The Point of Counting: Mapping the Internet Based Sex Industry

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Abstract: Study Aim: This paper tries to grapple with some of the questions about counting numbers in the sex industry as an adjunct to a much larger sociological study of the ways in which digital technology has changed the commercial sex industry. The project sets out to reflect on the ethics of counting online and what this means to the sex work community. Method: The data is provided by the largest online adult services advertising platform in the UK which is compared to our own counts of sex worker profiles on that same platform to illustrate some of the challenges related to counting the sex industry. Result: The data comparisons show that using front facing public profiles of adult sex workers is not an accurate measure of the size of the sex industry, and whilst the information can be used for some purposes it must be used with caution. The findings point to the need for researchers and others involved in mapping sex worker populations to reflect carefully on ethical issues and the impact of mapping on sex workers. Conclusion: It is suggested that the usefulness of counting profiles on adult websites should be approached with caution both as a researcher analyst and also as someone who uses or requests this form of quantification. With over 40% differences between outward facing and active profiles the margins for error are high.

Keywords: Adultwork, Counting, Internet, Online, Population Size, Prostitution, Sex Work

1. Introduction

1.1. Counting the Sex Industry as a Sociological Problem

This paper shares the issues relating to what is a prominent question for researchers studying the sex industry, and one which is often a distraction from understanding the broader and more nuanced issues such as the implications of regulation on safety. As researchers who are engaged in both top-up communications with ministers, policy-makers and decision makers in government and important organisations in the regulation of sex work like police forces and public health, as well as responding to media requests for data sometimes on a weekly basis, the question of numbers is never off the table. Various stakeholders are, understandably, keen to comprehend the size of the phenomena they are involved in governing or responding to. This is further complicated by the increasing complexity of the sex industry, with markets expanding, diversifying and adapting to the opportunities for work, the preferences of customers, and the

myriad of advantages that the internet has presented [1]. Traditionally those researching the sex industry have preferred to use more sensitive methodologies based around qualitative inquiry [2] that consider the problems accessing hidden/ignored communities and the complex ethical issues around sex work as a research topic [3]. Where there have been quantitative attempts by economists for instance, the numbers have often been focused on the revenue involved rather than the human element of the sex industry [4]. This is one reason why there is a significant deficit in quantitative data relating to the sex industry more generally, and very much an absence of counting the size of the sex industry. But aside from the dominance of qualitative inquiry there have been consistent unresolved problems with just how to count an economy which is fluid, informal, sometimes illegal, and more certainly under the radar than many research endeavours. This paper reflects on some of these systemic problems with counting the research, and to recount how during all stages of the three year research project there have been repeated questions of 'how big is the online sector?'

'How many internet- based sex workers are there?'.

1.2. Measuring the Size of the Pre-internet Industry

The thirst for knowing the size of the sex industry and carrying out mappings to estimate numbers of sex workers and sex working environments is driven by a number of concerns and varying motivations. Some politicians and policy makers at local and regional level claim they need to have information about the scope and nature of prostitution to inform decisions about sex work policy and law. In various cities where there are multi-agency sex work/prostitution forums, the issue of numbers or not knowing numbers in the locality is a constant theme, especially given the sparse nature of the limited data that is available for police or health agencies. Indeed, ironically, after decades of sex work researchers pointing out that successive governments have not funded comprehensive mappings of the size and structure of commercial sex markets in the UK [5], the report of the Home Affairs Select Committee inquiry on prostitution in 2016 stated that they 'were dismayed to discover the poor quality of information about the extent and nature of prostitution in England and Wales. Without a proper evidence base the Government cannot make informed decisions about the effectiveness of current legislation and policies, and cannot target funding and support interventions effectively' (pp. 36). They recommended that the Home Office commission research to 'develop a better understanding of the current extent and nature of prostitution in England and Wales' [6]. In December 2017 the Police and Crime Commissioner for South Wales invited tenders for research funded by the Home Office, with this intention, and at the time of writing we await the completion of this research to see the types of mapping and counting that has been undertaken. In the next section it is noted other reasons that specific policy stakeholder groups take an interest in numbers and carry out mappings in the context of online sex work.

