FROM A DISPOSABLE TO A SUSTAINABLE FASHION INDUSTRY: A REVIEW OF THE SHAMEFUL TRADE FLOWS OF USED TEXTILES AND THE NEED TO ADDRESS FAST FASHION

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OPEN ACCESS

How to cite this paper: Owusu-Wiredu, P. (2024). From a disposable to a sustainable fashion industry: A review of the shameful trade flows of used textiles and the need to address fast fashion. *Corporate Governance and Sustainability Review, 8*(1), 32–44.
https://doi.org/10.22495/cgsrv8i1p3

ISSN Online: 2519-898X
ISSN Print: 2519-8971

Received: 10.01.2024
Accepted: 19.04.2024

JEL Classification: F18, L67, Q53, Q56
DOI: 10.22495/cgsrv8i1p3

Abstract

While waste production can contribute to a variety of environmental issues, including greenhouse gas emissions, the production of waste from fast fashion is no exception. Spanning across various sectors such as agriculture, petrochemical production, manufacturing, logistics, and retail, the clothing and textiles industry is considered one of the most polluting industries globally (Bailey et al., 2022). It is responsible for approximately 8 to 10 per cent of total carbon emissions and 20 per cent of global wastewater. In 2021, Chile, for instance, emerged as the fourth-largest importer of used textiles, and the first in Latin America. Currently, imports have surpassed 126,000 million tons per year, with China, the United States, and the Republic of Korea accounting for the majority of imports (Pérez et al., 2022). Drawing on a systematic literature review, the paper aims to shed light on the adverse environmental impacts of fast fashion as a new business approach. By doing so, the paper stresses the need for immediate legal action to halt the current practices of dumping low-quality second-hand clothing in regions of the Global South that lack the infrastructure to effectively handle such hazardous materials. On the whole, the paper concludes that textile waste, similar to plastic waste, is clearly hazardous and, unfortunately, rather obscurely regulated.

Keywords: Fast Fashion, Sustainable Fashion, Sustainable Business Practices, Climate Change, Second-Hand Clothing Trade, Environmental Impact

Authors' individual contribution: The Author is responsible for all the contributions to the paper according to CRediT (Contributor Roles Taxonomy) standards.

Declaration of conflicting interests: The Author declares that there is no conflict of interest.

Acknowledgements: The Author would like to extend sincere appreciation to Dr. Stelios Andreadakis, upon whose shoulders the Author has stood and witnessed the discovery of all these potentials.

1. INTRODUCTION

When striving for a more sustainable lifestyle, we frequently emphasize reducing our usage of single-use plastics such as straws, plastic bottles, and bags. However, plastic is buried in places we might have never thought about, such as the clothes we wear and the large quantities that are kept in our wardrobes (Ripple et al., 2014). Nylon, polyester, and acrylic are widely used synthetic fabrics that contain plastic components and pose challenges in terms of recycling. The problem with them extends beyond

their production phase and includes their use and disposal (Avdullahi & Shala, 2023).

Polyester (polyethylene terephthalate), for example, is a synthetic fabric derived from petroleum-based products sourced from non-renewable fossil fuels. Not only do these fabrics raise concerns regarding their quality, but fossil fuels are also recognized for their substantial contribution to greenhouse gas emissions (Grove & Clouse, 2021). Approximately 342 million barrels of oil are used annually by the fashion industry to manufacture textiles from these plastic materials. Polyester, which accounts for 52% of the total fibre market and approximately 80% of synthetic fibres, poses a significant challenge to municipal solid waste (MSW) management due to the difficulties inherent to its recycling process (Ripple et al., 2014).

Although clothing plays a crucial role in our everyday lives, we often fail to recognize the intricate processes involved in its creation and the processes that it undergoes before reaching our closets. The complete life cycle of our clothing, including fibre production, dyeing processes, and final disposal, has a profound impact on our environment (Niinimäki et al., 2020; Mukherjee, 2020). While the environmental effect of clothing has been substantial throughout postmodern history, the advent of fast fashion has only aggravated this problem (Rao et al., 2022; Bailey et al., 2022).

Thus, in order to reduce the environmental impact of clothing, it is highly recommended to prioritize reuse (Ekström & Salomonson, 2014; Farrant et al., 2010). Nonetheless, the lack of proper standards in the collection, sorting, transport, sales, and disposal of damaged clothing significantly contributes to the environmental impacts stemming from the second-hand clothing business (Manieson & Ferrero-Regis, 2023). In essence, while the trade in second-hand clothing has the potential to extend the lifecycle of clothes by allowing people in developing countries to buy clothes at an affordable price, creating local job opportunities, and reducing CO2 emissions associated with the manufacturing of new garments, the trade of second-hand clothing frequently have negative consequences in destination markets when the clothes are of poor quality and end up in landfills, where they are frequently burned, leading to pollution (United Nations Economic Commission for Latin America and the Caribbean [UNECLAC], 2023).

Sorting garments by status (i.e., useable or not), quality (such as brand, design, materiality, etc.), and type (such as pants, jackets, etc.) is believed to be the most difficult and labor-intensive process involved in the second-hand clothing trade (UNECLAC, 2023; Maione, 2023). Often, high-quality clothes are selectively chosen and re-sold in countries of origin, accounting for less than 10% of all second-hand textiles, while around two-thirds are shipped for sale in regions of the Global South (Trunk et al., 2023; Manieson & Ferrero-Regis, 2023). In this context, it is critical to analyse and debate the advantages and negative contributions of the international trade in second-hand textiles, including the avoidance of the negative environmental price of fast fashion, as exemplified by the cases reported in South America, such as the Atacama Desert in Chile (Pérez et al., 2022; Duong, 2021).

Given the widespread connection between human activities and greenhouse gas emissions, it is concerning that the public has not given enough attention to the impact of our clothing on rising temperatures, particularly when it reaches the end of its useful life. As a result, the industry continues to saturate the market with what has been labelled as cheaply-produced-disposable clothing (Abdel-Jaber, 2021; Rao et al., 2022). Thus, guided by Anthropogenic Global Warming (AGW) theoretical perspectives, the paper draws on a literature review to address the following research question:

RQ: Are the current trade patterns of exporting used textiles to regions of the Global South supporting the circular economy through reuse, or are they merely transferring waste to countries lacking the necessary infrastructure to deal with it?

