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OBSERVATIONS ON EFFORTS TO QUANTIFY THE ECONOMIC EFFECTS OF
COUNTERFEIT AND PIRATED GOODS

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I. LACK OF DATA IS THE PRIMARY CHALLENGE FOR QUANTIFYING ECONOMIC IMPACTS OF COUNTERFEITING AND PIRACY[1]

1. Quantifying the economic impact of counterfeit and pirated goods on the U.S. economy is challenging primarily because of the lack of available data on the extent and value of counterfeit trade. Counterfeiting and piracy are illicit activities, which makes data on them inherently difficult to obtain. In discussing their own effort to develop a global estimate on the scale of counterfeit trade, OECD officials told us that obtaining reliable data is the most important and difficult part of any attempt to quantify the economic impact of counterfeiting and piracy. OECD's 2008 report, The Economic Impact of Counterfeiting and Piracy, further states that available information on the scope and magnitude of counterfeiting and piracy provides only a crude indication of how widespread they may be, and that neither governments nor industry were able to provide solid assessments of their respective situations. The report stated that one of the key problems is that data have not been systematically collected or evaluated and, in many cases, assessments "rely excessively on fragmentary and anecdotal information; where data are lacking, unsubstantiated opinions are often treated as facts."

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[*] The views expressed in this document are those of the author and not necessarily those of the Secretariat or of the Member States of WIPO

[1] Excerpts from GAO, *Intellectual Property, Observations on Efforts to Quantify the Economic Effects of Counterfeit and Pirated Goods,* GAO-10-423, April 2010 (*http://www.gao.gov/new.items/d10423.pdf*)

2.   In cases in which data on counterfeits are collected by federal agencies, such as
        United States (US) Customs and Border Protection (CBP) or the Federal Aviation
        Administration (FAA), it is difficult to know how complete the data are. For example, it is
        difficult to determine whether seizure data collected by CBP reflect the extent and types of
        counterfeits entering the United States in any given year, the counterfeit products that were
        detected, or the level of federal border enforcement effort expended.

3.   Commerce and FBI officials told us they rely on industry statistics on counterfeit and
        pirated goods and do not conduct any original data gathering to assess the economic
        impact of counterfeit and pirated goods on the U.S. economy or domestic industries.
        However, according to experts and government officials, industry associations do not
        always disclose their proprietary data sources and methods, making it difficult to verify their
        estimates. Industries collect this information to address counterfeiting problems associated
        with their products and may be reluctant to discuss instances of counterfeiting because
        consumers might lose confidence. OECD officials, for example, told us that one reason
        some industry representatives were hesitant to participate in their study was that they did
        not want information to be widely released about the scale of the counterfeiting problem in
        their sectors.

II.   ASSUMPTIONS ARE USED TO COMPENSATE FOR THE LACK OF DATA

4.   Because of the lack of data on illicit trade, methods for calculating estimates of economic
        losses must involve certain assumptions, and the resulting economic loss estimates are
        highly sensitive to the assumptions used. Two experts told us that the selection and
        weighting of these assumptions and variables are critical to the results of counterfeit
        estimates, and the assumptions should, therefore, be identified and evaluated.
        Transparency in how these estimates are developed is essential for assessing the
        usefulness of an estimate. Two key assumptions that typically are required in calculating a
        loss estimate from counterfeit goods include the substitution rate used by consumers and
        the value of counterfeit goods.

5.   Substitution rate: The assumed rate at which a consumer is willing to switch from
        purchasing a fake good to the genuine product is a key assumption that can have a critical
        impact on the results of an economic loss estimate. For example, if a consumer pays the
        full retail price for a fake movie thinking that it is the genuine good, an assumption can be
        made that a legitimate copy would have been bought in the absence of the fake product,
        representing a one-to-one substitution rate. However, this one-to-one substitution rate
        requires three important conditions: (1) the fake good is almost identical in quality to the
        genuine one; (2) the consumer is paying full retail price for the fake product; and (3) the
        consumer is not aware he is purchasing a counterfeit product. When some of these
        conditions are not met (e.g., the consumer paid a significantly lower price for the
        counterfeit), the likelihood that the consumer would have purchased the genuine product at
        full price is not clear. Substitution rates also vary by industry, since factors such as product
        quality, distribution channels, and information available about the product can differ
        significantly.

