

Cashing in on Contacts: Characterizing the OnlyFans Ecosystem

Pelayo Vallina*

pelayo.vallina@imdea.org

IMDEA Networks Institute /
Universidad Carlos III de Madrid

Ignacio Castro

i.castro@qmul.ac.uk

Queen Mary University of London

Gareth Tyson

gtyson@ust.hk

Hong Kong University of Science and
Technology (GZ)

ABSTRACT

Adult video-sharing has undergone dramatic shifts. New platforms that directly interconnect (often amateur) producers and consumers now allow content creators to promote material across the web and directly monetize the content they produce. *OnlyFans* is the most prominent example of this new trend. OnlyFans is a content subscription service where creators earn money from users who subscribe to their material. In contrast to prior adult platforms, OnlyFans emphasizes creator-consumer interaction for audience accumulation and maintenance. This results in a wide cross-platform ecosystem geared towards bringing consumers to creators' accounts. In this paper, we inspect this emerging ecosystem, focusing on content creators and the third-party platforms they connect to.

CCS CONCEPTS

- Information systems → Web applications; Social networks.

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1 INTRODUCTION

Adult video sharing has undergone dramatic shifts. Over the last 10 years, adult content have been largely served via “YouTube-like” services providing free on-demand access to content [33]. However, the last two years has seen a disruptive rise in interactive social sites through which content producers engage with their audiences in innovative ways. These services directly interconnect (often amateur) producers with consumers and allow content creators to employ various monetization strategies that are tightly coupled with these new forms of interaction. *OnlyFans* is probably the most prominent example. Founded in 2016 as a general content platform, it quickly became popular among adult content creators [39], reaching 1.5M creators and 150M registered users in 2022 [20]. This has been accelerated by the extensive media coverage of people turning to OnlyFans during recent COVID-19 lockdowns [7, 9].

*Work undertaken as visiting PhD student at Queen Mary University of London.

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OnlyFans works as a content subscription service, where creators earn money from users (aka “fans”) who subscribe to their feeds. In contrast to prior adult platforms, OnlyFans is geared towards audience accumulation, interaction, and maintenance. For example, creators frequently produce personalized material and engage in direct conversations with subscribers. Creators compete for consumers, who can easily switch between subscriptions, further incentivizing creator-consumer interaction. This is in stark contrast to traditional pornography, and has given rise to a range of strategies to form online communities *across* platforms. Users from these communities are then funneled toward payment services, creating an ecosystem effect, with OnlyFans at its center.

Considering its disruptive effect, unique characteristics, scale and prominence, we argue that gaining a better understanding is vital. Specifically, we inspect the emerging social subscription based adult content ecosystem through the lens of *OnlyFans*, and ask:

- RQ1 What are the characteristics of content creator accounts, and how do they link into third-party platforms?
- RQ2 What forms of (innovative) monetization do content creators rely on, and what is the potential revenue generated?

To answer these questions, we crawl the OnlyFans website to extract information about 438,665 creators, spread across 144 countries (§3). Using this data, we characterize the nature of creators across several dimensions (§4) and explore their monetization strategies (§5). Our findings include:

- We discover a highly internationalized marketplace. Across 144 countries, we observe 71 languages used. That said, 91% of profile descriptions are written in English, seemingly targeting a global audience.
- There is evidence that creators take highly strategic actions to improve their audience share. For example, we find a set of active users *changing* their locations regularly. This seems to exploit trends, e.g. soon after the Russian invasion of Ukraine, we identify Russian and Belarusian accounts switching their advertised location to Ukraine.
- We discover a wider ecosystem of third-party services, with OnlyFans at its core. 46% of creators share at least one link (covering 21k domains). While the most common URL category is for pornographic sites (22%), we see a range of other third-parties, each with a particular role. For example, we see shopping sites for revenue generation and social networks for audience creation and maintenance (e.g. 47% of creators have a Twitter profile). To interconnect this web of third-party services, 8% of OnlyFans creators use link sites that promote their full set of social profiles.
- Making substantial revenue through OnlyFans is possible. Fees range between \$1.0 – \$100.0, with an average fee of

- \$9.99. In 7 countries, we even find that the average creators earn *above* their nation’s average income, e.g. Thailand. We also discover that 17% of creators offer their content for free, relying instead on third-party techniques for monetization.
- OnlyFans creators rely on various monetization techniques, outside of the platform itself. Particularly prevalent are Amazon Wishlists, where 16% of the creators list products that subscribers can purchase for them. These appear highly lucrative. On average, lists contain 54 products. Although 80% of these products range between \$10 and \$50, the most expensive is a remarkable \$135,599. In most cases, the product prices exceed the subscription prices, suggesting this plays a vital source of revenue (likely enabling tax evasion).

2 PRIMER ON ONLYFANS

Overview of OnlyFans. Founded in 2016, OnlyFans allows users to subscribe to content creators and access their exclusive content. OnlyFans was launched to connect creators with their fans and build a closer and more active online community, where fans directly interact with the creators. The laxity of their terms of service quickly reached the attention of the adult content community, who identified the platform as a new income source. In fact, to date, many people perceive OnlyFans as an adult-only platform, hosting sexually explicit content (even though it can be used to monetize any social content, e.g. music) [7, 9]. Since May 2020, OnlyFans has remained in the top-1K global websites and from Jan 2022, and its rank has been 365 on average.

OnlyFans Account Types. There are two types of accounts: “content creators” and “consumers”. Creators are users who produce and upload content to the platform, while consumers pay to access the content (creators can also allow free subscriptions). Normally, the subscription period is for a month and consumers will have to renew it at the end of each month [21]. Due to this, many producers put extensive effort into audience maintenance, relying on a variety of third-party platforms to promote material, interact with subscribers and attract new ones. Creators earn 80% [19] of the income generated through the platform with the remaining 20% for OnlyFans. We identify two major properties of OnlyFans that are unique compared to other adult websites: (i) The account-based subscription and pay-per-view model gives vantage into content creator strategies and monetization; and (ii) The need for direct audience engagement results in a wide interconnection of third party services, creating a co-dependent ecosystem effect.

3 DATA COLLECTION

3.1 Identifying OnlyFans Content Creators

First, we must compile a representative set of OnlyFans content creators. However, OnlyFans does not provide a search tool or public list. Hence, we create a best-effort list of content creators from third-party sources. We crawl three websites [11, 14, 22] specialized in aggregating and recommending OnlyFans accounts. Each platform allows discovering content creators based on different parameters like the type of content they generate or the location. To perform this, we generate two dictionaries: (i) one with all the recognized countries and principal cities in the world; and (ii) 112 terms related

to pornographic categories that we obtain from Pornhub [25]. We obtain 430,345 unique OnlyFans accounts, including those listed as “top” content creators on OnlyFans (*i.e.* the most popular ones).

