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Trade in counterfeit goods in Serbia – Methodological approach and quantification³

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Abstract: *The paper represents the first step in quantifying the categories of goods with the highest risk of being counterfeit during import into Serbia. Firstly, we present a methodology for quantifying the level of counterfeiting, its advantages, and its limitations. Secondly, we determine the product categories most likely to contain counterfeit products. Likewise, by using the OECD methodology, the GTRIC-p indicator for Serbia was formed, enabling comparison with OECD member countries. Based on the results, Serbia does not significantly differ from EU countries in terms of structure and product categories most at risk. The negative effects of imports of counterfeit products are borne mainly by the foreign intellectual property rights holders whose*

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counterfeit products are imported into Serbia. In this context, despite the legal framework in place, incentives for its proper implementation are questionable.

Keywords: *import of counterfeited goods, intellectual property rights, OECD, GTRIC indicator.*

Trgovina krivotvorenom robom u Srbiji – Metodološki pristup i kvantifikacija

Apstrakt: *Rad predstavlja prvi korak u kvantifikaciji kategorija robe kod kojih postoji najveći rizik od krivotvorenja prilikom uvoza u Srbiju. U prvom delu prikazujemo metodologiju kvantifikovanja nivoa krivotvorenja, njene prednosti i ograničenja. U drugom delu, utvrđujemo kategorije proizvoda sa najvećom verovatnoćom da će sadržati krivotvorene proizvode prilikom uvoza. Korišćenjem OECD metodologije formiran je GTRIC-p indeks za Srbiju i omogućeno poređenje sa zemljama članicama OECD. Utvrđeno je da se Srbija po strukturi rizičnih kategorija proizvoda ne razlikuje značajno u odnosu na zemlje EU. Negativni efekti prouzrokovani su pre svega stranim titularima prava intelektualne svojine, čiji se krivotvoreni proizvodi uvoze u Srbiju. U tom kontekstu i pored uređenog pravnog okvira postavlja se pitanje podsticaja za njegovu primenu.*

Ključne reči: *uvoz krivotvorene robe, pravo intelektualne svojine, OECD, GTRIC indikator.*

1. Introduction

Both for developed as well as for developing economies, the protection of intellectual property rights (IPR) provides incentives for future innovation and contributes to economic growth. Adequate protection levels prevent rampant unauthorized distribution and acquisition of goods protected by IPR. This, in turn, enables rights holders to freely generate income from their creation.

In contrast, inefficient IPR protection, high levels of counterfeiting, and unobstructed distribution of counterfeit goods threaten to hamper innovation and the development of creative industries, and thus hampering economic growth. The production and import of counterfeit goods can cause four main negative effects: loss of consumer welfare, loss of income of rights holders, declining employment levels, and loss of tax revenues in the affected industries. (OECD, 2018; Fink, Maskus & Qian, 2016; Grossman & Shapiro, 1988). This affects producers through lower profits and consumers who may have fewer new innovative products at their disposal (Fink, Maskus & Qian, 2016).

Negative externalities of counterfeiting are hereby not exhausted. For example, the distribution and usage of counterfeit products may also directly pose a significant public health risk (Spink, Moyer, Park & Heinonen, 2013).

The production and trade of counterfeit goods have recorded significant growth in the past two decades. According to OECD (2008) estimates, during 2005, the value of counterfeit goods in international trade amounted to approximately USD 200 billion. During 2013, the world value of import of counterfeit goods amounted to USD 461 billion. The share of EU countries represented almost a quarter of said amount. (OECD/EUIPO, 2016). During 2016, the value of counterfeit products in international trade was approximated at USD 500 billion, and in the EU at USD 134 billion (OECD/EUIPO, 2019). Heinonen, Holt, & Wilson (2012) attribute the growth of counterfeiting in international trade *inter alia* to the development of e-commerce. They posit that this is caused by the inability of consumers to fully verify the credibility of the products they procure in this manner. According to Wall & Large (2010), additional incentives for counterfeiting are created by non-harmonized regulations between countries and relatively lenient *de jure* and *de facto* penalties.

A significant challenge for the implementation of IPR protection is the effective control of international trade in goods. Import of counterfeit goods into Serbia, and transit through Serbia, are carried out through complex distribution channels, with many transit points. These points facilitate the concealment of the country of origin, development of distribution points in transit countries, and repackaging procedures to make counterfeit goods harder to detect.

