Advertising with Anonymity and Impunity: The Harmful Consequences of Counterfeit PPE Supply Chains

Layla M. Hashemi
George Mason University, Terrorism, Transnational Crime, and Corruption Center, Schar School of Policy and Government, Fairfax, VA, USA
https://doi.org/10.38126/JSPG220304
Corresponding author: lhashem2@gmu.edu
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Executive Summary: The rapid growth of illicit supply chains during and after the Covid-19 pandemic reveals a need for effectively combating and preventing the cross-border movement of contraband, including but not limited to counterfeit goods. A proactive approach by companies along with public stakeholders, such as government agencies and individual consumers, toward disrupting illicit supply chains operating across borders is especially important during moments of global crisis when consumers are more susceptible to unknowingly purchasing substandard counterfeit products such as respirators. While marketplaces, platforms, and other legitimate businesses have worked to prevent movement of counterfeits and illicit goods through their services, the high adaptability and sophistication of counterfeiters requires more preventative and multistakeholder approaches.

This article outlines a multidisciplinary and multilayered approach to detecting and disrupting illicit supply chains of counterfeit personal protective equipment (PPE) with a focus on respirators. It utilizes research conducted for a National Science Foundation (NSF) grant on Covid-19 related crime, including the advertising and sale of counterfeit respirators. One layer examines online content as seen by the end user and the activity of vendors or sellers used to advertise and sell counterfeit products. The research is also informed by data on the information, financial, and physical flows of counterfeit respirators obtained through a public-private partnership with George Mason University's Terrorism, Transnational Crime and Corruption Center (TraCCC-GMU) and 3M, one of the largest manufacturers of respirators in the world. The article examines an important and relatively recent trend - how emerging technological shifts in the marketplace are affecting global security.

Research from the TraCCC-GMU and 3M partnership, including a data sharing agreement, revealed that counterfeiters constantly change their modus operandi to continue selling illicit goods with impunity, facilitating illicit activity with the use and abuse of legitimate companies such as ecommerce marketplaces and social media. The article presents an overview of the current state of counterfeit supply chains and provides concrete policy recommendations on how legitimate companies can move beyond just removing listings but must also actively prevent these transnational crimes through innovative multidisciplinary approaches, advanced data analytics, and public awareness campaigns. The research also seeks to connect the dots to broader policy implications in terms of the legitimate economy and environmental sustainability.

I. The growing problem of illegal online marketplaces

Global trade, e-commerce, frictionless account creation, and easily accessible online advertising create a fertile environment for counterfeiters to conduct their business with relative ease and impunity. The growth of illicit supply chains has led to a need for more resources to successfully combat and prevent these transnational crimes. Legitimate business platforms are currently implementing regulations and initiatives aimed at removing the advertising and sale of illicit goods through their services. However, more proactive, preventative, and multistakeholder approaches are required to thwart counterfeiters.

Counterfeit supply chains can no longer be seen as harmless networks that only threaten the intellectual property (IP) of big brands and companies. The sale of counterfeits poses tremendous harm to public health and safety, the economy, and national security. To understand the facilitating role played by legitimate companies in supply chains of PPE, we must examine how the anonymity made possible by the internet and information communication technology (ICT) creates an environment conducive to illegal trade.

The global trade in counterfeit and pirated goods is currently valued at over $500 billion annually, making it the largest criminal enterprise in the world (US Chamber of Commerce 2022). Illegality here is the production, advertisement, sale, storage, transfer, or other involvement in or facilitation of counterfeit respirator supply chains. While the sale of illicit products is a global issue, certain regions and marketplaces are more susceptible to and involved in the problem than others. Approximately 80% of counterfeit goods entering the United States are sourced from Asia, primarily China and Southeast Asia (OECD 2022).

Online retail sales rose 41% between 2018 and 2020, a trend that was further fueled by the Covid-19 pandemic when consumers shifted to buying products online versus visiting brick and mortar stores during widespread lockdowns. There are also empirical/quantitative links between the rise of ecommerce and the increase in illicit trade, as counterfeiters flourish in the era of online shopping (OECD 2021). Due to increased demand, production of medical and personal protective equipment, and other Covid-19 related products rose rapidly during the early stages of the pandemic. While some of these products were authentic, there was a rise in production and consumption of counterfeit PPE, specifically N95 respirators, during the Covid-19 pandemic. In early 2022, it was estimated that 60-70% of KN95 respirators sold online were counterfeit (Finney 2022). This trade in counterfeit PPE relates to not only general illicit trade but also to legitimate business.