For the first time in 2014 the Office for National Statistics was compelled to take up the task of estimating the amount that prostitution (and drugs) contributed to the GDP figures for the UK National Accounts [7]. ONS had to include this to ensure comparability across EU countries in implementing the European System of Accounts 2010 which required certain previously omitted activities to be included. This involved the ONS in estimating the number of sex workers in the UK. Some researchers in the sex work field identified the ONS estimation as largely inaccurate, with calculations made by people with no knowledge of how the sex industry operates on the ground, on top of the challenges of estimating an informal economy. Some key reasons their estimation was deemed inaccurate identified by academics [8] were: it used non-UK data sources which were not comparable; ONS used multipliers which were not explained or grounded in evidence; ONS used a study estimating the sex work population in London [9] which had itself been widely critiqued by academics as methodologically flawed and then simply scaling up the figures for the rest of the country from

what had been estimated in London.[1] Whilst producing an estimation for all commercial sex the ONS calculation used no data for male and transgender sex workers. A re-calculation was invited from the ONS that would take account of more detailed knowledge about the costs involved in sex work (such as rent, clothing, condoms, auxiliary staff, body maintenance costs) and related earnings [8], but this has not happened. The ONS calculation was also not sensitive to the varied nature in the amount of time sex workers engage in this type of work (not the standard 37 hour week for instance); the fluid nature of doing sex work and the geographical variables based on specialist knowledge of differences in prices across the UK.

Previous to this official estimation of economic value there has been debate [11] and dressing-downs about figures used in official documents, and small-scale studies which have been extrapolated out of proportion to grossly overestimate numbers and prevalence. Cusick et al. [5] dissect the problems with using statistics from specialist support projects which are then subjected to multiplier methods to make a gross calculation. The oft-cited 80,000 sex workers in the UK, from a paper in 1999 [12], is explained by Cusick et al. by dissecting its methodology and expressing major caution as to why this was not an accurate representation of the size of the industry at the time. Cusick et al. go on to explain how these methodological issues are then further complicated by the crude political conflations between trafficking and sex work, leading to journalists estimating numbers of trafficked women and girls, and making up the figures in the absence of detailed data and calculations. One of the most glaring issues with some of these early attempts to estimate the numbers of people (usually women) involved in the sex industry is that calculations are usually focused on the street market which at that time was considered to be the most dominant place for sex work, or the data sources which those making estimations had to work with over-represented street sex workers [11]. For example, police data concentrates on recording crimes related to soliciting offences in street sex work. The data from health and support projects has a bias towards the street as most are commissioned to work with street sex workers rather than other sectors such as brothel workers or independent escorts. Data from Brooks-Gordon et al [8] demonstrates that it is very unlikely that independent escorts using the internet will engage with specialist support projects designated for sex workers, for a whole range of reasons. But ultimately using health/support project data means that only a fraction of sex workers are represented and from a street market that is not the main sector for sex work in the UK. During this period of the 1990s/2000s where much

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1 As part of the Eaves study [10], men made phone calls posing as potential customers enquiring how many people were working in venues, their ages and nationality and these 'marketing' responses were used as actuals in the study. It scaled up estimations for London to the whole of the UK ignoring varying distinctive characteristics of the sex industry in London including its size, the high levels of migrant sex workers (who are present at different levels in other areas of the UK). Indeed, it did not account for lower levels and more dispersed sex work in other areas of the UK (including in rural areas).

estimating happened, and even at the time of writing, there are parts of the sex industry that are ignored, with policy taking little notice of male and transgender sex work which is evidenced as a discrete market with distinct features in the UK sex industry [13-16].[2] The question now remains: Is it possible then, using alternative methodologies, to accurately map the extent of online sex work?