The primary goal of this analysis is to uncover the negative environmental impacts of fast fashion as a contemporary industry approach. By doing so, the paper stresses the need for immediate legal action to halt the current trade practices of dumping low-quality second-hand clothing in regions of the Global South that lack the infrastructure to effectively handle such hazardous materials (Manieson & Ferrero-Regis, 2023; Trunk et al., 2023). In other words, while significant attempts have been made to include plastic waste on the list of hazardous wastes, such as those listed in ANNEX I of the Basel Convention, this paper provides a welcome opportunity to discuss how similar to plastics, textile waste poses a significant threat to our planet on account of its recycling complexities.

According to AGW theoretical perspectives, while human activities have had a profound impact on the environment, activities over the last two centuries, such as those associated with the fast fashion business, including the use of fossil fuels to power agricultural machinery and industrial processes, have resulted in an intensified greenhouse effect (Joy et al., 2012). Despite the broad impacts of warming, it is believed that several strategies can be implemented to mitigate the effects of warming if done now (Grove & Clouse, 2021; Joy et al., 2012). Possible strategies might involve mitigating carbon emissions through the implementation of policies that encourage the adoption of cleaner production techniques, as well as allocating resources towards research and development initiatives aimed at decreasing carbon emissions in critical sectors, such as transportation and manufacturing (Grove & Clouse, 2021; Joy et al., 2012).

Thus, to facilitate the execution of such policy plans, the paper strongly encourages the adoption and implementation of extended producer responsibility schemes. These schemes offer governments a policy approach for dealing with environmental pressures caused by products at the post-consumer stage (Maitre-Ekern, 2021; Cai & Choi, 2021). It has an important role to play in enhancing resource efficiency by utilizing materials that would have otherwise been wasted (i.e., sent to landfills or burnt), while at the same time influencing designers to select materials that can be more easily reused and recycled (Maitre-Ekern, 2021).

The rest of the paper is structured as follows. Section 2 reviews the relevant literature. Section 3 presents the methodology used to obtain and analyse the literature. Section 4 and Section 5

provide the findings and discussion, respectively. Section 6 provides the conclusions of the study, including the limitations of the research and suggestions for future studies.

2. LITERATURE REVIEW

2.1. New shocking facts about the impact of fast fashion

Ten years ago, the question of the origin of our garments transitioned from a mere curiosity to a pressing concern (Blanchard, 2018). It was on April 24, 2013, when the Rana Plaza disaster occurred on the outskirts of Dhaka in Bangladesh; more than 1,130 individuals perished when the factory in which they worked collapsed (Blanchard, 2018; Andreadakis & Owusu-Wiredu, 2023). This incident incited Fashion Revolution co-founders, Carry Somers and Orsola de Castro, into action. Their campaign was straightforward. They were urging the industry to take more responsibility and increase transparency in supply chains (Blanchard, 2018; Rao et al., 2022). Presently, the industry has the potential to trigger a massive worldwide disaster with terrible effects on the entire human race if "precautionary measures" are not taken to regulate its operations (Andreadakis & Owusu-Wiredu, 2023; Brewer, 2019).

According to a recent study, the industry has a higher impact on climate change than international aviation and shipping combined (Niinimäki et al., 2020; McFall-Johnsen, 2019). Furthermore, purchasing a single white cotton shirt produces emissions comparable to driving 35 miles in a car (Algamal, 2019). Although global clothing consumption has increased by 400% in the past two decades, amounting to an estimated 80 billion garments every year, less than 1% of the material used in clothing production is presently recycled into new garments when it reaches the end of its useful life (Brewer, 2019; Peters et al., 2021). Using the United Kingdom as a case study, it is estimated that around 300,000 tons of textile waste are disposed of in household black bins each year, ultimately ending up in landfill sites and incineration facilities (Peters et al., 2021).

Nassar et al.'s (2023) case study of Boohoo, a UK-based global fast fashion brand, highlights the need for an in-depth assessment of some of the current ethical and reputational issues confronting the fashion industry. From a macromarketing standpoint, the study analyses some of the most recent exposés in the fashion industry, with an emphasis on the niche industry of fast fashion, which fosters an environment in which both suppliers and retailers are able to sell products as cheaply and profitably as possible (Nassar et al., 2023). According to Henninger et al. (2022), the utilization of petroleum-based materials in the sector contributes to its adverse environmental impact. Industry operations, as stated by Marciniak (2024), are a contributing factor to the dumping of wastewater and plastic microfibers into the ocean.

In this day and age, when we are always carrying cameras, we feel required to be "picture-perfect" (Abdel-Jaber, 2021). The fashion industry, particularly the niche industry of "fast fashion", has benefitted greatly from this desire for perfection (Abdel-Jaber, 2021). Abder-Jaber (2021), in his study, emphasizes the challenge of market regulation in the fashion industry because of its constantly evolving nature. As per Abdel-Jaber (2021), the scholar, social media has sped up the creation of new fashion designs, with consumers being attracted to unique apparel designs showcased by celebrities and social media influencers. Although fast-fashion brands have recently seized the spotlight as the more affordable alternative, high-end brands have long been known for setting the style for the season, from shoes and t-shirts to accessories. Simply stated, despite their dominance in the industry with regard to speed, pricing, and advertising, fast fashion brands do not have a reputation for innovative ideas or ethical business conduct (Abdel-Jaber, 2021).

2.2. On the road to sustainability: Why fast fashion is a critical issue right now

To begin, while there is no authoritative definition of the term "fast fashion", the most well-known interpretation pertains to affordable yet fashionable garments that are cheaply produced and quickly abandoned in favour of new styles (Bailey et al., 2022; Abdel-Jaber, 2021). On an international scale, China dominates the fashion industry and is the leading exporter of textiles. However, the United States and the European Union consume over half of the industry's output, leaving the Global South, especially Latin America and East and West African nations, overburdened with the weight of second-hand goods dumped at their shores (Bailey et al., 2022; Choudhury, 2014).

