Production, Income, and Expenditure in Commercial Sexual Activity as a measure of GDP in the UK National Accounts.

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Executive Summary

This paper reports the economic activity of sex workers for its inclusion into gross domestic product (GDP) for the UK National Accounts. Markets in consenting but nonetheless illicit activities, including commercial sexual activity and drugs, were incorporated into figures for the UK National Accounts for the first time in 2014. This was to ensure comparability of the Gross National Income (GNI) measurements across EU countries.[1] We evaluate the methods and data used to calculate prostitution in the first ONS (2014) analysis and explore the constraints and limitations in the calculation of prostitution data.

We provide an updated figure for the number of sex workers using monitoring data from NHS specialist services and a using a standard methodology that has been employed by HIV prevention organisations across Europe to supply estimates of the number of sex workers in the UK as well as income and expenditure in various sex work markets in which both parties are voluntary participants. The London and regional markets are sectored separately to take account of the denser market in the capital, and to reflect the composition and differential pricing and working practices of sex workers in different sectors based on location and gender.

Trying to estimate informal covert markets and activities presents an immense methodological challenge. Not surprisingly there have been few attempts to estimate this hidden part of the UK economy in the peer-reviewed literature or from quality sources. To date only Kinnell (1999), and Cusick, Kinnell, Brooks-Gordon and Campbell (2009) have attempted it in the UK. There remain significant limitations and levels of uncertainty, but we provide a model that is based on primary and secondary data from national and regional governmental and NGO services, to develop a model of the non-observed economy (NOE) which is scalable, simple, and with more explanatory power than previous attempts, to create a framework for the future calculation of this activity in the UK National Accounts.

1. Introduction

To determine the contribution of activities associated with consensual prostitution (and drugs) to national economic activity calculations were made by the Office of National Statistics (ONS) in 2014. The European system of accounts states that illicit transactions to which all those involved consent are included within the production boundary and therefore the relevant items in the National Accounts.[2] This change attempted to ensure comparability by measuring Gross National

[1] Prostitution is not illegal in the UK. It is not illegal to buy or sell sex. Under certain conditions it is legal, but many of the activities that surround its sale are criminalized. It is therefore a clandestine activity.

[2] ESA 95 section 1.13; this remained the case in the successor publication ESA 2010.

Income (GNI) across EU countries as a result of implementing the European System of Accounts 2010 (ESA2010) to include previously uncounted activities.[3]

1.2 Previous Work

Comparability of Non-UK sources

In 2014 the ONS published an extrapolation based on sources from the Netherlands and the UK. The Netherlands' source material came from two papers, one by Kazemier, Bruil, van de Steeg and Rensman (2012) and the other by Smekens and Verbruggen (2005). These provide an illustration of the main dimensions and difficulties encountered when measuring the undeclared GDP produced by prostitution in The Netherlands. The introduction of licensing in the Netherlands created a two-tier system marginalizing irregular migrant sex workers from licensed and visible sex work venues and turned licensed venues into regular employment. The legislation, economic conditions and social visibility of the sex industry in the Netherlands translate into practices, prices and incomes that are not comparable with those in the UK, where the sex industry is not regulated and the presence of irregular migrant groups produce a differently segmented sex labour market. The diversification of local sex work settings across Britain further questions the pertinence of using Dutch indicators when estimating the size of the undeclared GDP produced by prostitution in the UK.

The regulated sector in Netherlands, because of its two-tier system, is easier to estimate than in the UK. However, Kazamier et al., (2012) recognize that one third of sex work is concentrated in Amsterdam which makes it unrepresentative of rest of industry elsewhere in Netherlands. Moreover, a supply-side method was used without taking into consideration different types of sex work markets, which means that because there was no detailed data there is no estimation for street / escort / internet based sexual services, or for the income generated by male and transgender sex workers.

Changes introduced in Netherlands improved the professional position of sex workers in the regulated sector but increased division, as in the unregulated sector (i.e. those unable to register legitimately) the situation of sex workers has deteriorated. This impacts on the number of clients but that reduction was not factored in despite the reported trend that both managers and sex workers have been seeing a decline in clients and business. Using the Netherlands is also incongruent with the UK because of the widely different legal systems, hence it is not the most useful comparator with, or reflection of, the partly criminalized system in the UK.

Questionable validity of UK source material

For its estimation of the industry in the UK the ONS used a study by Eaves (2004) where free local newspapers and sex guides were used to locate premises. Male 'telephone mappers' were used to phone premises to ascertain the number of women and their ethnicity. Following the Eaves (2004) report, the ONS study makes an assumption that prostitution is related to population in order to scale up from London to the United Kingdom. There are two significant problems with this. The first is that the London sex working population, as was the case with Amsterdam in relation to The Netherlands, is not 'scalable' to the rest of the UK since the realities, practices and remunerations of female, male and trans sex work vary considerably across the country and especially in London. In the Eaves (2004) report, data figures from London were used to extrapolate up to the rest of the UK. This is unreliable as the London based sex economy is very different from other cities and

[3] There are many kinds of underground activities and the boundaries can be diffuse. We followed the structure and definitions of the NOE provided by the OECD (2002).

towns in the UK. London caters significantly for the tourist industry (national and international) as well as offering historical spaces like Soho, which offer a different sex industry from other cities. Further north in the UK there tends to be less sex work, more rural and dispersed sex work, and less migrant sex work.[4]

Significant Sectors Absent

The Eaves (2004) report also focused on off-street female sex workers and did not calculate or address the realities and incomes of street-based female sex workers, nor those of transgender and male sex workers. As Maginn and Ellison (2014) point out 'sex work is by no means a female-only, heteronormative, urban-centric profession. If anything, it is polymorphous, spatially mobile, and highly globalized'(p431). The incomes and experiences of male and trans sex workers were not, however, taken into account in either the Dutch literature nor the Eaves (2004) report used in the ONS estimates. Despite academic work (eg., Day and Ward, 2004) suggesting more male, transgender workers operating at the time the Eaves' study was carried out, a sector that is estimated to be between 8-15% of the sex industry in the UK was left unexamined.

The quantification of street sex workers was carried out using data from the Metropolitan Police on the number of street sex workers working at any given time - a method rejected in s3.1.4 of the same ONS paper on illicit drug markets owing to its reliance on law enforcement policy and either greater or lesser focus on street behavior or formal rule change. As Day and Ward (2004) point out, police data on number of arrests for prostitution related offences will primarily reflect policies of arrests and prosecutions rather than true trends of the numbers working. In the UK the numbers of women arrested for soliciting has declined due a shift to indoor work, itself a result of intensive policing. To have ignored 5-12% of the market makes the data highly problematic and makes time series data much more difficult.