1. The impact of the internet on numbers

The most significant hurdle that is now faced by any researchers who are tasked with counting the numbers of sex workers is the massive migration to the internet as the dominant market where commercial sex is advertised, negotiated and even transacted in the form of new markets such as webcamming and phone/sms chat [1]. Using traditional types of data such as the number of sex workers engaging in support projects is an ill-informed means of assessing the numbers associated with online sex work, mainly because this dominant group of workers rarely have contact with such specialist sex work services. Sanders et al. [17], in one of the first studies of online sex work in the UK, found from a survey of 240 internet-based sex workers that the vast majority of respondents (n =168; 70%) did not access a sex work support project. It is most likely that now the majority of sex work happens via digital methods yet this has been a relatively unknown phenomenon in the UK until the Beyond the Gaze project. There has been some attention to what is happening online with some face-value counting of profiles on the main platforms [18]. Yet this basic count has come up against all the problems of taking the publicly-available numbers as evidence for actual activity, when the discrepancies are significant.

The project created several datasets from mixed methods during the period of October 2015 and March 2017.[3] The study used a participatory action research model and community co-researchers with lived experience of sex work assisted in the recruitment of research participants, reviewed the research instruments/methods and contributed to a range of the project outcomes. One of the main benefits of having experts from the sex work community inform the project was the ability to have frank and open discussions about how individuals advertise online, and to contrast this with the counting and profiling of public websites. Research members

with experience of online advertising were able to point out how some profiles may remain live and public when they are no longer active because they were aware of the practices and procedures for certain platforms. They also brought current knowledge about advertising patterns and explained that if mapping utilised only certain platforms as part of the sample for counting, that certain cohorts of online sex workers would be absent because they utilised different online spaces. For example, in the study co-researchers were able to alert us to the main niche sex markets that are advertising online, either based on body type or on sexual service, and the range of domination services that advertise exclusively online. Co-researchers enabled further understanding of the advances in internet and digital technologies and how they present myriad possibilities for the advertising of commercial sex, as well as the creation of new forms of sex work (e.g. webcamming). Online sex work is multiple and diverse, which makes mapping the current UK sex industry, including the size of the sex worker population, extremely challenging. It is asserted, after studying the internet sex industry for three years, that a detailed qualitative understanding of sex markets and sex worker practices in the organisation and operation of their businesses is essential if the diverse and expansive nature of the sex industry is to be captured. As part of the Beyond the Gaze project there can be conclusions made about some of the key methodological challenges in mapping the scale and extent of internet-based sex work.

2. What Is Mapping and Why Is It Done

Mapping takes many different forms and can include estimates of the numbers of sex workers in defined geographical areas as well as more detailed investigations that attempt to uncover the physical places where (and in what numbers) sex workers are actually working. Also as noted earlier counting and mapping sex worker populations is undertaken for a range of reasons. Mapping is sometimes carried out by sex work support services or health projects to identify the level and nature of unmet support needs among sex workers [18]. Indeed evidence-based needs assessment is recommended in most existing best practice guidance for working with sex workers and wider public health initiatives for working with stigmatised and socially marginalised communities [19, 20]. The police may use mapping to identify the size of online markets in particular areas and to identify criminal activities associated with the sector. The Beyond the Gaze research found police forces mapping online spaces as part of actions to identify victims of modern slavery; in some cases, such activity then led to enforcement action, including against sex workers for activities badged under 'brothel keeping' when women were only working together for safety or convenience. During the period that the Beyond the Gaze research fieldwork was carried out. modern slavery was a government policy priority [21]. Indeed the question commonly faced about the size of the online sector was often quickly followed by 'and how many of them are

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2 The one clear exception to this is a police recording project which looked at the indoor sex markets, and specifically trafficked migrant sex workers during Project Acumen which produced a number-based report: 'Setting the Record' http://www.uknswp.org/wp-content/uploads/Setting%20the%20Record%20%28Project%20ACUMEN%29%20Aug%202010%5B1%5D.pdf