Every entry of goods into the customs territory of Serbia requires the implementation of customs procedures. Customs Administration of the Republic of Serbia (CARS) has special powers prescribed by the Law on Special Powers for the Effective Protection of Intellectual Property Rights (Official Gazette of the Republic of Serbia, no. 46/2006 and 104/2009 - other laws) and it implements protection measures in the customs procedure prescribed by customs regulations. According to the information from the semi-structured interviews with CARS representatives, counterfeit goods typically enter Serbia either as a finished product, semi-finished product, or as raw material intended for processing into a finished product. In the period 2015 - 2019, there was an increase in the quantity of imported counterfeit goods in Serbia and an increase in the number of IPR protection measures conducted by CARS. According to CARS statistical reports, approximately 2.6 million product units were retained in the observed period. Protection measures increased from 620 measures in 2015 to 1.734 measures in 2018, with more than 80 percent of measures being implemented at the request of rights holders.

The main goal of this paper is to determine product categories with the highest risk of being counterfeit upon import into Serbia. This will be achieved by adapting the OECD methodology to quantify counterfeit goods and apply data available for Serbia. This represents an important first step towards the efficient selection of measures and improvement of IPR protection in Serbia.

The paper is structured as follows: the introductory section is followed by an overview of relevant literature and possible methodological approaches. A detailed description of the advantages and disadvantages of the OECD methodology applied in this paper follows. Thereafter, we present empirical results and identify product categories with the highest risk of being counterfeit upon import into Serbia. We also compare trends in Serbia with other countries. Lastly, concluding remarks provide recommendations for further research.

2. Literature Review

The counterfeiting phenomenon has been analyzed from the perspective of criminological theory, economic theory, behavioral economics, psychology, and legal theory. Cesareo (2016) analyzes and classifies approximately 600 studies of counterfeiting and piracy covering the period between 1980 and 2015. The author differentiates existing studies into those that provide a general description of the phenomena, those that provide international and national political, legal and economic frameworks, those that provide an analysis counterfeiting effects, and those that analyze the supply-side and/or the demand-side of counterfeiting. The findings of said studies are not uniform in terms of possible positive and negative effects of counterfeiting, both at the country level as well as within different industries. Staake, Thiesse & Fleisch (2009) and Hollis, Levente Feyes, Fenoff & Wilson (2015) also provide a comprehensive literature review with a special focus on different aspects of supply and demand with regards to counterfeiting.

When it comes to micro-level analysis, Takeyama (1994), De Castro (2007), Qian (2014) examine the effects of counterfeiting on producers, consumers, and social welfare. The authors find that counterfeiting may cause an improvement in social welfare in the presence of certain conditions. For example, Takeyama (1994) finds that unauthorized reproduction of intellectual property can lead to a Pareto improvement in social welfare in the presence of demand network externalities. Qian (2014) finds that the potential positive effect of counterfeiting is most pronounced for high-fashion products and high-end products of non-established brands.

Qian (2008) assesses the effects of counterfeit footwear on prices and quality of originals and finds that, in the absence of regulatory protection, rights holders

are more inclined to implement protection measures themselves by innovating and signaling the quality of the original product via price growth. Wilke & Zaichkowsky (1999) analyze the effects of consumer perception and find that, in general, under certain conditions, counterfeit goods may provide a net benefit to society when they may be uniquely identified, when consumers knowingly purchase them, and when they are of better quality and/or higher value to the consumer, compared to the original.

Wall & Large (2010), Penz & Stöttinger (2012), Kapferer & Michaut (2014) examine the impact of counterfeiting on the sale of luxury goods. Based on data from eight focus groups, Penz & Stöttinger (2012) conclude that emotional aspects represent important drivers of purchasing decisions regarding counterfeit goods and originals. Based on a study on 966 luxury goods consumers, Kapferer & Michaut (2014) posit that negative ethical judgments regarding luxury goods represent strong predictors of procurement of counterfeit luxury goods.

