Fast Fashion's Rapid Rate of Production is Observedly Unsustainable & Unethical: Why and How did we get here?*

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Abstract

Fast fashion is extremely profitable, accessible, and convienient, and equally – if not more – unethical and unsustainable. To illustrate the severity of fast fashion companies' rapid rate of production, this paper scrapes a representative company's online inventory at multiple points in time and finds that old products are being retired and new products added in big amounts and at fast speeds: too big and fast to be ethically possible. Secondary research explores this industry's cultural origins and catalysts and its serious negative ethical and environment consequences. Possible solutions are discussed, and the paper concludes on calling for urgent awareness and action to combat fast fashion.

Introduction

"Fast fashion isn't free. Someone, somewhere is paying."

— Lucy Siegle, Journalist and Producer of *The True Cost* Morgan (2015)

Fast fashion is the design, production, and selling of clothing in a very rapid and high volume approach (Stanton 2023). Companies participating in this practice churn out countless new, trendy products faster than ever at unbelievably cheap prices and even lower costs, reaping profit margins in the hundreds of millions and even billions. Customers are happy, finding it an accessible and affordable way to dress well and constantly update their closets. This situation may appear too good to be true: this is because it is.

As Lucy Siegle's quote suggests, fast fashion does come at a cost, though it may not be obvious. It is made possible only by riding on the backs of unethical labor conditions and catastrophically negative effects on the environment. Despite these truths, many continue to support and buy from fast fashion companies, often as they do not grasp the true severity of these issues or that they feel it is not something that can be challenged.

This paper delves into a case study of the fast fashion company ZAFUL. By documenting all available products in one of ZAFUL's given categories through web scraping and comparing the data collected on different dates over time, we see first-hand the unbelievably fast rate of production and turnover. In one case, in about 1 week, ZAFUL added over 2,500 women's clothing products to their website, nearly a 35% increase (See Table 3 & Table 4). The extremity of these results are further emphasized when compared to the product retention rate of a sustainable fashion company, KOTN, that, during the period of this paper's observation, did not add or remove any products.

The paper then draws on secondary literature to convey how the illustrated severity of fast fashion companies' rapidness in production is inherently unethical and unsustainable, specifically by showcasing the negative consequences that are necessary to achieve those results. Consideration of the cultural origins and catalysts of the fast fashion industry are also provided. Then, discussion of possible solution spaces to these problems are explored, generally suggesting that fast fashion itself should be fought against.

Fast fashion and its ramifications are not as widely understood as it must be for us to societally move away from it. It is this paper's intention to shine light on this topic and call for urgent awareness and action.

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*Code and data are available at: https://github.com/jj-andj/fast-fashion-analysis

Table 1: Preview of ZAFUL and KOTN products from April 2nd

(a)

ZAFUL Products
Ribbed Tie Shoulder Open Back Slinky Cami Dress - White S
Textured Thigh Split Tie Shoulder Midi Dress - White S
ZAFUL Puff Sleeve Open Back Eyelet Jacquard Broderie Milkmaid Dress - White S
Plain Ribbed Cropped Tank Top - White L
Ditsy Print Ruched Bust Cinched Slit Skirt Set - Blue
Satin Cowl Front Lace Up Slit Corset Dress - Light Blue M

(b)

KOTN Products
Mesh Tee in Marshmallow
Unisex Flow Top in Oasis
V-neck Bra in Iron
Fine Knit Skirt in Marshmallow/Wisteria
Ballet Dress in White Sand
Crop Flow Shirt in Oasis

The gathering of the data used for this paper was done by web scraping through the statistical programming language `R` (R Core Team 2020), the packages `rvest` (Wickham 2022b), `httr` (Wickham 2022a), and the Chrome extension *Web Scraper* (*Web Scraper - Free Web Scraping* 2022) which were conducted on the sites zaful.com and kotn.com. Gathering, cleaning, and further analysis was also supported by packages `tidyverse` (Wickham et al. 2019), `dplyr` (Wickham et al. 2022), `knitr` (Xie 2014), `kableExtra` (Zhu 2021), and `RColorBrewer` (Neuwirth 2022).