Despite the identification of 66 sex entertainment venues (SEVs)[5] and 182 telephone chat lines, there was no attempt to quantify those aspects of the industry where non-contact sexual activity takes place in the workplace but contact sex work may take place outside the regulated workplace. There was, however, recognition that 'there do appear to be connections between women working in lap dance clubs and women selling sex.' The Eaves (2004) report paid scant attention to the diversity of jobs and services offered in the UK sex industry as its main focus remained on off-street sex work in order to explore the extent of trafficking. As a result the overlap between work in the regulated economy and income generated by irregular or illicit sex markets was not taken into account.

The authors of the Eaves (2004) report located flats across London but excluded flats operating as 'walk-ups'. The main area in London for walk-ups is Soho and any strategy to try to quantify sex work should necessarily include Soho. Saunas and parlours located in particular ethnic communities were excluded and so were not quantified. And there was a 23% attrition rate where premises would not provide any information. These five markets: male, transgender, street, Soho walk-up flat , and SEV sex work, taken together make the enormous uncertainties in every element of the ONS calculations even larger.

[4] Evidence from the NATSAL survey, one of the largest and most comprehensive surveys in the world on sexual practices shows around one in ten men in the UK have ever paid for sex. The theory of Situational Sexual Behaviour suggests that paid sex depends on the ease of access in terms of proximity or cost of travel to an area with an established sex industry (Jones, Johnson, Wellings et al., (2014)

[5] Also known as lapdancing clubs.

Covert Methodology

The covert methodology adopted in the Eaves (2004) study is an inefficient way to provide a quantitative and qualitatively representation of the sex industry in London.[6] Sex workers use a portfolio of names to advertise different services (eg., corrective services) and appeal to different markets but the methodology did not enable estimates to be made of how many workers were using different names for the same address - which would lead to further double counting. Covert calls may also have made those working at the premises nervous and less likely to collaborate which would also impact on any attempt to gather accurate data so was unequal to the task.

Unexplained Multipliers

Estimates of more than one person working in establishments were rounded up to the nearest multiple of 7 without any reason given. The Eaves (2004) study acknowledges double-counting might have occurred as it was unable to track individual women, and thus women who work two days at one sauna and two days at another at another would have been double-counted. The authors argued it was not possible to identify exact numbers of women working at each establishment. No account, therefore, was taken of sex workers working in different premises on different days (or working across sectors such as working from a parlour one day a week and working from home another day, or a worker registered with two different escort agencies), which would result in significant double counting. One of the most unlikely multipliers was that sex workers saw 25 clients per week, 52 weeks a year. Sex workers may see plenty of clients during a shift if they operate from a working flat or when they are on tour, but they do not work every day, nor do they work 52 weeks a year.[7] Indeed one of the main reasons many sex workers cite for their work is its flexibility and relatively short hours needed to achieve their desired income.

Lack of verification

There was no attempt made to triangulate the data with other sources to check the accuracy of the Eaves (2004) study. There was no system for verifying or checking the data, for example, no participants currently working in the sex industry were interviewed or invited to check the data for accuracy or fit. Data was said to be 'cross-referenced' with London entries from McCoy's Guide (2002-2003, and 2003-2004) and a number of internet sex guides but there is no information on how cross-referencing was carried out, or which variables had been cross-referenced. Nor is any information provided about how Punternet field reports were monitored or how the 5,000 entries were assessed, or double counted as sex workers moved from venue to venue. The opacity of methods would make the Eaves (2004) study very difficult to create a time series from or to replicate.

Online activity and price fluctuation

Following Smekens and Verbruggen (2005) and Kazamier et al (2012) the ONS report assumes that independent escorts make up 15% of the sector and those escorts have 10 clients a week. This does not take account of the increase in online and more private activity characterizing the UK sex industry. A notable factor in the Dutch studies was that prices didn't increase much with the legalization legislation in 2000 but did increase sharply with the introduction of the Euro in 2002. There was also a drop in average hourly rate for sex worker time following the 2007-2008 financial crisis shown in one analysis (Cunningham and Kendall, 2011). Because paying for sex is regarded as a luxury by clients, it is something that is cut back when financially restricted, and in places where the job market has slumped, clients tend to be more scarce. For these reasons studies need to

[6] For a full analysis of the flaws in Eaves (2004) see Sanders, Pitcher, Campbell, Brooks-Gordon, *et al.,* (2008).

[7] A detailed account of working practices of women can be found in Sanders (2005), and for men Minichiello and Scott (2014).

take account of the modal shift online and subsequent private activity (which will also include free-lance workers, part-timers, and temps) and also do a regional analysis to explore price differences in order have a proper foundation.

The ONS extrapolation is based on data collected in 2003. The sectors making up the illegal economy shifted from 1995 to 2005 (Smekens and Verbruggen, 2005). There have been significant changes to the organisation and shape of the sex markets in the past decade such as a) the internet domination (Scott and Cunningham 2011, Sanders 2015); b) opening up of A8 countries with freeing up of borders for some EU citizens; c) cultural mainstreaming of the sex industry making sex work possibly more accessible as a work and leisure activity (Bernstein, 2007); d) increasing criminalisation from 2003 – 2010 making it more risky to be seen as a sex worker. The use of such source information does not account for the way in which the UK sex industry and its economic and labour structure was transformed by the arrival of new migrant groups from EU accession states since 2004 (Poland, Czech republic, Slovakia, Latvia, Lithuania, etc.) and 2007 (Romania and Bulgaria).

Population alone a poor indicator of sexual activity
A final problem is that the population is, by itself, a poor indicator of sexual activity (commercial or otherwise). The hazards of making assumptions of sexual activity based on population alone can be seen in the exchange between Underwood (2014) and Mercer and Johnson (2014). The exchange centred on the discrepancy in number of opposite-sex sexual partners of men and women in Britain's National Survey of Sexual Attitudes and Lifestyles (Natsal) (2014). The averages were 14.1 partners for men and 7.10 women. Underwood (2014) argued that these should be equal given that the population consists of equal numbers of men and women, and that for each member of the population their sexual partners reside within the population. He suggested that the discrepancy is due to either an error in the survey or a breakdown in one of the two assumptions. Authors of Natsal, Mercer and Johnson (2014) reply that while the sex ratio for the population as whole is 1:1 the possible reasons for the discrepancy are: a) the under-representation of female sex workers in the survey, b) Men having sex with foreign women while either the men are abroad, or the foreign women are visiting the UK more than the opposite situation (ie women having sex with foreign men while either the women are abroad or the foreign men are visiting the UK). The idea is that foreign sex partners are not picked up by the survey, violating the assumptions of a closed population, or c) more complicated effects involving generational differences in activity, the fact that men generally have younger sexual partners, and the fact that women generally live longer than men. The authors also point out that men are more likely to have more partners which include paid partners, and also more likely to round up their figure in reporting. These discrepancies illustrate clearly the problem of making assumptions about sexual behavior from a mere population statistic (which the past ONS calculation did).
For that reason we feel that while it might be useful as a check that figures fit within the total population, but population is not itself a sensible way to try estimate populations of sexual activity We suggest, along with Mercer and Johnson (2014), that it is necessary to use sensitive methods to enable accurate reporting and thus more reliable data to be generated to inform policy and practice.