3 The data consists of: an online survey of 641 sex workers based in and/or working in the UK, who use the internet in their work; semi-structured interviews with 62 sex workers of all genders who use the internet for their work; semi-structured interviews with 56 police representatives across the UK; and 21 individuals, including managers/staff of online advertising platforms, moderators of online sex worker forums and staff of sex work safety schemes, plus other experts on online regulation of commercial sexual services; online survey of 1,323 customers of sex workers using the internet; online survey of 49 projects providing support to online sex workers; and desk research to map online spaces where sex workers market and/or provide services.

coerced, trafficked or victims of modern slavery'? This focus on modern slavery in relation to commercial sex markets in policy and media discourse is another reason for the thirst for numbers and estimations for sex worker populations. Yet as Merry [22] notes in the aptly named 'The Seductions of Quantification' 'the processes by which numbers are established are shaped by inequalities in power and expertise' (2016, p.5), indicators can be unilaterally or productively shaped and can result in conceptualisations and remedies that facilitate hierarchical and punitive relations or holistic and enabling approaches.

Nearly a decade ago Cusick et al. [5] noted a policy and media discourse fixated on 'trafficking' generating concerns and estimations about numbers of people in the sex industry and the proportions trafficked, many of which made firmer claims or generalisations than was justifiable from the data and methodologies available. In the Beyond the Gaze study a smaller number of police forces used online mapping to enhance community policing development work, and to inform them as to how to contact people working online in order to encourage them to report any crimes to the police should they wish to [23]. Often investigations by crime analysts are led by the desire to accumulate local knowledge of the sex industry and map the local sexual landscape for future policing operations.

3. The Importance of Ethics

As well as the specific methodological challenges for mapping, the importance of ethical issues for academics or others considering embarking on mapping is a key statement. For over two decades wider debate has taken place about the ethics of researching sex work and the extent to which research can bring benefits for researchers but not sex workers, and may indeed have detrimental effects for sex workers, even exploiting them, in some cases treating them as 'guinea pigs' [24 p. 11]. Such debates have ensued since the 1980s about research relating to sex work and HIV, including studies examining levels of HIV infection amongst sex workers some of which involved estimating sex worker populations. Whilst many were driven by genuine attempts to understand the epidemiology of HIV, to provide an evidence base for effective HIV prevention and treatment programs and to ensure sex work communities were not overlooked in the allocation of resources, some research has been identified by sex work communities as objectifying, intrusive [25], and heightening stigmatisation, for example by fuelling misconception of sex workers as vectors of disease [26]. Such issues have been particularly highlighted when methodological approaches have neglected to consult with and involve sex workers. Participatory action research and community-based peer-lead initiatives (carried out with or lead by sex workers) have been proposed as one means of attempting to reduce the risks of exploitative research [27, 28] and health intervention delivery [25]. Debate continues about the ethics of HIV, health and other research with sex worker populations [26]. Now in the 21st century when much sex work is online and researchers

and others can easily access data about sex workers via public-facing platforms and use online 'scraping' methods to 'trawl' the internet and count sex worker profiles [29], ethical issues, including how such activity will impact on and be perceived by sex workers, where informed consent lies for those behind the profiles, the justification for research and whether it is necessary or whether it is driven more by satisfying 'the curiosity of the researcher' [25], are very relevant and critical for researchers to address.

While researchers, project workers and epidemiologists (and in some cases even the police) may not conduct their mappings with enforcement or other action in mind, it is crucial that they remain alert to the risk that their outputs could be misused by other parties, which may undermine sex worker safety or privacy. For example, if information is made public without anonymization, it could then be used by the police to conduct enforcement action, by the media in sensationalist ways or by local vigilantes or individuals, or predatory offenders to attack and abuse sex workers [18]. The Sex Worker Implementation Tool (SWIT), a comprehensive set of guidance for the implementation of HIV/STI programmes with sex workers, published by the World Health Organisation and other agencies, provides a set of recommendations to researchers and projects in their conduct of mapping exercises including that sex workers should be involved in, or even lead, the mapping and that confidentiality must be ensured [19].