Data

All data collected and used for this paper was proccurred through web scraping. Two e-commerce websites were chosen for this: ZAFUL (zaful.com), a fast fashion company, and KOTN (kotn.com), a sustainable, slow fashion company. For both, I restricted the collection to only the Women's Clothing category for better direct comparison and feasibility. Scraping of ZAFUL's products was conducted through R (R Core Team 2020), where the packages `rvest` (Wickham 2022b) and `httr` (Wickham 2022a) allowed me to loop through the pagination division of the products. To scrape for KOTN's products, I used the *Web Scraper* Chrome extension (*Web Scraper - Free Web Scraping* 2022), which enabled me to work around the dynamic nature of this site loading in new products as you scroll.

The only variable I collected was every product's exact name. This would enable me to compare the total list on different dates to identify the added and removed products. To accomplish this comparison, the scraping was conducted for both stores on three separate dates: April 2nd, April 4th, and April 10th. The resulting six data sets each only had the `products` property of a character class that held all the scraped product names from that store on that day. Table 1 provides a preview of these data sets.

One limitation of this was that, for ZAFUL's products, this would indicate that two products of the same name but differing colours or sizes would register as different products, while KOTN's wouldn't, entirely due to a difference in how the products were displayed on the respective sites. This was allowed, as the addition of more sizes and colours does require production efforts, but the analysis below was not adjusted to account for it. Another issue was that ZAFUL had some cases of duplicate product names showing up on different pages; the final data sets were cleaned to filter out any of these cases.

Table 2 summarizes the total number of recorded products for both stores on the three dates that they were recorded: April 2nd, April 4th, and April 10th, 2023. This table, coupled with Figure 1, reveals the sheer volume of ZAFUL's quantity of products compared to KOTN; ZAFUL approximates 7,300-7,500 products, while KOTN at 248. ZAFUL's Women's Clothing section has nearly thirty times as many products as KOTN's. Aside from this, though, these initial impressions do not reveal much. KOTN seems to have no fluctuation in product volume, while ZAFUL's seems to remain around similar values.

Table 2: Total number of Women's Clothing products by store by date

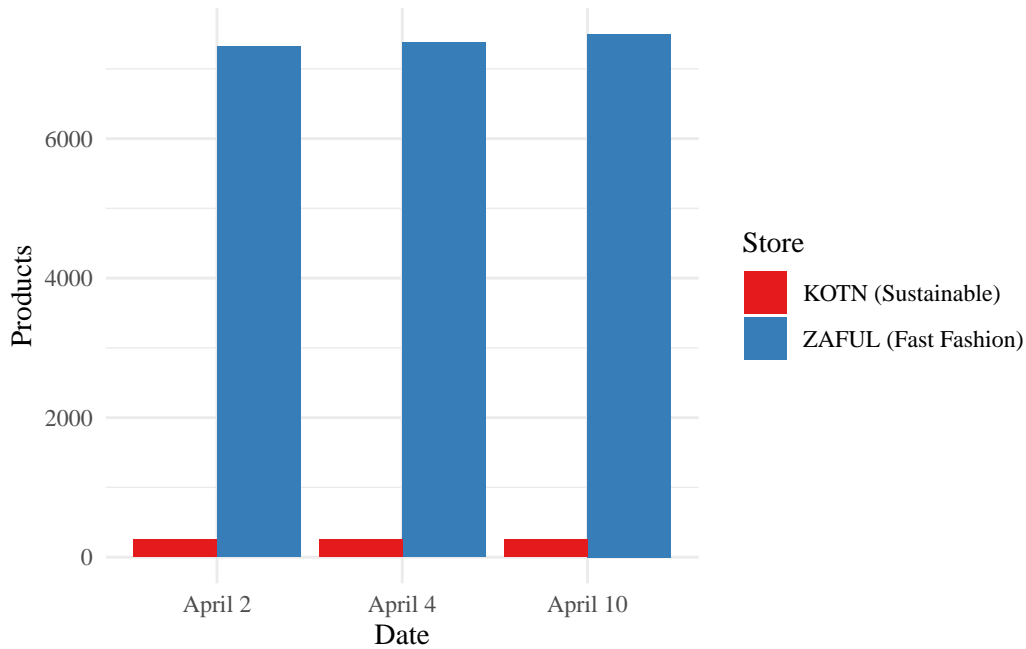| Store	April 2	April 4	April 10
ZAFUL (Fast Fashion)	7319	7379	7499
KOTN (Sustainable)	248	248	248