1.3 Study Aims

Some EU member states give a detailed breakdown of sex work markets and so Kazamier *et al*., (2001) suggest that separate estimates for legal brothels, illegal brothels, clubs, escorts, home workers, and street workers should be made but their available data do not allow. They therefore estimated sex work as a whole. The sources used by the ONS to produce the estimate were inadequate to produce a valid understanding of the sex industry in the UK and unable therefore to determine the hidden GDP produced by prostitution. Because the original methodology was sub-optimal and left up to 25-50% of the market unexplored, we aim to provide our estimates from primary survey data, calculate regional variation, and to take account of a highly segmented market, because a distinction between markets, where it exists, should be attempted. In this way we are able to take account for male, transgender and street sex workers, working in Soho walk-up flats, those working part-time, and alternating with other work (including that in SEVs or telephone chat-lines), and/or touring, as well has having the sector data in a format for better EU comparability.

2 Data Sources & Methodology

For comparability across EU member states we provide a detailed breakdown of the remuneration of sex workers in eight areas: Female street UK nationals, street migrant workers, off-street mid price venues, off-street high-price independent escorts who work regularly, male and transgender street workers, those who work intermittently or combine the sex work with other work (which may or may not also be some form or erotic labour), those who are regularly and independently working in sex work, and male and transgender workers who work in specialized/ more high income work. Although independent escorts work in flats and saunas, most do not, sometimes just working for just a few months per year. Many of these work in 'niche' markets so this too is taken into account. Critically, we factor in the capital city London separately for the number of workers working so that it does not distort assumptions made about regional markets.

2.1 Required estimates

The following consumption estimates were explored: output, intermediate consumption of clothes, intermediate consumption of condoms and lubricant, intermediate consumption of sex toys, intermediate consumption of travel and rental services, intermediate consumption of security personnel.

2.1.1. Total numbers of sex workers

The benchmarks for data extrapolation are 2009, 2013 and 2015. The UKNSWP is an umbrella organization representing and sharing information on good practice between projects that offer specialist support services to people involved in sex work. Funded by the Big Lottery, it publishes the 'Directory of Services for Sex Workers in the UK' (now online). For 2009, the UKNSWP Directory listed 54 specialist projects delivering services to sex workers. In total the UKNSWP directory 2013 listed 180 services including 158 non-specialist services such as Genito-Urinary Medicine (GUM) clinics and drug services.[8] We use data from the UKSWP directories in 2009 and 2013 for the regional data.

From hard data gathered from specialist services which reported their contact with unique individual contacts it was possible to estimate the average number of sex worker contacts for each service known to be working from the UKNSWP membership (see Table 1). This is primary data published in the 'grey' literature in the wake of UKNSWP conference presentations academic/practitioner conferences and knowledge-transfer events. Figures making up the sex worker numbers were presented by the UKNSWP at conferences (see Campbell, 2009a, 2009b).

[8] http://www.uknswp.org/wp-content/uploads/RSW1.pdf

Regional sex worker numbers
Regional data from recorded visits of sex worker clients to specialist and non-specialist (walk-in drug and sexual health) services and the extrapolated estimates of total sex workers outside London. This calculation used the total of 5,249 clients at 18 services to give an average of 292 clients per service extrapolated using the total of 140 regional services shown in Table 2.

Table 1: Regional data from sex worker contacts with specialist services

Regions	**Number of clients from services providing data**	**Number of Specialist services providing data**	**Contacts per service**	**Total number of services**	**Estimated total** (using regional data for extrapolation)
Scotland	565	1	565	10	2,916
N Ireland				3	*875*
Wales				7	*2,041*
N West	1,524	4	381	32	9,332
N East				7	*2,041*
York& Hum	893	4	223	17	4,957
Midlands	1,207	4	302	17	4,957
East				6	*1,750*
South				11	*3,208*
S West	660	4	165	15	4,374
S East	400	1	400	15	4,374

The number of sex workers is estimated using data on the numbers of sex workers seen at specialist projects delivering services to sex workers (as described above). This provided an average number of sex workers per service. We multiplied this by the number of specialist services listed in the 2013 UKNSWP directory to provide an extrapolated total. The extrapolated figures for the regions and for London are combined to provide an estimate for the UK as a whole. It can be seen in Table 2, the London calculation used the total of 3,199 clients at 4 services to give an average of 800 clients per service extrapolated using the total of 40 London services.

Table 2: Estimated total number of UK sex workers.

	Number of clients from services providing data	**Number of Specialist services providing data**	**Contacts per service**	**Total number of services**	**Estimated total number of sex workers**
Regions	5,249	18	292	140	40,826
London	3,199	4	800	40	31,990
UK total	**8,448**	**22**	**384**	**180**	**72,816**

We looked closely the only methodology to be used in the peer-reviewed literature (Cusick, Kinnell, Brooks-Gordon, and Campbell, 2009) – a method which is less likely to suffer from undue double counting than those reported by Eaves (2004) in the initial ONS calculations. In the absence of a large scale study using the capture-recapture method (described by Speigelhalter, 2015) it is the best way to derive extrapolations drawn from an objective source. Our method improves on both the method used by Kinnell (1999) and the method used by (Cusick, Kinnell, Brooks-Gordon, and Campbell, 2009) by integrating the advantages of both studies.

The Kinnell (1999) study sought data from various types of service known provide services for sex workers whereas Cusick at al (2009) sought data only from specialist services. Kinnell asked services to estimate the number of sex workers operating in their geographic area Kinnell and received data back from 16 of the 120 services.

Kinnell (1999) multiplied the average estimated number of sex workers per reporting service by the number of services she knew to be working with sex workers (Mean 665 x 120 = 79,800).

Both studies recognized that service use data as routinely collected by services would exclude those who did not identify themselves as sex workers. To get round this Kinnell asked projects to estimate the number of sex workers they thought existed in their area and this gave an average figure per project of 665. This is 2.1 times the 316 workers that Cusick et al (2009) found using specialist services. So Cusick et al (2009) used the multiplier of 2.1 (based on the differences between the two studies) to go from the number of sex workers using services (17,087) to an estimate of the sex worker population (35,882) that took account of local knowledge (ie 316 x 2.1 x 54 = 35,882).

Cusick et al (2009) took recorded data on the number of self-reporting sex workers using services in a one year period, and received data back from 38 of the 54 specialist services. They reported 12,215 sex workers (11,134 women and 1,493 men) using the services. The estimate of non-responder service figures from averages of responder data gave a further 3,373 women and 1,493 men – a total of 17,081. That data gave a mean average of 316.3 sex workers per project. Using the factor 1:2.1 the population of sex workers in areas where there were specialist projects would number 35,870.