Nowadays, the industry's capacity to create inexpensive clothing that mimics the ever-changing trends of luxury brands, such as Dior, Armani, Balenciaga, Gucci, Louis Vuitton, and Yves Saint Laurent exacerbates the aforementioned effects (Choudhury, 2014; Bailey et al., 2022). Although clothing is an essential aspect of our daily lives, many people fail to consider where they came from and how they got into their wardrobes. At every point in the clothing life cycle, from cultivating fibers to dyeing and disposal, our clothing has a significant impact on the environment (Niinimäki et al., 2020; Bailey et al., 2022). In essence, while waste production can lead to various environmental issues, including greenhouse gas emissions, the fashion industry is a significant contributor to this problem (Joy et al., 2012).

While these brands are not renowned for their creative or ground-breaking designs, fast fashion brands have emerged as a cost-effective substitute for high-end designers, including Gucci, Louis Vuitton, Balenciaga, Chanel, Dior, Yves Saint Laurent, and Armani, in the manufacturing of clothing and accessories (Joy et al., 2012; Abdel-Jaber, 2021). High-end designers, on the other hand, such as Chanel, Gucci, Louis Vuitton, and others, are renowned for creating trends and standards for fashion while operating within legal parameters, particularly with regard to the environment (Yasin & Sun, 2019). The ability of fast fashion brands to produce clothes at a fraction of the cost of their more expensive counterparts has resulted in an increase in the ecological impact of clothing, particularly as it approaches the end of its useful life

(Choudhury, 2014; Andreadakis & Owusu-Wiredu, 2023). Even while some of the biggest brands in the industry have physical retail locations, fast fashion dominates online shopping.

The common assumption that it is acceptable to wear an item of clothing only a few times has led to a rise in the amount of clothing being thrown away nowadays, promoting overconsumption and overproduction (Andreadakis & Owusu-Wiredu, 2023). People desire to wear the most recent fashions, which are usually pioneered by celebrity actors, musicians, and models (Bick et al., 2018). Big fashion brands increase in popularity for one simple reason: they are able to capitalize on this psychology and design to satisfy consumer requirements (Niinimäki, 2011). However, the problem lies in the fact that high-end fashion brands typically charge exorbitant prices for their goods; consider the vast price variations between, for example, a jacket from Primark and one from Gucci (Bick et al., 2018).

Thus, whereas major fashion brands rely on quick turnover of their high-priced items and primarily target a select group of affluent individuals who frequently make expensive purchases, fast fashion brands strive ceaselessly to emulate the strategies of major fashion brands, resulting in a similar situation in which quick turnover is required (Abdel-Jaber, 2021). However, it is important to note that the profit margin per item for fast fashion is considerably lower. Consequently, the industry generates revenue through a significantly broader consumer demographic (Bick et al., 2018; Andreadakis & Owusu-Wiredu, 2023). Hence, the present proliferation of clothing production.

3. RESEARCH METHODOLOGY

While this study employs a systematic literature review methodology to compile a comprehensive collection of articles relevant to the issue under discussion, the research question could have been addressed using empirical legal research, primarily by visiting some of these regions and interviewing residents or traders in the second-hand clothing business to obtain first-hand information on the subject at hand. Nonetheless, while this remains a limitation, significant effort has been made to conduct an in-depth literature review of the topic at hand to ensure that arguments are supported by a diverse range of scholarly sources, including but not limited to books, peer-reviewed articles, internet blogs, and news sources, in order to avoid all forms of research bias.

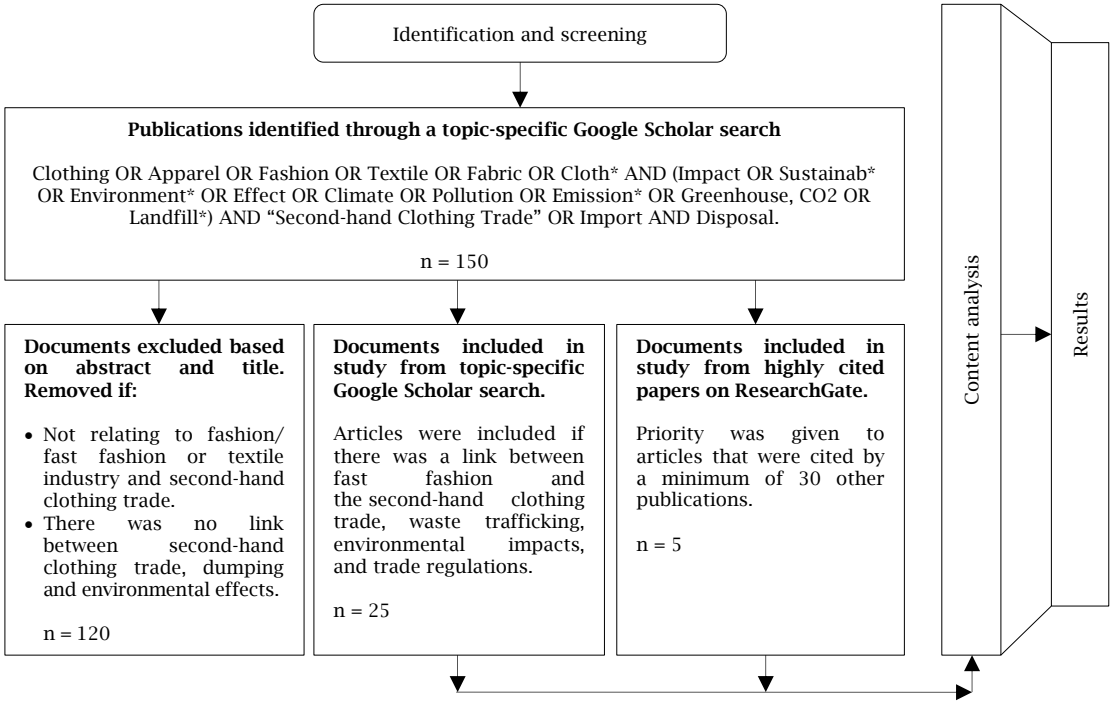
According to Pati and Lorusso (2018), the systematic review methodology is the most effective approach for selecting and synthesizing the findings of relevant research and evaluation studies, thereby providing researchers with practical information based on the best available research on a specific question. This method entails following transparent procedures to locate, assess, and synthesize the findings of relevant research on a specific topic/question. Unlike narrative or traditional literature reviews, systematic review procedures are carefully outlined in advance, ensuring that the practice is transparent and repeatable.