Some marketplaces have fewer resources or a less aggressive approach toward targeting counterfeit listings while other companies are more invested in identifying and preventing counterfeit sales. This results in varying levels of efficiency in preventing the advertisement and sale of counterfeits on different platforms. Despite these different approaches, the problem of counterfeits persists across platforms of all sizes. It also occurs in both business to customer (B2C) and business to business (B2B) models. Counterfeits therefore permeate nearly all online spaces and are present in sales of both small and large quantities of respirators and other medical equipment. This article aims to provide a better understanding of the online environment that enables the flourishing of counterfeit sales despite implementation of anti-counterfeiting measures and policies.

This study also evaluates current anti-counterfeiting and brand protection policies of various platforms to answer why the problem of counterfeits persists and the conditions that exist which prevent these companies from effectively protecting themselves from being enablers of illicit trade and counterfeiting. The article aims to answer if the presence of this illicit trade is an absence of investment by companies or if it is more of a legal pass for responsibility. As part of the 3M-GMU partnership, various counterfeit PPE listings from 2020-2022 were examined to assess the overall market as well as preventative policies and practices. Based on this analysis, it is recommended that legitimate companies continue to work with other sectors such as law enforcement, government, and academia to develop more proactive anti-counterfeiting approaches to effectively detect and prevent the advertisement and sale of fake products through their services.

The article concludes by addressing important policy questions based on an understanding of how the massive volume of sales and ability to easily trade with relative anonymity creates an environment conducive to illegal trade. The author also addresses the policy implications of the online sale of counterfeits, how these counterfeits impact consumers and public health, and what these counterfeit sales mean for a state or government that cannot protect its citizens.

i. Case study: anti-counterfeiting lessons learned from the private sector

To address the harmful consequences of the counterfeit trade, companies like Amazon are spending more resources on anti-counterfeiting. In 2020, Amazon invested over $700 million to protect its stores from fraud and abuse. The main pillars of this investment were robust proactive controls, powerful tools for brands, holding counterfeiters accountable, collaboration, and data sharing to detect and prevent counterfeit sales. As a result of this investment, Amazon detected and seized more than two million counterfeit products that were sent to its fulfillment centers in 2020, before the items were sent to customers (Amazon 2022).

Amazon destroyed those products to prevent them from being resold elsewhere in the supply chain and blocked more than ten billion suspected bad listings. Fewer than 0.01% of all products sold on Amazon received a counterfeit complaint from customers. This demonstrates the important role consumers play in both perpetuating but also identifying and reporting counterfeits (Mehta 2021). Similar successes were reported in Amazon's 2023 Brand Protection Report which states the company invested more than $1 billion to protect its stores from fraud and abuse, now dedicating more than 15,000 employees to protecting customers, brands, and selling partners from counterfeits and other forms of abuse. In 2022, Amazon worked with brands including Cartier, General Electric, and others, suing, or referring over 1,300 criminals for investigation in the US, UK, EU, and China (Amazon 2023).

Other tactics used by companies to detect and document the sale of counterfeits is by gathering information from customers and end users through hotlines and other forms of communication. With this approach, customers contact the company's fraud or legal departments to file a complaint. This can range from individual buyers or sellers active in business-to-customer (B2C) supply chains to large purchasers and distributors operating in business-to-business (B2B) supply chains (3M 2021).

Many popular wholesaler marketplaces are widely known for facilitating duplicate or replica sales. For example, the high quality of dupes and replicas of brand products on DHGate are applauded by counterfeit blogs such as Amazing Dupes (Amazing Dupes 2023). While these platforms also have terms and conditions in place that prohibit the sale of illicit products and other contraband on the platform, some implement these regulations through a penalty system before taking enforcement action. There are several weaknesses of a penalty system to prevent counterfeit sales. First, a small penalty paid for first offenses (the equivalent of a few hundred US dollars) does not deter counterfeiters from selling on the platform. Second, once the maximum penalty is reached, the vendor can often establish a new account and avoid or circumvent full removal. Finally, and perhaps most importantly, this approach only targets counterfeit vendors already advertising on the platform rather than preventing counterfeiters from entering the marketplace.

Counterfeits harm public health by allowing illicit products to enter legitimate supply chains disguised as authentic goods. These products also pose harm to public and customer safety as they often do not meet health standards and regulations, potentially leading to injury or even death. Counterfeit respirators posed harm to consumers and legitimate businesses during the Covid-19 pandemic as these fake products may not be capable of providing appropriate or necessary respiratory protection (NIOSH 2023). Combatting these threats requires cross sector and cross border collaboration.

