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THE ECONOMIC COST OF IPR INFRINGEMENT IN THE TYRES AND BATTERIES SECTORS

Quantification of infringement in the Manufacture of rubber tyres and tubes; retreading and rebuilding of rubber tyres (NACE 22.11) and Manufacture of batteries and accumulators (NACE 27.20)

February 2018

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Project Team
Nathan Wajsman, Chief Economist
Carolina Arias Burgos, Economist

Acknowledgements
The authors would like to thank the members of the Economics & Statistics working group of the Observatory, who provided useful comments on the reports in this series and on the methodology used. In addition, industry sources provided information on the tyre and battery marketplace in the EU.

February 2018

Table of Contents

1. FOREWORD.....4

2. EXECUTIVE SUMMARY 6

2.1 METHODOLOGY AND DATA..... 6

2.2 MAIN FINDINGS..... 6

2.3 NON-ECONOMIC IMPACTS OF COUNTERFEIT TYRES AND BATTERIES……..…10

1. FOREWORD

The European Observatory on Infringements of Intellectual Property Rights (the Observatory) was created to improve the understanding of the role of intellectual property (IP) and of the negative consequences of intellectual property rights (IPR) infringements. It was transferred from the Commission to the EUIPO in 2012 by Regulation (EU) No 386/2012.

In a study carried out in collaboration with the European Patent Office[1], the EUIPO, acting through the Observatory, estimated that approximately 42 % of total economic activity and 28 % of all employment in the EU is directly generated by IPR-intensive industries, with a further 10 % of jobs in the EU arising from purchases of goods and services from other industries by IPR-intensive industries.

Another study[2] compared the economic performance of European companies that own IPRs with those that do not, finding that IPR owners' revenue per employee is 28 % higher on average than for non-owners, with a particularly strong effect for small and medium-sized enterprises (SMEs). Although only 9 % of SMEs own registered IPRs, those that do have almost 32 % more revenue per employee than those that do not.

Perceptions and behaviours of European citizens regarding IP and counterfeiting and piracy[3] were also assessed as part of an EU-wide survey. This survey revealed that although citizens recognise the value of IP in principle, they also tend to justify infringements at an individual level in certain cases.

The Observatory is seeking to complete the picture by assessing the economic impact of counterfeiting and piracy.

This exercise is challenging from a methodological point of view, as it attempts to shed light on a phenomenon that by its very nature is not directly observable. To pave the way towards quantification of the scope, scale and impact of IPR infringements, as identified in its mandate, the Observatory has developed a step-by-step approach to evaluating the negative impact of counterfeiting and its consequences for legitimate businesses, governments and consumers, and ultimately for society as a whole.

[1] EUIPO/EPO, *Intellectual property rights intensive industries and economic performance in the European Union*: *industry-level analysis report*, 2nd ed., EUIPO, Alicante, 2016.
[2] OHIM, *Intellectual property rights and firm performance in Europe: an economic analysis: firm-level analysis report*, OHIM, Alicante, 2015.
[3] EUIPO, *European citizens and intellectual property: perception, awareness and behaviour*, 2nd ed., EUIPO, Alicante, 2017.

Several IPR-intensive industries whose products are known or thought to be subject to counterfeiting have been selected. Previous studies have examined the following sectors: cosmetics and personal care; clothing, footwear and accessories; sports goods; toys and games; jewellery and watches; handbags and luggage; recorded music; spirits and wine; pharmaceuticals; pesticides; and smartphones.

The EUIPO and OECD joint report[4] on global trade in counterfeit products revealed the broad scope of industries affected by counterfeiting, ranging from luxury items to everyday goods, including products that can pose a threat to consumers' health and safety and to the environment. Car spare parts are among those products targeted by counterfeiters, covering any part and automotive component, such as piston rings, filters, seat belts, oils and lubricants, batteries, and tyres.

This twelfth study, covering tyres and batteries, uses a similar methodology to that applied in previous sectorial studies. The EUIPO/EPO (2016) *IP Contribution study* showed that both industries are intensive in their use of trade marks, patents and designs.

[4] EUIPO/OECD, Trade in counterfeit and pirated goods: mapping the economic impact, OECD Publishing, Paris, 2016.

2. EXECUTIVE SUMMARY

2.1 METHODOLOGY AND DATA

The methodology applied in this study (as in the other studies in this series) requires a long time series of sales data of a homogeneous product. When possible, official data from Eurostat have been used, defining each sector based on the NACE[5] classification. For car spare parts, only two NACE classes comply with those requirements: tyres and batteries.