Then following Kinnell's (1999) method if the 316.3 average number of sex workers in contact with specialist services by all of the 153 services in the UKNSWP directory a tentative estimate of 48,393 emerged. As with the 1999 calculation the figure does not take account of the lower numbers likely to be in contact non-specialist agencies. To estimate all the sex workers in contact with all agencies, 316.3 x 153 = 48,393 x 2.1 gave a figure of 101,625 sex workers in the UK. But multiplying up like this from areas where there were specialist agencies was considered increasingly speculative and so the authors' conservative estimate was that approximately 36,000 sex workers were operating in the UK.

There are weaknesses and limitations to both studies, and while Kinnell's (1999) is the most straightforward analysis to carry out Cusick et al (2009) tried to eliminate the issue of double counting. Both studies took account of the off-street and street sectors as well as male sex workers. As specialist services used to target mostly street workers, those working in massage parlours and flats, or working as escorts would still have been under-represented in both studies.

Owing to the significant changes in the sex industry since the data collection by both Kinnell (1999) and Cusick et al (2009) the service providers changed their mode of operation too, with more outreach to off-street locations, as well as web-based and telephone outreach to escort agencies and independents followed up by visits to premises. In addition the centralization and specialization of the sexual health service sector matured not only in terms of staff knowledge and expertise but also knowledge-transfer between services to the degree that such double counting became less of a factor than previously.[9] Data collection became more essential for signing NHS (and other governmental) service agreements so services got better at data monitoring, for example, one service provider suggests that over time: 'records were more accurate as a great deal of trouble was taken to avoid duplication.'[10]

This means that it is possible to carry out a simple calculation such as Kinnell's (1999) and carry out a relatively simple calculation without having to use the 2.1 multiplier of Cusick et al (2009) that was previously necessary to take account of double counting. A closer look at the service data gave us insight into working patterns and why the service sector data is one of the better sources available. For example, monitoring data from a service called M.A.S.H in Manchester shows that data collection is done by the nurse who visits saunas in Manchester and Bury, and by an outreach team in a van which goes out at night to where the women work and provides condoms, health advice, and help.

The M.A.S.H. monitoring data records go into detail over the data for 617 sex workers seen on the street and because the sex workers have a vested interest in these trusted services it becomes a good source of data. It is recorded that 166 women were seen both years and were regularly seen on the beat, 201 seen in 2012-13 but not 2013-14, and 460 not seen in 2012-13 but seen 2013-14. Of these 415 were 'brand new', 45 were returners, 222 were seen only once, 67 were seen only twice, 101 were seen several times, 25 were seen more than 20 times. Of the 25 seen more than 20 times 10 were other white (Romanian), 2 Hungarian) 8 were white British, 1 mixed race, and 1 Pakistani).' Not only is the data cross-checked for overlap in working patterns but this data is also then compared with that of other services at knowledge exchange meetings[11] which counteract any double counting of people seen at multiple clinics, and shares knowledge of people who don't attend clinics.

2.1.2. Different types of sex work

The sectoral classification of sex work and proportions of the total in these classifications are listed in Table 3. Categorizations of female sex workers as well as their income and expenditure were drawn from 2015 data from Open Doors NHS health provision by Homerton University Hospital NHS Foundation Trust, a specialist service for London based at St Leonards Hospital with a number of clinics in London that are free and confidential. It is the largest sex worker service (clinical, case management and outreach) in the UK both in geographic and in terms of service user numbers. Across three East London boroughs in which it delivers services the team will see on average 2500 unique individuals per year. Of their service users 99% are female and the remainder are transgender and male. We used hard data from the case management records that has to be held for its NHS obligations[12] to work out the sectoral categorizations as well as the income and expenditure of female sex workers. These classifications are generally well known within the sex

[9] This includes double counting of sex workers using the two different services and also prevents those moving out of and returning to sex work being counted as two different people over different years.
[10] M.A.S.H (2013-2014) 'What we know so far', monitoring data records 2013-2014. Manchester Action on Street Health.
[11] An example of this was the Yorkshire Academic Sex Work Consortium which hosted the Sex Work Knowledge Share event on 12 December 2014, an event to facilitate knowledge sharing of academic findings between researchers involved in sex work research and evaluation projects with practitioners working directly with sex workers in Leeds.
[12] The data is therefore be available continuously for updating, through the research and academic collaboration channels. See: http://www.opendoors.nhs.uk/content/professionals

industry and those working and researching in this area but they are not, however, strictly delineated or always mutually exclusive.[13]

Categorizations of male sex workers are drawn from Maginn and Ellison (2014) (who used data from the site Escort.Ireland from 2009-2012 to explore recent trends in the data and important differences between online and street-based sexual commerce) and Laing and Gaffney (2014) (who analysed the demographics, incomes, and spending patterns of male sex workers attending a health service provider for male sex workers). The estimates for the different proportions of male sex workers were calculated by the authors and are informed by the academic literature (eg Laing and Gaffney 2014, and Logan 2014) and the accumulated knowledge of the authors.

There are markedly different levels of income and expenditure associated with the different sectors. As with the total number of sex workers there are differences between London and the regions and so separate estimates of the proportions have been made for the two populations especially in terms of migrants who have a different working pattern. We then combined the totals of male, transgender and female sex work together for overall distribution of sex worker population.

We also looked at the percentage of migrants in the total sex working population. The most useful reference for the EU was TAMPEP (2009), estimating that: 'Throughout the old member states, an average of approximately 70% of all sex workers are migrants, while some countries such as Italy, Spain, Austria and Luxembourg report that migrants comprise 80% to 90% of the sex worker population, or 60% to 75% in Finland, the Netherlands, Belgium, Germany, France, Greece, Denmark and Norway. The greatest balance between migrants and nationals is found in Portugal (56% migrants) and the UK (41% migrants; with the highest level of concentration in London (80%)'. These data further corroborate what was said above about the difference between the UK and the Dutch sex work labour markets and between London and the rest of the UK.

As regards the specific realities and percentages of male sex workers in the UK, according to Scambler (2007) women make up the majority of the sex work, with some estimates suggesting the proportion is around 85-90 per cent. London is estimated to have the highest proportion of male sex workers (as much as 30-40 per cent of the London sex working population according to Scambler, 2007).

We focused on male sex work in the UK and then in the EU to look at the ratio of male sex work in European countries, mainly through TAMPEP's report (2009).[14] We found that the gender estimations have changed little since the 2005 mapping, which showed a composition of 8% male, 6% transgender and 86% female sex workers at a EU level.

[13] For example some sex workers may work on for an escort agency a whenever bookings come it but also advertise independently otherwise.

