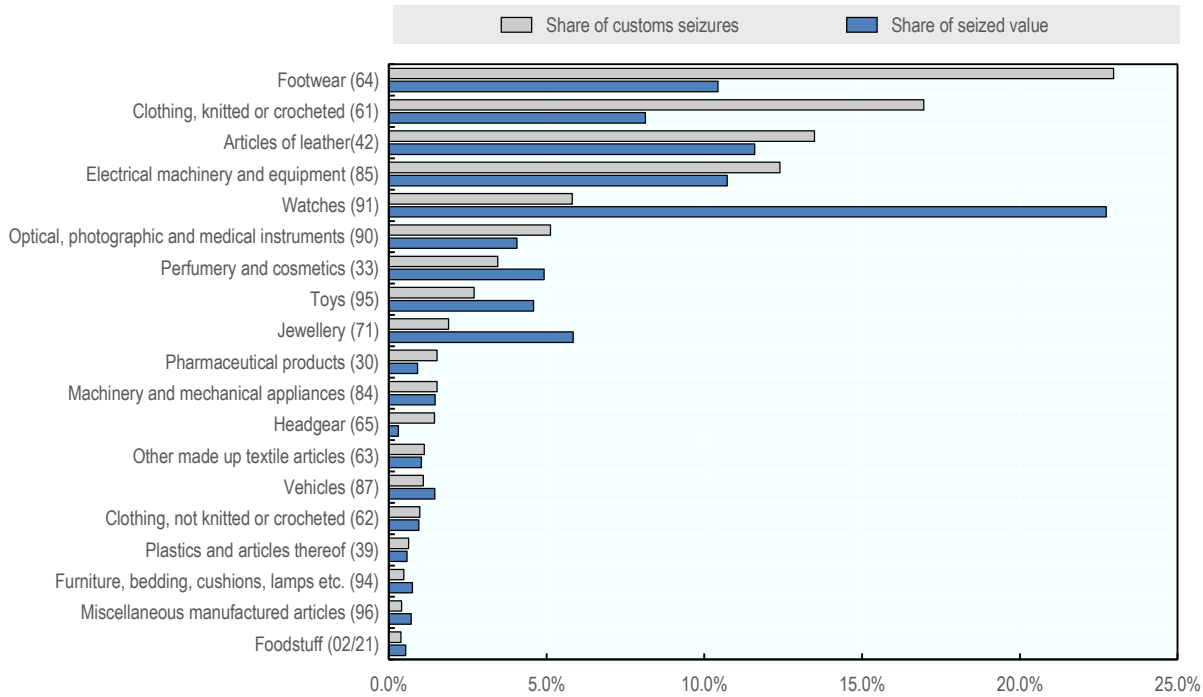
Consequently, in most cases, it is difficult for customs officers to determine the "producing economy", not only because of document cleansing but also because the actual process of counterfeiting may not take place in the same economy as the production of a given good. A given product may be produced in one economy, and its labelling with counterfeit logos or packaging into trademark-infringing packages may take place in another closer to destination markets and with weaker IP enforcement.

Source: OECD-EUIPO (2017), *Mapping the Real Routes of Trade in Fake Goods*, https://doi.org/10.1787/9789264278349-en.

Impacted industries

As discussed in Chapter 3, the scope of goods that are sensitive to infringement is broad and has broadened (88 of the 96 HS chapters concerned by counterfeiting and piracy, i.e. 92% vs. 80% for the 2011-13 period). However, the intensity of counterfeiting and piracy differs greatly across different types of goods and hence HS categories. This is illustrated in Figure 4.2 below, which indicates that between 2014 and 2016, the interceptions are concentrated in a relatively limited number of chapters.

Figure 4.2. Top 20 product categories counterfeit and pirated, 2014-16



To obtain a meaningful measure of the propensity for different types of infringing products to be imported, the weighted average of seizure percentages of infringing goods across importing economies is related to the respective import share, following the methodology outlined in Chapter 3. Based on these relative sensitivities, GTRIC-p establishes the relative likelihood for products in one HS chapter to be counterfeit relative to another. As a result, a general ranking of products with respect to their propensities of being counterfeit is established (see Annex B).

Similarly to GTRIC-e, the good quality of data allows a calculation of GTRIC-p for each year for which seizure data are available (2014, 2015 and 2016). Table 4.2 presents the top 20 sensitive product categories according to their general counterfeiting factor (average values over the analysed years). A high GTRIC-p score implies either that a given product category contains high values of counterfeit and pirated products in absolute terms (e.g. USD) or that a large share of imports from that product category is counterfeit and pirated products.

Table 4.2. Top 20 industries with respect to their propensities to suffer from counterfeiting

GTRIC-p, average, 2014-16

Harmonised System (HS) category	GTRIC-p
Perfumery and cosmetics (33)	1.000
Articles of leather; handbags (42)	1.000
Clothing, knitted or crocheted (61)	1.000
Footwear (64)	1.000
Watches (91)	1.000
Toys and games (95)	1.000
Other made-up textile articles (63)	0.992
Tobacco (24)	0.977
Headgear (65)	0.977
Miscellaneous manufactured articles (96)	0.964
Jewellery (71)	0.936
Optical, photographic and medical apparatus (90)	0.856
Musical instruments (92)	0.811
Knitted or crocheted fabrics (60)	0.645
Umbrellas (66)	0.641
Electrical machinery and electronics (85)	0.635
Clothing and accessories, not knitted or crocheted (62/65)	0.592
Furniture (94)	0.500
Tools and cutlery of base metal (82)	0.474
Ceramic products (69)	0.422

Note: The GTRIC-p score is a weighted index of two sub-components: the values of counterfeit and pirated products in absolute terms in a given product category and the share of trade in counterfeit and pirated products in that product category. For a full description of HS codes, see Table B.5 in Annex B.

Between 2011-13 and 2014-16, the list of top 20 industries that suffer from counterfeiting has slightly changed. In 2011-13, the top 3 included watches, leather goods and headgear. In 2014-16, the relevant changes come from the increase of propensity to suffer from counterfeiting of industries such as perfumery and cosmetics, toys and clothing, knitted or crocheted.

Estimating the total value of trade in counterfeit and pirated products

Methodology

While the GTRIC does not give a direct measure of the overall magnitude of counterfeiting and piracy in world trade, it establishes relationships that can be useful. Specifically, the GTRIC matrix can be used to approximate international trade in counterfeit and pirated goods.

For each good coming from a given provenance economy, GTRIC assigns a probability of it being counterfeit, relative to the most intensive combination of product and provenance economy. In theory, the absolute number of counterfeit trades for one provenance economy-product can be integrated into the corresponding cell of the GTRIC matrix to yield the total value of world trade in counterfeit and pirated products (see Annex B for more details).

However, determining this total value is currently impossible for two main reasons: first, the clandestine and dynamically changing nature of counterfeit trade makes any measurement exercise extremely difficult and highly imprecise; and second, operational data from customs offices are in most cases strictly confidential.

Nevertheless, the GTRIC matrix can be employed to gauge the "ceiling" value for international trade in counterfeit and pirated goods. As in the OECD/EUIPO (2016) report, this approach is taken by establishing an upper limit of counterfeit trade (in percentages) from the key provenance economies in product categories that are most vulnerable to counterfeiting. These values are called "fixed points".

The last step in the analysis is to depart from relative intensities of counterfeiting to gauging of absolute values of counterfeit and pirated products in international trade. To do this, at least one probability of containing counterfeit and pirated products in a given product category from at least one provenance economy must be identified. Importantly, this identification must be based on information other than customs seizure data, given the several methodological biases that these data suffer from.

In the 2008 study, this fixed point was determined based on *ex ante* assumptions that were debated with industry and enforcement representatives. At the time, this was the best possible methodological approach given the poor data quality.

For the analysis presented in the OECD-EUIPO (2016) study, a set of confidential and structured interviews with customs officials were carried out. These interviews resulted in a large number of detailed quantitative and qualitative sets of information on customs operations that in turn allowed this report to determine the upper limit of the absolute number of imported counterfeit and pirated goods. Eventually, the fixed point was set at 27% for HS64 (footwear) from China.

For the present study, the fixed point used in the OECD-EUIPO (2016) study was re-examined based on a focus group meeting and on interviews with customs officials from several EU member countries. These interviews confirmed that the fixed point picked for the analysis presented in the OECD-EUIPO (2016) study still holds. Consequently, this fixed point was also used in the present analysis.

Of course, such a fixed point does not imply that, on average, 27% of footwear exported from China is counterfeit: it represents the upper level of a potential trade in counterfeits, meaning that within the HS64 category imported from China by some EU members, the share of counterfeits was reaching 27% in some years. This result could then be extrapolated onto the yearly trade flows, which would give a basis to be applied to GTRIC. Consequently, the results presented in this study refer to the upper possible limit of trade in counterfeit and pirated goods.

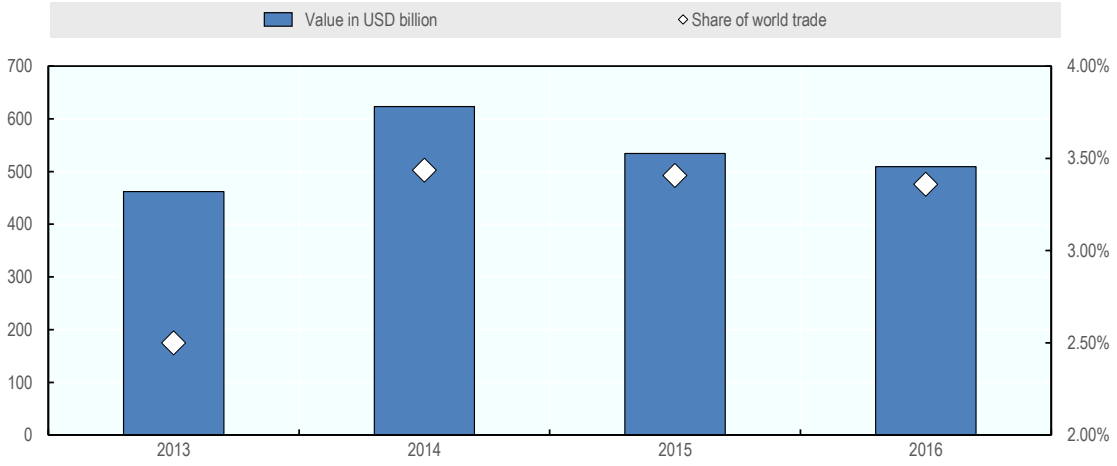
Results

The best estimates of this study, based on the data provided by customs authorities, indicate that counterfeit and pirated products accounted for as much as USD 509 billion in world trade in 2016. The term "as much as" is crucial in this context as it refers to the upper boundary of counterfeit trade. This number implies that as much as 3.3% of total world trade in 2016 was in counterfeit and pirated products.

World trade and its structure are very dynamic, especially in the post-crisis period, so this percentage cannot be directly applied to values for other years. In addition, this amount does not include domestically produced and consumed counterfeit and pirated products.

The share of counterfeit and pirated goods in the global trade of fakes has increased since 2013 (Figure 4.3). However, world trade in genuine goods has declined after 2014, so that the global value of trade in fakes has barely increased.

Figure 4.3. Estimates of global trade in counterfeit and pirated trade, 2013-16



As suggested by the previous descriptive statistics, while virtually all economies can be the provenance of counterfeit and pirated goods, some provenance economies tend to dominate global counterfeiting and piracy. Results suggest that 5 economies, namely China, Hong Kong (China), India, the United Arab Emirates and Singapore together exported almost 73% of fake goods traded worldwide in 2016 (Table 4.3).

Table 4.3. Estimates of main provenance economies for counterfeit and pirated goods, 2016

Provenance economy	Share in world export of fakes (%)	Value of fake exports (USD billion)
China	47.0	239.0
Hong Kong (China)	16.4	83.2
India	3.4	17.4
United Arab Emirates	3.0	15.5
Singapore	2.6	13.1

In addition, while the scope of counterfeit and pirated products has broadened over the past 5 years, the top 20 product categories (over 96 HS chapters) account for more than 94% of the value of global trade in fake goods in 2016 (Table 4.4).

Table 4.4. Estimates of main counterfeit and pirated product categories, 2016

HS product category	Share in global trade of fake goods (%)	Value of fake exports (USD billion)
Electrical machinery and electronics (85)	35.0	138.0
Jewellery (71)	12.6	49.8
Optical, photographic, medical apparatus (90)	6.7	26.7
Clothing, knitted or crocheted (61)	6.3	24.8
Machinery and mechanical appliances (84)	5.0	19.7
Footwear (64)	3.5	13.9
Clothing and accessories, not knitted (62)	3.4	13.6
Toys and games (95)	3.0	11.8
Furniture (94)	2.9	11.5
Vehicles (87)	2.5	10.0
Articles of leather; handbags (42)	2.1	8.5
Other made-up textile articles (63)	2.0	8.1
Foodstuffs (02-21)	1.6	6.2
Plastic and articles thereof (39)	1.5	6.1
Perfumery and cosmetics (33)	1.4	5.4
Miscellaneous manufactured articles (96)	1.2	4.6
Pharmaceutical products (30)	1.1	4.4
Watches (91)	1.1	4.2
Knitted or crocheted fabrics (60)	0.7	2.6
Tobacco (24)	0.6	2.3

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OECD-EUIPO (2016), Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact, Illicit Trade, OECD Publishing, Paris, https://doi.org/10.1787/9789264252653-en.