Second, we crawl the Pornhub model program, which allows models to provide general information about themselves, including links to other platforms. We identify 98,533 models, where 2,360 have a link to their OnlyFans page.

Finally, we collect Tweets with links to onlyfans.com using the Twitter API [30]. We also collect all the tweets from the official OnlyFans’ Twitter account. These two methods allow us to identify 107,210 accounts. Note, we only record the OnlyFans links to reduce a potential impact on the users’ privacy (e.g. users who are not content creators).

The combination of these methods reveals a set of 496,035 unique OnlyFans content creators, which represents approximately a third of all creators in OnlyFans [18].

3.2 Crawling OnlyFans

We next collect metadata associated with each OnlyFans creator from their public profile. We implement a Selenium-based crawler to retrieve the information from the creator profiles across 7 months, in parallel to identifying new accounts (see §3.1). We crawled metadata from 438,665 accounts (88% of the total ones), including the following information: (i) *Profile description*: where creators describe themselves. (ii) *Location*: where creators introduce where they are based. (iii) *Links to other platforms*: where creators can link to other services. (iv) *Subscription price*: where the creators indicate their subscription price. (v) *Discount price and period discounts*: where creators can offer discounts or free trial information. (vi) *Other subscription programs*: where creators can have different subscription plans, offering discounts to users who subscribe for longer periods. (vii) *Account stats*: where profiles list the number of likes, subscribers, and the total number of media items submitted by the creators. Note, this information is not always present (we were unable to identify the reason). We make the dataset available to the community.¹

3.3 Crawling Third Party Platforms

We next gather data from the third party platforms explicitly linked on the OnlyFans pages. In total, we discover links to 202,741 sites (21,137 base domains). To subset these, we compute the frequency and select the most commonly encountered ones (see §5). We select three key services to gather further data from.

Twitter. We use three different methods to discover Twitter accounts. (i) We extract Twitter links from both users’ OnlyFans profiles, and their link sharing platforms (e.g. Linktree). The former reveals 12,538 accounts, whereas the latter reveals 1,408 accounts. (ii) We discover 205,004 twitter accounts by collecting the information embedded on the three websites specialized in aggregating and recommending OnlyFans accounts that we use to discover OnlyFans content creators [11, 14, 22]. (iii) We obtain 709 accounts from the Pornhub model program. There is an intersection of 222,909 between the methods. Using the Twitter APIs [28, 29, 31, 32], we gather each Twitter account’s metadata, covering standard metrics

¹<https://www.dropbox.com/sh/olrsxkqkqfv2r12/AACt8bMbD0gPjAHeryzr1Ovia?dl=0>

such as the number of followers, number of tweets, or date of account creation. We retrieve this information in April 2022. Finally, we gather all tweets generated from these accounts. In total, we gather data on 140,322 Twitter accounts, covering 81,762,153 posts.

Link Sharing Platforms. These services allow users to list all their social accounts on a single page, working similar to a business card. We identify the different accounts by looking at the URLs observed on the OnlyFans profiles. We focus our analysis on the three most popular link sharing services: Linktree [15], Allmylinks [2] and Beacons [6]. For each OnlyFans profile that shares a link to one of these services, we crawl the link sharing page and extract all publicly listed social profiles.

Amazon Wishlists. 16% of creators in our dataset link their OnlyFans profiles with Amazon Wishlists [5]. This service allows users to create lists of desired goods, so their subscribers can buy items for them. Thanks to this, creators can receive gifts without disclosing their home address or sharing revenue with OnlyFans. We extract all URLs with the path “/wishlist/” or “/gp/aw/” and implement a Selenium-based crawler to collect the products indexed on each wishlist. This includes their price and the type of product (category). This last feature is added manually by the seller following a taxonomy called the Browser Tree Guide [3] provided by Amazon.

3.4 Data Augmentation

We augment the dataset with further features to enable our analysis.

Location Metadata. Content creators can (optionally) list their geographical location. In total, we identify 52,174 unique location strings, that we manually map to a country level. We find that 7% of the creators provide nonsensical location data and 29% do not report it at all. After the above data sanitization, we identify 144 countries in total.

Perspective Labels. We utilize the Google Perspective API to label all bio descriptions contained within user profiles [24]. For each bio, we obtain labels for references to sexual acts, level of flirtation, level of toxicity (e.g. disrespectful text), and level of threats (e.g. violent comments against individuals or groups) [23]. We also label the language of the text.

Domain Classification. We observe additional third-party URLs in our OnlyFans dataset. To better understand these, we annotate each using the Fortiguard [12] domain classifier. In total, we discover 21,137 domains, of which Fortiguard classifies 71%.

4 CHARACTERIZING CREATORS

To answer **RQ1**, we first explore the characteristics of content creator accounts, and how they rely on third-party services. We later revisit some of these metrics to understand how they impact revenue (in §5).

4.1 Content Creator Profiles

We start by examining the public bios listed by the content creators in OnlyFans. 8% of the creators do not provide any type of information in their biography; we focus on the remainder.

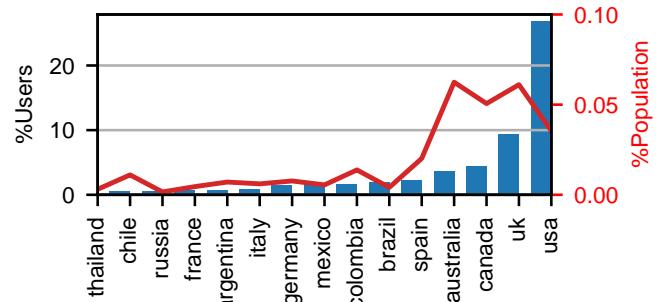


Figure 1: Geographical distribution of creators. The Red line represents the percentage of creators in OnlyFans concerning the size of the total population of each country in 2021. Data obtained from the World Bank.

Geographical Distribution. Figure 1 presents the distribution of users per country. There are creators in 144 countries. We observe a significant skew, with more than 1/3 of creators based in four English-speaking countries: the USA, the UK, Canada, and Australia. This may be impacted by the large populations in these countries. Hence, the figure also normalizes by population size in 2021, according to the stats provided by the World Bank [10]. This reveals contrary findings: Even though the USA contains the largest population of users, it is smaller than the UK, Canada, and Australia when measured by this metric. We further witness a relatively uniform distribution of creators across a small set of other countries, including Spain, Colombia, and Mexico, explaining the notable presence of the Spanish language in the bios.

Location Dynamics. Interestingly, we observe that users also commonly change their location information. This includes people who move between countries, as well as those who register in a country for the first time (having previously not listed one).² Figure 2 presents a Sankey diagram depicting the movements between countries. This reveals some interesting trends. 8% of creators have changed their location at least once. The USA is the main destination, accumulating 34% of all relocations. We also observe a subset (0.6%) of users who move multiple times. In the most extreme case, one user has changed their location to over 9 countries, including the USA and UK. One particular example of this relates to the Ukrainian conflict. We see that after the 2022 Russian invasion of Ukraine, many Russian (5.7% of the total ones) and Belarusian (4.7% of the total ones) creators changed their location, mainly to Ukraine. These results could suggest that some creators pretend they reside somewhere else, probably motivated by market decisions (e.g. to avoid any relation with Russia after the invasion).