[14] TAMPEP (2009): http://tampep.eu/documents/TAMPEP%202009%20European%20Mapping%20Report.pdf

Table 3 : Breakdown of sex work sectors and their distribution

Classification	Description	Regional distribution	London distribution
Female street sex workers (low income)	Street UK (usually women aged between 28-48) born in the UK or with UK citizenship and entitlement. Typically residents of the borough in which they sell sex.	8%	2%
Female street sex workers (migrant)	Street Migrant (usually women between 19-30) born in Eastern Europe (usually of Romanian origin). Not always residents of the borough in which they sell sex.	2%	8%
Female off street (middle income)	Off street low income (usually migrant women aged between 19-30 from Eastern European countries and Brazil plus some Chinese nationals) working in flats and sauna's across East London. Not typically residents of the boroughs in which they sell sex.	50%	50%
Female off street (high income)	Off street high income (either migrant - Brazilian, Romanian or UK women aged between 21-45 and working in the financial districts of London). Can be residents in the borough in which they sell sex.	5%	5%
Male and transgender - low income street	Environment: street worker In England in Manchester, Yorks, and Brighton. Scotland and Ireland (in Belfast and Dublin only)	5%	5%
Male and transgender - Occasional independent	Commercial sexual activity is incidental to lifestyle. Paid sex occurs when sexual advances made in clubs, bars, or saunas are refused initially but accepted when money proffered.	5%	5%
Male & transgender regular independent	Male sex workers working independently and regularly advertising on gay and specialist sites. Transgender workers saving up for or paying off operations and/or treatment during sexual transition.	20%	20%
Male & transgender high income	Male sex workers commanding premium for services (ie conforming to hegemonic ideals). Transgender sex workers who chose not to fully transition (because of high premium they can charge). Chose to remain in sex work while earning rate is high.	5%	5%

Male and transgender workers whose work is sporadic are in the same sectoral band because this includes male club/sauna goers who spurn advance for spontaneous sexual but accept sexual advance for cash, and those and drift in and out of sex work as the need arises sporadically. Male sex workers' money is supplement to other income received in formal economy in professional, service, care work or other cash-in-hand work.

There is some indication that hiring a MSW may be more common among men who have sex with men than in other populations. A survey of sexually active gay, bisexual and other men who have sex with men in New York found that nearly 43% of participants had paid for sex, been paid for sex, or both (Koken, Parsons, Severino & Bimbi, 2005). Estimations on the supply (sex worker) side are carried out, rather than trying to estimate demand (client) side activities, as it is more reliable.

2.1.3 Income and Expenditure in London

We used Open Doors' data (see 2.1.2) from its clients to measure the income and consumption of London sex workers. Almost all the sex workers supported by Open Doors will earn an income that is undeclared. This income varies, as does the type of expenditure in each of the respective markets, and can be seen in Table 4.

Street workers tend to charge per client/per service while off-street workers charge per hour (sometimes with an associated menu of charges per service). We have used the same metric for the relevant sector as it makes it more possible estimate work rates and take account of the difference in price between incalls and outcalls for independent escorts who may for example charge for overnight stays or travelling with customers (which can include travel abroad).

Male sex workers charge less and work less than female sex workers. Fogg (2014) found male sex workers charge less than women and work less frequently. Fogg judged their work rate and charging rate to be 50% that of female sex workers. While the trend is consistent with service providers' data although the metric is not an exact 50% so we have estimated their prices and workrate as lower then women's but not as low as 50% because the relative paucity of male sex workers in some regions keeps prices higher than the 50% suggested.

Table 4: Income and expenditure for different classifications of sex work in London

Income	*Intermediate consumption*
Female street sex workers	
Average of 50 clients per month @ £30 per client for 11 months. = £16,500/yr	No premises costs as transactions take place in vehicles or the street. Condoms when provided, are by health outreach so incur no charge.
Female migrant street sex workers	
Average of 120 clients per month @ £40 per client for 11 months. = £52,800/yr	Workplace accommodation costs are shared - hotel rental at £40 per night between 5 women to see customers met on the street = £2,672/yr
Female off Street middle income	
Average of 120 hours per month @ £70 per hour for 11 months. = £92,000/yr	Rent per day paid to 'the house' in order to work in flat, and travel (165 days @ £100 per day) = £16,500/yr Clothes worn for sex work £2,200/yr Condoms and lubricant £0.53 per item = £1,770 Sex toys = £100 Security personnel (£30 per day) = £4,950/yr
Off Street high income	
Average of 150 hours per month @ £160 per hour for 11 months. = £264,000/yr	Rent for flat used only for clients (shared) £36,000/yr Clothes worn for sex work £200 Condoms and lubricant £0.53 per item = £1,770 Sex toys =£400 Security personnel (206.25 days @ £30 per day) = £6,188/yr
Male and Transgender - low income street	
Average of 50 hours per month @ £30 per client for 11 months. = £16,500/yr	No premises costs as transactions take place in vehicles or the street. Condoms when provided, are by health outreach so incur no charge.
Male and Transgender - Occasional independent	
Average of 2 clients per month @ £100 per customer for 12 months. = £2,400/yr	Negligible work-related expenditure because paid sexual activity is incidental to lifestyle. Paid sex occurs when sexual advances made in clubs, bars, saunas, are refused initially but accepted when money is offered.
Male & Transgender regular independent	
Average of 80 hours per month @ £100 per hour for 11 months. = £88,000/yr	Condoms and lubricant £0.53 per item = £466/yr Clothes worn for sex work £2,200/yr Sex toys =£400/yr
Male & transgender high income	
Average of 80 hours per month @ £140 per hour for 11 months. = £123,200/yr	Rent per day paid to work in flat or hotel cost for outcalls (110 days @ £150 per day) = £16,500 Clothes worn for sex work £2,200/yr Condoms and lubricant £0.53 per item = £466/yr Sex toys = £400/yr

2.1.3 Income and Expenditure in Regions of UK outside London

Income and Expenditure in Regions of UK outside London is shown in table 5 below.

We took the income and expenditure data from London as a starting point for female sex workers and scaled it back taking account of cheaper regional property prices outside London, greater likelihood of touring, and the fact that there is less migrant labour in many of the regions.

We used information from the findings of a collaborative survey funded by the Wellcome Trust and conducted in partnership with the National Ugly Mugs service of 240 internet-based sex workers, to triangulate data and test assumptions. The National Ugly Mugs service is a service to prevent violence in which sex workers throughout the UK join in order to receive updates of violent people who target sex workers. From the mapped distribution of members of the National Ugly Mugs service we compared a) the regional distribution, and b) gender distribution of sex workers.[15] Preliminary findings and core patterns of work suggest that escorts in the regions work 3-5 days a week and earn around £1,500 a month; are likely to remain in sex work for the next year; have a varied work history and are also working in the mainstream employment economy (Sanders, 2015). In addition, we drew on research that featured sex worker earning and expenditure, for example Mai (2010), Sanders (2006), Sanders & Hardy (2011), and Brooks-Gordon (2006).