Chapter 5. The European Union case study

This chapter looks at the current situation of counterfeit trade in the European Union. Quantitative findings are primarily based on counterfeit seizures data received through DG TAXUD of the European Commission.

IP intensity of the EU economy

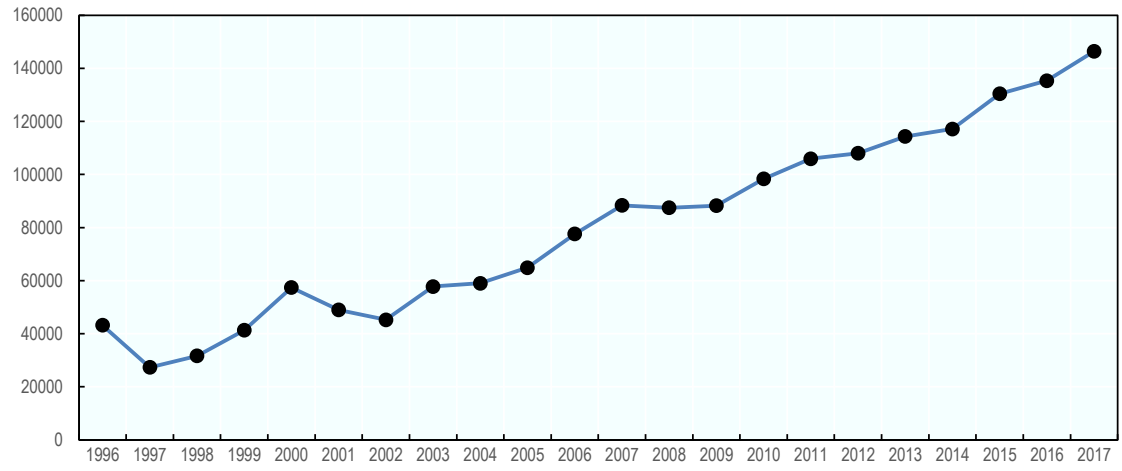
Today, all types of intellectual property rights, the infringements of which are analysed in this study, are protected in the EU according to national, European and/or international regulations. This refers to trademarks, design rights, copyrights and patents.

For trademarks and industrial designs, rights are governed by European Union law and national laws of EU members. In the EU, trademarks can be registered within individual countries or across the whole of the EU as EU Trade Marks (EUTM) (until March 2016, these were called community trademarks). These trademarks can be registered by the European Union Intellectual Property Office (EUIPO). An EU Trade Mark may consist of any distinctive signs, such as words, numerals, colours, shapes, packaging or sounds that can be represented in a form appropriate to the trademark type and are capable of distinguishing the goods or services of one undertaking from those of another. EUTM applications are made directly to the EUIPO office in Alicante, Spain.

Between 2010 and 2017, EUIPO registered a steady growth of EUTM application filings. Over that period, the annual average growth rate of filings registered by EUIPO amounted to 5.9%. As a result, in 2017 the number of applications filed at EUIPO was 48.8% larger than in 2010 (EUIPO, 2018a).

Firms and individuals based outside of the EU make for a substantial share of EUTMs applicants. China, Switzerland and the United States are among the top 10 countries with the highest number of cumulative EUTM filings over the 2010-17 period. Those statistics highlight the economic importance and commercial appeal of the European Union common market.

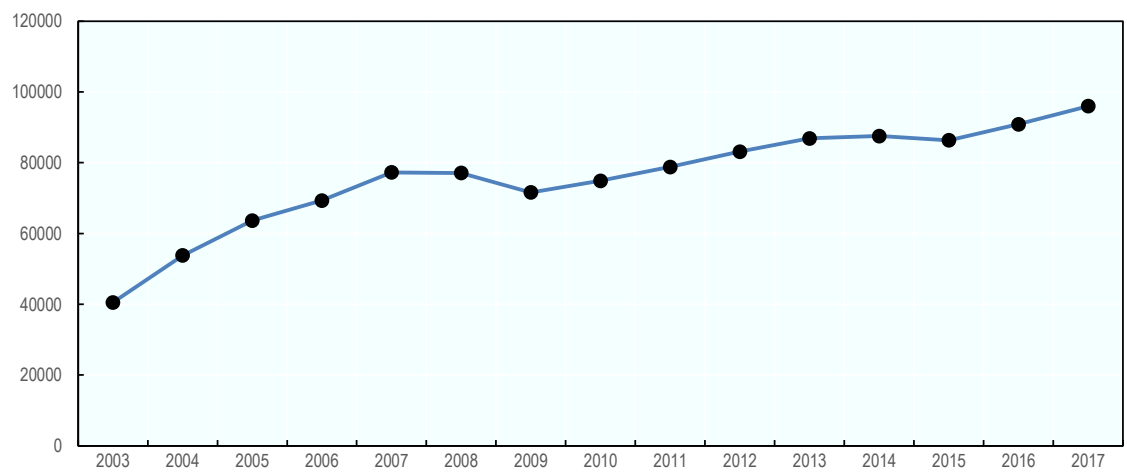
Figure 5.1. Total EUTM application filings between 1996 and 2017



Source: EUIPO (2019), *Statistics of European Union Trade Marks*, https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/contentPdfs/about_euipo/the_office/statistics-of-european-union-trade-marks_en.pdf.

Similar trends of steady growth can be observed in the filings of Registered Community Designs (RCDs). Between 2010 and 2017, RCD filings experienced an average annual growth rate of 4.3%. The number of applications filed in 2017 was 33.8% larger in comparison with 2010 filing volumes. China, Japan and the United States are among the top 10 countries in the ranking of cumulative RCD filings between 2010 and 2017 (EUIPO, 2018a).

Figure 5.2. Total number of direct RCD filings received between 2003 and 2017



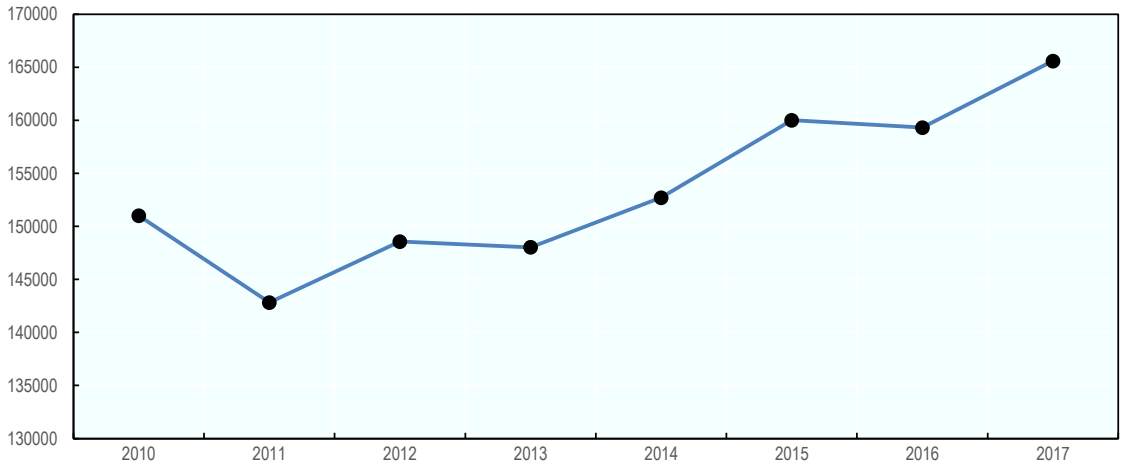
Source: EUIPO (2018b), *Statistics of Community Designs*, https://euipo.europa.eu/tunnel-web/secure/webdav/guest/document_library/contentPdfs/about_euipo/the_office/statistics-of-community-designs_en.pdf.

Patents can be declared in the EU either nationally, through national patent offices or through a centralised patent examination process at the European Patent Office (EPO). The EPO grants European patents on the basis of a single application; applicants can choose to protect their rights in up to 38 European countries.

Although patent applications filings at European Patent Office (EPO) have experienced some annual fluctuations over the last 8 years, number of applications registered in 2017 was 9.6% higher than in 2010. Protection of patents in Europe is of utmost importance for many non-EU firms active on the European market. Among the top 10 countries of origin are China, Japan, the Republic of Korea, Switzerland and the United States.[1]

Among the top filers for European IP rights are market leaders representing all major economies in the world.

Figure 5.3. European patent applications filed with the EPO between 2010 and 2017



Source: Own calculations based on EPO (2018), *European Patent Applications Database 2008-2017 per Country of Residence of the Applicant*, https://www.epo.org/about-us/annual-reports-statistics/statistics.html#filings-.

In the European Union, copyright is protected by the laws of the Member States which have been harmonised to a certain extent by EU directives and regulations. To date, the EU institutions have adopted eleven directives, and two regulations.[2] Member States have to transpose directives into their national laws. At the same time, Member States can choose the form and method of adapting their laws. Regulations are binding in their entirety, and they are directly applicable in the Member States.

Intellectual property rights are of fundamental importance for the competitiveness of the EU economy as a whole. At the macroeconomic level, the IP-intensive industries have generated on average 42% of EU GDP between 2011 and 2013. This corresponds to EUR 5.7 trillion annually. In addition, IP-intensive industries contributed directly to 27.8% of employment.

Table 5.1. Contribution of IP-intensive industries to economic activity (GDP) in the EU, 2011-13 average

IPR intensive industries	Value added/GDP (EUR million)	Share of total EU GDP (%)
Trade mark-intensive	4 812 310	35.9
Design-intensive	1 788 811	13.4
Patent-intensive	2 035 478	15.2
Copyright-intensive	914 612	6.8
Geographical indication-intensive	18 109	0.1
Plant variety -intensive	51 710	0.4
All IPR-intensive	**5 664 168**	**42.3**

Source: EPO-EUIPO (2016), "Intellectual property rights intensive industries and economic performance in the European Union", Industry-Level Analysis Report, EPO-EUIPO.

Table 5.2. Direct and indirect contribution of IPR-intensive industries to the employment, 2011-13 average

IPR intensive industries	Employment (direct)	Share of total employment (direct) (%)	Employment (direct + indirect)	Share of total employment (direct + indirect) (%)
Trade mark-intensive	45 789 224	21.2	65 486 334	30.3
Design-intensive	25 662 683	11.9	38 673 508	17.9
Patent-intensive	22 268 215	10.3	36 021 154	16.7
Copyright-intensive	11 630 753	5.4	15 240 509	7.1
GI-intensive	n/a	n/a	399 815	0.2
PVR-intensive	1 018 754	0.5	1 220 410	0.6
All IPR-intensive	**60 032 200**	**27.8**	**82 214 925**	**38.1**

Source: EPO-EUIPO (2016), "Intellectual property rights intensive industries and economic performance in the European Union", Industry-Level Analysis Report, EPO-EUIPO.

IP rights are also very important for the productivity and performance of European firms. Empirical studies have found that companies applying for IPR protection employ more employees than companies without IPR. In addition, firms registering IP rights have, on average, 28% higher revenue per employee and pay on average 20% higher wages than firms that do not register those rights (OHIM-Europol, 2015).

Import of fakes to the EU: The updated picture

The quality of seizure statistics for the European Union allows for a thorough quantitative assessment of counterfeit trade in the EU context. This is done using the EU-specific GTRIC indices. In the EU context these indices illustrate:

- Relative propensity of industry sectors to contain counterfeit products in the trade flows to the European Union (GTRIC-p).
- Relative propensity of economies to be the provenance of trade in counterfeit and pirated goods to the European Union (GTRIC-e).

Concerning the relative propensity for products traded to the EU to include counterfeit or pirated goods, the range of sectors prone to counterfeiting is not narrower for the EU than for world trade. This implies that the problem of counterfeit imports to the EU is not narrower in industry scope and is not focused on certain industries only (see Table 5.3).

At the first glance, imports of fake goods to the European Union appears to be most intensive for luxury products such as articles of leather and handbags (HS 42), watches (HS 91), perfumes and cosmetics (33), footwear (64), jewellery (71), and sunglasses (90). However, common consumer products imported into the EU also tend to be often targeted by counterfeiters. This includes toys and games (95), footwear (64) and apparel (60 and 61). In addition, counterfeit or pirated intermediary products, such as electronic goods and ICT devices (85) or spare parts (87) are also frequently traded to the European Union.

Lastly, there are significant volumes of trade to the EU of fake goods that put consumer health and safety at direct and significant risk. This is a large range of products, such as fake cosmetics, pharmaceuticals, spare parts, tools and machinery, or toys and games. These fakes are often substandard and pose health and safety risks to consumers that range from mild inconveniences to life-threatening situations.