Language. We are next curious to see how the above location patterns map to language usage. We identify 71 languages, with English being the most common (over 91% of the profiles). The second and third most popular are Spanish (5%) and Portuguese (1%). The prominence of English could either be driven by a density of users in English-speaking countries or, alternatively, by the efforts of creators to reach a larger global audience. Figure 3 shows (i) the percentage of accounts that have their description in their local

²We only consider country-level changes.

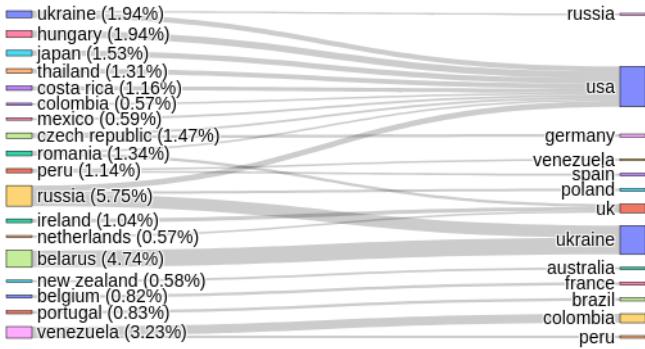


Figure 2: Sankey diagram of location changes. We only show changes when they affect at least 5 creators with single changes (covering 95% of changes).

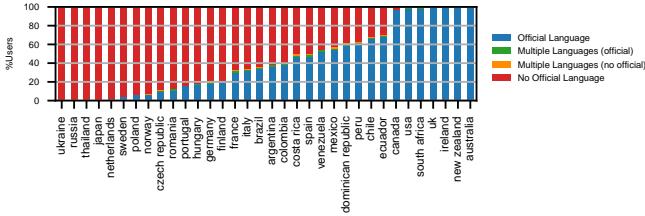


Figure 3: Percentage of user bios from each country written in their respective official language.

language only (Blue bar) vs. their local language and other ones (Green bar); (ii) the percentage of users that have their description in a foreign language only (Red bar); and (iii) the percentage of users that use multiple languages but not their local one (Orange bar). As expected, English-speaking countries nearly always use the official language of the country. However, there are small differences among them. While in Australia or New Zealand, the percentage of descriptions in a foreign language is lower than 0.5%, we find that 1.8% of creators in the USA have their description in a foreign language (Spanish being the most common). In stark contrast, creators from Ukraine, Russia, and Thailand do not have *any* descriptions in their local language. This is almost certainly a sign that their audience is international.

Content Analysis. We next turn to the Perspective labels to better understand the content of the account descriptions. We focus our analysis on the bios in English, as Perspective only provides labels for English content for the sexually explicit tag. Figure 4 shows the distribution of scores obtained from Perspective among the 4 different attributes: toxicity, sexually explicit, flirtation and threat. We observe that profiles tend to have a higher flirtation score than the other attributes (mean 0.6), followed by sexually explicit content (mean 0.46). That said, a larger fraction of users have a *very* high sexually explicit score (*i.e.* over 0.9) compared to flirtatious users. In total, over 60K creators have a sexually explicit score higher than 0.9, whereas only 37k accounts have a flirtation score above this level. Although expected, these results confirm that the majority of the creators exhibit high levels of sexual content, and try to demonstrate it through their descriptions. Interestingly, we observe

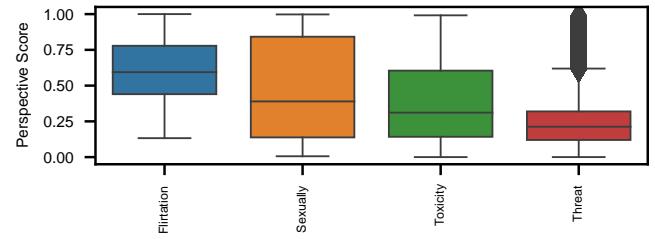


Figure 4: Distribution of per-creator scores obtained from Perspective among four different attributes.

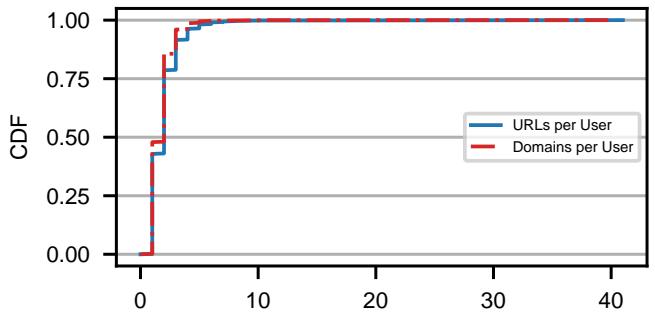


Figure 5: Number of URLs/domains per creator.

that the creators promoted by the official OnlyFans Twitter account (91 creators) tend to have much lower scores than the rest of the creators across the toxicity, threat, and sexual attributes (mean scores of 0.14). In contrast, the flirtation attribute has a mean value similar to the rest of the creators, reaching 0.47. This indicates external parties (*e.g.* journalists) may get a biased impression of OnlyFans usage by inspecting these easy-to-access public resources.

4.2 Cross-Platform Links

We also find that many creator profiles include cross-platform links (URLs) in their bios. We conjecture that this may play a critical role in wider audience engagement. As mentioned in §3.1, OnlyFans does not provide any mechanism to find creators within the platform. As a result, creators must rely on third-party platforms (*e.g.* Twitter) to promote their accounts and reach likely new subscribers. We therefore next inspect the links shared by creators.

Overview of Link Sharing. Overall, 54% of creators do not share any URLs. From the remainder, we identify 305,200 URLs (270,484 unique ones) and 21,137 unique domains. Figure 5 presents a CDF of the number of URLs and domains per user. We see a very similar distribution here. The majority (99%) of users share under 5 links. We also observe that close to 9% of the URLs are, in fact, shared by multiple creators; in some cases, we observe over 100 creators sharing the same URLs. Typically, this is because they link their profile with the homepage of the social network, instead of using the direct URL for their profile.