II. Literature on online fakes

This section examines existing literature on counterfeit supply chains, and more generally illicit trade, and compares research on supply chains with the trade in counterfeit respirators. The author provides an overview of regulations and policies regarding illicit trade as well as the data and

methods used to facilitate the elimination of nearly sixty million counterfeit 3M respirators and over 86,000 deceptive or fraudulent PPE listings (3M 2021).

Illicit personal protective equipment and products not only pose threats to public health and safety, but they also negatively impact national security and the legitimate economy. For example, counterfeit goods have been shown to drive down the price of legitimate products (Greene 2019; Eser et al. 2015). There is much research on the sale of counterfeit trade. However, there have been few public studies specifically addressing the rapid rise of counterfeit respirator or PPE supply chains during Covid-19. According to the Department of Energy, "Counterfeit respirators and masks are products that are falsely marketed and sold as being government safety regulated or tested and may not be capable of providing appropriate respiratory protection to workers" (Department of Energy 2022).

The trade in counterfeit respirators overlaps with other counterfeit trades and the legitimate economy, a phenomenon that has received little attention. Scholars have studied supply chains of counterfeit luxury goods and other textiles (Wang et al. 2020; Wang 2022), electronics and industrial parts (Brown 2021), and semiconductors (Isaacs 2014). However, few have addressed how companies shift their business scope to meet increased consumer and business demand. There is significant overlap between the textile and electronics industry and counterfeit respirator supply chains. Throughout the course of our research, we found many companies that were previously selling electronics or clothing shifted their business scopes to include the sale of respirators due to the rapid rise in demand for face masks during the pandemic. Forensic examination of these counterfeit masks revealed that some were made of merely tissue paper, a material that is incapable of preventing the spread of the virus.

There was overlap between the sale of counterfeit respirators and the sale of electronics and industrial parts. For example, during our research we observed vendors advertising machinery to produce respirators as well as other industrial equipment. Examples of consumer goods with potential health issues include counterfeit cosmetics and beauty products, health and medical equipment, and food. The US Food and Drug Administration received nearly 12,000 instances of consumers reporting adverse effects tied to cosmetics from January 2018 to March 2020. These products often contain carcinogens and other toxic chemicals (Sayari 2020).

The trade in counterfeit foodstuffs and beverages is estimated to be worth approximately $49 billion annually (Subramanian 2021). A 2018 European Union Customs report revealed that 34% of counterfeit goods seized at borders have the potential to harm consumers (ACG 2019). These items can contain toxins or hazardous chemicals or may not meet regulations or quality standards. This can render products dangerous, if not deadly, for end users. An additional challenge is that many platforms claim a lack of responsibility for third party counterfeit listings (Kammel et al. 2021). Because these fakes are produced to look, act, and feel like genuine products, they often pass as authentic goods while being manufactured with lower quality materials or processes and thus harm both the legitimate economy as well as brand integrity and consumer safety.

Companies must assess the risks of the products they offer through their vendors and have a responsibility to protect end users from purchasing and consuming potentially harmful products. To fulfill this responsibility, companies must work closely with stakeholders to conduct test purchases and quality control of their vendors and advertised products. Once counterfeit or illicit goods are identified and seized, the disposal of these goods raise issues of environmental, social, and governance impacts. For example, how can counterfeits be removed from the marketplace without causing further harm to the environment while also abiding by local, national, and international standards?

III. The facilitation of counterfeit PPE supply chains by marketplaces and social media

This research involved analysis of case studies, seizure reports, and other information obtained through a public-private partnership and data sharing agreement between George Mason University's Terrorism, Transnational Crime and Corruption Center (TraCCC) at George Mason University (GMU) and 3M. This information includes the venues and tactics counterfeiters used to advertise and sell products as well as the presence of counterfeit goods and illicit trade in respirators

through legitimate online platforms. The research team investigated over one hundred cases involving counterfeit respirators internationally to identify patterns and trends. They investigated how to ultimately prevent these substandard products from entering legitimate supply chains using multidisciplinary approaches and advanced data analytics. The rapid rise in online purchases during Covid-19 left many consumers vulnerable to buying counterfeit products. These purchases were facilitated by several legitimate businesses involved in these illicit supply chains such as ecommerce marketplaces and social media platforms. It should be noted here that there are several other legitimate actors that facilitated counterfeit PPE trade that are not addressed in this article such as the payments ecosystem (online payment methods, banks, etc.), certifications companies (SGS, TUV, etc.), domain hosting services, and other digital service, payments, and logistics providers.