One significant advantage is its capacity to reduce research bias. The process produces a set of synthesized findings from research studies on a given topic, which may then be used to guide policy and practice. Its key features include a thorough and systematic search for material; ensuring that the procedures/processes used throughout the review are transparent and replicable; being aware of and explicit about the credibility and reliability of claims made; and the ability to synthesize the information discovered in order to make research evidence available and accessible to policymakers.

Overall, there were three major steps used in this systematic review. From a pool of 115 scholarly articles, a systematic approach was followed to identify and analyse a subset of 30 publications that were published between January 2000 and December 2022. The objective was to compile an exhaustive collection of papers relevant to the topic at hand. Drawing on text analysis, the systematic review process encompassed four crucial steps. The literature to be evaluated was located using a topic-specific Google Scholar search. The objective was to conduct a thorough search that focused on the specific subjects under discussion. The search was carried out on November 10, 2023, and a total of 150 articles were retrieved for analysis. Following that, the titles and abstracts underwent a thorough screening process to determine their relevance to the scope of the review. This was accomplished by applying specified inclusion and exclusion criteria.

In other words, articles that did not pertain to fast fashion, focused primarily on solid waste treatment methods, or failed to establish a connection between the trade, import, and disposal of second-hand clothing and its environmental impact were excluded. Thus, from the initial pool of 105 publications, 30 were selected for analysis: 15 from Web of Science, 10 from Heinonline, and 5 from highly cited papers on ResearchGate, yielding a dataset of 30 relevant articles. Finally, the content of the selected studies was analysed for major themes related to fast fashion, such as second-hand clothing trade, environmental impact, waste pollution, waste minimization, sustainable fashion, greenhouse gas emissions, climate change, global warming, the effect of landfills, sustainability, waste trafficking, and recommendations to slow the negative environmental impacts of fast fashion, including extended and pre-market producer responsibilities, trade regulations, ecodesign initiatives, and the transition to the circular economy. The following is the search query that was used to retrieve the primary dataset: Clothing OR Apparel OR Fashion OR Textile OR Fabric OR Cloth* AND (Impact OR Sustainab* OR Environment* OR Effect OR Climate OR Pollution OR Emission* OR Greenhouse, CO2 OR Landfill*) AND “Second-hand Clothing Trade” OR Import AND Disposal.

Figure 1. Flow chart summarizing the systematic review process used in this study



4. RESULTS

Out of the 150 articles initially retrieved, 105 were deemed relevant. Subsequently, the content of the selected studies was analysed for major themes related to fast fashion, such as second-hand clothing trade, environmental impact, waste pollution, sustainability, waste minimization, sustainable fashion, the effect of landfills, greenhouse gas emissions, climate change, global warming, waste trafficking, and recommendations to slow the negative environmental impacts of fast fashion, including extended and pre-market producer responsibility, trade regulations, and the transition to the circular economy. In total, 30 articles were ultimately selected for the analysis: 15 from Web of Science, 10 from Heinonline, and 5 from highly cited papers on ResearchGate.

Ultimately, it was identified that there is an apparent growing interest in fast fashion and its environmental effects, evident by the dumping of low-quality second-hand clothing in regions of the Global South, particularly Africa and Latin American countries, such as Ghana and Chile. In addition, it is worth mentioning that the majority of these papers were published within the last few years. Out of the 30 papers, 20 (66.7%) were published between 2016 and 2022. Not only that but it was also discovered that the *Journal of Cleaner Production* and *Water Science and Technology* had produced the most material on this subject, indicating its prominence in this particular topic. China emerged as the leading contributor of articles on fast fashion and its environmental impacts, with authors from the United Kingdom, the United States, Türkiye, and Switzerland also making significant contributions (Bailey et al., 2022).

5. DISCUSSION

Through this systematic review, it has been found that fast fashion has significant detrimental effects on the environment. These effects are evident not only during the production phase, where carbon, water, and energy footprints are impacted but also during the use phase of clothing. This is demonstrated by the current saturation of international clothing markets and the increase in end-of-life textile waste. Unfortunately, a significant amount of this waste finds its way to regions in the Global South, resulting in twice as much greenhouse gas emissions as other well-known sources due to not just the enhanced greenhouse gas effect of landfills, but also via the open combustion of damaged garments (Bailey et al., 2022). In contrast to other stressors associated with climate change, such as transportation and the oil/fossil fuel industry, our findings show a significant increase in research focus on the impact of fast fashion on global environmental sustainability over the last five years, as evidenced by 74% of published papers (Bailey et al., 2022).

The term "textile industry" encompassed the manufacture of both raw materials, such as yarn, and finished products, such as clothes. However, the phrases "fast fashion industry" and "fashion industry" exclusively focused on matters related to finished garments and articles of clothing (Bailey et al., 2022; Andreadakis & Owusu-Wiredu, 2023). Among other things, "fast fashion", "sustainability", "textile industry", "greenhouse gas emissions", "carbon footprint", "climate change", "global warming", "waste pollution", and "trade regulation", were identified as major emerging topic areas in the literature (Bailey et al., 2022; Andreadakis & Owusu-Wiredu, 2023). Elaborated below are some of the most intellectually stimulating topics of study in this rapidly growing field.

5.1. The psychology of fashion: Understanding the emotions people attach to clothing

Given that present consumption is heavily reliant on experiences, and that product design is centred on the emotional experience a product can provide for a user, it is important to examine the meaning of experience and pleasures provided by the current vast consumption of clothing (Niinimäki, 2011). According to Niinimäki (2011), products are discarded not only due to their poor quality (which results in a limited usage time) but also because new trends and fashion make products look out of date. While the postmodern era is marked by its constant change, multiple choices, and the freedom of individuals to construct themselves, present consumer culture plays a significant role in defining consumption within postmodern society (McCracken, 1990).