The supply-side of counterfeiting still represents an under-researched area. Using criminological theory, Spink et al. (2013) develop a typology of counterfeit products and differentiate types of offenders into recreational, occasional, professional, and ideological. Hollis et al. (2015) identify main indicators of counterfeiting from the aspect of perpetrators, utilizing the Theory of routine activity. According to this theory, the conditions that need to be met in order to lead to the execution of any offense (including counterfeiting) are a motivated offender, the presence of a suitable victim, and the absence of a person or entity preventing the commission of the act. (Cohen & Felson, 1979).

According to Spink & Fejes (2012), three reference documents are most commonly used as the primary source of quantitative assessments of the effects of counterfeiting at the macro level. These are the 1997 report of the International Chamber of Commerce providing an estimate of the volume of counterfeiting, which amounts to 5-7 percent of international trade, the OECD estimates where the value of the counterfeit goods market in 2005 was approximated at USD 200 billion, and the Federal Bureau of Investigation estimates that this value amounted to USD 200-250 billion in the United States. The authors also provide an analysis of the methodological shortcomings of macro-level research of counterfeiting.

Statistical data collected by IPR protection bodies enable only estimates of the relative frequency of counterfeiting, while significant approximations are needed to estimate the absolute frequency. Therefore, studies aimed at quantifying the import of counterfeit goods are limited to the usage of data on the number of products seized during import and their value (Spink & Fejes, 2012). According to Fink, Maskus & Qian (2016), previous empirical research

was primarily based on data on the rate of counterfeiting in developed countries. The specifics of underdeveloped and developing economies make it difficult to transplant solutions implemented in developed countries and limit their efficiency. The authors point out that differences can stem from the specifics of individual legal systems and sanctions and differences in the expected utility of counterfeiting and different supply-side and demand-side characteristics.

The market for counterfeit goods can be divided into primary and secondary markets. On the primary market, products whose price does not deviate significantly from the price of the original are sold so that consumers are mistaken to obtain the original product. At the secondary market, customers are aware that they are not buying the original product. This is also reflected in significantly lower product prices (OECD/EUIPO, 2016). A similar classification is given by Spink et al. (2013) and Fink, Maskus & Qian (2016). These authors distinguish between deceptive and non-deceptive counterfeit goods. In the case of deceptive counterfeit goods, there exists an asymmetry of information and a conscious intention to mislead consumers. Non-deceptive counterfeit goods are those that are traded in the secondary market. Such classifications are important for quantifying the loss of income of rights holders and quantifying other types of negative effects that may arise since they enable the assignment of more precise values to counterfeit goods depending on the market for which they are intended. The negative effects of counterfeiting on social welfare largely depend on whether consumers are deceived into obtaining the original product (Fink, Maskus & Qian, 2016). Common indications that a product is counterfeit are differences in price, quality, and packaging compared to the original. The analysis of counterfeit products on the primary and secondary market has not yet been conducted for Serbia, as has been done in some OECD member countries.

3. Research methodology

The OECD (2008) report provided an approximation of the frequency of counterfeiting in international trade and represents the most significant empirical analysis of the supply-side of counterfeiting. This methodology was further improved upon in OECD/EUIPO (2016), OECD (2017), OECD (2018), OECD/EUIPO (2019), as well as in Frontier Economics (2016). OECD estimates are, inter alia, based on data regarding customs retention of imported counterfeit goods and their value, provenance economies, points of transit, and destination. Based on this data, the product categories with the highest risk of containing counterfeit goods upon import are determined. The countries that

have the highest propensity to be the provenance economies of counterfeit products are also determined.

To quantify the extent of import of counterfeit goods, the OECD has formed the General Trade-Related Index of Counterfeiting (GTRIC), based on three econometric parameters: GTRIC-p, GTRIC-e, and GTRIC. GTRIC-p represents an index of industry sectors (classified via two-digit categories of the Harmonized System) according to their relative propensity to contain counterfeit goods upon import. GTRIC-e represents an index of countries according to their relative propensity to be the provenance economy of counterfeit goods. GTRIC represents a general matrix for assigning the relative probability of the existence of counterfeit goods upon import to each pair of "product category" and "provenance economy" (OECD/EUIPO, 2016).