Table 5.3. Top 15 industries likely to suffer from counterfeit EU imports

GTRIC-p for the EU, average 2014-16

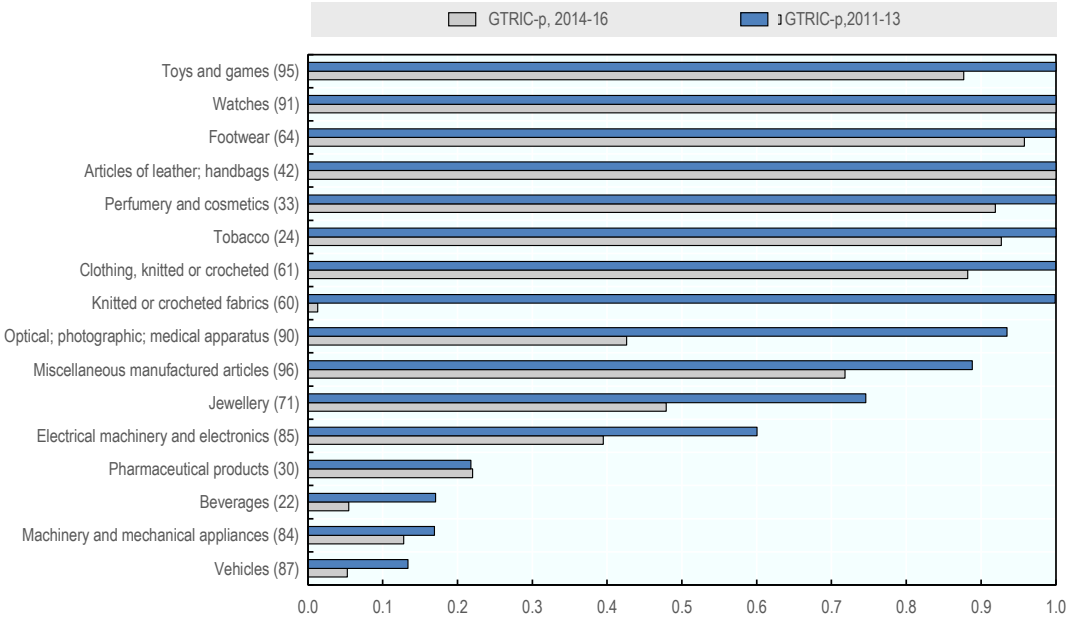
HS product category	GTRIC-p
Perfumery and cosmetics (33)	1.000
Articles of leather; handbags (42)	1.000
Watches (91)	1.000
Toys and games (95)	1.000
Tobacco (24)	1.000
Footwear (64)	1.000
Knitted or crocheted fabrics (60)	0.994
Clothing, knitted or crocheted (61)	0.992
Miscellaneous manufactured articles (96)	0.926
Optical, photographic, medical apparatus (90)	0.866
Electrical machinery and electronics (85)	0.534
Jewellery (71)	0.513
Beverages (22)	0.360
Pharmaceutical products (30)	0.323
Vehicles (87)	0.245

Note: The GTRIC-p score is a weighted index of two sub-components: the values of counterfeit and pirated products in absolute terms in a given product category and the share of trade in counterfeit and pirated products in that product category. For a full description of HS codes, see Table B.5 in Annex B. For a complete list of the results for 2014-16, see Table B.4 in Annex B.

The list of top 15 industries likely to suffer from counterfeit EU imports between 2014 and 2016 is comparable to the one from 2011-13 (Figure 5.4). Industries such as watches, leather goods, footwear, tobacco and cosmetics were the most subject to counterfeit in 2011-13. The main change comes from the increase of the propensity of the toys industry and industries that are directly threatening the health and safety of consumers, such as beverages, pharmaceuticals, and vehicles and spare parts.

Figure 5.4. Changes in propensities for product categories to suffer from counterfeiting in EU imports

GTRIC-p for the EU, average 2011-13 and average 2014-16



On comparing the GTRIC-p indices calculated for world trade and EU imports, it appears that the scope of goods sensitive to infringement in the EU is as broad as the scope of infringed products in world trade. However, differences do exist and are highlighted in Figure 5.4. and Figure 5.5. Differences in industrial composition of counterfeit trade between world trade and EU imports, 2014-16

Figure 5.6, which compare the topmost counterfeit product categories in EU trade with those in world trade.

Two main sectors are less targeted in EU trade than in world trade: ICT devices (85) and jewellery (71). However, industry sectors in which counterfeit trade is more intense in EU trade than in world trade are those putting consumer health and safety at direct and significant risk, namely tobacco and manufactured tobacco substitutes (24), pharmaceuticals (30) and foodstuffs (02-21).

Lastly, counterfeit or pirated intermediary products, such as machinery and mechanical appliances (84) or spare parts (87), also appear to be more frequently traded to the European Union than globally. The relatively larger share of counterfeit instruments in EU imports suggests that counterfeiters have, to some extent, successfully managed to infiltrate the production processes of EU industries.

Given the large complexity of global value chains, this is likely to lead to great risks when low-quality counterfeit products enter production as intermediary inputs. Moreover, these risks may then emerge in other industry sectors that rely on the production processes that use these counterfeit intermediary inputs.

Figure 5.5. Differences in industrial composition of counterfeit trade between world trade and EU imports, 2014-16

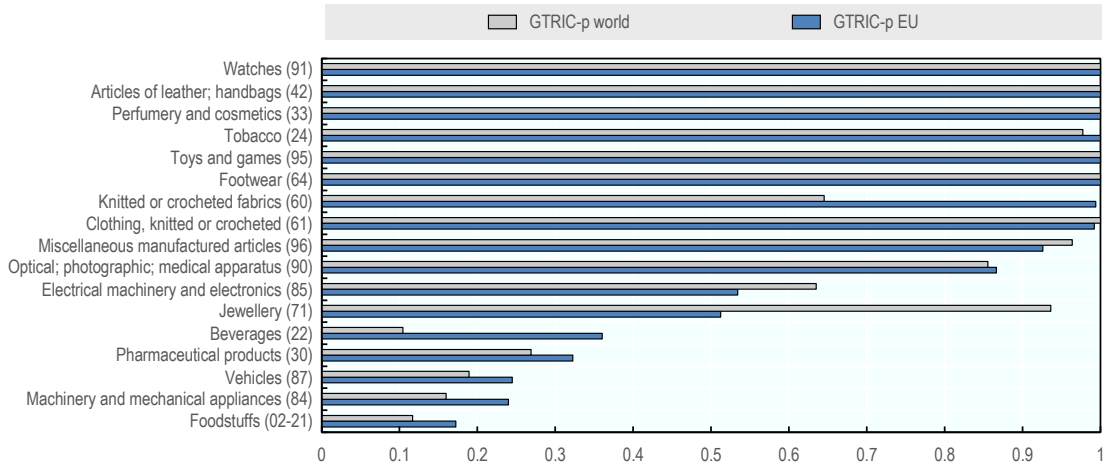
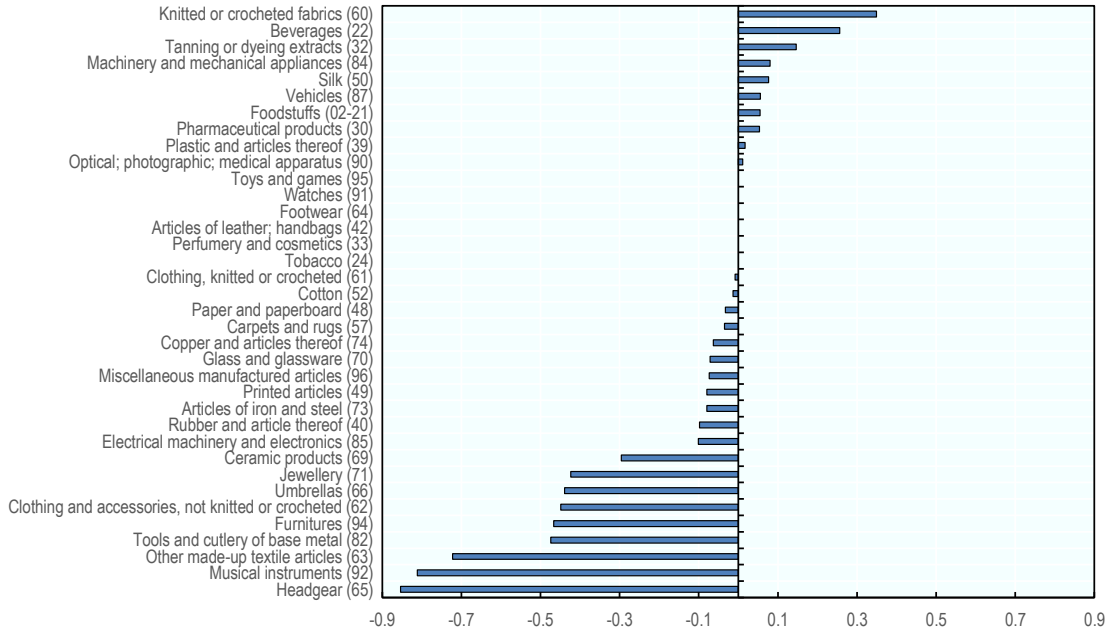


Figure 5.6. Net differences in industrial composition of counterfeit trade between world trade and EU imports, 2014-16



Regarding the provenance economies for counterfeit and pirated goods imported to the EU, information captured in the EU-specific GTRIC-e index shows that, as with world trade, their scope is wide and global. Table 5.4 shows the top 20 provenance economies of counterfeit goods entering the EU in 2014-16, with Hong Kong (China) at the top (see Annex B for a complete list).

Table 5.4. Top 15 provenance economies of counterfeit goods entering the EU

GTRIC-e for the EU, average 2014-16

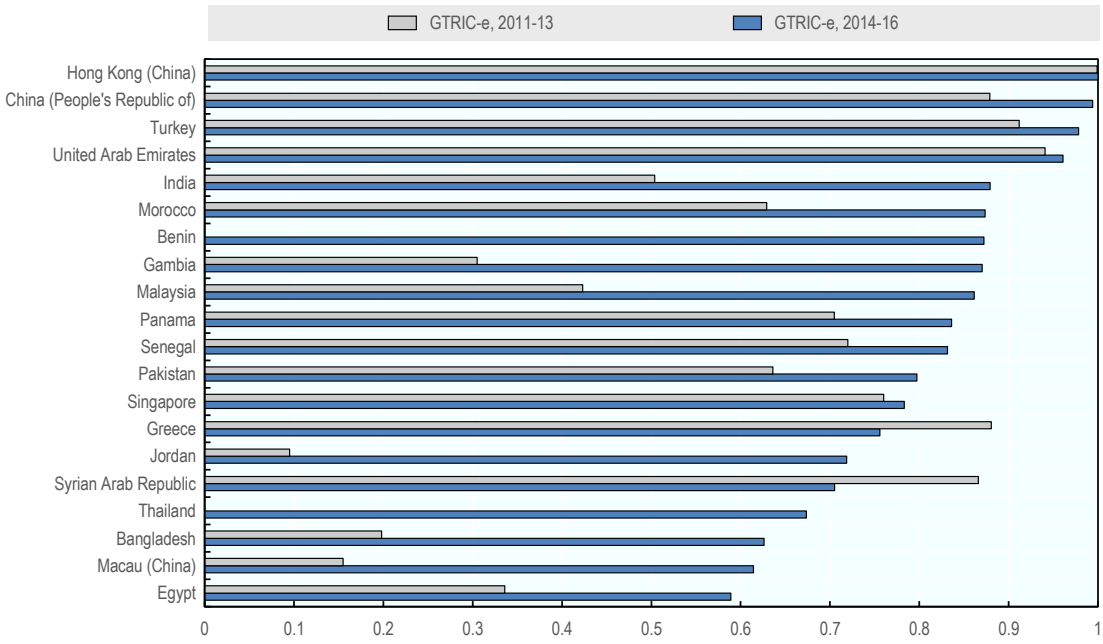
Provenance economy	GTRIC-e
Hong Kong (China)	1.000
China (People's Republic of)	0.994
Turkey	0.978
United Arab Emirates	0.961
India	0.879
Morocco	0.874
Benin	0.872
Gambia	0.870
Malaysia	0.862
Panama	0.836
Senegal	0.832
Pakistan	0.797
Singapore	0.783
Greece	0.756
Jordan	0.719
Syrian Arab Republic	0.705
Thailand	0.674
Bangladesh	0.626
Macau (China)	0.615
Egypt	0.589

Note: A high GTRIC-e is a weighted value of two sub-components: the value of exports of counterfeit and pirated products from that economy in absolute terms and the share of trade in counterfeit and pirated products from that economy. For a complete list of results, see Table B.3 in Annex B.

In 2011-13, China, Hong Kong (China), Turkey and the United Arab Emirates were already the main provenance economies of counterfeit goods entering the EU but the rest of the ranking has undergone some changes (Figure 5.7). It should be noted that compared to 2011-13, India and Morocco have moved up in the top 15 provenance economies of counterfeit goods entering the EU while Greece and the Syrian Arab Republic have moved down.