Characterizing Domains. Figure 6 presents the distribution of domains across the categories, as labeled by Fortiguard. Perhaps unsurprisingly, the most common label is “Pornography”. Overall, only 5% of the URLs belong to this category, yet this covers 22%

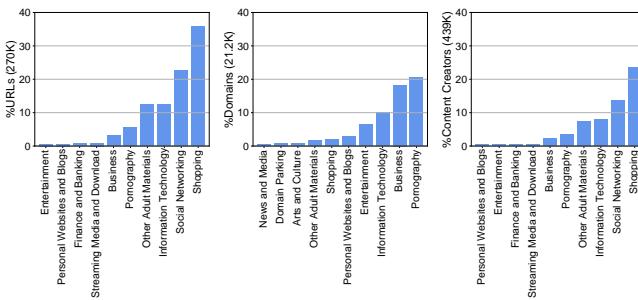


Figure 6: URLs obtained from the content creators’ profiles. Percentage of URLs per category (left); percentage of domains per category (center); and percentage of creators who share URLs per category (right).

of the domains observed. This highlights that a wide variety of adult domains are shared. We also compute the popularity of these pornographic websites among the Alexa top-1M sites for 3 months, from the 1st of February 2022 to the 30th of April.³ We find that 221 (4.6%) of the sites are always present in the Alexa-top 1M, and 16 of them in the top-1K. These include some of the most popular adult services such as Pornhub, xHamster, or Xvideos. These are often direct links to creator profiles on these platforms. Nevertheless, 55% of the pornographic sites never reach the 1M domain rank, highlighting that many creators link their profiles to unpopular sites — often their own bespoke websites.

In contrast, the domains labeled “Shopping” and “Social Networks” follow the opposite trend. The percentage of domains labeled with one of these two categories is low. However, when we look at the percentage of URLs and creators sharing URLs, we see that they are the most (35% of the links and 23% of the creators) and second most popular ones (22% of the links and 14% of the creators). Indeed, we see substantial consolidation here, with many creators using platforms like amazon.com or twitter.com. We later explore how these links are exploited for promotion and monetization (Section 5.2).

Distribution of Domains Per Creator. We are next curious to understand how different people utilize different third party platforms. Figure 7 presents the number of creators that share a link to the top-20 most common domains (base domain level) from their OnlyFans profile. We colour the bars based on the category of website. Collectively, we see that Social networks are the most common, covering 37% of all links. Twitter is the most popular one. We conjecture that this is largely about promotion and audience maintenance. Although, overall, social networks are the most common, Amazon (classified as e-commerce) is the most popular individual domain, covering 35% of all URLs. The vast majority (97%) of these point to Amazon Wish Lists, where creators indicate items they would like fans to purchase on their behalf. This highlights a new form of monetization that sits outside the immediate remit of OnlyFans. The third most frequent link (6.5% of profiles) is OnlyFans itself (usually specific posts or special offers). Following this, are a set of link aggregators. These are pages that list the collective set of social

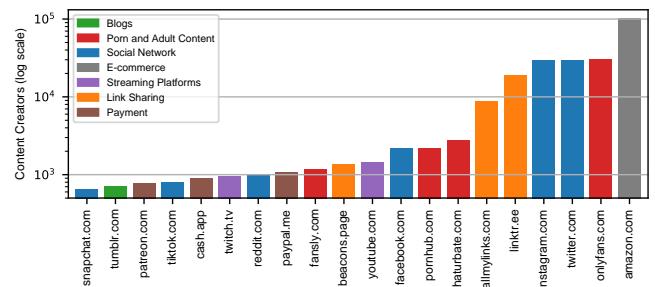


Figure 7: Number of creators who link to the top 20 most popular platforms.

media links for a given user. Beyond these, there is a long tail of other sites, including social platforms (Facebook, YouTube, TikTok), adult services (Pornhub, Chaturbate), and cash payment websites (Patreon, cash.app). The latter shows the particular importance of monetization in this service, with users seeking alternative incomes independent on the OnlyFans payment model.

Malicious Domain Sharing. Worryingly, we further identify 57 domains flagged as potential malicious services (by Fortiguard, see §3.3). These pertain to any domain labeled by Fortiguard as “Malicious Websites”, “Spam URLs” or “Phishing”. Some example of these services include tiwitter.com (a typo squatting site) or fotos.eu. These domains were listed by 82 creators distributed across 16 different countries. Although surprisingly low, we conjecture that this may be driven by the nature of the site: producers seeking subscribers are unlikely to publicly promote malicious domains. That said, we emphasize that sharing malicious services can pose a risk to the security of OnlyFans users. For example, we observe that one of the creators sharing potential dangerous services has over 9.2K subscribers.

Link Sharing Platforms. We also note a relatively unknown and unstudied type of services: link sharing platforms. These are dedicated sites that allow users to create a page that lists all their social accounts. As seen in Figure 7, there are 3 link sharing platforms within the top-15 most linked services from the OnlyFans creators profiles: linktr.ee, allmylinks.com and beacons.page [2, 6, 15]. Overall, 35,780 of the creators have an active account in one of these services. These seem to be used like “business cards” to aggregate together the social media presence of a given user.

Table 1 summarizes the use of these three services. Linktree is the most popular service, having more than 2.5x more users than Allmylinks. From all these services, we obtain 218,282 unique links, which correspond to 9,482 unique domains (base domains). The table reveals key differences in the type of content shared on Allmylinks vs. the other two services though. Creators tend to include significantly more content considered Pornographic (according to Fortiguard). Specifically, 54% of users in Allmylinks have at least one link to pornographic websites, while Linktree and Beacons this value drops to 23% and 27% respectively (see Table 1).

To dive into this further, Table 2 shows the top-5 most popular domains placed on link sharing providers. Linktree and Beacons have the same top-5 (OnlyFans, Twitter, Instagram, TikTok, and

³One day before Amazon shut down the Alexa ranking [43].

	#Accounts	#Links	#Domains (% Porn)	%Users Linking Porn
Linktree	27,070	142,397	7,362 (8%)	25%
Allmylinks	11,396	69,920	3,125 (14%)	54%
Beacons	1,331	7,920	683 (11%)	27%

Table 1: Summary of the link sharing services.

	OnlyFans	Twitter	Instagram	TikTok	Amazon	CashApp	Snapchat
Linktree	67% (#1)	62% (#2)	61% (#3)	25% (#4)	23% (#5)	22% (#6)	15% (#7)
Allmylinks	93% (#1)	81% (#2)	73% (#3)	23% (#7)	26% (#6)	27% (#5)	27% (#4)
Beacons	84% (#1)	65% (#3)	70% (#2)	49% (#4)	31% (#5)	22% (#6)	14% (#9)

Table 2: The three most popular services on each sharing link services. The popularity rank of the domain in the sharing link service is shown in parentheses.

Amazon), while in the case of Allmylinks there are two other domains in the top-5 that do not appear in the other two services: CashApp (Payment service) and Snapchat. Interestingly, we find many accounts that *do not* include their OnlyFans profile, especially in the case of Linktree, where only 67% of them include a link to OnlyFans. This suggests that users do not provide backwards reachability, *i.e.* they wish OnlyFans users to find their other profiles, but do not wish others to link back into their OnlyFans account.