The OECD uses the two-digit Harmonized System (HS) nomenclature. Products that share the first two digits of the HS code are classified as the same product group. The Government of Serbia has adopted the Decree on the harmonization of the nomenclature of the Customs Tariff for 2020 (Official Gazette of RS, no. 85/2019 and 13/2020), and the nomenclature of the Customs Tariff for 2020 fully follows the HS nomenclature.

This paper follows the OECD methodology and constructs an adapted GTRIC-p indicator, which allows us to determine the product categories most likely to contain counterfeit products upon import into Serbia. Below we present the construction of GTRIC-p indicator for Serbia, adapted from the OECD (2019) report and methodology.

For each product category, the seizure percentages for categories at risk need to be determined. Seizure and import values of a p-type product with a two-digit HS code, imported into Serbia and originating from any provenance economy, are denoted as v_p and m_p respectively (OECD, 2019). The relative seizure intensity (γ_p) of good p is defined as:

$$\gamma_p = \frac{v_p}{\sum_p v_p}, \text{ so that } \sum_p \gamma_p = 1 \quad (1)$$

Industry/product-specific counterfeit factors are determined based on their weighted representation in the total import in the Republic of Serbia.

$$M = \sum_p m_p \quad (2)$$

This is defined as the total recorded import for each product category containing goods at risk of being counterfeit. The share of a good p in imports into Serbia (S_p) is defined as:

$$S_p = \frac{m_p}{M}, \text{ so that } \sum_p S_p = 1 \quad (3)$$

The counterfeiting factor (C_p) expresses the sensitivity of IPR infringements in a specific product category in relation to its share in Serbian imports. The counterfeiting factor of the product category p is defined as:

$$C_p = \frac{Y_p}{S_p} \quad (4)$$

GTRIC- p is formed through the transformation of the counterfeit factor. It measures the relative propensity to which different products are subject to counterfeiting upon import in Serbia. This indicator is established by applying a positive monotonic transformation of the counterfeit factor index using natural logarithms. In this way, the index is flattened and gives a higher relative weight to lower counterfeiting factors (OECD/EUIPO, 2016; OECD, 2019). In the OECD (2019) report, an assumption is made that GTRIC- p follows a left-truncated normal distribution, with c_p only having values equal to or greater than zero.

The transformed counterfeiting factor is represented as:

$$c_p = \ln(C_p + 1) \quad (5)$$

The density function of GTRIC- p is represented as:

$$f_{\text{LTN}}(c_p) \begin{cases} 0 & \text{if } c_p \leq 0 \\ \frac{f(c_p)}{\int_0^{\infty} f(c_p) dc_p} & \text{if } c_p \geq 0 \end{cases} \quad (6)$$

Above, $f(c_p)$ represents a non-truncated normal distribution for c_p defined as:

$$f(c_p) = \frac{1}{\sqrt{2\pi\sigma_p^2}} \exp\left(-\frac{1}{2}\left(\frac{c_p - \mu_p}{\sigma_p}\right)^2\right) \quad (7)$$

The mean and variance of the normal distribution were estimated using the transformed counterfeit factor index (c_p). This allows for the calculation of GTRIC- p throughout product categories (OECD, 2019).

Based on CARS data, it is possible to form the GTRIC- p indicator for Serbia, but with several methodological assumptions, approximations, and partial deviation from the OECD methodology. Namely, following the OECD methodology would require the usage of data on the value of retained goods. CARS does not hold records on the value of detained products, only destroyed counterfeit products. The recording of data on the value of destroyed goods began in Serbia in March 2018. The quantity of destroyed goods in one year also may refer to goods retained in the previous period but destroyed in the subject year. This causes additional limitations, and therefore, it is possible to form the GTRIC- p indicator only in relation to counterfeit goods seized by CARS

and destroyed during 2018. Additionally, it is not possible to compare the product categories' annual trends that have the greatest risk to contain counterfeit products upon import. Furthermore, when differentiating and grouping destroyed counterfeit goods, CARS statistical reports do not fully follow the categorization of the Customs Tariff or the HS nomenclature, so recategorization of data and products according to their affiliation to a certain chapter of the Customs Tariff is also necessary.