Figure 5.7. Changes in provenance economies exporting fake goods to the EU

GTRIC-p for the EU, average 2011-13 and average 2014-16



Estimates of counterfeit and pirated imports in the EU

Through applying the GTRIC methodology, the global estimates show that total trade in counterfeit and pirated products to the European Union amounted to as much as USD 134 billion (EUR 121 billion) in 2016. This number implies that as much as 6.8% of EU imports in 2016 was in counterfeit and pirated products. As with global imports, this percentage should not be directly applied to the values of total trade in other years as the structure of trade tends to be dynamic.

Two important factors should be considered when calculating these figures:

- First, as with the OECD/EUIPO (2016) report, this number represents an upper limit of counterfeit imports to the EU. In terms of the model, the fixed point used in this exercise is the same as the one used in the OECD/EUIPO (2016) study, yet both numbers refer to the maximum possible amount of imports of counterfeit goods.
- Second, the above-presented amount does not include domestically produced and consumed counterfeit and pirated products, and pirated digital products being distributed via the Internet.

Notes

[1] European patent applications include direct European applications and international (PCT) applications that entered the European phase during the reporting period (EPO, 2017).

[2] For the complete list see: https://ec.europa.eu/digital-single-market/en/eu-copyright-legislation

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Chapter 6. Conclusion

This study presents the updated quantitative analysis of value, scope and magnitude of world trade in counterfeit and pirated products, using the same GTRIC methodology as in the previous OECD-EUIPO (2016) report. The report finds that, in 2016, international trade in counterfeit and pirated products amounted to as much as USD 509 billion. This amount does not include domestically produced and consumed counterfeit and pirated products, and pirated digital products being distributed via the Internet, and represents up to 3.3% of world trade, compared with an estimate of up to 2.5% of world trade in 2013.

This result implies that over the three-year period 2013-16 in nominal terms, the share of trade in counterfeit and pirated goods in global trade grew very significantly, as trade in fake goods increased in real terms during a period of relative slowdown in world trade overall. Consequently, the intensity of counterfeiting and piracy is on the rise, with significant potential for IP theft in a knowledge-based, open and globalised economy.

The quantitative analysis confirms that fake products can be found in a large and growing number of industries. This includes common consumer goods (e.g. footwear, cosmetics, toys), business-to-business products (e.g. spare parts or chemicals), IT goods (phones, batteries) and luxury items (fashion apparel or deluxe watches).

Trade in fake goods is a very dynamic activity, as counterfeiters look very aggressively for new profit opportunities. Newly targeted groups include guitars and construction materials, for example. These new trends have been reported by several enforcement authorities nearly simultaneously, which confirms the global scale of this risk.

The risks posed by certain categories of fake goods are on the rise in terms of negative impacts on personal health and safety. Fake products such as contact lenses, pharmaceuticals or baby formulas are continuously being supplied to markets through multiple channels. Moreover, the degree of consumer deception is still the highest for these classes of products.

In terms of provenance, counterfeit and pirated goods originate from virtually all economies on all continents. While the scope of provenance economies is broad, seizure statistics also show that interceptions originate from a relatively concentrated set of provenance economies. In other words, some economies tend to dominate the global trade in counterfeit and pirated goods. The highest number of counterfeit shipments being seized originates from East Asia, with China and Hong Kong (China) ranking at the top.

A closer look at the results shows some significant changes in the list of provenance economies compared to the 2016 report. Some countries, such as Greece, Nepal and Tokelau, dropped off the list, which could be either the consequence of effective anti-counterfeiting policies or improved enforcement in destination economies taking into account risk profiling techniques. These cases merit further study.

The share of small shipments in total volume of counterfeit trade appears to grow. They represent a way of avoiding detection and minimising the risk of sanctions for criminals. This raises the cost of customs checks and detention with additional significant challenges for enforcement authorities. There is a need for further review of existing policies in this area.

Drawing on detailed DG TAXUD data, this study performs an in-depth assessment of the situation in the European Union. The results show that, in 2016, imports of counterfeit and pirated products into the EU amounted to as much as EUR 121 billion (USD 134 billion), which represents up to 6.8% of EU imports versus 5% in 2013. This shows that the scale of this threat is higher for EU countries on a world scale.

Last, the rate of customs interceptions remains low overall, due to multiple causes. Indeed, over the past years, customs and other enforcement agencies were tasked with other priorities that could rank higher in terms of importance than counterfeiting. This includes countering arms trafficking, stemming illegal money transfers to terrorist groups or human trafficking. Counterfeiters also operate very aggressively, while minimising risks of detention. The booming misuse of small parcels or free trade zones by counterfeiters in their operations illustrates how they minimise the risk of seizure. Such global actions taken by counterfeiters pose significant challenges for customs authorities operating at the national level.

Companies suffering from counterfeiting and piracy continue to be primarily registered in OECD countries, such as France, Germany, Switzerland, Italy, Japan, Japan, Korea, Switzerland, the United Kingdom and the United State. However, a growing number of companies that suffer from this threat are registered in high-income non-member economies, such as Hong-Kong (China) and Singapore. In addition, a rising volume of right holders threatened by counterfeiting are registered in emerging economies, Brazil or China for example. This implies that counterfeiting and piracy represent a critical risk for all innovative companies that rely on IP to support their business strategies, no matter where they are located.

Implication for future research

This study offers a unique updated set of quantitative assessments of trends in trade in counterfeit and pirated goods. The estimate draws on the largest available dataset to date, with an accompanying comprehensive factual analysis.

The unique dataset that has been built can lend itself to a number of more detailed analyses. These could include economy- or industry-specific case studies that shed light on the situation in certain economies or sectors, and further in-depth studies of issues highlighted in this report. The potential for economy- or industry-specific case studies is particularly fruitful where the data are abundant and where there is evidence of a significant impact in terms of infringements. More detailed analysis in this area could be very relevant for producing a fuller picture of trade in counterfeit and pirated goods, and its negative impact on right holders, governments and consumers.

It would also be of interest to analyse the impact of anti-counterfeiting reforms and particularly reforms aimed at closing enforcement gaps, as the ranking of provenance economies has changed over time.

This report has also flagged some issues that might merit further analysis, including, for example, the in-depth analysis of trade in fake goods that could pose significant threats to the environment or consumer health and safety. Another area which deserves further attention is the increased misuse of small parcels for trade in counterfeit and pirated goods.

The data that are available also represent a rich panel data set, which can allow for using more powerful econometric techniques in the future. The continuous development of data provides a stronger underpinning to assess the magnitude, scope and trends of counterfeit and pirated trade. It also offers solid foundations to inform evidence-based policies in this area and help to close enforcement gaps.

References

OECD-EUIPO (2016), Trade in Counterfeit and Pirated Goods: Mapping the Economic Impact, Illicit Trade, OECD Publishing, Paris, https://doi.org/10.1787/9789264252653-en.

Annex A. Methodological notes

A.1. Primary and secondary markets

In order to distinguish fake products counterfeiters intended to sell on the primary market from those intended for sale on the secondary market, the price gap between both types of counterfeits is calculated. For each seizure specified in the WCO and DG TAXUD databases, customs authorities report the infringed trademark, the declared value of goods, the quantity seized and the product's HS code. This allows the unit value of each seized "product type-brand" pair to be determined (*brand* would include the associated trademark or patent). These unit values can then serve as a proxy for the retail prices of fake goods.

For each type of product associated with a given trademark or patent, the prices of seized goods are used to estimate a confidence interval that contains the actual retail price of the corresponding genuine item. Counterfeit items whose unit price, calculated as described above, is higher than or included in this interval are then classified as intended for sale on the primary market. Those whose price is below this interval are classified as targeting the secondary market.

Formally, let s_c and $\bar{s}_c$ denote, respectively, the import value and quantity of any custom seizure of counterfeit products, with $c \in \{1, \dots, N\}$ the range of customs seizures and N their total number. $p_c = s_c/\bar{s}_c$ then refers to the unit value of each custom seizure and can serve as a proxy for their unit price. Let $p_{bp} = \left(\sum_{c\in\{bp\}} p_c\right)/N_{bp}$ defines the (unweighted) price average of any type of product p associated with the brand or patent b, with N_{bp} the total number of custom seizures reported for this "product category-brand" combination. The standard deviation of this price is denoted σ_{bp}.

X_c is defined as a dichotomous (binary) variable that takes the value of 0 if the fake goods included in the seized shipment were intended to be sold on the primary market, or 1 if they were intended to be sold on the secondary market. In accordance with the arguments mentioned in the main text, X_c is assumed to be defined as follows:

$$X_c = \begin{cases} = 0 \text{ if } p_c \in \left[p_{bp} - \dfrac{1.96 \times \sigma_{bp}}{\sqrt{N_{bp}}};\ \max\limits_{c\epsilon\{bp\}} p_c\right] \\ = 1 \text{ if } p_c \epsilon \left[\min\limits_{c\epsilon\{bp\}} p_c\ ;\ p_{bp} - \dfrac{1.96 \times \sigma_{bp}}{\sqrt{N_{bp}}}\right[\end{cases}; \qquad \forall c\{bp\}$$

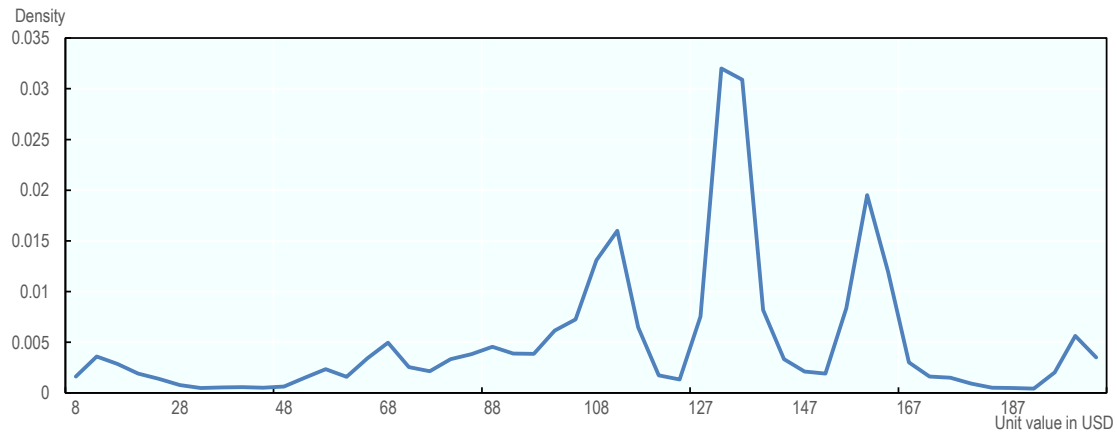
It follows that the share of products sold on the primary market can be calculated by product category, τ_p^1, and/or for the entire mass of fake imports, and is given by:

$$\tau_p^1 = \left(\sum_b \sum_c X_c s_c\right) / \left(\sum_b \sum_c s_c\right), \quad \forall c\epsilon\{bp\}$$

For example, Figure A A.1 shows the price distribution of fake shoes of brand X that were seized by global customs between 2014 and 2016. Using the methodology outlined, this indicates that most fake X shoes with prices lower than USD 121 were destined for the

secondary market, while those with values higher than USD 121 (observations in the middle and on the right-hand side of the distribution) were targeted at the primary market.

Figure A A.1. Price distribution of fake shoes of brand X seized by global customs, 2014-16



A.2. Construction of GTRIC-p

GTRIC-p is constructed of four steps:

- For each reporting economy, the seizure percentages for sensitive goods are formed.
- For each product category, aggregate seizure percentages are formed, taking the reporting economies' share of total sensitive imports as weights.
- From these, a counterfeit source factor is established for each industry, based on the industries' weight in terms of total trade.
- Based on these factors, the GTRIC-p is formed.

Step 1: Measuring reporter-specific product seizure intensities

$\tilde{v}_i^k$ and $\tilde{m}_i^k$ are, respectively, the seizure and import values of product type k (as registered according to the HS on the two-digit level) in economy i from *any* provenance economy in a given year. Economy i's relative seizure intensity (seizure percentages) of good k, denoted below as γ_i^k, is then defined as:

$$\gamma_i^k = \frac{\tilde{v}_i^k}{\sum_{k=1}^{\overline{K}} \tilde{v}_i^k}, \text{ such that } \sum_{k=1}^{\overline{K}} \gamma_i^k = 1 \quad \forall i \in \{1,\ldots,\overline{N}\}$$

$k = \{1,\ldots,\overline{K}\}$ is the range of sensitive goods (the total number of goods is given by K) and $i = \{1,\ldots,\overline{N}\}$ is the range of reporting economies (the total number of economies is given by N).

Step 2: Measuring general product seizure intensities

The general seizure intensity for product *k*, denoted Γ^k, is then determined by averaging seizure intensities, γ_i^k, weighted by the reporting economies' share of total sensitive imports in a given product category, *k*. Hence:

$$\Gamma^k = \sum_{i=1}^{\overline{N}} \omega_i \gamma_i^k \ , \quad \forall k \in \{1,..., \overline{K}\}$$

The weight of reporting economy *i* is given by:

$$\omega_i = \frac{\widetilde{m}_i^k}{\sum_{i=1}^{\overline{N}} \widetilde{m}_i^k}$$

where $\widetilde{m}_i$ is *i*'s total registered import value of sensitive goods ($\sum_{i=1}^{\overline{n}} \omega_i = 1$)

Step 3: Measuring product-specific counterfeiting factors

$\widetilde{M}^k = \sum_{i=1}^{N} \widetilde{m}_i^k$ is defined as the total registered imports of sensitive good *k* for *all* economies and $\widetilde{M} = \sum_{k=1}^{\overline{K}} \widetilde{M}^k$ is defined as the total registered world imports of *all* sensitive goods.