4. Mapping Online Sex Work

Given the proliferation, and transience, of online sex work, it is extremely problematic to provide a reliable estimate of the population size of online sex workers in the UK, or indeed anywhere. How these conclusions have been reached are explained below and explore the unique difficulties presented in mapping sex workers who work online.

Counting profiles and adverts

One method that could be used to estimate the extent of the online sex industry in the UK would be to look at sex work advertising platforms (as a front-end user) and simply count the number of sex worker profiles/adverts. Website platforms that host individual profiles often provide filters by geographical region, age, gender, service, sexuality, so doing basic calculations for specific areas is a readily available function. This research has found this is a method being adopted by a range of stakeholders: for example, police, support projects working with sex workers and researchers. This method is, however, inadequate and will never provide a complete and accurate picture of the extent of online sex work for several reasons. The main reason is that the number of sex worker profiles/adverts online does not necessarily translate into the number of sex workers actively working because many of the adverts may be out-of-date and no longer active, although they still appear online.

As an illustration of the difficulties in mapping online sex workers by counting adverts/profiles, the researchers conducted an exercise to compare the number of profiles appearing online

(as a front-end user would see) on a market-leading adult platform with anonymised data on profiles provided directly by the platform's site administrators. Few researchers in the UK have had access to such data provided by site administrators over a number of time periods and this put us in an advantageous position to compare administrator-provided data and publicly-facing data over time periods rather than one snap shot. Adult services web platforms have understandably been cautious to engage with requests for their data, as there is suspicion that journalists will portray these businesses in a poor light, given the politically and morally sensitive nature of the adult services sector, despite these businesses being entirely within the law. The team's relationship with the leading advertising website was built up over several months and based on a mutual understanding of the aims and objectives of the Beyond the Gaze project and the central aim to establish more knowledge about what the internet sex industry looks like. Note the researchers are not making any claims to having developed a method to comprehensively count internet-based sex workers (it was made clear in the introduction this was not an aim of the project) but are utilising the privileged access to site-moderated data to highlight methodological limits to public-facing profile count approaches and as a spring board to flag a number of methodological and ethical concerns to those involved in mapping.

5. Comparison of Profile Counts: November 2016 – October 2017

Data provided by the leading adult platform was analysed, covering four time periods each of three months in length. These covered the periods 1 November 2016 to 31 January 2017; 1 February 2017 to 30 April 2017; 1 May 2017 to 31 July 2017; 1 August 2017 to 31 October 2017.

The data that was shared had specific criteria: individual service providers anonymised information was only included in the data if they had logged in or registered on the website between the relevant dates, they had supplied sufficient information to build a profile, and their profile had been approved by the site's moderation team, which means they would usually have provided profile pictures and specified their gender. Applying these criteria significantly increases the likelihood that the dataset provided by the platform more accurately reflects the number of sex workers actively working during the time period specified.

Tables 1 to 4 (below) show the differences between the numbers of profiles counted as a front-end user on the platform simply at one fixed time point during each three month period (the last day of the month) compared to the numbers provided directly by the site administrators for the period. The data shows that counting the number of front-end profiles overestimates the number of service providers advertising on the site. This overestimation ranges between 24.8% and 35.6% for escorts, and between 30.9% and 41.9% for webcammers. The greater variance for webcammers is possibly due to the highly fluid nature of individuals who engage in this non-contact form of sexual service, with the ability to switch profiles into active use at the click of a mouse, and is a further demonstration of the uncertainty in the interpretation of these figures.

Table 1. Comparison of profile counts on Platform 1, November 2016 – January 2017.

	Number of profiles, publicly-available data counted on 30 November 2016	Number of profiles, data provided by site administrators (1 November 2016 –28 February 2017)
Cis-gendere female escorts	18,061	10,935
Cis-gendered male escorts	7,391	5,365
Transgender/trans-vestite[1] escorts	1,223	879
Escort Totals	26,675	17,179
Webcammers (all genders)	5,128	3,014

Table 1.Continue.