6.   Value of fake goods: Valuation of the fake goods constitutes another set of assumptions
        that has a significant impact. There are several measures of value that can be used, such
        as the production cost, the domestic value, or the manufacturer's suggested retail price.
        For example, CBP announced in a January 2010 press release that it had seized
        252,968 DVDs with counterfeit trademarks. The agency reported that the manufacturer's
        suggested retail price of the shipment was estimated to be more than $7.1 million and the

domestic value was estimated at $204,904. Officials from the International Trade Commission stated that counterfeits are very difficult to price and estimates of economic impact would benefit from including a range of prices, from the spot price of the fake on the street corner at the bottom to the manufacturer's suggested retail price at the top.

7.   The level or extent of deception that consumers face is also an important factor to consider when developing assumptions for the substitution rate and value of the fake goods. If a consumer is completely deceived, it could be reasonable to assume a one-to-one substitution rate (i.e., the purchase of a legitimate good in lieu of the counterfeit one) and a full retail price (i.e., the manufacturer's suggested retail sales price). Price, packaging, and location of the transaction are the most important signs to the consumer indicating the legitimacy of a good. Many of the experts we interviewed said that a one-to-one substitution rate is not likely to exist in most circumstances where counterfeit goods are significantly cheaper than the legitimate goods. Some experts also noted that the level of consumer deception varies across industries. For example, consumers who purchase counterfeit pharmaceuticals are more likely to be deceived, particularly when the counterfeit good is sold through the same distribution channel as the genuine product. Some experts observed that few, if any, consumers would willingly purchase a pharmaceutical product they knew might be counterfeit. However, the extent of deception among consumers of audiovisual products is likely lower because sales venues for counterfeit audiovisual goods tend to be separate from the legitimate ones. Unless the assumptions about substitution rates and valuations of counterfeit goods are transparently explained, experts observed that it is difficult, if not impossible, to assess the reasonableness of the resulting estimate.

III.   THREE WIDELY CITED ESTIMATES SOURCED TO U.S. AGENCIES CANNOT BE SUBSTANTIATED

8.   Three commonly cited estimates of U.S. industry losses due to counterfeiting have been sourced to U.S. agencies, but cannot be substantiated or traced back to an underlying data source or methodology. First, a number of industry, media, and government publications have cited an Federal Bureau of Investigation (FBI) estimate that U.S. businesses lose $200- $250 billion to counterfeiting on an annual basis. This estimate was contained in a 2002 FBI press release, but FBI officials told us that it has no record of source data or methodology for generating the estimate and that it cannot be corroborated. Second, a 2002 CBP press release contained an estimate that U.S. businesses and industries lose $200 billion a year in revenue and 750,000 jobs due to counterfeits of merchandise. However, a CBP official stated that these figures are of uncertain origin, have been discredited, and are no longer used by CBP. A March 2009 CBP internal memo was circulated to inform staff not to use the figures. However, another entity within Department of Homeland Security (DHS) continues to use them. Third, the Motor and Equipment Manufacturers Association reported an estimate that the U.S. automotive parts industry has lost $3 billion in sales due to counterfeit goods and attributed the figure to the Federal Trade Commission (FTC). The OECD has also referenced this estimate in its report on counterfeiting and piracy, citing the association report that is sourced to the FTC. However, when we contacted FTC officials to substantiate the estimate, they were unable to locate any record or source of this estimate within its reports or archives, and officials could not recall the agency ever developing or using this estimate. These estimates attributed to FBI, CBP, and FTC continue to be referenced by various industry and government sources as evidence of the significance of the counterfeiting and piracy problem to the U.S. economy.

IV. **NO SINGLE APPROACH FOR QUANTIFYING IMPACTS OF COUNTERFEITING AND PIRACY CAN BE USED, BUT DIFFERENT STUDIES INDICATE PROBLEM IS SIZEABLE**

9. There is no single methodology to collect and analyze data that can be applied across industries to estimate the effects of counterfeiting and piracy on the U.S. economy or industry sectors. The nature of data collection, the substitution rate, value of goods, and level of deception are not the same across industries. Due to these challenges and the lack of data, researchers have developed different methodologies. In addition, some experts we interviewed noted the methodological and data challenges they face when the nature of the problem has changed substantially over time. Some commented that they have not updated earlier estimates or were required to change methodologies for these reasons. Nonetheless, the studies and experts we spoke with suggested that counterfeiting and piracy is a sizeable problem, which affects consumer behavior and firms' incentives to innovate. The most commonly used methods to collect and analyze data, based on our literature review and interviews with experts, are presented below.