Case studies of counterfeit reports included Incopro social media and marketplace sales listings reports which use optical character recognition (OCR) and artificial intelligence (AI) to detect and remove fraudulent or misleading listings. This incorporated social media and marketplace investigations of leads to find connections as well as identify involved counterfeiters and their networks. The examination of the online advertisement of goods included analysis of seizure data, revealing trends of the counterfeit PPE trade, and demonstrating the large volume (hundreds of thousands of respirators) being advertised on these platforms.

Counterfeiters advertise their respirators with impunity on the open or surface web, often misusing and abusing the name and reputation of well-known brands to dupe consumers into believing that fake products are genuine. Counterfeiters established stand-alone domains and advertised their goods on ecommerce and social media platforms. In the beginning of the pandemic, many vendors and distributors used the professional networking website LinkedIn and other social media platforms to advertise their stock and prices, encouraging interested buyers to contact them via email, phone, or private message. Others targeted potential customers via email. By using a variety of advertising techniques and venues, counterfeiters ensured they reached the widest audience possible. To convince end users that counterfeit products were authentic, vendors would use stock or other images of 3M respirator boxes along with accompanying information such as lot codes, certifications, and other authentication documents.

There are a few common themes counterfeiters use to advertise and sell their products. Once a seller has successfully connected with a buyer, they can complete their transactions using a variety of electronic (or traditional) payment methods such as bank transfers or money transfer services. The most frequent social media platforms used to advertise counterfeit respirators from 2021-2022 were LinkedIn, Instagram, Facebook, Pinterest, and Twitter. An example of a LinkedIn post advertising respirators is shown in Figure 1. The sellers in these listings signal interested buyers to contact them directly (via private message or email) if they are interested in buying 3M 1860 masks. This is a typical pattern of sale for counterfeit respirators and other contraband - first posting a public ad and then quickly moving to one-to-one messaging to discuss details and complete transactions.

While LinkedIn, Instagram, and Facebook were often used early in the pandemic to advertise counterfeit respirators, sellers began to move to almost exclusively advertising on marketplaces as the pandemic continued. The top marketplaces used to advertise and sell counterfeit respirators were Shopee, Mercado Libre, and Lazada (followed by Tokopedia and eBay). As of 2021, Shopee is considered the largest e-commerce platform in Southeast Asia with 343 million monthly visitors. It also serves consumers and sellers across countries in East Asia (Taiwan), Latin America, and Europe (Poland) who wish to purchase and sell their goods online. Shopee is a subsidiary of Sea Limited. The Shopee platform is currently available in thirteen countries: Indonesia, Taiwan, Vietnam, Thailand, Philippines, Malaysia, Singapore, Brazil, Mexico, Colombia, Chile, Poland, and Spain.

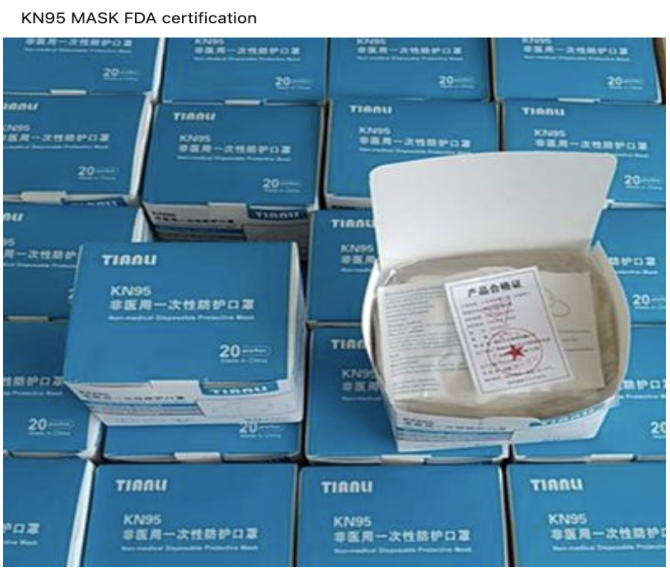

Figure 1: Respirator advertisement on LinkedIn

IV. Findings

The increased volume of counterfeits as well as high levels of counterfeiter sophistication demonstrate the need for more proactive, data-driven, and innovative anti-counterfeit measures. To properly establish and enforce anti-counterfeiting mechanisms, legitimate companies must first understand the patterns and behaviors of counterfeiters and how they evolve their businesses to avoid detection. Companies must also collaborate with other stakeholders to determine responsibility in terms of detection, enforcement, and revision of anti-counterfeiting programs.