	Differences in profile counts, potential over-estimation of site users	Site-moderated data as a proportion of publicly-available data	Difference as % of publicly-available data
Cis-gendere female escorts	7,126	0.605	39.46%
Cis-gendered male escorts	2,026	0.726	27.41%
Transgender/trans-vestite[1] escorts	344	0.719	28.13%
Escort Totals	9,496	0.644	35.60%
Webcammers (all genders)	2,114	0.588	41.23%

Table 2. Comparison of profile counts on Platform 1, February 2017 – April 2017.

	Number of profiles, publicly-available data counted on 28 February 2017	Number of profiles, data provided by site administrators (1 February – 30 April 2017)
Cis-gender[1] female escorts	17,849	12,359
Cis-gendered male escorts	7,337	5,391
Transgender/trans-vestite[1] escorts	1,229	935
Escort totals	26,415	18,685
Webcammers (all genders)	5,611	3,259

Table 2. Continue.

	Differences in profile counts, potential over-estimation of site users	Site-moderated data as a proportion of publicly-available data	Difference as % of publicly-available data
Cis-gender[1] female escorts	5,490	0.692	30.76%
Cis-gendered male escorts	1,946	0.735	26.52%
Transgender/trans-vestite[1] escorts	294	0.761	23.92%
Escort totals	7,730	0.707	29.26%
Webcammers (all genders)	2,352	0.581	41.92%

Table 3. Comparison of profile counts on Platform 1, May 2017 – July 2017.

	Number of profiles, publicly-available data counted on 31 May 2017	Number of profiles, data provided by site administrators (1 May – 31 July 2017)
Cis-gendered female escorts	17,838	13,165
Cis-gendered male escorts	7,234	5,634
Transgender/trans-vestite escorts	1,241	988
Escort totals	26,313	19,787
Webcammers (all genders)	5,934	4,044

Table 3. Continue.

	Differences in profile counts, potential over-estimation of site users	Site-moderated data as a proportion of publicly-available data	Difference as % of publicly-available data
Cis-gendered female escorts	4,673	0.738	26.20%
Cis-gendered male escorts	1,600	0.779	22.12%
Transgender/trans-vestite escorts	253	0.796	20.39%
Escort totals	6,526	0.752	24.80%
Webcammers (all genders)	1,890	0.682	31.85%

Table 4. Comparison of profile counts on Platform 1, August 2017 – October 2017.

	Number of profiles, publicly-available data counted on 31 August 2017	Number of profiles, data provided by site administrators (1 August – 31 October 2017)
Cis-gendered female escorts	18,311	12,827
Cis-gendered male escorts	7,314	5,625
Transgender/trans-vestite escorts	1,281	1,035
Escort totals	26,906	19,487
Webcammers(all genders)	5,955	4,115

Table 4. Continue.

	Differences in profile counts, potential over-estimation of site users	Site-moderated data as a proportion of publicly-available data	Difference as % of publicly-available data
Cis-gendered female escorts	5,484	0.701	29.95%
Cis-gendered male escorts	1,689	0.769	23.09%
Transgender/trans-vestite escorts	246	0.808	19.20%
Escort totals	7,419	0.724	27.57%
Webcammers(all genders)	1,840	0.691	30.90%

   This means that counting profiles from the front end of the website (which inevitably includes out-of-date, inactive and incomplete profiles) potentially overestimates the number of escorts and webcam workers in the UK actively working on the platform by significant numbers that vary widely between 24.8% and 41.9%. See Table 5. These proportionate differences, therefore, give an indication of the extent to which publicly-available data does not present an accurate or realistic picture.

Table 5. Overall comparisons.