Extrapolation of Enforcement Seizure Data:

10. Seizure data from CBP is one of the few types of hard data sources available and is often used to extrapolate the level of counterfeit and pirated trade. This approach provides hard evidence of the minimum quantity of counterfeit goods, but a major limitation is that levels of border enforcement efforts can vary. For example, in our study of seizures made by the CBP field offices, we calculated "seizure rates" for the top 25 U.S. ports, based on the dollar value of IP seizures at each port compared to the dollar value of IP-related imports there. These ports accounted for over 75 percent of the value of all IP- related imports into the United States in fiscal year 2005.[2] We found that the top 3 ports seized over 100 times more IP counterfeits than the lowest 5 of these ports per dollar of IP-related imports. As a result, it appears that the importance of IP enforcement and the skill of the personnel at the ports have significant impact on the level of seizures. This suggests that seizure data might be useful as a floor, but are not indicative of the actual level of U.S. imports of counterfeit goods.

11. Another challenge when extrapolating seizure data is determining the dollar value to assign to the seized good, which can have a significant impact on the magnitude of the estimates. For example, in 2009, CBP seized a shipment of counterfeit sunglasses from China and reported an estimated total domestic value at $12,146 and a manufacturer's suggested retail price at $7.9 million.

Surveys of Supply and Demand:

12. Researchers have conducted surveys to gather data on the consumption or sales patterns of counterfeit or pirated goods. The main advantage of this method is that it can also show consumers' behavior in terms of their preferences. For example, a survey could collect information on the consumer's willingness to pay for a counterfeit good; the number of counterfeit units purchased in a determined period of time; the minimum expected quality;

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[2] This method enabled us to perform a better comparison across ports by reducing the influence of non-IP-related imports, as well as eliminating the impact of the fact that some ports handle many times the volume of imports compared to other ports. For a more detailed explanation of U.S. custom seizure data and our analysis see GAO, *Intellectual Property: Better Data Analysis and Integration Could Help U.S. Customs and Border Protection Improve Border Enforcement Efforts*, GAO-07-735 (Washington, D.C.: Apr. 26, 2007).

the necessary price reduction of the legitimate good to avoid the consumer's purchase of the counterfeit good; the knowledge of sanctions if caught purchasing the counterfeit good; and the knowledge of potential "side effects" due to the purchase of fake goods. However, a survey can be a labor-intensive project and can cost in the millions of dollars. Moreover, one expert stated that the bias in surveys is hard to identify. For example, he commented that students, who are often the subjects in surveys of illegal file sharing, may either not admit that they are engaging in illegal activity, or may admit to such behavior because it may be popular for this demographic.

13.   The Business Software Alliance publishes piracy estimates based on a set of annual surveys it conducts in different countries.[3] Based on its survey results, the industry association estimated the U.S. piracy rate at 20 percent for business software, carrying a loss of $9 billion in 2008. While this study has an enviable data set on industries and consumers located around the world from its country surveys, it uses assumptions that have raised concerns among experts we interviewed, including the assumption of a one-to-one rate of substitution and questions on how the results from the surveyed countries are extrapolated to non-surveyed countries.

14.   Another example of the use of surveys is the study by the Motion Picture Association, which relied on a consumer survey conducted in several countries.[4] This study found that U.S. motion picture studios lost $6.1 billion to piracy in 2005. It is difficult, based on the information provided in the study, to determine how the authors handled key assumptions such as substitution rates and extrapolation from the survey sample to the broader population.

15.   In a smaller-scale example of a survey method, Rob and Waldfogel[5] surveyed students in American universities during parts of 2003 and 2004, asking not only about the amount of music albums they purchased and illegally downloaded, but also the titles and their valuation for the albums they purchased and illegally downloaded. Their main findings are: (1) downloading reduces legitimate purchases by individuals by 20 percent in the sample, that is, every five music downloads substitute one legitimate purchase; (2) on average, respondents downloaded music that they valued one-third to one-half less than their legitimately purchased music, suggesting that some of the music that was downloaded would never have been purchased as an album; and (3) while downloading reduces per capita expenditures by $25, it raises *per capita* consumers' surplus by $70. The study indicated that downloading illegal music can have a positive effect on total consumer welfare. However, as explained by the authors, this experiment cannot be generalized; the data consist of a snapshot of undergraduate students' responses, which is not representative of the general population.