Counterfeiter behavior has constantly evolved in terms of four different factors: tactics, venues, products offered, and logistics and operations. First, counterfeiters often use various tactics to avoid detection and disruption. These tactics include mislabeling of products, misspelling of 3M, advertising across different fora. Second, vendors use various venues and platforms. For example, counterfeit respirator vendors shifted from using social media advertisements early in the pandemic to only using ecommerce for advertisement and sale later in the pandemic. Third, vendors often change the products they offer to meet demand. There was a shift from counterfeiting reusable respirators before the pandemic to producing and selling disposable respirators during the pandemic. As the demand for respirators was reduced later in the pandemic, counterfeiters shifted back to selling reusable respirators as they had done before the Covid-19 pandemic began. Finally, counterfeiters also use strategic planning and operations to facilitate their illicit supply chains. This includes storage of products at warehouses in secondary cities to be closer to end users. Vendors began taking control of the entire supply chain and incorporating logistics into their business models to control the entire supply chain from production to end user.

The high level of adaptability by online vendors demonstrates the need for more data on these illicit supply chains and more efficient enforcement against online advertisements and sales. As noted in the literature on the drug trade, there is a need to avoid the "whack-a-mole" problem of simply taking down listings as this often leads to the advertisements to be relisted under a different account (Cassidy 2019). The ability of vendors to quickly re-establish their activity after listing takedowns makes this an inefficient and unsustainable approach to preventing counterfeit respirator trade.

To avoid detection, counterfeiters would refrain from mentioning the phrase '3M' and would alternatively use images or branding like but distinct from 3M (such as 3 M) to avoid detection and disruption based on copyright or IP infringement. Instead, they would advertise generic N95 respirators without the 3M logo while imitating/mimicking the look and feel of 3M products. By using this approach, sellers could still gain profits and avoid takedowns on ecommerce platforms. Establishing public private partnerships and data sharing agreements allows researchers to determine convergence between counterfeits and other forms of illicit trade being facilitated by legitimate businesses. For example, our research found significant cross-listing and convergence between advertisements of counterfeit PPE with other illicit listings. Vendors will often advertise the same products across various platforms and marketplaces to reach the broadest audience of potential buyers and will often list counterfeit PPE as well as other illicit products or contraband. For example, a vendor advertising counterfeit Xanax on TikTok can also be found selling counterfeit respirators on Facebook.

Counterfeit PPE supply chains follow similar trends of other illicit supply chains. As previously stated, much of the global supply chain flows of information

and physical products is facilitated by the digital economy, social media, and ecommerce marketplaces. ICT such as social media and messaging applications allow sellers of counterfeits to interact with potential buyers easily, immediately, and at very low costs. While both licit and illicit supply chains are impacted by the effects of globalization, illicit trade is often facilitated by corruption at the local, national/regional, and international levels.

Like other illicit supply chains, most of the counterfeit PPE seized were produced in and sourced from China, then shipped through transit countries such as Hong Kong. Research found that selling PPE domestically in China was punished while officials ignored counterfeiter PPE vendors exporting to foreign markets. Most of the counterfeit PPE traded during the pandemic were destined for western markets where there was high demand. In almost all cases, counterfeit PPE sales were facilitated by ecommerce, globalization, and corruption.

Despite continued efforts by legitimate companies (and enforcement agencies) to reduce or prevent the sale of counterfeits, several challenges to detecting and disrupting the trade remain. One major challenge is that it is difficult to identify sellers due to online anonymity and ability to create false accounts. The enabling environment of global ecommerce has allowed counterfeiters to easily obfuscate their activity and transactions to avoid detection. Despite efforts to verify sellers and authentic products to protect consumer health and safety, the massive volume of online sales and rapid flow of products makes these efforts difficult without hindering the efficiency of legitimate supply chains. This hesitancy to disrupt or negatively impact the legitimate supply chain requires efficient responses to illicit trade such as counterfeit respirator supply chains.