4.3 Social Media Promotion

The above reveals the importance of social media presence. We therefore finally turn to our Twitter dataset to explore how it is used to promote OnlyFans accounts.

Date of Creation. We are first curious to check if the Twitter accounts linked via OnlyFans were created specifically to promote OnlyFans, or if they precede it. Figure 13 (in Appendix) plots when the Twitter accounts were created. We find that 19% of Twitter accounts precede OnlyFans’ creation. Surprisingly, this suggests that such users are relying on their prior personal or professional networks. The remainder create their accounts after, with a peak of 8,582 accounts on August 2020. Interestingly, this coincides with the COVID-19 pandemic, and the wide media coverage suggesting people turning to OnlyFans for income [7, 9]. This also aligns with the implementation of strict lockdowns in the majority of European and American countries.

Activity on Twitter. We next explore the types of posts shared via creator’s feeds. Figure 14 (in the Appendix) shows the number of tweets since 2007. We breakdown tweets based on their content type. Note, we also highlight “sensitive” tweet counts. We classify a tweet as sensitive if (i) The Perspective API allocates the tweet text a score of $>= 0.9$ for the sexually explicit attribute; or (ii) Twitter flags it as “sensitive”. We witness growth across all tweet types, reaching the highest volumes in 2021 (peak 4M tweets in August). Aligned to this evolution, there is an increase in tweets tagged as sensitive. From 2021 until now, they represent 20% of the total tweet volume. We see that, before OnlyFans was launched, these users restrained from uploading sensitive content to Twitter at the same level as we observe now. Further, since the launch of OnlyFans (2016), we see a dramatic rise in the number of videos posted, suggesting that users may be using them to promote their (adult) content. This leads us to inspect if tweets are deleted. We find that 37% of creators remove at least one tweet during our observations. In the most extreme case, 405 accounts removed all of their tweets, even though 30 of these

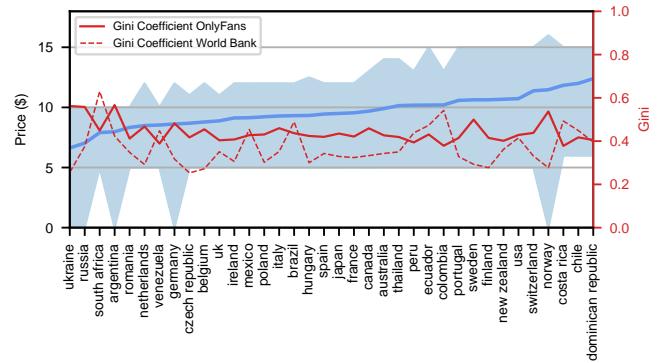


Figure 8: The mean subscription price per country (Blue line), and 1st and 3rd quartile of price distribution (Blue area). Red lines represent Gini coefficient within OnlyFans and World Bank data. Countries with at least 500 creators are shown.

had more than 100K followers (max 431K). We similarly observe that over 10K (4.5%) accounts have been suspended, suggesting that their usage may contravene Twitter policies. This indicates that OnlyFans may need to better manage how these third party services are linked and used.

5 UNDERSTANDING MONETIZATION

A unique feature of OnlyFans is the subscription model, whereby users must subscribe to creators’ feeds. To answer RQ2, we next explore how users monetize their content.

5.1 Content Creator Revenue

Subscription Prices. 17% of creators offer their content for free, whereas 78% follow a paid model. The remaining creators combine both models (both free and paid). Fees range from \$1.0 – \$100.0, with an interquartile range (IQR) of \$8.6. These trends vary noticeably based on geography though. Figure 8 presents the distribution of prices based on creators in each country. We sort the X-axis by mean price subscription. Some countries, such as Venezuela and Romania, have relatively similar prices among its creators, with an IQR of \$6.6 and \$7.1 respectively. In contrast, disparity is far higher among other countries such as Norway (\$11.9) or Sweden (\$10.2). This may be driven by the differing costs of living and average salaries in these countries. We are therefore curious to better understand the income inequality experienced across OnlyFans creators. To measure this, we compute the Gini coefficient [8] among creators (see red line in Figure 8). For context, the figure includes the Gini coefficient of the country taken from the World Bank. We observe that Argentina, Ukraine, Russia, Norway, and Sweden are the most unequal countries, with OnlyFans Gini Coefficients between 0.5 (Sweden) to 0.56 (Argentina). In contrast, we find that Costa Rica, Colombia, and Venezuela have the lowest Gini coefficient. This confirms significant disparity across the subscription prices creators can charge.

Subscription Revenue. To explore this further, we next look at the potential income of creators. We compute this by multiplying the number of public subscribers with the price they announce on the

platform. Figure 9 shows the estimated OnlyFans monthly income of creator by country level. We plot the distribution (box) and mean (red line), alongside the average income for the country taken from the World Bank (black line). We use the most recent value of each country, as the World Bank does not have estimates for each country every year (e.g. Venezuela). We find 7 countries where the income of the creators is noticeably higher than the mean monthly income of the country, reaching up to 10 times more in some cases, e.g. Ireland, Venezuela, Ukraine⁴ and Thailand. For instance, whereas the mean monthly income in Ukraine at the period of data collection was \$310, the mean income on OnlyFans is \$2,902. This confirms that the platform can be highly lucrative for many creators. In contrast, many countries have a lower OnlyFans mean income compared to their national average. Norway, Sweden and USA have the greatest difference: \$6.2K, \$4.3K and \$4.1K, respectively. That said, we note that the vast majority of creators sit well below this level of performance. Overall, 94% of creators generate below their respective national average income. In this regard, the most extreme countries are Norway, Belgium and Netherlands, where 98% of their creators earn below the national average income. We conjecture that this may lead some creators to seek alternative monetization strategies (see §5.2).

Impact of Bio. We conjecture that creators may adapt their bio to best attract subscribers, much like on dating websites [36]. Thus, we calculate the subscription prices vs. the Perspective scores allocated to each creator. We group the creators into four bins based on the subscription prices. These bins are (0-\$10], (\$10-\$50] and (50-\$100], as well those with a free account. Surprisingly, we find that, for the four Perspective attributes, creators in the highest price bin tend to have the lowest Perspective scores. These differences are particularly significant for the “Sexually Explicit” attribute. Creators in the highest price rank, (50-\$100], have a score of 0.2, while those below vary between 0.45 and 0.49. In contrast, creators with a subscription price within the rank (0-\$10] are those with the highest scores across the 4 attributes. This suggests that less established creators may find it necessary to be sexually explicit in their descriptions to accumulate subscribers.

5.2 Alternative Income Sources

Although OnlyFans includes direct payment support, we observe widespread use of monetization platforms (as shown in §4.2). In the top-15 domain shared, we see three major payment platforms and the e-commerce giant, Amazon. The most common is Amazon, with 16% of OnlyFans accounts sharing links to an Amazon Wishlist [4] (covering 24% of all links observed), which allows creators to request that their subscribers purchase specific gifts for them. We note that this may also be a very effective tax evasion mechanism.