Figure 1: ZAFUL holds much more products overall than KOTN

Results

By comparing what character entries are in a latter data set and not the former, and what is in the former but not the latter, I was able to infer which products were newly added and which had been deprecated between the date ranges of the web scraping. Table 3 conveys this. This approach reveals much more information than the raw quantity of products at each date. Despite ZAFUL's total product quantity only changing by a relatively little amount, the actual number of products that are added and removed are much larger. From the 2nd to the 4th, there were only 80 more products overall, but that was the result of 1642 products being removed and 1702 products added. From 2nd to the 4th, there were 180 more products, but it is broken down into 2364 removed and 2544 added. Contrarily, KOTN's 248 products remain unchanged both in total quantity and exact composition over the entire time.

Table 3: Breakdown of added and deprecated products by date shows severity of ZAFUL's rate of production

Store		April 2	April 4	April 10
ZAFUL	**Total**	7319	7379	7499
	Added from April 2		1702	2544
	Deprecated from April 2		1642	2364
	Added from April 4			2162
	Deprecated from April 4			2042
KOTN	**Total**	248	248	248
	Added from April 2		0	0
	Deprecated from April 2		0	0
	Added from April 4			0
	Deprecated from April 4			0

Table 4 shows the percentage of the added and deprecated products between the three given date ranges (April 2-4, 4-10, and 2-10). This provides a clearer image of how large these values are on a relative level. From April 2nd to 4th, the added items were equivalent to 23% of the quantity of original products, nearly a quarter, which had been replaced in two days. April 2nd to 10th, the added items were equivalent to nearly 35% of the number of original ones, and the decreased items over 32%. This means that over a third of the 7319 products were replaced in eight days. This is illustrated also in Figure 2, where, within each total quantity of products by date, the added quantity is highlighted.

Table 4: ZAFUL's percentage of additions and deprecations of products

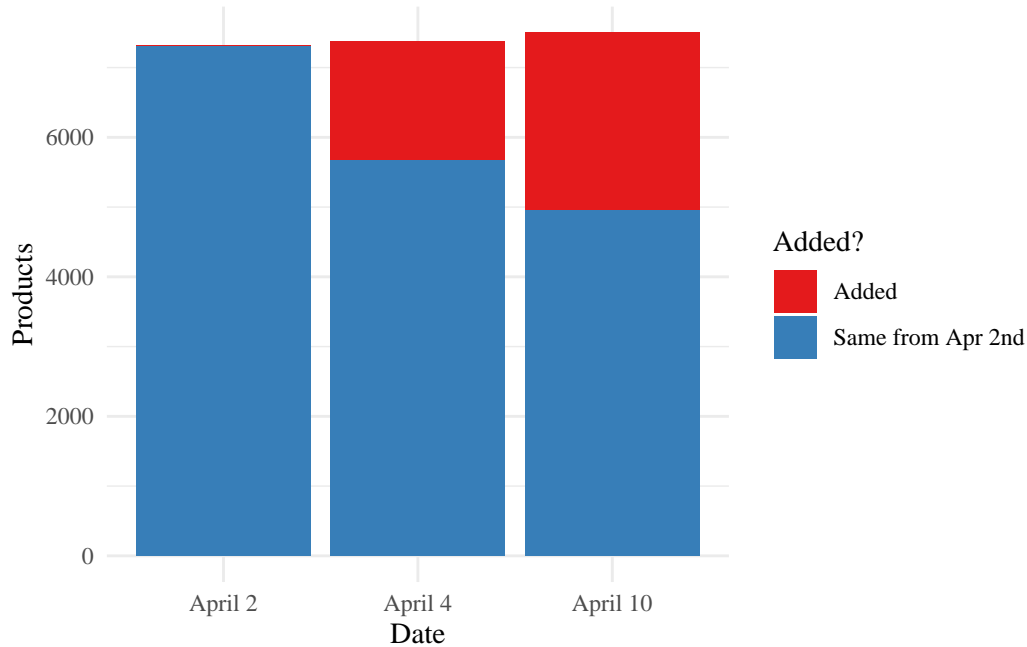|	April 2nd to 4th	April 4th to 10th	April 2nd to 10th
Increase (+%)	23.25454	29.29936	34.75885
Decrease (-%)	22.43476	27.67313	32.29949