V. Policy Options

While there are many ways policy can be used to detect and disrupt counterfeit supply chains, two interrelated policy recommendations are offered based on the insights gained while using evidence-based research to examine counterfeit PPE supply chains during the Covid-19 pandemic: increase public-private partnerships and cross-border collaboration and raise (consumer/end user) awareness of the harmful impact of counterfeit goods.

i. Public private and cross-border partnerships

The first recommendation involves encouraging public private partnerships (PPPs) and more data sharing and collaboration across sectors. PPPs like the 3M and George Mason University (GMU) Terrorism Transnational Crime and Corruption Center helped to detect and disrupt counterfeit supply chains more effectively and proactively. While there is a need for companies to lead much of these efforts, there is also an important role played by government actors as the sale of counterfeits has broader implications for a state that cannot protect its citizens.

To successfully implement anti-counterfeiting policies, companies need the cooperation of local, national, and international government and law enforcement agencies in terms of both civil and criminal action. Policy makers need to engage in more multisector and cross border collaboration in terms of both detection and enforcement. The transborder nature of the trade in counterfeits requires cross border collaboration between companies and government organizations in detection and disruption efforts. More efficient transnational and cross-sector collaboration and information sharing increases the probability of success for global anti-counterfeiting efforts in a world where supply chains are international.

While public private partnerships (PPPs) can facilitate the detection and disruption of illicit trade, there are also several challenges to this policy solution that must be considered when implementing and evaluating this policy option. For example, the United Nations Office on Drugs and Crime (UNODC) has found PPPs beneficial to combating human trafficking while also outlining several key challenges that must be considered for successful implementation. These challenges include but are not limited to selecting the right partners and considering the risks and benefits of engaging with different stakeholders, addressing conflicting priorities of partners, developing specific incentives for participating organizations, difficulties of information sharing such as data disclosure and

exchange, and sustaining and enhancing the impact of PPPs (UNODC 2021).

In response to these challenges, PPPs should include relevant private stakeholders such as companies that stand to benefit from addressing and reducing counterfeit sales on their platforms and customers who could be harmed by counterfeit products. Companies can create specific task forces to address the issue of counterfeits and engage with customers and other agencies such as customs to help detect fake products in supply chains. When implementing these PPP task forces, companies may also be required to engage and partner with law enforcement agencies at the local, national, and international level to act against counterfeit advertising and sales. The issue of information sharing can be overcome by involving neutral parties such as academic institutions and signing necessary agreements such as memorandums of understanding (MOUs) and nondisclosure agreements (NDAs) to ensure the responsible exchange of data between relevant stakeholders. While companies will lead these efforts and the creation of these task forces given their expertise on products and services, PPPS will involve stakeholders from across both the public and private sector in its implementation, evaluation, and enhancement.

ii. Raise public awareness of the harms of counterfeits

Counterfeit supply chains impact not just policy makers and companies, but also individual consumers, who are at risk of harm in terms of health as well environmental and economic consequences that negatively impact safety and quality of life. There is a need for more public service announcements (PSAs) to raise public awareness of the widespread presence and potential harmful consequences of consuming counterfeit products. Customers should be informed and educated about the fact that if a listing seems "too good to be true" in terms of the low price for a brand product, the product is potentially a counterfeit and that it likely does not meet standards that are established to protect consumer health and safety. For example, currently counterfeit clothing and toys are currently not typically considered to pose threats to consumer health and safety, but counterfeit clothes could cause allergic reactions and other problems and thus should be addressed in anti-counterfeiting policies (OECD 2022).

There is also a need to better educate buyers about how to responsibly research and purchase products online to avoid consuming counterfeits. An end user cannot avoid purchasing a counterfeit if they are unable to detect an authentic product listing from a listing for a counterfeit good, so they must first be able to make this distinction to make an informed consumer decision. This effort can be supported by brands and other legitimate companies that can provide important information and guidance on specific products given their subject matter expertise. Robust and complete information on the potential harm of counterfeits would raise public awareness of the issue and subsequently reduce demand for fake products (OECD 2022).

Specific outcomes would include public education of the potential harms and negative consequences of purchasing counterfeits, thus reducing demand for these products. While this public education strategy can facilitate a reduction in the counterfeit trade, there are also key obstacles to implementing such a policy. One major challenge is gaining public attention to ensure widespread dissemination of the anti-counterfeiting educational materials. This may be overcome by incentivizing customers for their participation through discount codes or other concrete benefits. Other challenges include successfully influencing consumer behavior and reducing the demand for counterfeits. While some consumers may change their mind about purchasing counterfeits or be better informed on how to avoid purchasing and consuming counterfeit products, some may continue to purchase counterfeits despite public education about the short- and long-term negative impacts of counterfeit supply chains.