The world import share of good *k,* denoted s^k, is therefore given by:

$$s^k = \frac{\widetilde{M}^k}{\widetilde{M}} \text{, such that } \sum_{k=1}^{\overline{K}} s^k = 1$$

The general counterfeiting factor of product category *k*, denoted CP^k, is then determined as the following:

$$CP^k = \frac{\Gamma^k}{s^k}$$

The counterfeiting factor reflects the sensitivity of product infringements occurring in a particular product category, relative to its share in international trade. These are based on the seizure percentages calculated for each reporting economy and constitute the foundation of the formation of GTRIC-p.

Step 4: Establishing GTRIC-p

GTRIC-p is constructed from a transformation of the general counterfeiting factor and measures the relative propensity to which different types of product categories are subject to counterfeiting and piracy in international trade. The transformation of the counterfeiting factor is based on two main assumptions:

- The first assumption (A1) is that the counterfeiting factor of a particular product category is positively correlated with the actual intensity of international trade in counterfeit and pirated goods covered by that chapter. The counterfeiting factors must thus reflect the real intensity of actual counterfeit trade in the given product categories.
- The second assumption (A2) acknowledges that the assumption may not be entirely correct. For instance, the fact that infringing goods are detected more frequently in certain categories could imply that differences in counterfeiting factors across products merely reflect that some goods are easier to detect than others or that some goods, for one reason or another, have been specially targeted for inspection. The counterfeiting factors of product categories with lower counterfeiting factors could, therefore, underestimate actual counterfeiting and piracy intensities in these cases.

In accordance with assumption A1 (positive correlation between counterfeiting factors and actual infringement activities) and assumption A2 (lower counterfeiting factors may underestimate actual activities), GTRIC-p is established by applying a positive monotonic transformation of the counterfeiting factor index using natural logarithms. This standard technique of linearisation of a non-linear relationship (in the case of this study between counterfeiting factors and actual infringement activities) allows the index to be flattened and gives a higher relative weight to lower counterfeiting factors (see Verbeek, 2000).

In order to address the possibility of outliers at both ends of the counterfeiting factor index (i.e. some categories may be measured as particularly susceptible to infringement even though they are not, whereas others may be measured as insusceptible although they are), it is assumed that GTRIC-p follows a left-truncated normal distribution, with GTRIC-p only taking values of zero or above.

The transformed counterfeiting factor is defined as:

$$cp^k = \ln(CP^k + 1)$$

Assuming that the transformed counterfeiting factor can be described by a left-truncated normal distribution with $cp^k \geq 0$; then, following Hald (1952), the density function of GTRIC-p is given by:

$$f_{LTN}(cp^k) = \begin{cases} 0 & if\ cp^k \leq 0 \\ \dfrac{f(cp^k)}{\int_0^\infty f(cp^k)dcp^k} & if\ cp^k \geq 0 \end{cases}$$

where $f(cp^k)$ is the non-truncated normal distribution for cp^k specified as:

$$f(cp^k) = \frac{1}{\sqrt{2\pi\sigma_{cp}^2}} \exp\left(-\frac{1}{2}\left(\frac{cp^k - \mu_{cp}}{\sigma_{cp}} \right)^2 \right)$$

The mean and variance of the normal distribution, here denoted μ_{cp} and σ_{cp}^2, are estimated over the transformed counterfeiting factor index, cp^k, and given by $\widehat{\mu}_{cp}$ and $\widehat{\sigma}_{cp}^2$. This

enables the calculation of the counterfeit import propensity index (GTRIC-p) across HS chapters, corresponding to the cumulative distribution function of cp^k.

A.3. Construction of GTRIC-p

GTRIC-e is also constructed in four steps:

- For each reporting economy, the seizure percentages for provenance economies are calculated.
- For each provenance economy, aggregate seizure percentages are formed, taking the reporting economies' share of total sensitive imports as weights.
- From these, each economy's counterfeit source factor is established, based on the provenance economies' weight in terms of total trade.
- Based on these factors, the GTRIC-e is formed.

Step 1: Measuring reporter-specific seizure intensities from each provenance economy

$\tilde{v}_i^j$ is economy *i*'s registered seizures of all types of infringing goods (i.e. all *k*) originating from economy *j* in a given year in terms of their value. γ_i^j is economy *i*'s relative seizure intensity (seizure percentage) of all infringing items that originate from economy *j*, in a given year:

$$\gamma_i^j = \frac{\tilde{v}_i^j}{\sum_{j=1}^{\bar{J}} \tilde{v}_i^j} \text{ such that } \sum_{j=1}^{\bar{J}} \gamma_i^j = 1 \quad \forall i \in \{1,\ldots,\bar{N}\}$$

where $j = \{1,\ldots,\bar{J}\}$ is the range of identified provenance economies (the total number of exporters is given by *J*) and $i = \{1,\ldots,\bar{N}\}$ is the range of reporting economies (the total number of economies is given by *N*).

Step 2: Measuring general seizure intensities of each provenance economy

The general seizure intensity for economy *j*, denoted Γ^j, is then determined by averaging seizure intensities, γ_i^j, weighted by the reporting economy's share of total imports from known counterfeit and pirate origins.[1] Hence:

$$\Gamma^j = \sum_{i=1}^{\bar{N}} \varpi_i \gamma_i^j \quad , \quad \forall j \in \{1,\ldots,\bar{J}\}$$

The weight of reporting economy *i* is given by:

$$\varpi_i = \frac{\tilde{m}_i^j}{\sum_{i=1}^{\bar{N}} \tilde{m}_i^j} \text{, such that } \sum_{i=1}^{\bar{N}} \varpi_i = 1$$

Step 3: Measuring partner-specific counterfeiting factors

$\overline{M}^j = \sum_{i=1}^{N} \widetilde{m}_i^j$ is defined as the total registered world imports of all sensitive products from j,[2] and $\overline{M} = \sum_{j=1}^{\bar{J}} \overline{M}^j$ is the total world import of sensitive goods from all provenance economies.

The share of imports from provenance economy j in total world imports of sensitive goods, denoted s^j, is then given by:

$$s^j = \frac{\overline{M}^j}{\overline{M}}, \text{ such that } \sum_{j=1}^{J} s^j = 1$$

From this, the economy-specific counterfeiting factor is established by dividing the general seizure intensity for economy j with the share of total imports of sensitive goods from j.

$$CE^j = \frac{\Gamma^j}{s^j}$$

Step 4: Establishing GTRIC-e

Gauging the magnitude of counterfeiting and piracy from a provenance economy perspective can be undertaken in a similar fashion as for sensitive goods. Hence, a general trade-related index of counterfeiting for economies (GTRIC-e) is established along similar lines and assumptions:

- The first assumption (A3) is that the intensity by which any counterfeit or pirated article from a particular economy is detected and seized by customs is positively correlated with the actual amount of counterfeit and pirate articles imported from that location.
- The second assumption (A4) acknowledges that assumption A3 may not be entirely correct. For instance, a high seizure intensity of counterfeit or pirated articles from a particular provenance economy could be an indication that the provenance economy is part of a customs profiling scheme, or that it is specially targeted for investigation by customs. The importance that provenance economies with low seizure intensities play regarding actual counterfeiting and piracy activity could, therefore, be under-represented by the index and lead to an underestimation of the scale of counterfeiting and piracy.

As with the product-specific index, GTRIC-e is established by applying a positive monotonic transformation of the counterfeiting factor index for provenance economies using natural logarithms. This follows from assumption A3 (positive correlation between seizure intensities and actual infringement activities) and assumption A4 (lower intensities tend to underestimate actual activities). Considering the possibilities of outliers at both ends of the GTRIC e-distribution (i.e. some economies may be wrongly measured as being particularly susceptible sources of counterfeit and pirated imports, and vice versa),

GTRIC-e is approximated by a left-truncated normal distribution as it does not take values below zero.

The transformed general counterfeiting factor across provenance economies on which GTRIC-e is based is therefore given by applying logarithms onto economy-specific general counterfeit factors (see, for example, Verbeek, 2000):

$$ce^j = \ln(CE^j + 1)$$

In addition, following GTRIC-p, it is assumed that GTRIC-e follows a truncated normal distribution with $ce^j \geq 0$ for all *j*. Following Hald (1952), the density function of the left-truncated normal distribution for ce^j is given by:

$$g_{LTN}(ce^j) = \begin{cases} 0 & if\ ce^j \leq 0 \\ \dfrac{g(ce^j)}{\int_0^\infty g(ce^j)dce} & if\ ce^j \geq 0 \end{cases}$$

where $g(ce^j)$ is the non-truncated normal distribution for ce^j specified as:

$$g(ce^j) = \frac{1}{\sqrt{2\pi\sigma_{ce}^2}} \exp\left(-\frac{1}{2}\left(\frac{ce^j - \mu_{ce}}{\sigma_{ce}}\right)^2\right)$$

The mean and variance of the normal distribution, here denoted μ_{ce} and σ_{ce}^2, are estimated over the transformed counterfeiting factor index, ce^j, and given by $\widehat{\mu}_{ce}$ and $\widehat{\sigma}_{ce}^2$. This enables the calculation of the counterfeit import propensity index (GTRIC-e) across provenance economies, corresponding to the cumulative distribution function of ce^j.

A.4. Construction of GTRIC

In the OECD (2008) and OECD-EUIPO (2016) studies, propensities to import infringing goods from different trading partners were developed using seizure data as a basis. The usage of data is maximised by applying a generalised approach in which the propensities for products to be counterfeit and for economies to be sources of counterfeit goods were analysed separately. This increased the data coverage of both products and provenance economies significantly, which increases the robustness of the overall estimation results. Unfortunately, it also reduced the detail of the analysis, meaning that counterfeit trade patterns specific to individual reporting economies, for both product types and trading partners, were not simultaneously accounted for; this introduced bias into the results. On balance, given the large scope of the analysis, the advantages of increasing data coverage can be viewed as outweighing the biases.

This approach combines the two indices: GTRIC-p and GTRIC-e. In this regard, it is important to emphasise that the index resulting from this combination does not account for differences in infringement intensities across different types of goods that may exist between economies. For instance, imports of certain counterfeit and pirated goods could be particularly large from some trading partners and small from others. An index taking such "infringement specialisation", or concentration, into account is desirable and possible to

construct; but it would require detailed seizure data. The combined index, denoted GTRIC, is, therefore, a generalised index that approximates the relative propensities to which particular product types, imported from specific trading partners, are counterfeit and/or pirated.

Establishing propensities for product and provenance economy

In this step, the propensities to contain counterfeit and pirated products will be established for each trade flow from a given provenance economy and in a given product category.

The general propensity of importing infringed items of HS category *k*, from any economy, is denoted P^k, and be given by GTRIC-p so that:

$$P^k = F_{LTN}(cp^k)$$

where $F_{LTN}(cp^k)$ is the cumulative probability function of $f_{LTN}(cp^k)$.

Furthermore, the general propensity of importing any type of infringing goods from economy *j* is denoted P^j, and given by GTRIC-e, so that:

$$P^j = G_{LTN}(ce^j)$$

where $G_{LTN}(ce^j)$ is the cumulative probability function of $f_{LTN}(ce^j)$.

The general propensity of importing counterfeit or pirated items of type *k* originating from economy *j* is then denoted P^{jk} and approximated by:

$$P^{jk} = P^k P^j$$

Therefore, $P^{jk} \in [\varepsilon_p \varepsilon_e; 1)$, $\forall j,k$, with $\varepsilon_p \varepsilon_e$ denoting the minimum average counterfeit export rate for each sensitive product category and each provenance economy.[3] It is assumed that $\varepsilon_p = \varepsilon_e = 0.05$.

A.5. Calculating the absolute value

α is the fixed point, i.e. the maximum average counterfeit import rate of a given type of infringing good, *k*, originating from a given trading partner, *j*.

α can be applied onto propensities of importing infringing goods of type *j* from trading partner *k* (αP^{jk}). As a result, a matrix of counterfeit import propensities **C** is obtained**.**

$$\mathbf{C} = \begin{pmatrix} \alpha P^{11} & \alpha P^{21} & & & \alpha P^{1K} \\ \alpha P^{12} & \ddots & & & \\ & & \alpha P^{jk} & & \\ & & & \ddots & \\ \alpha P^{J1} & & & & \alpha P^{JK} \end{pmatrix} \text{ with dimension J x K}$$

The matrix of world imports is denoted by **M.** Applying **C** on **M** yields the absolute volume of trade in counterfeit and pirated goods.