V.   USE OF ECONOMIC MULTIPLIERS TO ESTIMATE EFFECTS ON THE U.S. ECONOMY

16.   Economic multipliers show how capital changes in one industry affect output and employment of associated industries. Commerce's Bureau of Economic Analysis guidelines make regional multipliers available through its Regional Input-Output Modeling

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[3]   Business Software Alliance (BSA), *Sixth Annual BSA-IDC Global Software 08 Piracy Study*. (Washington, D.C.: BSA, May 2009).

[4]   L.E.K. Consulting, *The Cost of Movie Piracy*, sponsored by the Motion Picture Association, 2006.

[5]   Rafael Rob and Joel Waldfogel, *Piracy on the High C's: Music Downloading, Sales Displacement, and Social Welfare in a Sample of College Students.* Journal of Law and Economics, vol. XLIX, April 2006.

System (RIMS II). These multipliers estimate the extent to which a one-time or sustained change in economic activity will be attributed to specific industries in a region.[6] Multipliers can provide an illustration of the possible "induced" effects from a one-time change in final demand. For example, if a new facility is to be created with a determined investment amount, one can estimate how many new jobs can be created, as well as the benefit to the region in terms of output (e.g., extra construction, manufacturing, supplies, and other products needed). It must be noted that RIMS II multipliers assume no job immigration or substitution effect. That is, if new jobs are created as a result of investing more capital, those jobs would not be filled by the labor force from another industry.

17. In the case of estimating the effect of counterfeiting and piracy, RIMS II economic multipliers are applied to U.S. industry loss figures, which have been derived from other studies, and used to calculate the harm on employment and output due to reduced investments. Using the RIMS II multipliers in this setting does not take into account the two-fold effect: (1) in the case that the counterfeit good has similar quality to the original, consumers have extra disposable income from purchasing a less expensive good, and (2) the extra disposable income goes back to the U.S. economy, as consumers can spend it on other goods and services.

18. Most of the experts we interviewed were reluctant to use economic multipliers to calculate losses from counterfeiting because this methodology was developed to look at a one-time change in output and employment. Nonetheless, the use of this methodology corroborates that the effect of counterfeiting and piracy goes beyond the infringed industry. For example, when pirated movies are sold, it damages not only the motion picture industry, but all other industries linked to those sales.

19. The Institute of Policy Innovation has commissioned three studies in the audiovisual industries using economic multipliers; the most expansive of the studies covers motion pictures, sound recordings, business and entertainment software, and video games for the year 2005.[7] This study found that losses in the U.S. economy due to piracy accounted for $58 billion in output, over 370,000 jobs, and $2.6 billion in tax revenue. It was calculated by taking industry estimates of loss revenue and applying the RIMS II multipliers to these figures.[8]

VI.   OTHER DATA COLLECTION AND MODELING METHODS

20. Several additional studies that we reviewed provided alternative data collection and modeling techniques to quantify the effect of counterfeiting on a specific industry or, in the case of the OECD, on world trade. The OECD, for example, adopted an approach of combining different methodologies to develop a single estimate. The OECD triangulated a combination of data sets: extrapolating seizure data provided by national customs authorities, comparing the seizure data to international trade data, and using these data in an econometric model. The seizure data were used to develop a model that would measure the magnitude of global counterfeit trade.

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[6]   Commerce, Bureau of Economic Analysis and Economics and Statistics Administration, *Regional Multipliers. A User Handbook for the Regional Input-Output Modeling System (RIMS II)* 3rd ed., Washington, D.C.: 1997

[7]   Stephen E. Siwek, *The True Cost of Copyright Industry Piracy to the U.S. Economy*, Institute for Policy Innovation (IPI), IPI Center for Technology Freedom, Policy Report 189, (October 2007)

[8]   In some cases, the author adjusted the industry estimates of loss revenue in order to make them comparable across industries

21. The OECD estimated that the magnitude of counterfeit and pirated goods in international trade could have accounted for up to $200 billion in 2005, and later updated this estimate to $250 billion based on 2005- 2007 world trade data.[9] [10] As noted by the OECD, most of the international trade data were supplied by national governments and relevant industries, and the OECD did not independently assess the reliability of the figures. Its methodology is based on matching, to the best of its knowledge, the industry data with customs seizure data from the OECD members, acknowledging the limitations of working with customs seizure data. OECD heavily qualified this estimate, however, reporting that "the overall degree to which products are being counterfeited and pirated is unknown and there do not appear to be any methodologies that could be employed to develop an acceptable overall estimate." A second phase of the OECD project covered digital piracy, but did not attempt to quantify the effects.