Figure 2: Total num of products seem consistent, but the proportion of added ones are large

Discussion

Findings

This case of ZAFUL's observed rate of rapidly deprecating old products and adding new products in the span of just a few days or a week is a small snapshot of the fast fashion industry. It provides a practical illustration of how fast this industry operates. Today, the classic four-season-a-year model of fashion collections is a thing of the far past, and most major companies are producing at 52 "micro-seasons" per year, a new collection every week, or more, even thousands new items in a couple of days as we've seen in ZAFUL's case (Stanton 2023).

The world, today, consumes around 80 billion new pieces of clothing every year, 400% more than we did 20 years ago (Morgan 2015). The sheer amount of clothing that is produced, at the speed that it is, brings up the question of why it happens and how it is even possible. These two questions are explored below.

Why did we get here? Exploring culture-based roots of Fast Fashion

Clothing, until the 1900s, was mostly made at home or specifically by individual experts: then, industrialization led to the popularization of factory-made clothes, which was both cheaper and more convenient (Cline 2012). Following World War II, Americans procured began to actively follow fashion trends. In the 1970s, commercialization of clothes developed furthered, and department stores with even more inexpensive options became normalized. The concepts of a "good deal" and shopping around sales schedules originated from this period.

The 1990s and 2000s marked the rise of fast fashion due to fierce competition between companies to outperform each other; frontliners like GAP, H&M, and Zara pioneered new ways of producing clothes at extremely fast speeds to actively meet ongoing fashion trends and stand out as the trendiest option to consumers (Cline 2012). By forgoing quality, these companies were able to do this at the cheapest possible costs, and began earning record-high profit margins. Despite these clothes being cheaper per item for the consumer as well, it led them to shopping for more clothes more frequently, leading to more spending overall and higher revenue for the companies. This financial incentive drove companies to further actively embed fast fashion into

culture, leading to a feedback loop of even more invested consumers expecting even faster turnaround of the most recent trends.

Recent surveys find that a majority of teenagers (over 60%) buy clothes that they never wear, and even more that only wear it once, attributing it to the pressure they feel to stay trendy and not be seen wearing the same thing multiple times (Kale 2021).

At what cost? Reviewing the ramifications of Fast Fashion

The fast fashion industry has extreme ethical and environmental consequences. To match the demands of fast fashion companies' requirement for lead time and production speed, the labourers at the lowest tiers suffer greatly. Many work endless hours in unsafe, inhumane conditions, with unlivable salaries (Morgan 2015). Bangladeshi garment workers are beaten by their employers if they do not meet quotas, and some Cambodian ones have been shot by the police for protesting the working conditions (Morgan 2015). This industry also depends on the use of child labourers. Some consumers of major brands like SHEIN and ZARA have reported seeing pleading messages like "HELP" being written onto their clothes, presumably by such workers (Kale 2021).

The garment industry is a major driver of pollution and climate change. Garment production currently produces 92 million tonnes of waste and uses up 79 trillion litres of water every year, and produces 10% of the world's CO_2 emissions ("The Environmental Price of Fast Fashion" 2020). Beyond production, 85% of textiles go to the dump (Maiti 2022). Of the clothing that does get donated, only 20% is actually resold, and the rest are also dumped (Morgan 2015).

Stepping towards a Solution by Better Understanding that one is needed

A major blockade to pursuing solutions to the issues resulting from fast fashion is that there is still a major lack of social consciousness around the topic. This paper, in exploring the specific case of ZAFUL's rate of production and communicating impressionable, ridiculous statistics on its scale, is one example of what an intermediary step to accommodate this should look like: spreading practical awareness and sparking a degree of outrage.

Despite younger generations like Gen Z reportedly advocating against fast fashion and in favor of sustainability when the topics are discussed directly (Kale 2021) (Slone 2023), as mentioned before, their actions do not reflect these sentiments, as they continue to purchase from fast fashion brands without feeling conscious guilt. There is a feeling of disconnect between individual choice and real, macro-level consequences of fast fashion. There are also some defenders of such actions that claim that fast fashion is the only affordable and accessible option for some (Kale 2021).