In particular, the import matrix **M** is given by:

$$\mathbf{M} = \begin{pmatrix} \mathbf{M_1} \\ \vdots \\ \mathbf{M}_i \\ \vdots \\ \mathbf{M}_n \end{pmatrix} \text{ with dimension } n \text{ x } J \text{ x } K$$

Each element is defined by economy *i*'s unique import matrix of good *k* from trading partner *j*.

$$\mathbf{M}_i = \begin{pmatrix} m_{i1}^1 & m_{i1}^2 & & & m_{i1}^K \\ m_{i2}^1 & \ddots & & & \\ & & m_{ij}^k & & \\ & & & \ddots & \\ m_{iJ}^1 & & & & m_{iJ}^K \end{pmatrix} \text{ with dimension } J \text{ x } K$$

Hence, the element m_{ij}^k denotes *i*'s imports of product category *k* from trading partner *j*, where $i = \{1,..., n\}$, $j = \{1,..., J\}$, and $k = \{1,..., K\}$.

Denoted by Ψ, the product-by-economy percentage of counterfeit and pirated imports can be determined as the following:

$$\Psi = \mathbf{C'M} \div \mathbf{M}$$

Total trade in counterfeit and pirated goods, denoted by the scalar **TC**, is then given by:

$$\mathbf{TC} = \mathbf{i}_1'\Psi\mathbf{i}_2$$

where $\mathbf{i}_1$ is a vector of one with dimension *nJ* x 1, and $\mathbf{i}_2$ is a vector of one with dimension *K* x 1. Then, by denoting total world trade by the scalar $\mathbf{TM} = \mathbf{i}_1'\mathbf{Mi}_2$, the value of counterfeiting and piracy in world trade, s_{TC}, is determined by:

$$s_{\mathbf{TC}} = \frac{\mathbf{TC}}{\mathbf{TM}}$$

Notes

[1] This is different than the economy's share of total imports of sensitive goods used to calculate GTRIC-p.

[2] This is different than the total imports of sensitive goods as used in calculation of GTRIC-p.

[3] According to the OECD (2008) methodology, these factors were applied to all provenance economies and all HS modules in order to account for counterfeit and pirated exports of products and/or from provenance economies that were not identified. This assumption is relaxed in this study, given the overall good data quality.

References

Hald, A. (1952), Statistical Theory with Engineering Applications, John Wiley and Sons, New York.

Verbeek, M. (2000), A Guide to Modern Econometrics, Wiley.

Annex B. Additional Tables

Table B.1. Propensity of economies to export counterfeit products

GTRIC-e for world trade

Provenance economy	2014	2015	2016	Provenance economy	2014	2015	2016
Afghanistan	0.123	0.166	0.133	China (People's Republic of)	1.000	1.000	1.000
Albania	0.175	0.227	0.187	Christmas Island	0.126	0.170	0.136
Algeria	0.111	0.152	0.120	Cocos (Keeling) Islands	0.000	0.000	0.000
American Samoa	0.031	0.048	0.035	Colombia	0.346	0.414	0.362
Andorra	0.048	0.072	0.053	Comoros	0.000	0.000	0.000
Angola	0.000	0.000	0.000	Congo	0.070	0.100	0.076
Anguilla	0.000	0.000	0.000	Cook Islands	0.000	0.000	0.000
Antarctica	0.000	0.000	0.000	Costa Rica	0.111	0.152	0.120
Antigua and Barbuda	0.000	0.000	0.000	Côte d'Ivoire	0.159	0.208	0.170
Argentina	0.267	0.302	0.276	Croatia	0.119	0.162	0.129
Armenia	0.127	0.171	0.137	Cuba	0.074	0.106	0.081
Aruba	0.036	0.055	0.040	Curaçao	0.000	0.000	0.000
Australia	0.116	0.158	0.125	Cyprus*	0.083	0.118	0.091
Austria	0.123	0.167	0.133	Czech Republic	0.134	0.179	0.144
Azerbaijan	0.075	0.107	0.082	Democratic People's Republic of Korea	0.071	0.102	0.078
Bahamas	0.110	0.151	0.120	Democratic Republic of the Congo	0.141	0.188	0.152
Bahrain	0.523	0.594	0.541	Denmark	0.073	0.104	0.080
Bangladesh	0.801	0.849	0.813	Djibouti	0.718	0.776	0.733
Barbados	0.000	0.000	0.000	Dominica	0.000	0.000	0.000
Belarus	0.112	0.153	0.121	Dominican Republic	0.499	0.570	0.517
Belgium	0.120	0.163	0.130	Ecuador	0.123	0.166	0.133
Belize	0.000	0.000	0.000	Egypt	0.648	0.713	0.665
Benin	0.395	0.465	0.412	El Salvador	0.142	0.189	0.153
Bermuda	0.000	0.000	0.000	Equatorial Guinea	0.000	0.000	0.000
Bhutan	0.000	0.000	0.000	Eritrea	0.000	0.000	0.000
Bolivia	0.115	0.156	0.124	Estonia	0.112	0.153	0.121
Bonaire	0.000	0.000	0.000	Ethiopia	0.208	0.265	0.222
Bosnia and Herzegovina	0.113	0.155	0.123	Falkland Islands (Malvinas)	0.000	0.000	0.000
Botswana	0.000	0.000	0.000	Faroe Islands	0.000	0.000	0.000
Bouvet Island	0.000	0.000	0.000	Fiji	0.031	0.049	0.035
Brazil	0.120	0.163	0.130	Finland	0.036	0.055	0.040
British Indian Ocean Territory	0.000	0.000	0.000	Former Yugoslav Republic of Macedonia	0.083	0.117	0.091
British Virgin Islands	0.036	0.055	0.040	France	0.119	0.162	0.129
Brunei Darussalam	0.000	0.000	0.000	French Polynesia	0.000	0.000	0.000
Bulgaria	0.173	0.226	0.186	French Southern and Antarctic Lands	0.000	0.000	0.000
Burkina Faso	0.000	0.000	0.000	Gabon	0.000	0.000	0.000
Burundi	0.000	0.000	0.000	Gambia	0.319	0.386	0.335
Cabo Verde	0.000	0.000	0.000	Georgia	0.231	0.290	0.245
Cambodia	0.538	0.608	0.556	Germany	0.122	0.165	0.132
Cameroon	0.117	0.159	0.126	Ghana	0.146	0.193	0.157
Canada	0.127	0.171	0.137	Gibraltar	0.035	0.054	0.039
Cayman Islands	0.000	0.000	0.000	Greece	0.357	0.425	0.373
Central African Republic	0.000	0.000	0.000	Greenland	0.000	0.000	0.000
Chad	0.000	0.000	0.000	Grenada	0.000	0.000	0.000
Chile	0.113	0.154	0.122	Guam	0.253	0.315	0.268

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Table B.1. Propensity of economies to export counterfeit products (*continued*)

GTRIC-e for world trade

Provenance economy	2014	2015	2016	Provenance economy	2014	2015	2016
Guatemala	0.206	0.262	0.219	Montenegro	0.043	0.065	0.048
Guinea	0.000	0.000	0.000	Montserrat	0.000	0.000	0.000
Guinea-Bissau	0.000	0.000	0.000	Morocco	0.987	0.993	0.989
Guyana	0.000	0.000	0.000	Mozambique	0.000	0.000	0.000
Haiti	0.000	0.000	0.000	Myanmar	0.077	0.110	0.085
Heard Island and McDonald Islands	0.000	0.000	0.000	Namibia	0.000	0.000	0.000
Holy See	0.000	0.000	0.000	Nauru	0.000	0.000	0.000
Honduras	0.421	0.491	0.438	Nepal	0.109	0.150	0.118
Hong Kong (China)	1.000	1.000	1.000	Netherlands	0.122	0.166	0.132
Hungary	0.114	0.156	0.124	New Caledonia	0.000	0.000	0.000
Iceland	0.072	0.104	0.079	New Zealand	0.115	0.157	0.125
India	0.692	0.753	0.708	Nicaragua	0.126	0.170	0.136
Indonesia	0.165	0.216	0.177	Niger	0.000	0.000	0.000
Iran, Islamic Rep.	0.135	0.181	0.145	Nigeria	0.121	0.164	0.131
Iraq	0.119	0.162	0.129	Niue	0.160	0.210	0.172
Ireland	0.072	0.103	0.079	Norfolk Island	0.000	0.000	0.000
Israel	0.118	0.160	0.128	Northern Mariana Islands	0.000	0.000	0.000
Italy	0.141	0.188	0.152	Norway	0.112	0.153	0.121
Jamaica	0.079	0.112	0.087	Oman	0.160	0.210	0.172
Japan	0.118	0.160	0.127	Pakistan	0.947	0.966	0.952
Jordan	0.392	0.442	0.405	Palau	0.000	0.000	0.000
Kazakhstan	0.111	0.151	0.120	Palestinian Authority*	0.000	0.000	0.000
Kenya	0.168	0.220	0.180	Panama	0.887	0.920	0.896
Kiribati	0.000	0.000	0.000	Papua New Guinea	0.000	0.000	0.000
Korea	0.148	0.197	0.160	Paraguay	0.333	0.401	0.350
Kuwait	0.120	0.162	0.130	Peru	0.224	0.245	0.229
Kyrgyzstan	0.000	0.000	0.000	Philippines	0.174	0.226	0.186
Lao People's Democratic Republic	0.165	0.216	0.177	Pitcairn	0.000	0.000	0.000
Latvia	0.032	0.050	0.036	Poland	0.146	0.193	0.157
Lebanon	0.683	0.745	0.699	Portugal	0.122	0.165	0.132
Lesotho	0.000	0.000	0.000	Qatar	0.412	0.482	0.429
Liberia	0.000	0.000	0.000	Romania	0.166	0.218	0.178
Libya	0.114	0.155	0.123	Russia	0.117	0.160	0.127
Lithuania	0.115	0.157	0.125	Rwanda	0.034	0.053	0.038
Luxembourg	0.031	0.049	0.035	Saint-Barthélemy	0.000	0.000	0.000
Macau (China)	0.183	0.237	0.196	Saint Helena	0.000	0.000	0.000
Madagascar	0.072	0.104	0.079	Saint Kitts and Nevis	0.000	0.000	0.000
Malawi	0.075	0.106	0.082	Saint Lucia	0.000	0.000	0.000
Malaysia	0.373	0.442	0.390	Saint Pierre and Miquelon	0.000	0.000	0.000
Maldives	0.000	0.000	0.000	Saint Vincent and the Grenadines	0.000	0.000	0.000
Mali	0.036	0.056	0.040	Samoa	0.000	0.000	0.000
Malta	0.101	0.140	0.110	San Marino	0.000	0.000	0.000
Marshall Islands	0.037	0.056	0.041	Sao Tome and Principe	0.000	0.000	0.000
Mauritania	0.729	0.786	0.744	Saudi Arabia	0.112	0.153	0.122
Mauritius	0.160	0.210	0.171	Senegal	0.344	0.412	0.361
Mexico	0.134	0.179	0.144	Serbia	0.143	0.190	0.154
Micronesia	0.000	0.000	0.000	Seychelles	0.000	0.000	0.000

Table B.1. Propensity of economies to export counterfeit products (*end*)

GTRIC-e for world trade

Provenance economy	2014	2015	2016	Provenance economy	2014	2015	2016
Sint Maarten	0.000	0.000	0.000	Trinidad and Tobago	0.073	0.105	0.080
Slovak Republic	0.113	0.155	0.123	Tunisia	0.197	0.253	0.210
Slovenia	0.072	0.104	0.079	Turkey	0.937	0.958	0.943
Solomon Islands	0.000	0.000	0.000	Turkmenistan	0.000	0.000	0.000
Somalia	0.000	0.000	0.000	Turks and Caicos Islands	0.000	0.000	0.000
South Africa	0.113	0.154	0.123	Tuvalu	0.000	0.000	0.000
South Georgia and the South Sandwich Islands	0.000	0.000	0.000	Uganda	0.031	0.049	0.035
South Sudan	0.000	0.000	0.000	Ukraine	0.135	0.181	0.146
Spain	0.148	0.196	0.159	United Arab Emirates	0.994	0.997	0.995
Sri Lanka	0.382	0.451	0.399	United Kingdom	0.141	0.188	0.152
Sudan	0.076	0.108	0.083	United States	0.121	0.164	0.131
Suriname	0.192	0.247	0.205	United States Minor Outlying Islands	0.000	0.000	0.000
Swaziland	0.000	0.000	0.000	Uruguay	0.842	0.884	0.853
Sweden	0.122	0.165	0.131	Uzbekistan	0.076	0.108	0.083
Switzerland	0.124	0.167	0.134	Vanuatu	0.000	0.000	0.000
Syrian Arab Republic	0.531	0.602	0.549	Venezuela	0.130	0.174	0.140
Tajikistan	0.000	0.000	0.000	Viet Nam	0.185	0.239	0.198
Tanzania	0.073	0.104	0.080	Wallis and Futuna	0.000	0.000	0.000
Thailand	0.190	0.244	0.202	Western Sahara	0.000	0.000	0.000
Timor-Leste	0.000	0.000	0.000	Yemen	0.052	0.078	0.058
Togo	0.251	0.312	0.266	Zambia	0.031	0.048	0.035
Tokelau	0.213	0.270	0.226	Zimbabwe	0.000	0.000	0.000