Distribution of Products on Wishlists. Figure 10 plots the number of products per wishlist. We obtain these links from both OnlyFans and the sharing link platforms. Overall, we identify 4,501,514 different products from 94,288 wishlists. This represents an average of 54 products per list. The longest single list covers 802 products; whereas 1% of the total wishlists only have a single product. Figure 10 also plots the number of wishlists that include each product.

⁴Note that this analysis is based on statistics that precede the Russian invasion of Ukraine.

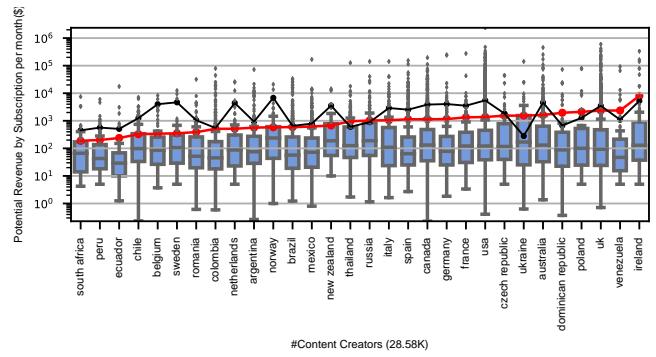


Figure 9: Distribution of monthly revenue generated by subscriptions. Red line represents mean income of creators in OnlyFans. Black line represents the mean income by country (World Bank source).

This shows a very different distribution, where 87% of the products occur on a single wishlist. Nevertheless, this suggests a surprisingly diverse set of items listed. That said, we do observe a small selection of 46 products that occur on over 5 different wishlists at the same time. These popular items include boots, tights, gloves or jackets, expensive alcoholic beverages and books. We conjecture that some of these trends are driven by creators who choose to re-sell products (e.g. a single item is likely easier to sell than dealing with many different ones).

Product Prices. Figure 10 also presents the distribution of the individual product prices (red line). There is large dispersion, between \$0.008 to \$135,599. Despite such variation, 80% of the products range between \$10 and \$50 (median price of \$23) and, overall, the average wish list is \$60. Intuitively, creators might prefer to list cheaper items, as it encourages more subscribers to purchase them. We also contrast these patterns across regions. Figure 11 shows the distribution of product prices across the creators region (i.e. the owner of the wishlist). There are significant differences between creators in Asia and Central America to the other regions. While in Asia, creators tend to index cheaper products (average \$38), in Central America creators demand the most expensive products (average \$878). This may be because only 1.8% of creators are in Central America, although equally they may simply be targeting richer subscribers. The remaining regions exhibit similar distributions, with an average between \$47 (N. America) and \$66 (Oceania).

Amazon vs. Subscription Price. We are next curious to understand how these lists contrast with potential subscription revenue. Thus, we group creators based on their subscription price in bins of \$10, with a separate category for the free accounts (*Free*). In total, we group creators into 11 groups, from (0-\$10] to (\$90-\$100], plus the *Free* group. We observe that *no* creators with a subscription price above \$50 use Amazon wishlists. Instead, Amazon wishlists are more popular among creators with a subscription price between (0-\$10]: 50% of wishlists belong to this group. This suggests that users at different ends of the income spectrum employ rather different monetization techniques. We also note that the average product price tends to be lower for those with cheap subscription fees, e.g.

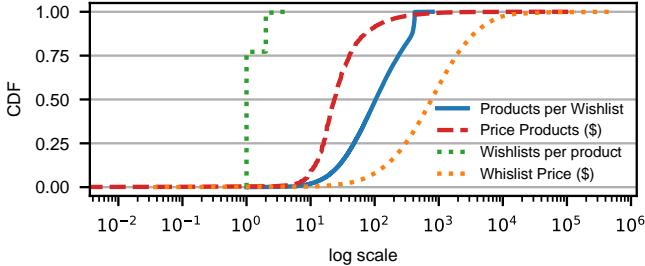


Figure 10: Prices of each item (Red and dashed line), #items per Wishlist (Blue and solid line), #Wishlists each product appears on (Green and dotted line) and total price of each Wishlist (Orange line). X-axis is log scale.

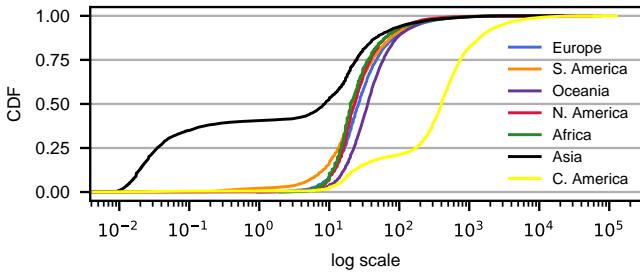


Figure 11: Distribution prices among Wishlist products, broken down based on creators’ location (continent level).

a mean price of \$55 for free, compared to \$70 and \$67 for those in the (\$20-\$30] and (\$40-\$50] bins, respectively.

Product Types. Finally, we inspect what types of products are shared. Amazon provides a hierarchical classification for products that sellers use to tag their items [3]. We collect this information from each product. However, we observe that this taxonomy is not consistent as there are products for which the root level does not correspond with the root level provided on the taxonomy. We observe 56,180 categories, where 995 correspond to the root levels of the tree. This lack of consistency leads us to implement a keyword-based matching approach to group products into meta categories. We create 9 meta-categories, including *Sex Toys*, *Clothes*, *Electronic devices* e.g. (e.g. Mobile phones or Computers), *Books and Music*, *Grocery and Spirits drinks*, *Jewelry*, *Beauty products*, *Pets and Plants* (e.g. Pet food) and *Home equipment* (e.g. home appliances). We use the category *Rest* for those that do not feature any of the keywords. For each meta-category, we create a list of keywords for each category in 3 different languages (English, Spanish and Portuguese), as they are the most popular among creators.

We see that the products falling into the category *Clothes* are by far the most popular, as they represent 53% of the total products. Anecdotally, clothing items are popular because many creators offer to model them for subscribers, e.g. lingerie. This creates a clear incentive for subscribers to select such gifts. The second and third most popular are *Rest* with 23% and *Beauty products* with 8% of the total products. Surprisingly, we observe that only 1% of the total ones fall into the category of *Sex Toys*, considering the type of content they generate within the platform.

We also observe key differences between products based on the OnlyFans subscription price, particularly between Free vs. expensive subscriptions. While for Free accounts, *Clothes* represents 61% of the total products, this drops to 51% for creators with the highest subscription prices range. In contrast, *Beauty products* and *Grocery and Spirits drinks* actually have greater prevalence among the most expensive creators (12.5% and 12%, respectively). We suspect this might be because such items are easier for re-sale. This suggests that creators tailor their lists to reflect their audience.