The OECD methodology contains several additional limitations. When forming the GTRIC-p indicator, the transformation of the counterfeiting factor is based on two assumptions. Namely, there is a presumption of a positive correlation between the share of seizures of products from a certain category (certain provenance economy) and the actual intensity of counterfeit goods imports from that category (provenance economy) (OECD/EUIPO, 2019). The analysis is not carried out in relation to individual product types. The products are grouped into broader categories, according to the first two digits of the HS code. Therefore, it is assumed that the determined counterfeit eligibility of products from the two-digit broader HS category applies to each narrowly defined subcategory. The second assumption is that the stated positive correlation does not have to be linear, considering the possibility of the existence of different types of biases in the implementation of customs procedures (OECD/EUIPO, 2019). For example, more frequently retained products may be easier to detect or targeted more often during customs procedures (OECD/EUIPO, 2019).

An additional constraint of the methodology is highlighted by Spink & Fejes (2012). Namely, counterfeit products that the customs authority has not identified are not included in the statistical data. Therefore, data on retained products cannot be viewed as a random sample of all categories of counterfeit products whose import has been attempted. Fink, Maskus & Qian (2016) also point out that, although the OECD methodology allows for the establishment of statistical linkages based on which tariff heads with a high risk of containing counterfeit products are identified, this approach does not allow for the estimation of the total scope of imports of counterfeit goods. A report by the U.S. Government's Office of Accountability (GAO, 2010) states that "despite significant efforts, it is difficult, if not impossible, to quantify the net effect of counterfeiting and piracy on the economy as a whole". Based on statistical data, only the relative share and the relative value of counterfeit goods in product categories or provenance economies are determined. OECD estimates also do not consider the possibility for counterfeiters to choose another country of origin, or transit point, which would reduce the representation of certain countries as provenance economies. (Spink & Fejes, 2012).

In addition, Fink, Maskus & Qian (2016) and Spink & Fejes (2012) point out that, although international WCO guidelines for recording data on retained goods are established, the approaches still vary between countries. Furthermore, there may also be significant differences in the way detained products are assigned value, which may further reduce the comparability of the data. According to Spink & Fejes (2012), the subject limitations significantly complicate meta-analysis and quantification. The authors also point out that customs seizure data, aggregated in the databases in question, often do not contain counterfeit products that are retained at the border based on violations of other regulations.

4. Results and discussion

The first step in forming the GTRIC-p indicator is to determine the "seizure intensity", i.e. the share of the value of counterfeit goods from each chapter of the Customs Tariff in the total value of counterfeit goods imported into Serbia. Due to the aforementioned restrictions and missing data, the analysis is limited only to the categories where goods were destroyed in the customs proceedings between March - December 2018. The total value of destroyed goods in this period amounted to EUR 1,604,822. For the analysis, the imputed value of the destroyed goods for the whole of 2018 was calculated.

Table 1. Approximation of the value of destroyed products in 2018

Chapter / Category	Tariff Code	March – December 2018	Whole 2018	Share
		EUR	Imputed value EUR	%
Foodstuff	16-21	17,436	20,923	1.08%
Clothing, accessories and textile products	61-63	1,042,883	1,251,459	64.98%
Footwear	64	69,485	83,382	4.33%
Articles of leather; Handbags (Purses, Wallets, etc.)	42	459,827	551,792	28.65%
Watches	91	1,794	2,153	0.11%
Machinery and mechanical appliances	84	374	448	0.02%
Paper and paperboard (Packaging material)	48	13,023	15,627	0.81%
Total:		1,604,822	1,910,173	100%

Source: Authors' calculation based on adaptation of Customs Administration data provided directly to Authors

Since the names of the product categories in the CARS statistical reports do not fully correspond to the chapters of the Customs Tariff, a cross-comparison and grouping, in relation to the titles of the chapters of the Customs Tariff, was conducted. For example, the categories “clothing”, “clothing accessories” and “textile products” are separated in the CARS reports even though they belong to the same chapter of the Customs Tariff. Therefore, they were grouped during analysis.