The starting point of this analysis is the value of tyres and batteries sold in the EU based on Eurostat's Structural Business Survey (SBS) and international trade statistics. Predicted sales of each of the two products are generated and compared with actual sales in each EU Member State. The differences between predicted and actual sales are then analysed using statistical methods. These differences can be partly explained by **socio-economic factors**, such as GDP growth, currency exchange rates or the number of passenger cars per 1 000 inhabitants. In addition, **factors related to counterfeiting** are considered, such as behaviour of consumers[6] as reflected in the *IP Perception study*.

The methodology is explained in detail in Section 4.

2.2 MAIN FINDINGS

It is estimated that **EUR 2.2 billion** are **lost annually by the legitimate industry due to the presence of counterfeit tyres in the EU marketplace and EUR 180 million are lost annually due to counterfeit batteries**, corresponding to **7.5 % and 1.8 % of the sectors' sales, respectively**.

The resulting estimates of the lost sales due to counterfeiting in the manufacture of tyre and battery sectors, for all Member States are shown in Table 1 in relative as well as absolute terms.

[5] NACE (***N****omenclature statistique des* ***a****ctivités économiques dans la* ***C****ommunauté* ***E****uropéenne*) is the official classification of economic activity used by Eurostat, the statistical office of the EU.

[6] Results from the *IP perception study* published by the EUIPO in November 2013 are used, such as the propensity of EU citizens to intentionally buy counterfeit goods.

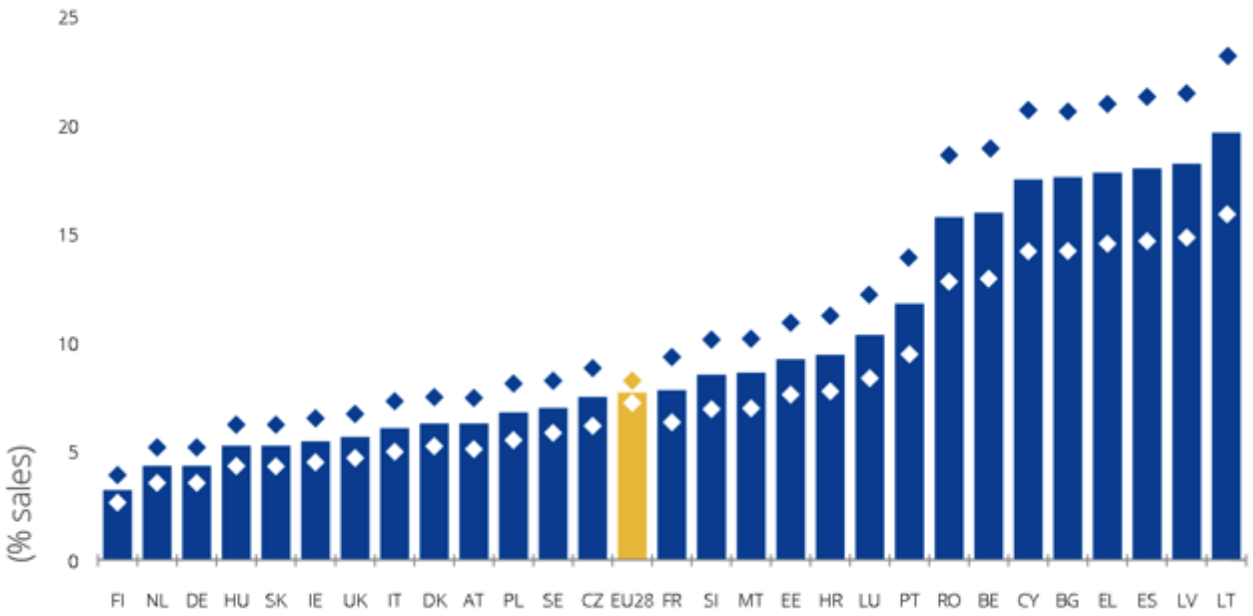
Table 1. Lost sales due to counterfeiting of tyres and batteries by country (2010-2015)