Implementing both the above recommendations simultaneously will culminate in the same desired outcome - reducing the demand for and awareness of counterfeit goods and their negative impact on health, safety, and security. Significantly reducing the demand for harmful counterfeits is the only sustainable way to disrupt these illicit supply chains

VI. Conclusions

This article sought to provide a better understanding of how the massive sales and anonymity of online

marketplaces create an environment conducive to illegal trade of counterfeit respirators during the Covid-19 pandemic. It also offers two key policy recommendations to effectively detect and disrupt counterfeit supply chains. Given the high level of counterfeiter adaptability, the fight against counterfeit PPE and other products will be an ongoing effort that must quickly respond to shifts in counterfeiter behavior and activity. Companies and other facilitators must constantly update their anti-counterfeiting policies and assess the risks of counterfeit products from all levels of analysis, including the individual, state, and international perspectives.

There is a need for more preventative measures and policies that better prevent counterfeiters from entering spaces intended for legitimate trade. Counterfeits are not just an IP or brand protection issue. Fake goods pose threats to public health, national security, and as well consumers. While not the focus of this article, it is important to distinguish between knowing and unknowing consumption of counterfeits and show how both groups need to be educated about negative consequences. Even replica and duplicate ("rep" and "dupe") culture, which is often perceived as harmless or only impacting brands and private companies, have negative impacts on public health and labor, security, and the environment.

The facilitation of illicit trade by legitimate companies has long term policy implications which necessitate a multilevel and multistakeholder approach. Policies regarding legal and ethical responsibilities of online platforms for facilitating illicit trade are still in the beginnings of development and vary by region and country despite dealing with supply chains that operate globally. The negative repercussions of counterfeits remain unmitigated, and counterfeiters continue business as usual as they can sell contraband with impunity on the open or surface web. This culture of impunity is what makes the sale of counterfeits the largest criminal enterprise in the world, allowing counterfeit sellers and their associates to obtain large amounts of revenue from a high reward, low risk trade.

To successfully combat the trade in counterfeits, there is a need for more proactive measures and policies by private companies in conjunction with public partners, such as government agencies, and consumers that are more effective at preventing counterfeiters from entering marketplaces intended for legitimate trade. Counterfeits are not just an IP or brand issue. While counterfeit products certainly harm brands and their intellectual property, fake goods also pose threats to public health, national security, the legitimate economy, and consumers.

References

3M. 2021. "3M PPE How to Identify Fraudulent Offers, Counterfeit Products and Price Gouging." US. 2021. https://www.3m.com/3M/en_US/worker-health-safety-us/covid19/covid-fraud/.

ACG. 2019. "The Dangers of Fakes." ACG. 2019. https://www.a-cg.org:443/useful_info/the-dangers-of-fakes.

Amazing Dupes. 2023. "DHGate Dupes High Quality Designer Dupe." 2023. https://amazingdupes.com/category/dhgate/.

Amazon. Brand Protection Report. 2023. https://assets.aboutamazon.com/2c/9e/2e907d06477a88c5bc556f95d27c/amazon-brand-protection-report-3rd-annual.pdf.

Amazon Brand Protection Report. 2022. https://assets.aboutamazon.com/68/b7/27c5eeee4121971b3d330fd6c16c/amazon-brand-protection-report-2022.pdf

Brown, Peter. 2021. "Counterfeit Part Rise Will Linger through 2023." Electronics 360. August 26, 2021. https://electronics360.globalspec.com/article/17110/counterfeit-part-rise-will-linger-through.

Cassidy, Bill. 2019. "Following Massacre of Americans, We Need a New Strategy to Defeat Drug Cartels | The Hill." November 20, 2019. https://thehill.com/blogs/congress-blog/homeland-security/471331-following-massacre-of-americans-we-need-a-new-strategy/?amp_recirculation=1.

Department of Energy. 2022. "Suspect/Counterfeit Items (S/CI): Respirators & Masks,". https://www.energy.gov/sites/default/files/2022-04/OES%202022-01%20Suspect%20Counterfeit%20Masks.pdf.

DHS. 2021. "Millions of Counterfeit Masks Seized during Operation in Maine." June 29, 2021. https://www.ice.gov/news/releases/millions-counterfeit-masks-seized-during-operation-maine.