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Table B.1. Propensity of commodities to suffer from counterfeiting

GTRIC-p for world trade

HS category	2014	2015	2016	HS category	2014	2015	2016
Foodstuffs (02-21)	0.159	0.087	0.105	Other textiles n.e.c. (59)	0.048	0.018	0.024
Beverages (22)	0.144	0.076	0.093	Knitted or crocheted fabrics (60)	0.704	0.601	0.630
Residues from the food industries (23)	0.000	0.000	0.000	Clothing, knitted or crocheted (61)	1.000	1.000	1.000
Tobacco (24)	0.993	0.978	0.961	Clothing and accessories, not knitted (62)	0.651	0.547	0.577
Salt; sulphur; earths and stone (25)	0.000	0.000	0.000	Other made-up textile articles (63)	0.997	0.988	0.991
Ores, slag and ash (26)	0.072	0.031	0.040	Footwear (64)	1.000	1.000	1.000
Mineral fuels (27)	0.108	0.053	0.066	Headgear (65)	0.977	0.971	0.982
Inorganic chemicals (28)	0.034	0.012	0.016	Umbrellas (66)	0.699	0.597	0.626
Organic chemicals (29)	0.078	0.034	0.044	Prepared feathers and down (67)	0.110	0.054	0.067
Pharmaceutical products (30)	0.326	0.227	0.254	Articles of stone, plaster and cement (68)	0.156	0.085	0.103
Fertilisers (31)	0.040	0.014	0.020	Ceramic products (69)	0.482	0.378	0.407
Tanning or dyeing extracts (32)	0.126	0.064	0.079	Glass and glassware (70)	0.125	0.063	0.078
Perfumery and cosmetics (33)	1.000	1.000	1.000	Jewellery (71)	0.962	0.916	0.931
Soap (34)	0.152	0.082	0.100	Iron and steel (72)	0.107	0.051	0.064
Albuminoidal substances (35)	0.034	0.012	0.016	Articles of iron and steel (73)	0.161	0.089	0.107
Explosives (36)	0.040	0.015	0.020	Copper and articles thereof (74)	0.115	0.057	0.071
Photographic or cinematic. goods (37)	0.092	0.043	0.054	Nickel and articles thereof (75)	0.000	0.000	0.000
Miscellaneous chemical products (38)	0.109	0.053	0.066	Aluminium and articles thereof (76)	0.109	0.053	0.066
Plastic and articles thereof (39)	0.255	0.164	0.188	Lead and articles thereof (78)	0.000	0.000	0.000
Rubber and article thereof (40)	0.136	0.071	0.087	Zinc and articles thereof (78)	0.116	0.057	0.071
Raw hides, skins and leather (41)	0.033	0.012	0.016	Tin and articles thereof (79)	0.000	0.000	0.000
Articles of leather; handbags (42)	1.000	1.000	1.000	Other base metals; cermet; articles (80)	0.000	0.000	0.000
Fur skins and artificial fur (43)	0.126	0.064	0.079	Tools and cutlery of base metal (82)	0.534	0.429	0.459
Wood and articles thereof (44)	0.198	0.117	0.138	Miscellaneous articles of base metal (83)	0.163	0.090	0.108
Cork and articles of cork (45)	0.000	0.000	0.000	Machinery and mechanical appliances (84)	0.208	0.125	0.146
Manufactures of straw (46)	0.075	0.033	0.042	Electrical machinery and electronics (85)	0.694	0.591	0.620
Pulp (47)	0.000	0.000	0.000	Railway (86)	0.158	0.087	0.104
Paper and paperboard (48)	0.187	0.108	0.128	Vehicles (87)	0.241	0.152	0.175
Printed articles (49)	0.160	0.088	0.106	Aircraft (88)	0.000	0.000	0.000
Silk (50)	0.000	0.000	0.000	Ships (89)	0.033	0.012	0.016
Wool (51)	0.000	0.000	0.000	Optical; photo.; medical apparatus (90)	0.899	0.822	0.846
Cotton (52)	0.129	0.066	0.081	Watches (91)	1.000	1.000	1.000
Other vegetable textile fibres (53)	0.000	0.000	0.000	Musical instruments (92)	0.860	0.774	0.800
Sewing thread of man-made filaments (54)	0.000	0.000	0.000	Arms and ammunition (93)	0.421	0.317	0.346
Man-made staple fibres (55)	0.043	0.016	0.022	Furnitures (94)	0.560	0.456	0.485
Wadding; cordage; ropes (56)	0.120	0.060	0.075	Toys and games (95)	1.000	1.000	1.000
Carpets and rugs (57)	0.098	0.046	0.058	Miscellaneous manufactured articles (96)	0.968	0.953	0.971
Finishing of textiles (58)	0.043	0.016	0.022	Work of art, collectors' pieces (97)	0.156	0.085	0.102

Table B.2. Propensity of economies to export counterfeit products to the EU

GTRIC-e for the EU

Provenance economy	2014	2015	2016	Provenance economy	2014	2015	2016
Afghanistan	0.455	0.516	0.431	Cocos (Keeling) Islands	0.000	0.000	0.000
Albania	0.519	0.580	0.494	Colombia	0.424	0.485	0.400
Algeria	0.421	0.482	0.397	Comoros	0.000	0.000	0.000
American Samoa	0.000	0.000	0.000	Congo	0.342	0.399	0.319
Andorra	0.316	0.373	0.295	Cook Islands	0.000	0.000	0.000
Angola	0.224	0.273	0.206	Costa Rica	0.343	0.400	0.320
Anguilla	0.000	0.000	0.000	Côte d'Ivoire	0.420	0.481	0.396
Antarctica	0.000	0.000	0.000	Croatia	0.132	0.174	0.119
Antigua and Barbuda	0.000	0.000	0.000	Cuba	0.000	0.000	0.000
Argentina	0.421	0.482	0.397	Curaçao	0.000	0.000	0.000
Armenia	0.380	0.439	0.357	Cyprus*	0.152	0.199	0.138
Aruba	0.248	0.299	0.228	Czech Republic	0.211	0.266	0.194
Australia	0.446	0.507	0.422	Democratic People's Republic of Korea	0.360	0.419	0.337
Austria	0.070	0.097	0.062	Democratic Republic of the Congo	0.480	0.541	0.455
Azerbaijan	0.381	0.440	0.358	Denmark	0.132	0.174	0.119
Bahamas	0.000	0.000	0.000	Djibouti	0.000	0.000	0.000
Bahrain	0.393	0.453	0.369	Dominica	0.000	0.000	0.000
Bangladesh	0.615	0.673	0.591	Dominican Republic	0.505	0.566	0.480
Barbados	0.000	0.000	0.000	Ecuador	0.420	0.481	0.396
Belarus	0.423	0.484	0.399	Egypt	0.577	0.637	0.553
Belgium	0.072	0.101	0.064	El Salvador	0.000	0.000	0.000
Belize	0.000	0.000	0.000	Equatorial Guinea	0.000	0.000	0.000
Benin	0.866	0.899	0.852	Eritrea	0.000	0.000	0.000
Bermuda	0.000	0.000	0.000	Estonia	0.205	0.260	0.188
Bhutan	0.000	0.000	0.000	Ethiopia	0.420	0.481	0.396
Bolivia	0.225	0.274	0.207	Falkland Islands (Malvinas)	0.000	0.000	0.000
Bonaire	0.000	0.000	0.000	Faroe Islands	0.000	0.000	0.000
Bosnia and Herzegovina	0.345	0.403	0.322	Fiji	0.226	0.274	0.207
Botswana	0.000	0.000	0.000	Finland	0.000	0.000	0.000
Bouvet Island	0.000	0.000	0.000	Former Yugoslav Republic of Macedonia	0.356	0.414	0.333
Brazil	0.421	0.482	0.397	France	0.205	0.260	0.188
British Indian Ocean Territory	0.000	0.000	0.000	French Polynesia	0.000	0.000	0.000
British Virgin Islands	0.335	0.393	0.313	French Southern and Antarctic Lands	0.000	0.000	0.000
Brunei Darussalam	0.000	0.000	0.000	Gabon	0.000	0.000	0.000
Bulgaria	0.278	0.341	0.258	Gambia	0.864	0.897	0.850
Burkina Faso	0.000	0.000	0.000	Georgia	0.420	0.480	0.396
Burundi	0.000	0.000	0.000	Germany	0.215	0.270	0.197
Cabo Verde	0.000	0.000	0.000	Ghana	0.457	0.518	0.432
Cambodia	0.431	0.492	0.407	Gibraltar	0.257	0.308	0.237
Cameroon	0.343	0.401	0.321	Greece	0.745	0.799	0.724
Canada	0.431	0.492	0.407	Greenland	0.000	0.000	0.000
Cayman Islands	0.000	0.000	0.000	Grenada	0.000	0.000	0.000
Central African Republic	0.000	0.000	0.000	Guam	0.239	0.289	0.220
Chad	0.000	0.000	0.000	Guatemala	0.465	0.526	0.441
Chile	0.420	0.481	0.396	Guinea	0.000	0.000	0.000
China (People's Republic of)	0.994	0.996	0.992	Guinea-Bissau	0.000	0.000	0.000
Christmas Island	0.244	0.295	0.225	Guyana	0.000	0.000	0.000

Table B.3. Propensity of economies to export counterfeit products to the EU (*continued*)

GTRIC-e for the EU

Provenance economy	2014	2015	2016	Provenance economy	2014	2015	2016
Haiti	0.000	0.000	0.000	Mozambique	0.000	0.000	0.000
Heard Island and McDonald Islands	0.000	0.000	0.000	Myanmar	0.000	0.000	0.000
Holy See	0.000	0.000	0.000	Namibia	0.000	0.000	0.000
Honduras	0.473	0.534	0.448	Nauru	0.000	0.000	0.000
Hong Kong (China)	1.000	1.000	1.000	Nepal	0.420	0.481	0.396
Hungary	0.069	0.097	0.061	Netherlands	0.208	0.263	0.190
Iceland	0.349	0.407	0.326	New Caledonia	0.000	0.000	0.000
India	0.874	0.905	0.859	New Zealand	0.421	0.481	0.397
Indonesia	0.519	0.580	0.495	Nicaragua	0.498	0.559	0.473
Iran, Islamic Rep.	0.449	0.510	0.425	Niger	0.000	0.000	0.000
Iraq	0.515	0.576	0.490	Nigeria	0.434	0.495	0.410
Ireland	0.000	0.000	0.000	Niue	0.000	0.000	0.000
Israel	0.424	0.485	0.400	Norfolk Island	0.000	0.000	0.000
Italy	0.205	0.259	0.188	Northern Mariana Islands	0.000	0.000	0.000
Jamaica	0.000	0.000	0.000	Norway	0.423	0.484	0.399
Japan	0.421	0.482	0.397	Oman	0.337	0.395	0.315
Jordan	0.709	0.760	0.687	Pakistan	0.789	0.833	0.770
Kazakhstan	0.420	0.481	0.396	Palau	0.000	0.000	0.000
Kenya	0.449	0.510	0.425	Palestinian Authority*	0.000	0.000	0.000
Kiribati	0.000	0.000	0.000	Panama	0.829	0.868	0.812
Korea	0.446	0.507	0.422	Papua New Guinea	0.000	0.000	0.000
Kuwait	0.435	0.496	0.411	Paraguay	0.304	0.359	0.283
Kyrgyzstan	0.000	0.000	0.000	Peru	0.484	0.545	0.459
Lao People's Democratic Republic	0.336	0.394	0.314	Philippines	0.457	0.519	0.433
Latvia	0.000	0.000	0.000	Pitcairn	0.000	0.000	0.000
Lebanon				Poland	0.072	0.100	0.064
Lesotho	0.000	0.000	0.000	Portugal	0.137	0.180	0.124
Liberia	0.000	0.000	0.000	Qatar	0.350	0.408	0.327
Libya	0.425	0.486	0.401	Romania	0.281	0.344	0.260
Lithuania	0.212	0.268	0.195	Russia	0.428	0.489	0.404
Luxembourg	0.000	0.000	0.000	Rwanda	0.244	0.295	0.225
Macau (China)		0.656	0.573	Saint-Barthélemy	0.000	0.000	0.000
Madagascar	0.343	0.401	0.321	Saint Helena	0.000	0.000	0.000
Malawi	0.000	0.000	0.000	Saint Kitts and Nevis	0.000	0.000	0.000
Malaysia	0.855	0.890	0.840	Saint Lucia	0.000	0.000	0.000
Maldives	0.000	0.000	0.000	Saint Pierre and Miquelon	0.000	0.000	0.000
Mali	0.337	0.395	0.315	Saint Vincent and the Grenadines	0.000	0.000	0.000
Malta	0.000	0.000	0.000	Samoa	0.000	0.000	0.000
Marshall Islands	0.000	0.000	0.000	San Marino	0.000	0.000	0.000
Mauritania	0.259	0.311	0.240	Sao Tome and Principe	0.000	0.000	0.000
Mauritius	0.461	0.523	0.437	Saudi Arabia	0.421	0.482	0.397
Mexico	0.436	0.497	0.412	Senegal	0.825	0.863	0.807
Micronesia	0.000	0.000	0.000	Serbia	0.517	0.578	0.492
Moldova	0.425	0.485	0.401	Seychelles	0.000	0.000	0.000
Mongolia	0.247	0.298	0.228	Sierra Leone	0.000	0.000	0.000
Montenegro	0.000	0.000	0.000	Singapore	0.775	0.820	0.755
Montserrat	0.000	0.000	0.000	Sint Maarten	0.000	0.000	0.000
Morocco	0.868	0.900	0.853	Slovak Republic	0.205	0.259	0.187