Income and expenditure of of male sex workers in the regions are drawn from Maginn and Ellison (2014) (who used data from the site Escort.Ireland from 2009-2012 to explore recent trends in the data and important differences between online and street-based sexual commerce) as well as Laing and Gaffney (2014) (who analysed the demographics, incomes, and spending patterns of male sex workers attending a health service provider for 69 male sex workers). The ease, availability, and relatively low cost of advertising for commercial male-to-male sex work has led to an increased use of this advertising avenue (Maginn and Ellison, 2014) and male sex workers generally advertise on websites such as Gaydar, Adultwork, Grindr, Gayswap, Planet Romeo, Vivastreet and Squirt.

Laing and Gaffney (2014) underline how the social, cultural and geographical context in which sex work takes place is important to understand the identifications, experiences and needs of male sex workers. These concerns are crucial in identifying and estimating the income produced by sex work because transactional 'in kind' practices and 'sugar daddy' situations can be seen as work (and therefore income) or not in relation to local contexts and personal economic and interpersonal circumstances.[16] For example, the studies of Laing and Atkins (2009) in Manchester and of Wilcox and Christmann (2006) in the Yorkshire area of Kirklees highlight localized experiences of male sex work that impact on the practices they engage in and on the related incomes. This work shows that identifications, practices, working conditions and income generation are related and that a combination of qualitative and quantitative methodologies could be the best suited to understand 'what', 'how' and 'how much' undeclared income is generated through male sex work. These considerations further highlight that conditions in London cannot be

[15] The survey pro-forma that member complete to join illustrates the data points held. It is available at: https://uknswp.org/um/wp-login.php?action=register

[16] Along with gender there will be differences within markets, for example a study on international website comparisons suggests that a White escort in London charges on average £270 per sexual service and a Black woman £180 (The Economist 14.8.14). Research shows that prices may mask specific variables that control price such as relationship to the hegemonic cultural 'ideal' (Logan, 2014).

seen as coinciding with, or ‘scalarly’ representing those of the rest of the UK when male sex work is concerned.

For male and transgender sex workers there are those who are street, or more accurately park-based, workers and also those who advertise on Craiglist, Grindr, Gayromeo for whom work is casual, occasional and opportunistic. Off street sex work is done in a different way and therefore considered separately.

Data was when checked against data drawn from legal cases where extensive court evidence, including prices, clients, payments, room payments and the flow of money from clients, sex workers, managers, taxi drivers. These costings came from court and legal case records of two legal cases. The first was from Regina v. Louis McKie (2015) (Lewes Crown Court Case no. T20140907) which were benchmarked against R v Steven Massey [2007] EWCA Crim 2664.[17]

[17] The former case involved seven people in the sex industry and the financial records relating to earnings, expenditure, flat rental, car rental, and mobile phone usage and costs as they were presented in the court records gave a very detailed insight into working patterns and expenditure over a prolonged period of time.

Table 5: Annual income and expenditure for different classifications of sex work in the regions

Income	*Intermediate consumption*
Female street sex workers	
Average of 50 clients per month @ £20 per client for 11 months. = £11,000/yr	No premises costs as transactions take place in vehicles or the street. Condoms when provided, are by health outreach so incur no charge.
Female migrant street sex workers	
Average of 110 clients per month @ £30 per client for 11 months. = £36,300/yr	Workplace accommodation costs are shared - hotel rental at £40 per night between 5 women to see customers met on the street = £2,672/yr
Female off Street middle income	
Average of 150 hours per month @ £30 per hour for 11 months. = £49,500/yr	Rent per day paid to 'the house' in order to work in flat and travel (206.25 days @ £80 per day) = £16,500/yr Clothes worn for sex work £2,200/yr Condoms and lubricant £0.53 per item = £1,770/yr Sex toys = £100 Security personnel (£30 per day) = £6,188/yr
Off Street high income	
Average of 120 hours per month @ £120 per hour for 11 months. = £158,000/yr	Rent for flat used only for clients (shared) and travel £36,000/yr Clothes worn for sex work £2,200/yr Condoms and lubricant £0.53 per item = £1,770 Sex toys =£400 Security personnel (165 days @ £30 per day) = £4,950/yr
Male and Transgender - low income street	
Average of 50 hours per month @ £20 per client for 11 months. = £11,000/yr	No premises costs as transactions take place in vehicles or the street. Condoms, when provided, are by health outreach so incur no charge.
Male and Transgender - Occasional independent	
Average of 2 clients per month @ £80 per customer for 12 months. = £1,920/yr	Negligible work-related expenditure because paid sexual activity is incidental to lifestyle. Paid sex occurs when sexual advances made in clubs, bars, saunas, are refused initially but accepted when money is offered.
Male & Transgender regular independent	
Average of 80 hours per month @ £90 per hour for 11 months. = £79,200/yr	Condoms and lubricant £0.53 per item = £466/yr Clothes worn for sex work £2,200/yr Sex toys =£400/yr[18]
Male & transgender high income	
Average of 80 hours per month @ £110 per hour for 11 months. = £96,800/yr	Rent per day paid to work in flat or hotel cost and travel for outcalls (110 days @ £100 per day) = £11,000/yr Clothes worn for sex work £2,200 Condoms and lubricant £0.53 per item = £466/yr Sex toys = £400

[18] This group, in both London and the regions will face significant outlay such as hormone replacement therapy, testosterone blockers (£110 per month) = £1,320/yr, surgery costs £1,000 per month, = £12,000/y, and hair removal £100 per month = £1,200/yr, these are not as a result of sex work. Rather, sex work is the means by which this group finance their transition.

Verification Checks of Regional Income and Expenditure Data
As the OECD (2014) acknowledges, it is not unusual in trying to estimate the NOE for statistical deficiencies to be corrected for by doing imputations. We therefore did a verification check by asking those in the sex industry to give us a snapshot in time of their earnings mode of work. A single open survey question was sent to 40 known sex workers electronically with the question: *What is your average gross take yearly/monthly/weekly (either figure is fine depending on your work pattern)?* Examples of qualitative responses received, and which helped us to understand the variability within each of the various sectors are below.

Female street sex worker
"Mine was 20k last yr but I'm v low end (street) & the economy in my city is guttertrash rn"

Female off street middle income
"I tour, so it's hard to do weekly average. I would say between 6-8 a clients a week at £90 an hour, but actually I do a week of mad work a month" another said *"I think most independents work a lot less than people realize."*

Female off street middle income
"I work two days wk max and do this along with adult chat lines I do the phone two afternoons a wk – help you understand here's link of costs"

High end independent (occasional)
"I have this as an extra job and do not dedicate much time normally to seek for clients. I charge for 100€/h, Week: 0-300€. Month 300-500€. I have some clients I see once every two months. I had a weekly client but he fell in love with me so I stopped that unhealthy relationship. Only happened once to me, as far as I know... and I did not like it. It takes away the balance in the relationship. Felt I was abusing him"[19]

When the income and expenditure model in Table 5 was compiled it was sent to an opportunity sample of sex workers who took part in an ethical society debate.[20] Their data too, contributed to our understanding of the working patterns and costs incurred, and to inform the analysis (as well as a more fine-grained analysis in future).