Making the alternative, sustainable, slow fashion, as seen in companies like KOTN could very much help with this issue (Slone 2023). But it must be done in tandem with aggressive moralization of fast fashion as an undeniably unethical, unsustainable, wrong thing to partake in.

Future Research

A larger scale, more robust approach taken to this paper's attempt to document the rate of production of fast fashion companies could be conducted to better accomplish the goal of inciting public concern for the current state of this industry. Though some information exists and ball-park guesses can be made, there is currently no reliable source of exactly how much harm each of these fast fashion companies are causing. Without a tangible point of wrongness, it is difficult for individuals to find reason with changing the status quo. Beyond that, better exploration and public understanding of what actions individuals can take to fight against fast fashion would likely help people redirect their helplessness.

Limitations

Other than the shortcomings addressed throughout the paper, this project generally operated on a very limited scale, only showing snippets of a single company's actions over a time span of barely over a week.

Though this may be seen as a limitation in one regard due to the absolute lack of actual generalizableness, I ask that it is also thought of as a calling to reveal more. If a paper done at such a small scale shows as shocking of results as it has, then one conducted robustly must reveal even more criminalizing results of the industry.

References

Cline, Elizabeth L. 2012. *Overdressed: The Shockingly High Cost of Cheap Fashion.* Portfolio Penguin.

Kale, Sirin. 2021. *Out of Style: Will Gen z Ever Give up Its Dangerous Love of Fast Fashion?* https://www.theguardian.com/fashion/2021/oct/06/out-of-style-will-gen-z-ever-give-up-its-dangerous-love-of-fast-fashion.

Maiti, Rashmila. 2022. *Fast Fashion and Its Environmental Impact.* https://earth.org/fast-fashions-detrimental-effect-on-the-environment/.

Morgan, Andrew, dir. 2015. *The True Cost.* Untold Creative.

Neuwirth, Erich. 2022. *RColorBrewer: ColorBrewer Palettes.* https://CRAN.R-project.org/package=RColorBrewer.

R Core Team. 2020. *R: A Language and Environment for Statistical Computing.* Vienna, Austria: R Foundation for Statistical Computing. https://www.R-project.org/.

Slone, Isabel. 2023. *Why Does Fast Fashion Fall Apart so Quickly?* https://www.harpersbazaar.com/culture/features/a43521481/fast-fashion-quality/.

Stanton, Audrey. 2023. *What Is Fast Fashion, Anyway?* https://www.thegoodtrade.com/features/what-is-fast-fashion/.

"The Environmental Price of Fast Fashion." 2020. *Nature Reviews Earth & Environment* 1: 189–200. https://www.nature.com/articles/s43017-020-0039-9).

Web Scraper - Free Web Scraping. 2022. Riga, Latvia: Webscraper.io. https://chrome.google.com/webstore/detail/web-scraper-free-web-scra/jnhgnonknehpejjnehehllkliplmbmhn.

Wickham, Hadley. 2022a. *Httr: Tools for Working with URLs and HTTP.* https://CRAN.R-project.org/package=httr.

———. 2022b. *Rvest: Easily Harvest (Scrape) Web Pages.* https://CRAN.R-project.org/package=rvest.

Wickham, Hadley, Mara Averick, Jennifer Bryan, Winston Chang, Lucy D'Agostino McGowan, Romain François, Garrett Grolemund, et al. 2019. "Welcome to the tidyverse." *Journal of Open Source Software* 4 (43): 1686. https://doi.org/10.21105/joss.01686.

Wickham, Hadley, Romain François, Lionel Henry, and Kirill Müller. 2022. *Dplyr: A Grammar of Data Manipulation.* https://CRAN.R-project.org/package=dplyr.

Xie, Yihui. 2014. "Knitr: A Comprehensive Tool for Reproducible Research in R." In *Implementing Reproducible Computational Research*, edited by Victoria Stodden, Friedrich Leisch, and Roger D. Peng. Chapman; Hall/CRC.

Zhu, Hao. 2021. *kableExtra: Construct Complex Table with 'Kable' and Pipe Syntax.* https://CRAN.R-project.org/package=kableExtra.