Table B.3. Propensity of economies to export counterfeit products to the EU (*end*)

GTRIC-e for the EU

Provenance economy	2014	2015	2016	Provenance economy	2014	2015	2016
Slovenia	0.000	0.000	0.000	Tunisia	0.543	0.604	0.518
Solomon Islands	0.000	0.000	0.000	Turkey	0.977	0.985	0.973
Somalia	0.000	0.000	0.000	Turkmenistan	0.000	0.000	0.000
South Africa	0.422	0.483	0.398	Turks and Caicos Islands	0.000	0.000	0.000
South Georgia and the South Sandwich Islands	0.000	0.000	0.000	Tuvalu	0.000	0.000	0.000
South Sudan	0.000	0.000	0.000	Uganda	0.000	0.000	0.000
Spain	0.207	0.261	0.190	Ukraine	0.508	0.569	0.484
Sri Lanka	0.420	0.481	0.396	United Arab Emirates	0.959	0.972	0.952
Sudan	0.247	0.298	0.228	United Kingdom	0.220	0.277	0.202
Suriname	0.241	0.292	0.223	United States	0.432	0.493	0.408
Swaziland	0.000	0.000	0.000	United States Minor Outlying Islands	0.000	0.000	0.000
Sweden	0.205	0.260	0.188	Uruguay	0.000	0.000	0.000
Switzerland	0.439	0.500	0.415	Uzbekistan	0.000	0.000	0.000
Syrian Arab Republic	0.695	0.748	0.673	Vanuatu	0.000	0.000	0.000
Tajikistan	0.000	0.000	0.000	Venezuela	0.349	0.407	0.326
Tanzania	0.226	0.274	0.208	Viet Nam	0.545	0.606	0.520
Thailand	0.663	0.718	0.640	Wallis and Futuna	0.000	0.000	0.000
Timor-Leste	0.000	0.000	0.000	Western Sahara	0.000	0.000	0.000
Togo	0.241	0.291	0.222	Yemen	0.000	0.000	0.000
Tokelau	0.234	0.283	0.215	Zambia	0.244	0.295	0.225
Tonga	0.342	0.400	0.319	Zimbabwe	0.000	0.000	0.000
Trinidad and Tobago	0.000	0.000	0.000				

Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".
Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Table B.3. Propensity of industries to suffer from counterfeiting in EU imports

GTRIC-p for the EU

HS category	2014	2015	2016	HS category	2014	2015	2016
Foodstuffs (02-21)	0.239	0.103	0.174	Other textiles n.e.c. (59)	0.000	0.000	0.000
Beverages (22)	0.459	0.255	0.368	Knitted or crocheted fabrics (60)	0.998	0.989	0.996
Residues from the food industries (23)	0.000	0.000	0.000	Clothing, knitted or crocheted (61)	0.997	0.985	0.994
Tobacco (24)	1.000	1.000	1.000	Clothing and accessories, not knitted (62)	0.214	0.072	0.143
Salt; sulphur; earths and stone; lime (25)	0.000	0.000	0.000	Other made-up textile articles (63)	0.219	0.272	0.343
Ores, slag and ash (26)	0.000	0.000	0.000	Footwear (64)	1.000	1.000	1.000
Mineral fuels (27)	0.000	0.000	0.000	Headgear (65)	0.212	0.093	0.133
Inorganic chemicals (28/29)	0.000	0.000	0.000	Umbrellas (66)	0.244	0.117	0.243
Organic chemicals (28/29)	0.000	0.000	0.000	Prepared feathers and down (67)	0.000	0.000	0.000
Pharmaceutical products (30)	0.416	0.223	0.329	Articles of stone, plaster a (68)	0.000	0.000	0.000
Fertilisers (31)	0.000	0.000	0.000	Ceramic products (69)	0.134	0.104	0.141
Tanning or dyeing extracts (32)	0.316	0.152	0.239	Glass and glassware (70)	0.033	0.004	0.014
Perfumery and cosmetics (33)	1.000	1.000	1.000	Jewellery (71)	0.598	0.417	0.523
Soap (34)	0.000	0.000	0.000	Iron and steel (72)	0.032	0.003	0.014
Albuminoidal substances (35)	0.000	0.000	0.000	Articles of iron and steel (73)	0.072	0.011	0.036
Explosives (36)	0.000	0.000	0.000	Copper and articles thereof (74)	0.035	0.004	0.015
Photographic or cinematic. goods (37)	0.000	0.000	0.000	Nickel and articles thereof (75)	0.000	0.000	0.000
Miscellaneous chemical products (38)	0.000	0.000	0.000	Aluminium and articles thereof (76)	0.096	0.017	0.050
Plastic and articles thereof (39)	0.297	0.139	0.223	Lead and articles thereof (78)	0.026	0.003	0.011
Rubber and article thereof (40)	0.000	0.000	0.000	Zinc and articles thereof (78)	0.000	0.000	0.000
Raw hides, skins and leather (41)	0.000	0.000	0.000	Tin and articles thereof (79)	0.000	0.000	0.000
Articles of leather; handbags (42)	1.000	1.000	1.000	Other base metals; cermet (80)	0.000	0.000	0.000
Fur skins and artificial fur (43)	0.000	0.000	0.000	Tools and cutlery of base metal (82)	0.000	0.000	0.000
Wood and articles thereof (44)	0.000	0.000	0.000	Miscellaneous articles of base metal (83)	0.014	0.001	0.005
Cork and articles of cork (45)	0.000	0.000	0.000	Machinery and mechanical appliances (84)	0.321	0.155	0.244
Manufactures of straw (46)	0.000	0.000	0.000	Electrical machinery and electronics (85)	0.620	0.438	0.545
Pulp (47)	0.000	0.000	0.000	Railway (86)	0.000	0.000	0.000
Paper and paperboard (48)	0.193	0.033	0.099	Vehicles (87)	0.327	0.159	0.249
Printed articles (49)	0.060	0.018	0.038	Aircraft (88)	0.000	0.000	0.000
Silk (50)	0.120	0.035	0.075	Ships (89)	0.000	0.000	0.000
Wool (51)	0.070	0.008	0.031	Optical; photo.; medical apparatus (90)	0.916	0.807	0.877
Cotton (52)	0.144	0.022	0.071	Watches (91)	1.000	1.000	1.000
Other vegetable textile fibres (53)	0.000	0.000	0.000	Musical instruments (92)	0.000	0.000	0.000
Sewing thread of man-made filaments (54)	0.000	0.000	0.000	Arms and ammunition (93)	0.000	0.000	0.000
Man-made staple fibres (55)	0.000	0.000	0.000	Furnitures (94)	0.066	0.007	0.029
Wadding; cordage; ropes (56)	0.000	0.000	0.000	Toys and games (95)	1.000	1.000	1.000
Carpets and rugs (57)	0.063	0.007	0.027	Miscellaneous manufactured articles (96)	0.959	0.886	0.934
Finishing of textiles (58)	0.000	0.000	0.000				

Table B.4. Industries by Harmonised System (HS) codes

HS code	Description
1	Live animals
2	Meat and edible meat offal
3	Fish and crustaceans, molluscs and other aquatic invertebrates
4	Dairy produce; birds' eggs; natural honey; edible products of animal origin, not elsewhere specified or included
5	Products of animal origin, not elsewhere specified or included
6	Live trees and other plants; bulbs, roots and the like; cut flowers and ornamental foliage
7	Edible vegetables and certain roots and tubers
8	Edible fruit and nuts; peel of citrus fruit or melons
9	Coffee, tea, mate and spices
10	Cereals
11	Products of the milling industry; malt; starches; inulin; wheat gluten
12	Oilseeds and oleaginous fruits; miscellaneous grains, seeds and fruit; industrial or medicinal plants
13	Lac; gums, resins and other vegetable saps and extracts
14	Vegetable plaiting materials; vegetable products not elsewhere specified or included
15	Animal or vegetable fats and oils and their cleavage products; prepared edible fats; animal or vegetable waxes
16	Preparations of meat, of fish or of crustaceans, molluscs or other aquatic invertebrates
17	Sugars and sugar confectionery
18	Cocoa and cocoa preparations
19	Preparations of cereals, flour, starch or milk; pastrycooks' products
20	Preparations of vegetables, fruit, nuts or other parts of plants
21	Miscellaneous edible preparations
22	Beverages, spirits and vinegar
23	Residues and waste from the food industries; prepared animal fodder
24	Tobacco and manufactured tobacco substitutes
25	Salt; sulphur; earth and stone; plastering materials, lime and cement
26	Ores, slag and ash
27	Mineral fuels, mineral oils and products of their distillation; bituminous substances; mineral waxes
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare-earth metals, of radioactive elements or of isotopes
29	Organic chemicals
30	Pharmaceutical products
31	Fertilisers
32	Tanning or dyeing extracts; tannins and their derivatives; dyes, pigments and other colouring matter; paints and varnishes; putty and other mastics; inks
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial waxes, prepared waxes, polishing or scouring preparations, candles and similar articles, modelling pastes, "dental waxes" and dental preparations
35	Albuminoidal substances; modified starches; glues; enzymes
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations
37	Photographic or cinematographic goods
38	Miscellaneous chemical products
39	Plastics and articles thereof
40	Rubber and articles thereof
41	Raw hides and skins (other than fur skins) and leather
42	Articles of leather; saddlery and harness; travel goods, handbags and similar containers; articles of animal gut
43	Fur skins and artificial fur; manufactures thereof
44	Wood and articles of wood; wood charcoal
45	Cork and articles of cork

Table B.5 Industries by Harmonised System (HS) codes (*continued*)

HS code	Description
45	Cork and articles of cork
46	Manufactures of straw, of esparto or of other plaiting materials; basketware and wickerwork
47	Pulp of wood or of other fibrous cellulosic material; recovered (waste and scrap) paper or paperboard
48	Paper and paperboard; articles of paper pulp, of paper or of paperboard
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts
50	Silk
51	Wool, fine or coarse animal hair; horsehair yarn and woven fabric
52	Cotton
53	Other vegetable textile fibres; paper yarn and woven fabrics of paper yarn
54	Man-made filaments
55	Man-made staple fibres
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof
57	Carpets and other textile floor coverings
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery
59	Impregnated, coated, covered or laminated textile fabrics; textile articles of a kind suitable for industrial use
60	Knitted or crocheted fabrics
61	Articles of apparel and clothing accessories, knitted or crocheted
62	Articles of apparel and clothing accessories, not knitted or crocheted
63	Other made up textile articles; sets; worn clothing and worn textile articles; rags
64	Footwear, gaiters and the like; parts of such articles
65	Headgear and parts thereof
66	Umbrellas, sun umbrellas, walking-sticks, seat-sticks, whips, riding-crops and parts thereof
67	Prepared feathers and down and articles made of feathers or of down; artificial flowers; articles of human hair
68	Articles of stone, plaster, cement, asbestos, mica or similar materials
69	Ceramic products
70	Glass and glassware
71	Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof; imitation, jewellery; coin
72	Iron and steel
73	Articles of iron or steel
74	Copper and articles thereof
75	Nickel and articles thereof
76	Aluminium and articles thereof
77	(Reserved for possible future use in the Harmonised System)
78	Lead and articles thereof
79	Zinc and articles thereof
80	Tin and articles thereof
81	Other base metals; cermets; articles thereof
82	Tools, implements, cutlery, spoons and forks, of base metal; parts thereof of base metal
83	Miscellaneous articles of base metal
84	Nuclear reactors, boilers, machinery and mechanical appliances; parts thereof
85	Electrical machinery and equipment and parts thereof; sound recorders and reproducers, television image and sound recorders and reproducers, and parts and accessories of such articles
86	Railway or tramway locomotives, rolling-stock and parts thereat railway or tramway track fixtures
87	Vehicles other than railway or tramway rolling stock, and parts and accessories thereof
88	Aircraft, spacecraft, and parts thereof

Table B.5 Industries by Harmonised System (HS) codes (*end*)

HS code	Description
89	Ships, boats and floating structures
90	Optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof
91	Clocks and watches and parts thereof
92	Musical instruments; parts and accessories of such articles
93	Arms and ammunition; parts and accessories thereof
94	Furniture; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings; lamps and lighting fittings, not elsewhere specified or included; illuminated signs, illuminated nameplates and the like; prefabricated buildings
95	Toys, games and sports requisites; parts and accessories thereof
96	Miscellaneous manufactured articles
97	Works of art, collectors' pieces and antiques
98	(Reserved for special uses by Contracting Parties)

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