One sex worker said:
'I was very glad to see the distinction made between London and other markets. I would say that for all direct contact, one on one sex work- e.g. massage, escort work, pro domming - London is very different. I wonder if, in future research, more gradations might be useful – I work in a small city and also service two very rural counties. My experience in these markets hints that a rural market may have its own interesting characteristics if they can be broken out within the statistics.'

'Touring is an interesting risk/cost situation. Sex work clients are infuriating cancel-happy jerks at times, and it's annoying to have sunk hundreds of quid into a hotel room to have no custom. This is why I haven't toured. Some people will arrange an "anchor" client who pays a big deposit and require big deposits up front from tour clients, but that is obviously easier for very high end workers.' (off-street independent)

[19] Where respondents gave prices in Euros we it was exchanged at the rate of £1 pound sterling to 1.40 Euros to compare costs all in the same currency.
[20] London Thinks (2015) Buying and selling sex: the big debate. Conway Hall Ethical Society. 13 May 2015. Available at: http://conwayhall.org.uk/event/london-thinks-buying-and-selling-sex-the-big-debate/

'I appreciated the acknowledgment of advertising costs. In highly competitive markets these can be big costs and crucial to business! It might be interesting to study advertising costs on specialist sites like seriousmistress.com or in highly competitive markets like London' (off street independent dominatrix)

The comments gave insight into the cost-benefit decisions sex workers make and some of the allied costs. From the sex worker feedback, the premises costs sex worker incur when they tour were explored, as were those who provide financial professional support. Ancillary and financial professional support workers were shown a draft report and asked to comment on its ability to represent their client group in three different geographical locations (one in London and two in the regions).

The only comment that was returned was: *'I'd say the median income is in the range £30k to £40k.'* from the influential site Taxrelief4escorts (2015). This was useful, not least because this site had been rather critical of the firs ONS attempt to explore prostitution. [21] It also suggests a sensible measure in the median figure for future analysis.

2.1.5.Total Income and Expenditure

For each classification of sex work the income and expenditure patterns are described in Table 4 and Table 5. The income data for London was NHS recorded data from Open Doors from the records of clients seen by the service. This informed the estimated values and expenditure. It is useful to disaggregate income and expenditure for regional stratification of markets, e.g. Manchester is one of the few cities with a male outdoor sex market. Regional distribution is more logical when estimating expenditure, for example regional sex workers are spatially mobile and 'tour' to visit clients and have expenditure relating to that, whereas London based sex workers have greater outlay on property and accommodation.

Intermediate consumption is included in the calculation as consisting of a) rental; b) clothes; c) condoms. Following the paper based on the Netherlands by de Heij (2007) the assumption is that sex workers spend 125 Euros on clothes per month and 50 cents per client on condoms. This is an underestimation of 1) the overheads sex workers charge including internet/mobile telephone costs; advertising; 2) travel (drivers etc); 3) beauty and body maintenance, toiletries; 4) accountants and other professional services 4) specialist equipment for work (sex toys etc).

A shift to online activity in London (prompted by police disruption of sex work premises from 2010 in the build up to the 2012 Olympics) increased the trend towards individual working as the police disruption changes patterns in working, which make things more dangerous for workers, who may as a result invest more in security equipment.[22]

2.2 Financial model used to calculate total financial turnover

Simple arithmetic extrapolations and multiplications were used to derive the total financial turnover. The absence of hard data as a starting point for the data outside London prevented the incorporation of traditional statistical methods of estimating uncertainty (i.e. confidence

[21] The site is available to view at: http://www.taxrelief4escorts.co.uk/2014/06/01/does-prostitution-really-contribute-5-3bn-to-uk-gdp/

[22] http://www.gaatw.org/publications/WhatstheCostofaRumour.11.15.2011.pdf

intervals). Similarly a sensitivity analysis identified some input parameters which were based on subjective estimates. Where changes in individual input parameters generated grossly disproportionate changes in the derived totals the estimates used were subject to further scrutiny and revised if we thought there was evidence of over- or under-estimation.

Here, input from the online tax service Tax4escorts was again useful as they explained: '*One of the issues is that many of the middle earners stop taking bookings once they've earned their target for the month. There is also the point that anyone is approaching the VAT registration threshold of £82k they may decide to stop working for a bit*.' (Taxrelief4escorts, 2015 personal email, May 2015).

They subsequently explained: *'For someone working [out here] full time the average income before expenses of an escort is in the range £40k to £50k. While a full time webcammer would typically be about £80k, but 30% of that would be retained by Adultwork.'* (Taxrelief4escorts, 2015 personal email, July 2015)

Table 6: Model used to estimate annual total income and expenditure

Category of sex worker	*Regional proportion*	*Regional total number of sex workers*	*Annual income per worker*	*Annual intermediate consumption per worker*	*Total intermediate consumption*	*Total income*	*Total - intermediate consumption*
Female street sex workers (low income)	8%	3,266	11,000	0	0	35,926,000	35,926,000
Female street sex workers (migrant)	2%	817	36,300	2,672	2,182,000	29,639,000	27,457,000
Female off street (middle income)	50%	20,413	49,500	26,758	546,205,000	1,010,433,000	464,228,000
Female off street (high income)	5%	2,041	158,000	45,320	92,511,000	322,522,000	230,011,000
Male and transgender - low income street	5%	2,041	11,000	0	0	22,454,000	22,454,000
Male and transgender - Occasional independent	5%	2,041	1,920	0	0	3,919,000	3,919,000
Male & transgender regular independent	20%	8,165	79,200	3,066	25,034,000	646,677,000	621,643,000
Male & transgender high income	5%	2,041	96,800	14,066	28,713,000	197,596,000	168,883,000
REGIONAL TOTAL	100%	40,826				2,269,000,000	1,575,000,000
	London proportion	London total					
Female street sex workers (low income)	2%	640	16,500	0	0	10,557,000	10,557,000
Female street sex workers (migrant)	8%	2,559	52,800	2,672	6,838,000	135,126,000	128,288,000
Female off street (middle income)	50%	15,995	92,000	25,520	408,192,000	1,471,540,000	1,063,348,000
Female off street (high income)	5%	1,600	264,000	46,558	74,470,000	422,268,000	347,798,000
Male and transgender - low income street	5%	1,600	16,500	0	0	26,392,000	26,392,000
Male and transgender - Occasional independent	5%	1,600	2,400	0	0	3,839,000	3,839,000
Male & transgender regular independent	20%	6,398	88,000	3,066	19,616,000	563,024,000	543,408,000
Male & transgender high income	5%	1,600	123,200	19,566	31,296,000	197,058,000	165,762,000
LONDON TOTAL	100%	31,990				2,830,000,000	2,289,000,000
UK TOTAL		***72,816***				**5,099,000,000**	**3,864,000,000**

3. Estimates for total financial turnover from sex work in the UK

The results from the financial model used to calculate the total financial turnover from sex work in the UK are shown in Table 7. The intermediate calculations of income and expenditure by type of sex worker and geographical region are also provided.