Eser, Zeliha, Bahar Kurtulmusoglu, Adnan Bicaksiz, and Selay Ilgaz Sumer. 2015. "Counterfeit Supply Chains." Procedia Economics and Finance 23: 412–21.

https://doi.org/10.1016/S2212-5671(15)00344-5.

Finney, Michael. 2022. "As Schools Require N95 Masks, Consumers Have to Figure out If Masks Selling Online Are Fake." ABC7 San Francisco. January 12, 2022. https://abc7news.com/fake-n95-masks-face-omicron-coronavirus/11459343/.

Greene, Jay. 2019. "How Amazon's Quest for More, Cheaper Products Has Resulted in a Flea Market of Fakes." Washington Post, November 21, 2019. https://www.washingtonpost.com/technology/2019/11/14/how-amazons-quest-more-cheaper-products-has-resulted-flea-market-fakes/.

Hayashi, Yuka. 2021. "WSJ News Exclusive | Millions of Counterfeit Masks Flooded US Customs Facilities Last Year." Wall Street Journal, February 4, 2021, sec. US. https://www.wsj.com/articles/millions-of-counterfeit-masks-flooded-u-s-customs-facilities-last-year-11612436403.

Isaacs, David. 2014. "How to Stop Counterfeit Semiconductors." Semiconductor Industry Association. December 31, 2014. https://www.semiconductors.org/how-to-stop-counterfeit-semiconductors/.

Kammel, Kari, Jay Kennedy, Minelli Manoukian, and Daniel Cermak. 2021. "Responsibility for the Sale of Trademark Counterfeits Online: Striking a Balance in Secondary Liability While Protecting Consumers." SSRN Scholarly Paper. Rochester, NY. https://papers.ssrn.com/abstract=3792224.

Mehta. 2021. "Amazon Releases Its First Brand Protection Report." US About Amazon. May 10, 2021. https://www.aboutamazon.com/news/company-news/amazon-brand-protection-report.

NIOSH. 2023. "Counterfeit Respirators / Misrepresentation of NIOSH Approval." May 1, 2023. https://www.cdc.gov/niosh/npptl/usernotices/counterfeitResp.html.

OECD and European Union Intellectual Property Office. 2023. Risks of Illicit Trade in Counterfeits to Small and Medium-Sized Firms. Illicit Trade. OECD. https://doi.org/10.1787/fa6d5089-en.

OECD and European Union Intellectual Property Office. 2022. Dangerous Fakes: Trade in Counterfeit Goods That Pose Health, Safety and Environmental Risks. Illicit Trade. OECD. https://doi.org/10.1787/117e352b-en.

Sayari. 2020. "The Dark Side of Beauty: An Overview of the Counterfeit Cosmetics Industry." Sayari. August 31, 2020. https://sayari.com/resources/the-dark-side-of-beauty-an-overview-of-the-counterfeit-cosmetics-industry/.

Subramanian, Samanth. 2021. "Food Fraud and Counterfeit Cotton: The Detectives Untangling the Global Supply Chain." The Guardian, September 16, 2021, sec. News. https://www.theguardian.com/news/2021/sep/16/food-fraud-counterfeit-cotton-detectives-untangling-global-supply-chain.

UNODC. 2021. "Compendium of Promising Practices on Public-Private Partnerships to Prevent and Counter Trafficking in Persons." https://www.unodc.org/documents/NGO/PPP/UNODC-PPP-Interactive.pdf.

US Chamber of Commerce. 2022. "Counterfeit Products Cost the Global Economy over $500 Billion a Year. That's Why the Private Sector Is Partnering with US Customs and Border Protection to Raise Awareness Nationwide to Educate Americans about the Dangers of Counterfeits." August 11, 2022. https://www.uschamber.com/intellectual-property/back-to-school-business-and-law-enforcement-team-up-to-protect-students-parents-and-teachers-from-counterfeit-goods.

Wang, Yajin. 2022. "A Conceptual Framework of Contemporary Luxury Consumption." International Journal of Research in Marketing 39 (3): 788–803. https://doi.org/10.1016/j.ijresmar.2021.10.01.

Layla M. Hashemi is a researcher and data analyst at the Terrorism, Transnational Crime and Corruption Center (TraCCC) focusing on international supply chains, cybercrime, and illicit trade. On the NSF project Disrupting Operations of Illicit Supply Networks (D-ISN), she is analyzing the supply chains of counterfeit PPE, fentanyl, and pharmaceuticals.

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