According to McCracken (1990), the present modern society is a "liquid society" that is always changing. This persistent presence of fluidity and uncertainty affects a consumer's constant self-critique (McCracken, 1990; Chapman, 2015). As a result, the consumer's identity is considered "mobile" since it is subject to frequent modifications and re-evaluations as part of the individual's ongoing transformation process (Niinimäki, 2011). Along with frequent self-evaluations, the ever-changing nature of the consumer's identity can ultimately result in dissatisfaction, as individuals are compelled to scrutinize their purchasing choices based on societal approval (Niinimäki, 2011; Chapman, 2010). According to Slater (2002), the consumer has an ongoing need to renew his/her appearance according to a mobile self. Thus, given that the "self" is strongly tied to consumption habits, the relationship between consumption and satisfaction creates an amount of flexibility in the consumer's identity construction (Slater, 2002; Kolko, 2015).

According to Slater (2002), products convey status and social identity, yet these meanings are negotiable and flexible in the postmodern era. Hence, the constant shift in the consumer's identity construction affects not just the aesthetic concept of the products they consume, but also its social acceptance processes (Slater, 2002; Chapman, 2009). Put simply, according to Roach and Eicher (1973), not only must consumers intentionally consider what is culturally and socially meaningful when, for example, deciding on what to wear, but they must also retain an appealing self-type within the boundaries of what is culturally acceptable. According to McCracken (1990), the construction of the "mobile self" is an ever-changing process that necessitates continuous improvement. The concept of freedom, for example, is a fundamental aspect of postmodern consumer culture, with individuality serving as a powerful manifestation of this freedom (McCracken, 1990; Haug, 2019). That is, the postmodern identity is predominantly characterized by consumer satisfaction, which partly accounts for the substantial craving for clothing in contemporary society, notwithstanding its detrimental ecological consequences (Niinimäki, 2011; Chapman, 2010).

In addition to allowing consumers to express their individuality and uniqueness, products and purchases also help customers construct their social image and lifestyle (Niinimäki, 2011). Consequently, there is a compelling need for industries to grow in order to satisfy these unending consumer expectations (Brewer, 2019). According to McCracken (1990), people acquire many items because they aspire to a particular lifestyle and clothing, for example, provides a small portion of this lifestyle to the consumer. Nevertheless, since the acquisition of no single product can completely satisfy the consumer's preferred lifestyle, he/she remains dissatisfied, and the search continues (Niinimäki, 2011). This offers an alternative explanation for the significant demand for clothing in contemporary society, despite its negative environmental implications.

Besides, according to Wang and Wallendorf (2006), the desire to acquire social status through possessions is closely connected to an individual's materialistic values. In other words, individuals desire products with specific qualities with which they may want to identify (Wang & Wallendorf, 2006). While emotions are at the heart of human existence and play an important role in consumption, clothing and textiles fall under the category of self-expressive products (Haug, 2019). This means that consumption-related emotions are particularly important following the acquisition of these products. As a result, individuals with strong materialistic values try to achieve satisfaction by consuming more of these items (Haug, 2019). For a Western consumer, the relationship between wants, needs, values, attitudes, and experiences is emotionally meaningful (Niinimäki, 2011). Hence, emotional obsolescence can cause a product to be discarded prematurely. This offers an alternative explanation for the substantial desire for clothing in modern civilization, despite its severe environmental consequences.

Moreover, according to Chen and Burns (2006), the symbolic meanings of products are linked to psychological satisfaction via an emotional response; therefore, clothing, for example, can help a person identify with a particular set of individuals, be it demographic or cultural. As a result, when a product no longer evokes a positive emotional response, such as when it goes out of fashion, the consumer experiences psychological obsolescence and a strong urge to replace the product with a new one (Chen & Burns, 2006). The new product enables the consumer to rediscover that excitement, if only for a brief period of time; in other words, people desire objects that are not readily available, and they cannot enjoy them (Niinimäki, 2011). In other words, desire emerges from the distance created between an individual and a product (Chapman, 2010). According to Dewey (2008), individuals engage with objects to create positive experiences. Thus, products interact with a person's needs, desires, goals, and abilities to create experiences (Haug, 2019). Thus, the more a person consumes a product, the more likely they are to have similar favourable experiences (Niinimäki, 2011). This further explains why there is such a strong desire for clothing in contemporary civilization, where it is all about producing great consumer experiences, even if it comes at the expense of our very existence, the human environment.

5.2. The shameful trade flows of used textiles and the need to address fast fashion

Spanning across various sectors such as agriculture, petrochemical production, manufacturing, logistics, and retail, the clothing and textiles industry is considered one of the most polluting industries globally (Bailey et al., 2022). It is responsible for approximately 8 to 10% of total carbon emissions and 20% of global wastewater (Andreadakis & Owusu-Wiredu, 2023; Bailey et al., 2022). In 2021, Chile, for example, emerged as the fourth-largest importer of used textiles, and the first in Latin America (Pérez et al., 2022). Currently, imports have surpassed 126,000 million tons per year, with China, the United States, and the Republic of Korea accounting for the majority of imports (Pérez et al., 2022).

According to a 2023 study, nearly 40% of these items are imported through the Iquique free-trade zone in the northern Atacama Desert, and most of them are discarded there since they have no value in the local second-hand clothing market (Pino Ahumada, 2023). Thus, themes surrounding the urgency to confront the aforementioned practice — specifically, the ongoing dumping of fast fashion waste in Chile and other regions of the Global South, such as Ghana, Kenya, and Tanzania — were prevalent throughout the systematic review process, particularly in light of current initiatives to prevent climate change and take necessary actions to mitigate its catastrophic effects and the heightened methane and carbon footprint of such unscrupulous trading/dumping activities.