22. In a more narrowly focused study on downloads of music, Oberholzer-Gee and Strumpf[11] used modeling to determine that illegal downloads have no effect on record sales. They concluded that, in contrast with industry estimates, declining sales over the period of 2000-2002 were not primarily caused by illegal downloads. The results were found after compiling a data set of illegal downloads from a prominent server and testing the variation between illegal downloads and legal sales in the United States of specific albums on a weekly basis for 17 weeks in the second half of 2002.

23. Hui and Png's[12] study provided another example that used modeling. This study estimated that piracy in the music industry caused revenue losses of 6.6 percent in 1998. The authors stated that their estimate is significantly less than the industry loss estimate. In particular, for the year 1998 in the United States, legitimate sales of CDs were 3.73 CDs per capita, and the average loss in sales per capita due to piracy was 0.044 CDs. The data set included CD prices, music CD demand, piracy level and country-specific characteristics for 28 countries, mostly provided by the International Federation of the Phonographic Industry.[13] The main limitation for this study was that it only covered physical piracy. While digital piracy was not a major concern during the time period sampled, it has become so for at least the last decade due to the Internet. Another limitation is that the study used piracy rates that assumed a one-to-one substitution rate, including those used by the Business Software Alliance.

24. Many experts we interviewed also agreed that general or partial equilibrium models would offer useful insights if the input data existed. These involve modeling the supply and demand of a good and simulating the effect of how counterfeiting affects the market for that good (in the case of a partial model) and the economy as a whole (for a general equilibrium model). The approach allows a systematic analysis of the problem, but depends on the quality of the data used to develop the models. The benefit of an equilibrium model is that assumptions can be tested based on the results obtained and modified if the results fall

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[9]   The OECD estimate was limited to internationally traded hard goods and did not include digital piracy or counterfeit goods produced and consumed within the same country

[10]   OECD, *Magnitude of Counterfeiting and Piracy of Tangible Products: An Update*, Paris: OECD, November 2009

[11]   Felix Oberholzer-Gee and Koleman Strumpf, *The Effect of File Sharing on Record Sales: An Empirical Analysis.* Journal of Political Economy, vol. 115, no. 1, 2007

[12]   Kai-Lung Hui and Ivan Png, *Piracy and the Legitimate Demand for Recorded Music*, Contributions to Economic Analysis & Policy, Volume 2 Issue 1, Article 11, 2003

[13]   The piracy rates used in the study were provided by the International Federation of the Phonographic Industry and Business Software Alliance for music cassettes and business computer software, respectively

outside of established parameters. Experts agreed on the potential benefits of this approach, but recognized that data limitations make it currently close to impossible to implement. Officials from the International Trade Commission and other industry experts said that this would be their preferred approach to think of the problem in question, but they also acknowledged that data reliability is a major concern, as with the other methodologies.

VII. "RULE OF THUMB" FOR MEASURING COUNTERFEIT TRADE AS A PROPORTION OF WORLD TRADE

25. According to experts we interviewed and the literature we reviewed, there is no evidence to support a "rule of thumb" that measures counterfeit trade as a proportion of world trade to estimate the amount of counterfeit trade that occurs in a local economy. The advantage of finding a so-called "rule of thumb" for counterfeit trade is that it can be applied generally and does not try to take into consideration the different rates of counterfeiting and piracy for each of the different industry sectors. However, as noted earlier, piracy rates differ enormously across industries, so it is not possible to generalize findings. Moreover, not all goods from world trade can be counterfeited or pirated.