Table 2. Value of imported and destroyed products

Chapter / Category	Tariff Code	SITC	Destroyed in 2018 (imp.)	Share	Import value*	Share
		rev.4	EUR	%	EUR	%
Foodstuff	16-21	073, 098	20,923	1.08%	201,964,935	14.96
Clothing, accessories, and textile products	61-63	84	1,251,459	64.98%	400,150,679	29.63
Footwear	64	85	83,382	4.33%	122,067,609	9.04
Articles of leather; Handbags (Purses, Wallets, etc.)	42	61, 83	551,792	28.65%	159,447,706	11.81
Watches	91	88	2,153	0.11%	24,769,116	1.83
Machinery and mechanical appliances	84	75	448	0.02%	258,659,745	19.15
Paper and paperboard (Packaging material)	48	64	15,627	0.81%	183,285,103	13.57
Total:			1,910,173	100%	1,350,344,893	100%

* The SORS data regarding import value was approximated by including only product categories which were most similar to products retained by CARS.

Source: Authors' calculation based on adaptation of Customs Administration data; Import data for 2018 based on SORS Imports by SITC rev. 4 groups available at <https://data.stat.gov.rs/Home/Result/170303?languageCode=en-US&displayMode=table&guid=65b5ffa3-b64e-455a-8c19-00ce44fcda00>

The second step is to calculate the "counterfeit factor", i.e., the share of the value of imported goods for each product category in the total (cumulative) value of imports of at-risk product categories. An at-risk category is any category where there was at least one counterfeit product destroyed during 2018. The Statistical Office of the Republic of Serbia (SORS) data on the value of imports by categories for 2018 was used. The SORS classification does not follow the Customs Tariff nomenclature but the Standard International Trade Classification (SITC) and alternatively, the Foreign Trade Statistics Nomenclature (FTSN). Therefore, cross-referencing of the Customs Tariff chapters and data from the SITC classification was conducted. SORS data were initially expressed in thousands of USD. Therefore, the EUR conversion

was performed based on the National bank of Serbia middle exchange rate for 2018. In table 2, the value of destroyed products, as well as the value of imports for categories at risk are shown.

In Serbia, the categories "clothing, clothing accessories and textiles", as well as "handbags" represent approximately 90 percent of the total value of destroyed products. "Footwear" and "food products" follow.

GTRIC-p was established via transformation of the counterfeit factor for each of the product categories, and it represents the share of the seizure intensity (first step) of each product category in the counterfeit factor (second step), for each product category. In other words, GTRIC-p measures the relative propensity that certain product categories imported into Serbia will be counterfeit. Table 3 shows the GTRIC-p values for Serbia. The GTRIC scores range from zero to one. A higher score indicates a product category that is more likely to be counterfeit upon import. (OECD/EUIPO, 2016).

Table 3. GTRIC-p scores for Serbia

Chapter / Category	Tariff Code	SITC rev.4	GTRIC-p
Foodstuff	16-21	073, 098	0,758
Clothing, accessories, and textile products	61-63	84	0,374
Footwear	64	85	0,937
Articles of leather; Handbags (Purses, Wallets, etc.)	42	61, 83	0,311
Watches	91	88	0,748
Machinery and mechanical appliances	84	75	0,692
Paper and paperboard (Packaging material)	48	64	0,747

Source: Authors' calculation based on adaptation of Customs Administration data provided directly to Authors.

Table 4 shows the average values of GTRIC-p for Serbia, the UK, Italy, and Sweden, at the EU level and the world level. Where average GTRIC-p values are shown, it is important to note that they exhibit significant annual oscillations.

Table 4. GTRIC-p for different categories of products

Chapter / Category	'18	'11-'13	'14-'16			
	Serbia	UK	Italy	Sweden	EU	World
Foodstuff (16-21)	0,758	-	-	-	0,172	0,117
Clothing, accessories, and textile products (61-63)	0,374	0,994	1,000	0,716	0,992	1,000
Footwear (64)	0,937	1,000	0,754	0,999	1,000	1,000
Articles of leather; Handbags (Purses, Wallets, etc.) (42)	0,311	1,000	1,000	0,870	1,000	1,000
Watches (91)	0,748	1,000	1,000	1,000	1,000	1,000
Machinery and mechanical appliances (84)	0,692	-	0,114	0,237	0,240	0,160
Paper and paperboard (Packaging material) (48)	0,747	-	-	-	0,108	0,141
Perfumery and cosmetics (33)	n/a	0,999	1,000	0,870	1,000	1,000
Toys & games (95)	n/a	0,760	0,994	0,888	1,000	1,000
Optical; Photo.; Medical apparatus (90)	n/a	0,977	1,000	0,350	0,867	0,856
Electrical machinery, electronics and parts (85)	n/a	0,708	0,147	0,813	0,534	0,635
Jewelry (71)	n/a	0,329	0,830	0,398	0,513	0,936
Vehicles (87)	n/a	-	0,122	0,152	0,245	0,189
Plastics and articles thereof (39)	n/a	0,681	0,375	-	0,220	0,202
Miscellaneous articles (96)	n/a	0,946	-	-	0,926	0,879
Pharmaceutical products (30)	n/a	0,474	-	-	0,323	0,269
Other made-up textile articles (63)	n/a*	0,336	-	-	0,278	0,992
Various base metal products (82)	n/a	0,657	-	-	0,000	0,474
Knitted or crocheted fabrics (60)	n/a	-	0,353	-	0,994	0,645
Beverages (22)	n/a	-	0,125	-	0,361	0,104