6 RELATED WORK

Online Adult Content. Pornography is among the most searched for content on the web [17, 40]. Several recent works have inspected the content characteristics of adult websites [33, 35, 41] and their workloads [1, 16, 42], as well as various studies that have attempted to estimate the load that they create on the wider Internet. Zhang *et al.* studied adult content request patterns, using traffic [44]. Grammenos *et al.* used CDN trace data to identify user journeys through an adult content website [13]. Vallina *et al.* studied the privacy characteristics of adult content websites. They found that many sites make use of third party resources, and potentially leak compromising information [38]. Tyson *et al.* also studied the use of social networking features within adult content [34]. This was an early indicator of how interactive features may contribute to adult video distribution. Similar to us, this revealed distinct geographical trends. Our work differs in that we focus on *personalized* and *interactive* adult services, rather than an adult social network. We further focus on cross-platform dependencies, which have not been inspected in these prior works.

OnlyFans. There has been a handful of studies looking at OnlyFans. These near-exclusively come from sociology [26, 27, 39]. Most related to our work is by Uttarapong *et al.* [37]. This work, based on 15 semi-structured interviews with OnlyFans content creators, inspected how they engage and build a common support community. Our work is rather different, in that we focus on a large-scale analysis across 438,665 creators. To the best of our knowledge, we are the first to study its patterns from this empirical perspective.

7 CONCLUSION & DISCUSSION

This paper has studied *OnlyFans*, an emerging social subscription-based adult platform. In **RQ1**, we sought to explore the key characteristics of content creator accounts. We found that OnlyFans is a highly international marketplace, as exemplified by the presence of creators in 144 countries, and the ubiquity of English (91% of creators). We identify a range of promotional strategies employed by these creators, often spreading their activities across multiple social platforms. 8% of OnlyFans creators use link sites that promote their full set of social profiles, with 47% of creators sharing a Twitter profile. Although global, we also observe users who strategically change their locations regularly — soon after the Russian invasion of Ukraine, we identify many Russian and Belarusian accounts switching their advertised location to Ukraine. This suggests that OnlyFans creators have developed various techniques for improving exposure. This emphasizes the social aspect of OnlyFans, in which creators strive to engender tighter connections with potential subscribers. As a unique feature of OnlyFans, in **RQ2**, we

then sought to understand the monetization strategies employed. We found that subscription fees are surprisingly agnostic to the country-of-origin's average income. This suggests that creators price for their target audience, rather than based on their origin. We also discover that 17% of creators offer their content for free, relying instead on third-party techniques for monetization. Particularly prevalent are Amazon Wishlists, where 16% of the creators list products that subscribers can purchase for them. These appear highly lucrative, and finely tuned to the needs of the market.

We believe that our work offers key insights into the nature of monetized social media content. In the future, we are particular are keen to perform a wider analysis of some of the platforms observed, and better understand their interconnections. For example, we wish to perform semantic analysis on how posts on platforms like Twitter drive engagement on OnlyFans.