26. The most commonly cited "rule of thumb" is that counterfeit trade accounts for 5 to 7 percent of world trade, which has been attributed to the International Chamber of Commerce. The Office of the Comptroller of the City of New York used this rule of thumb in its 2004 study to estimate the total dollar exchange of counterfeit goods in the United States and in New York State.[14] This study first applied a 6 percent rule (an average of 5 to 7 percent "rule of thumb") to the total value of world trade in 2003 ($7.6 trillion) to calculate the value of world trade that is made up of counterfeit goods, arriving at $456 billion.[15]

27. This rule of thumb was widely spread by a 1998 OECD report, although OECD and experts cautioned that this estimate was not verifiable and the source data were not independently calculated. In its 2008 report, The Economic Impact of Counterfeiting and Piracy, the OECD commented that the "metrics underlying the International Chamber of Commerce's estimates are not clear," nor is it clear what types of IP infringements are included in the estimate. In a 2009 update to the report, the OECD estimated the share of counterfeit and pirated goods in world trade as 1.95 percent in 2007, increasing from 1.85 percent in 2000. Many of the experts we interviewed also expressed skepticism over the estimate that counterfeit trade represents 5 to 7 percent of world trade.

VIII. ECONOMY-WIDE IMPACT OF COUNTERFEITING AND PIRACY IS UNKNOWN

28. While experts and literature we reviewed provided different examples of effects on the U.S. economy, most observed 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. For example, as previously discussed, OECD attempted to develop an estimate of the economic impact of counterfeiting and concluded that an acceptable overall estimate of

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[14] William C. Thompson, Jr., *Bootleg Billions: The Impact of the Counterfeit Goods Trade on New York City,* (New York City Office of the Comptroller, November 2004)

[15] This study does not specify which industries are covered or whether it includes piracy, and does not explain the linear proportion between trade and counterfeiting for the world or the United States

counterfeit goods could not be developed. OECD further stated that information that can be obtained, such as data on enforcement and information developed through surveys, "has significant limitations, however, and falls far short of what is needed to develop a robust overall estimate." One expert characterized the attempt to quantify the overall economic impact of counterfeiting as "fruitless," while another stated that any estimate is highly suspect since this is covert trade and the numbers are all "guesstimates."

29. To determine the net effect, any positive effects of counterfeiting and piracy on the economy should be considered, as well as the negative effects. Experts held different views on the nature of potentially offsetting effects. While one expert we interviewed stated that he did not believe there were any positive effects on the economy due to counterfeiting and piracy, other experts stated that there were positive effects and they should be assessed as well. Few studies have been conducted on positive effects, and little is known about their impact on the economy. Although some literature and experts suggest that negative effects may be overstated, in general, literature and experts indicate the negative effects of counterfeiting and piracy on the U.S. economy outweigh the positive effects. Since there is an absence of data concerning these potential effects, the net effect cannot be determined with any certainty.

30. The experts we interviewed also differed regarding the extent to which net effects of counterfeiting and piracy could be measured in certain parts of the economy. For example, one expert we spoke with has conducted research that found that employment numbers may be lost to the U.S. economy when copyright industries lose business due to piracy. Other experts we interviewed stated that, in their view, employment effects are unclear, because employment may decline in certain industries or rise in other industries as workers are hired to produce counterfeits. Another expert told us that effects of piracy within the United States are mainly redistributions within the economy for other purposes and that they should not be considered as a loss to the overall economy. He stated that "the money does not just vanish; it is used for other purposes." Other experts we spoke with focused more on the difficulties of aggregating the wide variety of effects on industries into a single assessment.

IX. CONCLUSION

31. Numerous efforts have been made by industries and others to estimate the impact of counterfeiting on the economy. Some of these studies have employed innovative techniques to address challenges such as estimating consumer preferences, black or grey market goods, and changing markets. Many of these studies demonstrate the risks and costs associated with counterfeit trade in specific industries, and contribute to policy discussions about the appropriate type and level of enforcement. In addition, the studies contribute to the broader discussion of costs to the economy and on important issues such as the potential impact on innovation and growth, and future efforts should be encouraged to bring light to this challenging task. Unfortunately, however, a number of the comprehensive estimates of counterfeiting turned out to be unreliable and due to the enormous differences between industries, geographic markets, and over time, comprehensive estimates will continue to be elusive. On the other hand, GAO has made numerous recommendations to U.S. government agencies suggesting more analysis and transparency with regard to their IP enforcement efforts, which would contribute to policy discussions concerning more effective means of enforcement as well as to finding the appropriate level and focus of federal enforcement efforts.

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