To begin with, whereas trade involves the practice of buying, selling, or exchanging commodities or services between individuals, businesses, or countries, the term "trade flow" refers to the flow of imports and exports, as well as their components and direction (Russo et al., 2023). At the global level, used textiles tend to flow from richer countries to poorer ones, driven by the pursuit of potential buyers in a cascade of quality and value (Brolin & Kander, 2022). Thus, the current trade patterns, including the ongoing dumping practices observed in many Global South countries, are often attributed to the unscrupulous trade flows that exist, in which developed countries overconsume clothing yet dislike the resulting waste (Brolin & Kander, 2022). While the societal impact of excessive consumerism in the textile industry, such as child labor in factories and derisory wages, is widely recognized, the disastrous effect on the environment has often been less spoken of (Pino Ahumada, 2023). Chile's historic desert, the Atacama Desert, recognized for being the world's driest desert, is currently facing an influx of abandoned clothing discarded from neighbouring Global North countries, including the United States, as with other locations, such as Ghana's Kpone dump site and Kenya's Dandora Landfill, these practices are thought to be a direct consequence of the unethical trade flows that exist, wherein developed countries indulge in excessive clothing consumption while maintaining aversion towards the resultant waste (Pino Ahumada, 2023).

Given the environmental impacts of such activities, even more shameful is the fact that the region has long been a hub for the international trade of both unsold and second-hand clothing relinquished by neighbouring Global North countries such as the United States, which understands the grave environmental impacts of such dumping practices but has chosen to do otherwise in the name of free trade and thus promoting the circular economy through textile reuse; however, are simply transferring waste to countries lacking the necessary infrastructure to deal with it (Das et al., 2022). These items, typically manufactured in countries like China and Bangladesh, often pass through Europe, Asia, or the United States before arriving in Chile, where it is resold across Latin America (Pino Ahumada, 2023).

As a result, not only are the aforementioned practices of fast fashion considered a problem, but also its accompanying dumping/trading activities, such as those currently taking place in Chile, are thought to have catastrophic implications for the global environment, particularly now that climate change is considered a global emergency (Plasticsoup Foundation, 2023). Compared to the previous two decades, the current era has witnessed a distressing surge in the production and disposal of clothing, exacerbating an already precarious state of affairs, particularly in relation to addressing the urgent problems of climate change, given the heightened impact of these practices on methane and carbon dioxide emissions (Wren, 2022). According to Bernetti's (2021) study, only 15% of the approximately 59,000 tons of used and unsold clothing that arrive in Chile each year, for instance, are resold across Latin America, while the remaining 85% are either downcycled, recycled, or are simply dumped in the Atacama Desert after traveling through Europe, Asia, or the United States and arriving at the Iquique port in the Alto Hospicio free zone in northern Chile.

Mixed with other municipal solid waste (MSW), such practices not only exacerbate the ongoing issues of climate change due to the heightened greenhouse gas effect of such dumps, but the substantial carbon footprint resulting from the transportation of these textiles via shipping and aviation further renders the ongoing practices "an environmental and social emergency" for the planet (Plasticsoup Foundation, 2023). According to one study, not only are the polluting effects of the aforementioned dumping practices a pressing concern for those who live nearby, but the "mountains" of clothes currently being dumped in Chile's Atacama Desert will take 200 years to decompose if necessary steps to slow down fashion and regulate the second-hand clothing trade are not taken now (Pérez et al., 2022).

5.3. Can existing trading rules help? Re-thinking a legal solution to a fast fashion problem

Within global geographies of fashion, not only environmental but also work-related liabilities are shifted to developing countries through the trading/dumping of low-quality second-hand clothing in regions of the Global South (Laryea & Akuoni, 2012). Effectively, removing these types of environmental injustices is regarded as necessary in order to attain sustainability on a global scale (Laryea & Akuoni, 2012). To begin with, according to Article VI of the General Agreement on Tariffs and

Trade (GATT) (1994), "dumping" defined as any activity in which products from one country are introduced into the commerce of another country at a price less than the normal value of the products, is to be condemned if it causes or threatens material injury to an established industry in a contracting party's territory or materially impedes the establishment of a new industry.

According to the provisions of this Article, a product is considered to have been dumped into an importing country if the price of the product exported from one country to another is lower than the comparable price for the "like product" destined for consumption in the exporting country during normal trade, or, in the absence of such domestic price, lower than the highest comparable price for the product in question when destined for consumption in the exporting country, or, lower than the cost of production of the product in the country of origin plus a reasonable addition for selling cost and profit (GATT, 1994)[1]. Thus, according to the provisions of this Article, while an anti-dumping duty may be imposed on any dumped product whose release into another country may cause injury, whether it be of an economic, health, or environmental nature, the efficacy of the anti-dumping provision is extensively questioned, as, rather than preventing such practices from happening in the first place, it merely exists to establish guidelines for governments to deal with instances of dumping.

Thus, an analysis of whether the existing international trade regime, particularly those rules embodied in the Trade and Environment Agenda, such as the Environmental Goods Agreement (EGA) and the Carbon Border Adjustment Mechanisms, CBAM (carbon tariffs), can effectively aid in the elimination of the aforementioned practices, while also putting an end to the exploitation of the Global South in global international trade, particularly following the termination of the Agreement on Textiles and Clothing (ATC) and all associated restrictions thereunder, which implies that trade in textile and clothing products is no longer subject to quotas under a special regime outside of normal World Trade Organization (WTO)/GATT rules but is now governed by the general rules and disciplines embodied in the multilateral trading system, of which the Global North, partly because of its economic power, tends to take advantage of this system, is required (Sirleaf, 2018).

According to Bick et al. (2018), an analysis of this nature must consider the unique developmental needs of these nations, specifically their needs for climate mitigation and adaptation, and in consideration of the fact that the aforementioned dumping practices would not only effect these regions, but also have long-term consequences for the global environment. According to a report by the Global Commission on the Economy and Climate (2014), globalization has been a major driver of both high- and low-carbon growth during the last few decades. World trade has tripled in this period, reaching US$32 trillion in 2022 (United Nations Conference on Trade and Development [UNCTAD], 2022). While this has provided an important boost to developing and emerging economies as well as developed ones, it has also led to a significant rise in waste trafficking, particularly to countries with weaker pollution controls, predominantly least developed countries (LDCs), and small island developing states (SIDSs) (Global Commission on the Economy and Climate, 2014). While the trade boom has most likely increased global greenhouse gas emissions, this type of analysis frequently focuses on emissions from production and transportation, ignoring poor waste management practices such as the dumping of low-quality second-hand goods in regions of the Global South with lax trade and environmental policies (Global Commission on the Economy and Climate, 2014).