	Escorts		Webcammers	
Time Period	Numbers of profiles: difference between public count and site admin's data	Percentage difference between public count and site admin's data	Numbers of profiles: difference between public count and site admin's data	Percentage difference between public count and site admin's data
Nov 2016 – Jan 2017	9,496	35.60%	2,114	41.22%
Feb 2017 – April 2017	7,730	29.26%	2,352	41.92%
May 2017 – July 2017	6,526	24.80%	1,890	31.85%
Aug 2017 – Oct 2017	7,419	27.57%	1,840	30.90%
Mean overall	7,793	29.31%	2,049	36.47%

Also socio-demographic data contained in profiles needs to be approached as marketing data and not accurate measures of factors such as age and nationality. Many sex workers in the Beyond the Gaze interviews described how they constructed their profile often including ages which were not real (a phenomenon widely acknowledged amongst sex workers) and for some their nationality in the knowledge that customers prefer certain 'types' of nationalities. Main reasons given for the latter varied, but for Eastern European workers in the study it included distinguishing themselves in a market where there were seen to be large number of workers of their particular nationality, and also wanting to avoid hostility, prejudice and xenophobia towards their specific nationality. These marketing tricks used by migrants, adopting 'preferable' rather than their actual ethnicity and nationality, must also be taken into consideration where internet profiles are used to trawl for suspected cases of 'trafficked' individuals under the modern slavery agenda. It has also been identified that individual profiles for certain nationalities often have multiple listings with different photos but the same phone number. Whilst it cannot be said whether this is a modern slavery issue it can be noted that this type of practice makes it very difficult to work out how many profiles are actually related to different sex workers, or reflect collective or managed sex work operations.

Diverse advertising activities

While the counting exercise explained above may suggest that obtaining data direct from website administrators will provide a more accurate account of the numbers of online sex workers, the next difficulty is accurately identifying all potential advertising sources. While estimating the size of the sex working population is challenging, it is equally difficult to identify all the different online platforms where sex workers advertise and operate given the diversity and proliferation, as well as the internationalisation, of all adult platforms.

As well as websites that have national and international reach there are also highly diversified local sites covering towns or regions in the UK. Furthermore, some platforms are widely known and used while others are more peripheral with limited reach and use. Searches were conducted to identify key sex work related websites and other online platforms, and the data from participants provided insight on the most widely used sites, no attempts have been made to estimate the precise number of sex work related platforms that are used by people operating in the UK. Instead what was helpful was the production of a qualitative mapping - a descriptive typology of 12 key types of online spaces utilised by the sex industry at the time of the research [23]. Any estimation would be offering data that would be immediately out-of-date given the fluid and fragile nature of the sex markets online. In attempting to map the terrain of online sex work, any slight change in law in any relevant jurisdiction could have significant effects on how advertising is organised online. This means that any single quantitative mapping of online sex work would only ever represent a snapshot of its extent and scale in a particular time frame. More robust longitudinal studies that attempted to quantitatively map the online sex industry over specified time periods would require complex methodologies, significant time and resources; and such an exercise was beyond the scope of the Beyond the Gaze project.

The Beyond the Gaze research also established that sex workers have quite diverse advertising and marketing practices. While there are clear market leaders in terms of online sex work platforms this does not mean that they are universally used by all sex workers and the research has highlighted the fact that sex workers of different genders and nationalities may have different advertising practices. For example, the platform approached was a clear market leading website for cis-gendered female sex workers, with 93.4% (n=436) of cis-gendered women responding to the survey noting that they use this site. However, there were some differences in the use of this platform by sex workers of British and non-British nationalities. Among British national respondents to the survey, 83.2% (n=426) used this platform to advertise while only 66% (n=62) of those with non-British nationality used the site. The qualitative interviews with migrant sex workers suggested that the identity verification procedures for these platforms, which are extremely stringent for non-British workers, may present a barrier for this group of sex workers using the site, and therefore influence where they advertise. In addition, male sex workers advertising services to other men tended to use this platform in much lower numbers, preferring instead specialist websites or apps targeted at men seeking the services of male sex workers. Indeed, male and trans sex work has a different advertising history compared to female sex work which came to the internet much later than male sex work [29]; online advertising for male escorts has been documented as the main way in which male sex work is marketed [30,31]