Comparisons of GTRIC-p values presented in this table are made for product categories for which calculations were possible for Serbia, as well as, illustratively, for several other significant product categories. Due to the lack of data, the GTRIC-p data for Serbia was formed using simplifying assumptions and approximations and did not fully follow the OECD methodology.

Source: OECD (2017), OECD (2018), OECD (2019), OECD/EUIPO (2019) and authors' calculation

Serbia does not significantly differ from EU countries in the structure of product categories most likely to be counterfeit upon import. This is expected, given these categories are usually dominated by leather goods, footwear, watches, perfumes and cosmetics, toys and games, and clothing (OECD/EUIPO, 2019).

Of the ten categories with the highest GTRIC-p score at the EU level, products with the highest risk when it comes to the Serbian market fall into four out of these ten categories. The category most at risk for the Serbian market is "footwear". The remaining three categories with the highest risk of being counterfeit during import are "bags (leather products)", "watches" and "clothing". Counterfeit products are mainly concentrated in a number of industries, and there exists a high level of similarity between the types of seized products in Serbia compared to EU countries.

Due to lack of data, it is not possible to give an explicit assessment of the strength of the negative effects of imports of counterfeit products into Serbia. However, we can infer that, due to the structure of the Serbian economy, foreign rights holders whose counterfeit products are imported into Serbia are at risk the most. IPR protection has an important international element. Namely, if the violation of IPR, due to the structure of a country's economy, mostly results in the decline in profitability of large foreign entities, and to a lesser extent, affects the profitability of domestic rights holders, this may represent a possible reason for weak regulatory effort and investment in expensive prevention activities (Fink, Maskus & Qian, 2016). Considering that foreign rights holders may primarily be at risk and that consumers have developed an extremely high degree of tolerance (Perinčić, 2017), the motivation for implementing proper protection measures in Serbia arises.

5. Conclusions

This paper represents the first step in quantifying the categories of products with the highest risk of counterfeiting upon import into Serbia. Based on our findings, it was determined that Serbia, in relation to EU countries, does not significantly differ in the structure of categories of products that are most at risk of being counterfeit. The category with the greatest risk for the Serbian market is "footwear". The remaining three categories with the highest risk of being counterfeit during import are "bags (leather products)", "watches" and "clothing".

However, the approach used in this paper contains certain limitations. Due to the unavailability of all relevant data, it was not possible to fully follow the OECD methodology. For the same reasons, it was also not possible to establish the GTRIC-e indicator. The paper is, therefore, subject to further improvements. To verify the robustness of the findings, it is important to conduct a quantitative analysis that would completely follow the OECD methodology. It is also desirable to improve the CARS recording system since, although very detailed in its current form, it does not allow the usage of all aggregated parameters. In

addition to recording the value of destroyed goods, it would be desirable to start recording the value of retained goods according to the same criteria.

To differentiate the primary and secondary market of counterfeit goods in Serbia, it is also possible to conduct an analysis of consumer awareness i.e., to examine to what extent consumers are aware that they are buying counterfeit goods. To establish the provenance economies of counterfeit products imported into Serbia, it is also desirable to develop GTRIC-e indicator. This extended research approach is conditioned upon obtaining new data and improving the methodology of their recording. This would represent the next step towards a more effective IPR protection in Serbia. This kind of data monitoring would enable an adequate assessment of the need for legal framework changes and improvements in its implementation.

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