	TYRES		BATTERIES	
	Lost sales (%)	Lost sales (million EUR)	Lost sales (%)	Lost sales (million EUR)
AUSTRIA	6.1	30	1.6	3
BELGIUM	15.6	96	4.0	3
BULGARIA	17.2	21	4.4	4
CYPRUS	17.1	7	4.4	1
CZECH REPUBLIC	7.3	106	1.9	3
GERMANY	4.2	261	1.1	31
DENMARK	6.1	13	1.6	1
ESTONIA	9.0	4	2.3	N/A
GREECE	17.4	39	4.5	5
SPAIN	17.6	445	4.6	32
FINLAND	3.1	17	0.8	1
FRANCE	7.6	411	2.0	27
CROATIA	9.2	9	2.4	N/A
HUNGARY	5.1	16	1.3	7
IRELAND	5.3	11	1.4	1
ITALY	5.9	256	1.5	18
LITHUANIA	19.2	15	5.0	1
LUXEMBOURG	10.1	2	2.6	N/A
LATVIA	17.8	11	4.6	1
MALTA	8.4	1	2.2	0
NETHERLANDS	4.2	12	1.1	3
POLAND	6.6	74	1.7	6
PORTUGAL	11.5	41	3.0	3
ROMANIA	15.4	76	4.0	3
SWEDEN	6.8	45	1.8	10
SLOVENIA	8.3	14	2.2	1
SLOVAKIA	5.1	14	1.3	1
UNITED KINGDOM	5.5	201	1.4	13
EU-28	**7.5**	**2 247**	**1.8**	**179**

The country least affected by counterfeiting of tyres and batteries in relative terms is Finland (3.1 % and 0.8 % respectively), while Lithuania is the country most affected (19.2 % and 5 % respectively). In absolute terms, the impact is greatest in Spain, with lost sales due to counterfeit tyres and batteries estimated at EUR 477 million, followed by France at EUR 438 million, Germany (EUR 292 million), Italy (EUR 274 million) and the United Kingdom (EUR 214 million). The five largest EU Member States account for EUR 1.7 billion lost due to counterfeiting, 70 % of total lost sales in the EU.

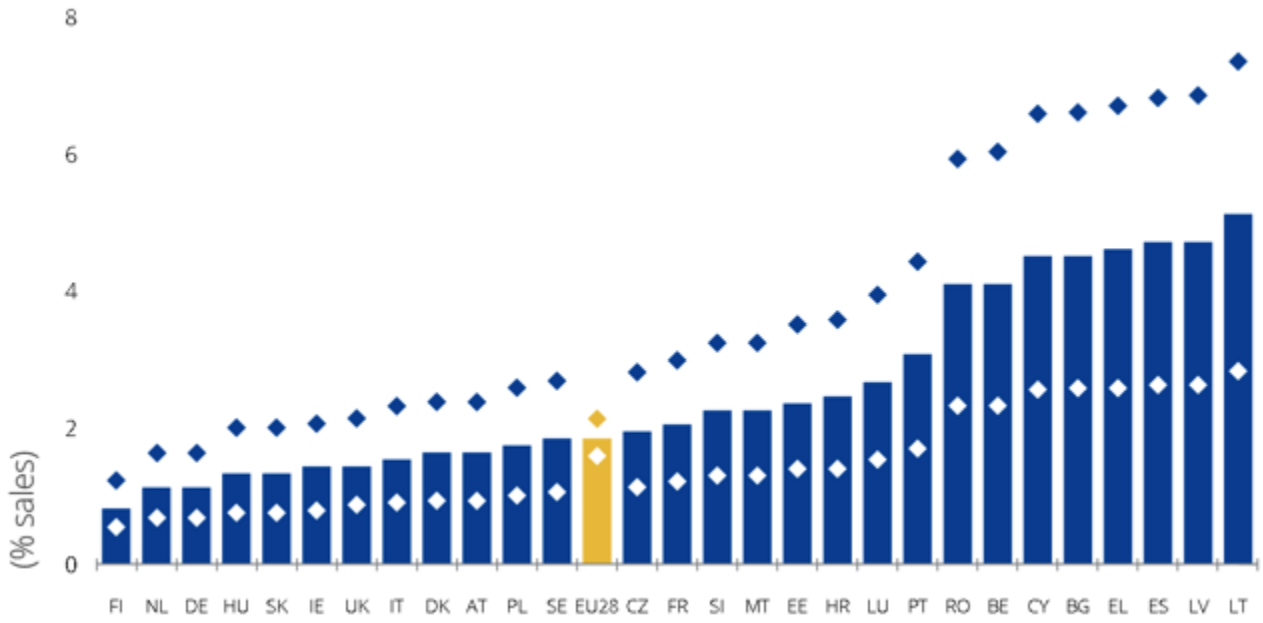
The resulting estimates of relative lost sales due to counterfeit tyres and batteries by country are shown in Figures 1 and 2. The bar indicates the impact of counterfeiting on the legitimate sector's sales, expressed as a percentage of sales, while the diamonds indicate the 95 % confidence interval of that estimate[7].