ACKNOWLEDGEMENTS

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REFERENCES

- [1] AHMED, F., SHAFIQ, M. Z., AND LIU, A. X. The internet is for porn: Measurement and analysis of online adult traffic. In *2016 IEEE 36th International Conference on Distributed Computing Systems (ICDCS)* (2016), IEEE, pp. 88–97.
- [2] ALLMYLINKS. Finally, all my links in one place! <https://allmylinks.com/>.
- [3] AMAZON. Amazon Inventory file templates. https://sellercentral.amazon.co.uk/gp/help/external/1641?language=en_GB&ref=efph_1641_cont_G1661.
- [4] AMAZON. Amazon Wishlist. <https://www.amazon.com/hz/wishlist/intro>.
- [5] AMAZON. Lists for all your shopping needs. <https://www.amazon.com/hz/wishlist/intro>.
- [6] BEACONS. Best Link in Bio Tool for Creators. <https://beacons.ai/>.
- [7] BOSELEY, M. 'everyone and their mum is on it': Onlyfans booms in popularity during the pandemic. <https://www.theguardian.com/technology/2020/dec/23/everyone-and-their-mum-is-on-it-onlyfans-boomed-in-popularity-during-the-pandemic>, 2021.
- [8] BUREAU, U. S. C. Gini Index. <https://www.census.gov/topics/income-poverty/income-inequality/about/metrics/gini-index.html>.
- [9] CALLAHAN, M. Onlyfans, covid-19 pandemic have spurred a new sexual revolution. <https://nypost.com/2021/04/14/onlyfans-covid-19-pandemic-have-spurred-a-new-sexual-revolution/>, 2021.
- [10] DATA, T. W. B. Population. <https://data.worldbank.org/indicator/SP.POP.TOTL>.
- [11] FANSMETRICS. Search OnlyFans Accounts. <https://fansmetrics.com>.
- [12] FORTIGUARD. Web Filter Lookup. <https://www.fortiguard.com/webfilter>.
- [13] GRAMMENOS, A., RAMAN, A., BÖTTGER, T., GILANI, Z., AND TYSON, G. Dissecting the workload of a major adult video portal. In *International Conference on Passive and Active Network Measurement* (2020), Springer, pp. 267–279.
- [14] HUBITE. Search OnlyFans Accounts and Find any Content Creator. <https://hubite.com>.
- [15] LINKTREE. The Only Link You'll Ever Need. <https://linktr.ee/>.
- [16] MORICCHETTA, A., TREVISAN, M., AND VASSIO, L. Characterizing web pornography consumption from passive measurements. In *International Conference on Passive and Active Network Measurement* (2019).
- [17] OGAS, O., AND GADDAM, S. *A billion wicked thoughts: what the world's largest experiment reveals about human desire*. Dutton, 2011.
- [18] ONLYFANS. About. <https://onlyfans.com/about>.
- [19] ONLYFANS. OnlyFans Terms of Use. <https://onlyfans.com/terms.html#payouts-creators>.
- [20] ONLYFANS. Our Team and Goals. <https://onlyfans.com/about.html>.
- [21] ONLYFANS. Terms of Service. <https://onlyfans.com/terms.html>.
- [22] ONLYFINDER. OnlyFinder. <https://onlyfinder.com>.
- [23] PERSPECTIVE. Attributes. <https://developers.perspectiveapi.com/s/about-the-api-attributes-and-languages>.
- [24] PERSPECTIVE. Using machine learning to reduce toxicity online. <https://www.perspectiveapi.com>.
- [25] PORNHUB. Pornhub Categories. <https://pornhub.com/categories>.
- [26] ROUSE, L., AND SALTER, A. Cosplay on demand? instagram, onlyfans, and the gendered fanpreneur. *Social Media+ Society* 7, 3 (2021), 20563051211042397.
- [27] RYAN, P. Netporn and the amateur turn on onlyfans. In *Male Sex Work in the Digital Age*. Springer, 2019, pp. 119–136.
- [28] TWITTER. Get Followers List. <https://developer.twitter.com/en/docs/twitter-api/v1/accounts-and-users/follow-search-get-users/api-reference/get-followers-list>.
- [29] TWITTER. Get Friends List. <https://developer.twitter.com/en/docs/twitter-api/v1/accounts-and-users/follow-search-get-users/api-reference/get-friends-list>.
- [30] TWITTER. Search Tweets. <https://developer.twitter.com/en/docs/twitter-api/tweets/search/api-reference/get-tweets-search-recent>.
- [31] TWITTER. Tweets Timelines. <https://developer.twitter.com/en/docs/twitter-api/tweets/timelines/api-reference/get-users-id-tweets>.
- [32] TWITTER. User object. <https://developer.twitter.com/en/docs/twitter-api/v1/data-dictionary/object-model/user>.
- [33] TYSON, G., ELKHATIB, Y., SASTRY, N., AND UHLIG, S. Demystifying porn 2.0: A look into a major adult video streaming website. In *Proceedings of the 2013 conference on Internet measurement conference* (2013), pp. 417–426.
- [34] TYSON, G., ELKHATIB, Y., SASTRY, N., AND UHLIG, S. Are people really social in porn 2.0? In *Proceedings of the International AAAI Conference on Web and Social Media* (2015), vol. 9, pp. 436–444.
- [35] TYSON, G., ELKHATIB, Y., SASTRY, N., AND UHLIG, S. Measurements and analysis of a major adult video portal. *ACM Transactions on Multimedia Computing, Communications, and Applications (TOMM)* 12, 2 (2016), 1–25.
- [36] TYSON, G., PERTA, V. C., HADDADI, H., AND SETO, M. C. A first look at user activity on tinder. In *2016 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)* (2016), IEEE, pp. 461–466.
- [37] UTTARAPONG, J., BONIFACIO, R., JEREZA, R., AND WOHN, D. Y. Social support in digital patronage: Onlyfans adult content creators as an online community. In *CHI Conference on Human Factors in Computing Systems Extended Abstracts* (2022), pp. 1–7.
- [38] VALLINA, P., FEAL, Á., GAMBA, J., VALLINA-RODRIGUEZ, N., AND ANTA, A. F. Tales from the porn: A comprehensive privacy analysis of the web porn ecosystem. In *Proceedings of the Internet Measurement Conference* (2019), pp. 245–258.
- [39] VAN DER NAGEL, E. Interdependent platforms: Onlyfans as nsfw social media layer. *AoIR Selected Papers of Internet Research* (2021).
- [40] WONDRAZEK, G., HOLZ, T., PLATZER, C., KIRDA, E., AND KRUEGEL, C. Is the internet for porn? an insight into the online adult industry. In *Proc. Workshop on Economics of Information Security* (2010).
- [41] WONG, C., SONG, Y.-D., AND MAHANTI, A. Youtube of porn: longitudinal measurement, analysis, and characterization of a large porn streaming service. *Social Network Analysis and Mining* 10, 1 (2020), 1–19.
- [42] YU, R., CHRISTOPHERSEN, C., SONG, Y.-D., AND MAHANTI, A. Comparative analysis of adult video streaming services: Characteristics and workload. In *2019 Network Traffic Measurement and Analysis Conference (TMA)* (2019), IEEE, pp. 49–56.
- [43] ZDNET. Amazon to shut down Alexa.com ranking site in May. <https://www.zdnet.com/article/amazon-to-shut-down-alexa-com-ranking-site-in-may/>.
- [44] ZHANG, S., ZHANG, H., YANG, J., SONG, G., AND WU, J. Measurement and Analysis of Adult Websites in IPv6 Networks. In *2019 20th Asia-Pacific Network Operations and Management Symposium (APNOMS)* (2019), IEEE, pp. 1–6.

A TWITTER ANALYSIS

For completeness, we include a brief statistical analysis of the Twitter accounts linked to the OnlyFans creators. In total, we identify 222,909 Twitter accounts, belonging to 47% of the content creators in OnlyFans.

Figure 12 presents a CDF of the number of followers and followees per-account. Content creators have an average of 13,428 Twitter followers and friends 577. In general, creators tend to have more followers than followees. Figure 13 plots when the Twitter accounts were created. Figure 14 shows the number of tweets since 2007, categorized by content type.

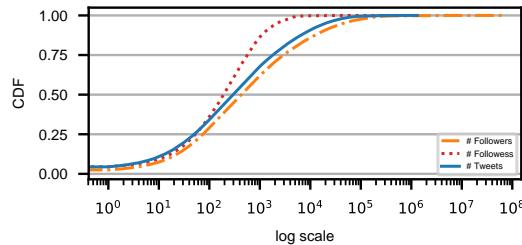


Figure 12: CDF of the number of followers (Orange line), followees (Red line) and number Tweets (Blue line) of the content creators on Twitter.

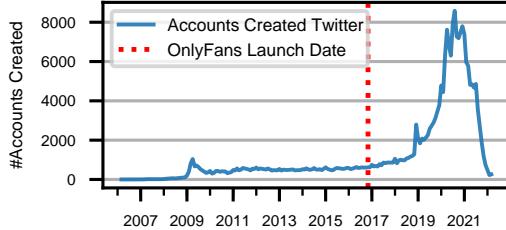


Figure 13: Number Twitter accounts created per month

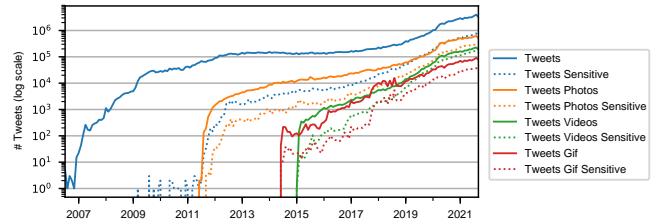


Figure 14: Number of tweets per month across all accounts. The blue line represents the total #tweets; the orange line represents the #tweets that contain photos; the green line represents #tweets that contain Videos; and the red line represents #tweets that contain gifs. Dotted lines represent the #tweets per type that are tagged as ‘sensitive’.

B ETHICS

All the information collected is publicly available. Further, to collect the data from Twitter, we obtained permission from the company to use the official API after explaining to them the purpose of the study. We focus our analysis on the creator metadata that OnlyFans provides, which is publicly available. We do not inspect or collect any content (images or videos) hosted on OnlyFans due to ethical reasons. We also make no attempt to infer links between user profiles. Instead, we limit our inter-platform analysis to cases where users explicitly promote links. We implement a protocol to notify competent authorities to take action in case we observe any illegal content within OnlyFans or any other platform from which we collect the data. During this study, we did not have to run the protocol. We received Institutional Ethics Board (IRB) approval.