According to the Organisation for Economic Co-operation and Development (OECD, 2020) report, while some countries have proposed trade-related aspects of climate change mitigation and adaptation plans, such as the CBAM, which impose a carbon tariff on certain imports into the European Union, for example, the efficacy of such mechanisms in controlling waste dumping to the developing world through international trade is questionable, as carbon emissions in internationally traded goods and services account for only 27% of total global carbon emissions and are concentrated in only seven industries, namely, mining and extraction of energy and related products; basic metals and fabricated metal products; chemicals and non-metallic mineral products; machinery and equipment; computers, electronic and electrical equipment; and motor vehicles, trailers and semi-trailers. This implies that the impact of CBAM on global carbon emission will be extremely limited to the developed world, notwithstanding the specified needs of the Global South.

Likewise, the efficacy of the EGA, particularly its ability to determine what constitutes an environmental good and service, has been the subject of much debate (Antràs et al., 2022; Banga, 2022). While negotiations for the aforementioned instrument, namely the EGA, are still in the early stages of determining the specific products that should be included in the Agreement, the process of choosing which goods should be included on the list is not as straightforward as it may appear. In other words, the outcome of the aforementioned debate has implications for the extent to which this agreement can make a genuine contribution to worldwide climate change mitigation and adaptation efforts, particularly in addressing the grave environmental impact of the quality of second-hand goods traded to the developing world, as the lack of a comprehensive list of what should constitute an environmentally sound product/good at present provides a loophole for the Global North to dump in the Global South (Bucher et al., 2014).

Therefore, following the shortcomings of the aforementioned instruments, namely the Negotiations for the EGA, the CBAM, and the WTO Anti-Dumping Agreement (i.e., implementation of Article VI of the GATT) — and the termination of the ATC, which was considered a potential remedy to the persistent issues of textile waste trafficking, particularly for most developing countries, there is

[1] For the purposes of this Regulation, "like product" means a product which is identical, that is to say, alike in all respects, to the product under consideration, or, in the absence of such a product, another product which, although not alike in all respects, has characteristics closely resembling those of the product under consideration.

now a growing awareness about the responsible role producers can play in safeguarding the environment. This concept, known as "producer responsibility", has been categorized as either extended or pre-market producer responsibility (Maitre-Ekern, 2021).

5.4. Comparing extended producer responsibility and pre-market producer responsibility policy approaches: The new paradigm shift

The way and manner in which we collect and manage our waste can either result in high recycling rates or valuable materials finding their way back into the economy (Morseletto, 2020; Domenech & Bahn-Walkowiak, 2019). Incorporated into European Union waste law in the 1990s, extended producer responsibility (EPR) policies were intended to link product and waste by incentivizing manufacturers to improve product design and thereby reduce waste management costs (Pouikli, 2020; Compagnoni, 2022). While the program has had a limited impact on waste prevention, it would be far more effective to merely regulate waste trafficking, as is the case with current international waste management initiatives (Maitre-Ekern, 2021).

While this systematic review identifies EPR policies as one of the important milestones in the evolution of European Union waste management policy, for example, the purpose of this discussion is to introduce a producer responsibility strategy that emphasizes preventive actions rather than market access restrictions, namely a pre-market producer responsibility (PPR) (Maitre-Ekern, 2021). Consequently, this discussion diverges from the typical literature on EPR in that it does not seek to debate the future of the scheme, but rather suggests abandoning the economic rationale that partially justified its adoption and concentrating on the development of a truly preventive waste management strategy (Maitre-Ekern, 2021).

In waste management, EPR is a policy approach in which producers are held accountable for the end-of-life of their products after they have been sold (Cai & Choi, 2021; Atasu, 2019). This policy approach modifies the default rule for waste management and reverses the rights and responsibilities inherent to the product chain (Sachs, 2006). In contrast, the concept of "pre-market producer responsibility (PPR)", emphasised in this discussion, ensures that producers cannot pay their way out of selling products that fail prematurely, cannot be repaired, or are recycled rather than reused (Maitre-Ekern, 2021). Thus, rather than recycling or disposing of their products, manufacturers would be accountable for guaranteeing their products' quality and advocating for repair and reuse (Atasu, 2019). The strength of this program lies in the fact that it prevents the worst-performing products, particularly in terms of environmental impact and energy efficiency, from entering the market.

In a report for the Swedish Ministry of Environment, Lindhqvist and Lidgren (1990) defined EPR as an environmental protection strategy that holds the product manufacturer accountable for the entire life cycle of the product in order to achieve the environmental objective of a reduced total environmental impact (Lindhqvist & Lidgren, 1990). Put simply, EPR policies serve a dual purpose: on the one hand, they seek to shift the financial burden of waste management from society (i.e., taxpayers) to producers (and consumers). On the other hand, it seeks to encourage innovations in product design to reduce these costs and the environmental damage they cause (Lindhqvist & Lidgren, 1990). Put differently, by requiring producers to pay for waste management, EPR policies tend to compel manufacturers to consider environmental factors when making business decisions (OECD, 2001).

According to Lindhqvist (2000), EPR policies may be divided into four different categories: liability, economic, informative, and physical. In other words, producers would be required to cover all or a portion of the cost of collection, recovery, and final disposal of the products they manufacture (economic and financial responsibility), participate in waste product management (physical responsibility), or provide consumers and recyclers with information about proper recycling processes (informative responsibility) (Tojo, 2004). Under this policy approach, producers would be held liable for environmental harm caused by their products. Together with other policy initiatives, such as the circular economy framework and the Ecodesign for Sustainable Products and Textiles Regulation, these are thought to be critical measures assisting the European Union, for example, in addressing its waste management issues, but they are missing from the international legal framework for waste management, which has for decades focused solely on restricting transboundary waste movement rather than limiting waste generation (Tojo, 2004). Hence, instead of attempting to address what appear to be inherent flaws in EPR schemes in terms of waste prevention, it may be more appropriate to address these issues primarily in another context, namely by regulating products rather than waste, as is the case with current international initiatives.