Figure 1. Lost sales due to counterfeiting of tyres by country (2010-2015)



[7] The 95 % confidence interval is a statistical calculation that means that there is a 95% probability that the true figure lies between the lower and upper bounds of that interval. For example, for the EU as a whole, the estimated percentage of lost sales is 7.5 %, with a 95 % probability of the true percentage lying between 7 % and 8 %.

Figure 2. Lost sales due to counterfeiting of batteries by country (2010-2015)



These lost sales translate into direct employment losses of 8 318 jobs[8].

If the knock-on effects on other industries are added, when both the direct and indirect effects are considered, **counterfeiting in these two sectors causes approximately EUR 4.8 billion of lost sales to the EU economy, which in turns leads to employment losses of 22 283 jobs.**

[8] These figures do not take account of the effect of imports, since in those cases the associated employment impacts occur outside the EU. Nor does it include losses suffered by EU producers as a result of counterfeiting in non-EU markets. Estimated employment losses in the EU therefore relate to goods produced and consumed within the EU.

Finally, assuming that illicit producers do not declare their activities and the resulting revenues to the authorities, **the total loss of government revenue (household income taxes, social security contributions and corporate income taxes) can therefore be roughly estimated at EUR 340 million.**

2.3 NON-ECONOMIC IMPACTS OF COUNTERFEIT TYRES AND BATTERIES

This report focuses on the economic consequences of counterfeit tyres and batteries. However, there are a number of other impacts in areas such as safety and environmental damage.

Counterfeit tyres or batteries often appear to be authentic as it is very difficult to distinguish a legitimate from a fake by checking the outer appearance. Consumers can therefore inadvertently purchase products that are substandard and unsafe, since testing and quality processes are often non-existent in counterfeit products, putting drivers and other road users at risk.

A study on accident conditions related to tyre usage[9] demonstrated that having a tread depth of 1.6 mm or more reduces grip accident probability on wet or snowy roads by 84 % and tyre blowout failure accident probability is reduced by 86 %, compared with tyres with less than 1.6 mm tread depth. Tests carried out by the industry showed fake tyres with 1.4 mm tread depth and regrooved tyres (doctored to look new despite actually being older tyres with little or none of the original tread left) result in clear safety risks for users.

Manufacturers of car batteries must follow strict specifications to meet consumers' expectations for performance and safety. Products are designed to prevent electrolyte leakage (which is potentially harmful not only to the circuitry in devices but also to body tissues). In addition, a single-use vent designed into the seal of the battery releases internal pressure within the battery during conditions of abuse in order to prevent an explosion. These safety features are sometimes absent from counterfeit batteries, putting the user at risk.

In addition to the user safety aspect, counterfeit tyres and batteries can also cause damage to the environment, as the materials used to manufacture counterfeit parts may fail to meet safety standards and do not always comply with environmental protection standards and the EU Circular Economy Action Plan[10], which includes measures covering production to waste management, including recycling and reuse.

[9] CHOI, E-H., *Tire-Related Factors in the Pre-Crash Phase* (Report No DOT HS 811 617), National Highway Traffic Safety Administration, Washington DC, 2012 .

[10] https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/towards-circular-economy_en

Tyres are an example of a product where the circular economy starts at the design stage, extends to use, collection of used products and continues with reuse and recycling. The European Tyre & Rubber Manufacturers' Association (ETRMA) reports [11] a 96 % treatment rate of tyres (e.g. reuse of materials or other types of recycling).

Many of the components of batteries can also be recycled, avoiding the release of hazardous substances into the environment and providing valuable materials. Directive 2006/66/EC of The European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators (Batteries Directive) [12] prohibits the marketing of batteries containing some hazardous substances and fixes targets for collection and recycling, assigning responsibility for waste management of batteries to producers. It is unknown to what extent producers of counterfeit batteries comply with these regulations.

While quantification of the non-economic impacts outlined in this sub-section is beyond the scope of this report, they are clearly of significant societal importance and must be kept in mind when considering the phenomenon of counterfeit tyres and batteries.

[11] http://www.etrma.org/uploads/Modules/Documentsmanager/elt-report-v9a---final.pdf

[12] http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02006L0066-20131230&rid=1, OJ L 266, 26.9.2006, p. 1.

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E03008 Alicante – Spain

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