This all suggests that obtaining an accurate picture of the online sex industry is not possible simply by obtaining data from one platform, even if it is the market leader. Obtaining data from several platforms may help to capture a wider range of sex workers in the population size estimation but that then presents another methodological challenge – multiple counting of the same sex workers appearing across different platforms. From the sex worker survey responses it was ascertained that the average (mean) number of sites used for advertising by each individual sex worker was three, with only 32.8% (n=210) of respondents using just one advertising source. The potential for double or triple counting of sex workers by quantifying the number of profiles/adverts is, therefore, significantly high. Any attempt to conduct a population size estimation of online sex workers must consider the risk of over-estimation based on sex workers' use of multiple advertising/working platforms. As ethical duties of confidentiality and legal requirements regarding data protection would prevent the collection of sex workers' identifying information to avoid duplication, it would be necessary to use other methods to

calculate likely duplicate profiles and the Beyond the Gaze study indicates a possible mechanism for adjusting data to take this into account.

A final methodological challenge that was identified is that in some contexts, sex work is advertised online in a covert fashion. For example, it was identified that dating and hook-up platforms without commercial advertising were used as one of the online spaces where sex workers advertised their services. These are websites or applications which facilitate connection between people for personal relationships and unpaid sexual encounters and that have policies prohibiting any kind of advertising for paid sex. Sex work is still advertised on these sites and applications but it is done covertly using a variety of codes and signals. During the research the use of such spaces to make contact between sex workers and paying customers was more common for men seeking men. In the male escort sex industry, it has been established and well known that ordinary dating sites advertise commercial sex in a subtle but very identifiable way [31]. It may be difficult for those unfamiliar with these spaces to recognise and include in any population size estimate the sex workers advertising in these spaces, hence such cohorts of sex workers would likely be under-counted.

6. Conclusion

The purpose of this paper has been to highlight the complex methodological challenges in trying to map the online sex industry in the UK and flag up the complexities of mapping or calculating the size of the sex industry in general. The validity of only using data from advertising platforms as a front-end user (i.e. what is publicly viewable) has been questioned and demonstrated that this may significantly overestimate the number of active users of the website. Furthermore, the proliferation and internationalisation of sex work platforms makes it extremely difficult to identify all the potential sites of online sex work and sex workers' use of multiple platforms introduces another risk of over-estimation through double or triple counting. Based on these methodological difficulties it is believed that conducting a full and complete mapping of online sex work is highly problematic and suggest caution against any study or report that proclaims to have achieved this, without any acknowledgement of the limitations of such an exercise. This is also applicable to any media report that claims certain numbers or estimations.

That is not to say that mapping should never be done and, as discussed previously, there may be situations in which it is useful, for example, as part of a wider needs assessment to better inform the provision and availability of sex work health and support services. Mapping exercises must, however, be undertaken with an understanding that the information gathered will, in most cases, remain partial and never complete. The Beyond the Gaze study has provided important data to inform future methodologies for estimating online sex working populations according to factors such as

gender, client profiles, working sector and geographical spread, as well as mechanisms to calculate potential duplication of individual profiles [34]. When doing this, researchers must try where possible and appropriate to consult those involved in the sex industry, and approach the organisations that have the capacity to shed insight and information which is otherwise not obtainable.

The criminological debates around the collection, validity and reliability of police data is the broader backdrop to this paper, where there are substantial long-term problems with accuracy in telling us 'true' pictures of crime, victims and trends [32].[4] Whilst the debate about counting and numbers within the criminology discipline continues, it is important to show caution regarding other ways of estimating informal economies. Beyond the methodological debate about the reliability of online data sources for mapping the sex work population lie important ethical issues for researchers and others involved in or interested in counting or mapping, which should not be ignored. It is suggested to any researchers and projects considering conducting mapping exercises (and those commissioning them) to consider carefully: the reasons and need for mapping, whether their work will really add new knowledge, if it is genuinely needed to inform a particular policy or service provision and most vitally to consider the impact it may have on sex workers themselves. It is important to consult the recommendations of the World Health Organisation [19] and consider collaborating with sex workers and ensuring that measures are in place to protect confidentiality and limit the potential to expose sex workers to increased enforcement at the hands of the authorities or other potentially adverse and harmful outcomes.

Acknowledgements

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