Nowadays, preferable to the conventional EPR policy approach is the concept of PPR, which attempts to limit market access to minimum requirements of durability, repair, and reuse, thereby addressing the shortcomings of the conventional EPR policy approach (Maitre-Ekern, 2021). That is, instead of relying on product end-of-life requirements, the PPR would provide the groundwork for imposing environment-oriented measures upon placing products on the market. Put simply, a PPR would not be founded on financial accountability, as per the polluter-pays approach, but rather on a sense of need to take caution (Maitre-Ekern, 2021). That is, in contrast to the conventional EPR policy approach, which aims to hold producers accountable for the financial cost of managing the impact of their products' end-of-life phase, the PPR would require producers to limit the environmental impact of their products and increase their lifespan in accordance with circular economy objectives prior to placing them on the market (Maitre-Ekern, 2021).

Given that PPR is a more efficient approach than the traditional EPR policy approach, the question of how to increase the role of manufacturers in waste prevention as opposed to waste management remains crucial (Tojo, 2004; Maitre-Ekern, 2021). While it is commonly believed that the (financial) responsibility for the end-of-life phase of products automatically incentivizes

producers to introduce upstream changes (such as design for the environment, repairability, or reusability), according to one study, an evaluation of the existing EPR policy approach demonstrates that this is not the case (European Environmental Bureau [EEB], 2022). Expecting producers to implement systemic changes in, for example, design and production on a voluntary basis will not work in the absence of sufficient financial incentives (EEB, 2022). Hence, despite its recommendation at the international level, EPR plans should be revised to serve as an incentive for improved design and to extend beyond cost coverage (Monier et al., 2014).

That is, rather than optimizing inferior designs, EPR fees should serve as price signals that encourage producers to implement systemic changes (Maitre-Ekern, 2021). This is particularly crucial as EPR programs are implemented for an expanding number of product categories, as opposed to the proposed Environmental Goods and Services Agreement. Thus, there is a need for mandatory eco-modulation of fees to encourage producers to work towards the highest levels of the hierarchy of prevention (fewer products) and reuse (replacing disposables with reusables) (Ahlers et al., 2021; Maitre-Ekern, 2021).

However, despite its global reach and thus the capacity to address the persistent issues associated with fast fashion, none of the measures mentioned above are presently incorporated into international law. Thus, in addition to other policy measures, such as the circular economy framework and the Ecodesign for Sustainable Products and Textiles Regulation adopted by the European Union, for example, this paper suggests that producer responsibility policies (specifically EPR and PPR) policy approaches, which have the potential to not only improve product quality but also ensure that manufacturers take responsibility for the end-of-life of their products after they are no longer in use, should be integrated into international law, given its global reach and thus the capacity to tackle the persistent problems associated with fast fashion.

6. CONCLUSION

In order to reduce the environmental impact of the clothing and textile industry, the reuse of clothing is strongly encouraged. However, the lack of proper standards in the collection, sorting, transport, sales, and disposal of damaged clothing significantly contributes to the environmental impacts stemming from the second-hand clothing business. Put simply, while the trade in second-hand clothing has the potential to extend the lifecycle of clothes by allowing people in developing countries to buy clothes at an affordable price, creating local job opportunities, and reducing CO2 emissions associated with the manufacturing of new garments, the trade of second-hand clothing frequently have negative consequences in destination markets when the clothes are of poor quality and end up in landfills, where they are frequently burned, leading to pollution.

Thus, the primary aim of this study was to determine whether the current trade practices of exporting used textiles to regions of the Global South contribute to the circular economy by encouraging reuse, or if they simply involve the transfer of waste to countries that lack the essential infrastructure to manage it. Based on a systematic review of the literature, the results seem to indicate that the current trade practices of exporting used textiles to regions of the Global South do not promote reuse and thus do not contribute to the circular economy. Rather, they merely involve the transfer of waste to countries that lack the requisite infrastructure to effectively manage it.

Sorting garments by quality (e.g., brand, design, materiality), status (i.e., usability or non-usability), and type (e.g., trousers, jackets, etc.) is arguably the most labour-intensive and challenging process involved in the second-hand clothing business, according to the study. Often, high-quality clothes are selectively chosen and re-sold in countries of origin, accounting for less than 10% of all second-hand textiles, while around two-thirds are shipped for resale in regions of the Global South, notwithstanding the poor quality.

Over the past two decades, global clothing consumption has seen a significant increase of 400%, resulting in approximately 80 billion garments being produced each year. However, it is disheartening to note that less than 1% of the material used in clothing production is currently recycled into new garments once it reaches the end of its useful life. Only 15% of the approximately 59,000 tons of used and unsold clothing that arrive in Chile each year, for example, are resold across Latin America, while the remaining 85% are either downcycled, recycled, or simply dumped in the Atacama Desert after traveling through Europe, Asia, or the United States (Bernetti, 2021).

Given the shortcomings of the existing legislative framework, particularly international trade law, in preventing these practices through regulation of the second-hand clothing market, this paper proposes that, alongside other policy measures, such as the European Union's circular economy framework and the Ecodesign for Sustainable Products and Textiles Regulation, producer responsibility policies (specifically EPR and PPR) policy approaches, which have the potential to not only improve product quality but also ensure that manufacturers take responsibility for the end-of-life of their products after they are no longer in use, be integrated into international law, given its global reach and thus the capacity to tackle the persistent problems associated with fast fashion. On the whole, the paper concludes that textile waste, similar to plastic waste, is clearly hazardous and, unfortunately, rather obscurely regulated.

That being said, several possible limitations might have influenced the outcomes of this study. These include a small sample size of 30 articles, a reliance on non-peer-reviewed publications sourced from platforms such as ResearchGate, and methodological concerns about the use of a literature review rather than an empirical examination of the topic at hand. While these remain limitations, great effort was made to conduct an in-depth literature review of the topic at hand to ensure that arguments are supported by a variety of diverse scholarly sources, including but not limited to books, peer-reviewed articles, internet blogs, and news sources, to avoid all forms of research bias.

Future research opportunities include investigating the impact of second-hand clothing trade on domestic industries, the impact of fast fashion on marine and aquatic life as a result of microplastic pollution, and recommendations to slow the negative environmental impacts of fast fashion, including but not limited to trade regulations, extended and pre-market producer responsibilities, promoting ecodesign initiatives, and textile reuse as part of the transition to the circular economy.

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