The total number of sex workers in the UK is estimated to be 72,800 comprising of approximately 32,000 in London and 41,000 outside London. Their total gross annual income earned from sex work is estimated to be £5.09 billion leading to a net income, after costs, of £1.23 billion.

Table 7: Estimate of annual total income for years 1997-2012

Year	Population relative to 2009	Total income	Total income - intermediate consumption
1997	93.58%	4,772,000,000	3,616,000,000
1998	93.90%	4,788,000,000	3,628,000,000
1999	94.22%	4,804,000,000	3,641,000,000
2000	94.54%	4,821,000,000	3,653,000,000
2001	94.86%	4,837,000,000	3,666,000,000
2002	95.35%	4,862,000,000	3,684,000,000
2003	95.67%	4,878,000,000	3,697,000,000
2004	96.31%	4,911,000,000	3,721,000,000
2005	96.95%	4,943,000,000	3,746,000,000
2006	97.59%	4,976,000,000	3,771,000,000
2007	98.39%	5,017,000,000	3,802,000,000
2008	99.20%	5,058,000,000	3,833,000,000
2009	**100.00%**	**5,099,000,000**	**3,864,000,000**
2010	100.80%	5,140,000,000	3,895,000,000
2011	101.61%	5,181,000,000	3,926,000,000
2012	102.25%	5,214,000,000	3,951,000,000

Incomes for all years are adjusted to 2015 prices. The time series is based upon change in the total UK population using the assumption that the number of sex workers has changed in proportion.

3.1. Disaggregating Un/Taxed Income

Sex workers can report their income in the same way as any other non-PAYE workers, and many do[23] so a proportion of this revenue is being reported for tax purposes but it may not be explicitly identified as income from commercial sexual activity because of the stigma involved. As a result sex workers report their activities to the tax authorities under other headings such as 'adult entertainment', 'personal therapist', or 'fitness consultant' in order to create a tax history and therefore enable property rental or mortgage, and so would be included in one of the measures of

[23] The HMRC Business Income Manual (BIM) states that 'If the activities of a prostitute or any other person deriving income from prostitution are organized in such a way as to constitute a trade or a profession, the profits are liable to Income Tax.' This was confirmed by CIR v Aken [1990] 63TC395.
Available at: https://www.gov.uk/hmrc-internal-manuals/business-income-manual/bim65001

GDP. The vast majority, however, do not, and this is undeclared work that contributes to the under-reporting in the service sector.[24]

Steady sales of the Tax Relief Diary from the specialist Tax4Escorts website[25] of approximately 200 to 250 diary units per year show that there is a will to keep track of income even if the criminalization of aspects of carrying out sex work make paying taxes a pill too bitter for sex workers many to take. The accountant who runs the website stated that there are discrepancies within the market as regards tax paying behavior, for example: *'Dominatrices are much more likely to be paying tax than someone who is in the industry as a stop gap, or second income* (Taxrelief4escorts 2015).' The record-keeping that the Tax Relief Diary offers may, however, make disaggregation possible at a future stage.

Most revenue from indirect sex work, for example sexual entertainment venues (SEVs) or strip clubs – is earned in registered corporations and part of the revenues of these companies. There is no hard data however, on the proportion of their incomes made up from this hidden source. As other accounts of the shadow economy show (for example Schneider, 2013) shares of undeclared work and underreporting are estimates, as the data does not exist to allow scientific conclusions to be drawn.

3.2 Possible alternative methods

The methods suggested by the Institute of Economic Affairs (IEA)[26] to measure the shadow economy (surveys, macroeconomic indicators and statistical models) seem to be inadequate to measure the income produced by prostitution as they refer to the avoidance of income tax and social security contributions in the context of economic activities that are not illegal nor, as is the case with prostitution in the UK, criminalized by proxy and socially stigmatized.

The supply-focused approach adopted by the ONS could be complemented by taking into consideration, following Logan (2013), the diversification and quality of the demand for sexual services (i.e. number of clients, specific services and relative prices that they are prepared to pay). Another useful way to quantify GDP could be the income-based approach, which in this case could mean observing social security contributions and/or taxes paid by people working as self-employed in the adult entertainment industry and other sex-work-related areas of employment.

The estimations recently made by Fogg (2014)[27] seem to extend the London ratio to the whole of the UK, with the result that male sex work alone would contribute and additional £3.5bn of UK GDP. In his estimate Fogg conflates sex workers' own sexual orientation with the hetero/homosexual context through which they work with their clients. This means that any estimate of male sex work's contribution to the UK's GDP needs to refer to gay escort sites (for example Grindr, Gayromeo, and Gaydar) as well as to more generalist sex work sites such as Adultwork, which is the main source of information of Fogg's estimate. Moreover, if online sites are used to estimate sex worker populations then, given the regularity with which new profiles

[24] Personal service activities are known to have consistently large shadow economy at approximately 10% of the GDP across countries (Schneider, 2013).

[25] http://www.taxrelief4escorts.co.uk/resources/taxrelief-diary/

[26] IEA (2013) The Shadow Economy. Institue of Economic Affairs. Available from: http://www.iea.org.uk/sites/default/files/publications/files/IEA%20Shadow%20Economy%20web%20rev%207.6.13.pdf

[27] http://andrewfogg.com/2014/10/14/gender-differences-amongst-sex-workers-online/

emerge and the multiple profiles sex workers are known to post, that methods take account of the discrepancy. For example, Maggin and Ellison (2014) found that of 693 profiles on one site on a given day, only 20-30 sex workers are actually providing a service on a given day so this would have to be factored into any model.[28]

It is acknowledged that in probability samples such as the Natsal-3 survey, sex worker data is under-sampled. But methodological reporting advances developed and adopted by Natsal, such as the use of computer-assisted self-interview for more sensitive questions (including those on partner numbers) enable more accurate reporting and allow for more reliable data to be generated.[29] A specific sex worker survey as part of Natsal would go a long way towards generating hard data on number of partners and thus income.

It would also be possible to compare available administrative data with the data generated by diary keeping and other safe and anonymous qualitative observation tools measuring the income and expenses of people who are not paying taxes or social security. Although the ONS approach takes into account some of the material goods (condoms, clothes) that are necessary to income generation through sex work, relevant expenses should include key services such as internet and mobile phones contracts, advertising and the rental of working spaces. The combination of these approaches and the inclusion of the resulting data would help understand local and practice-based (escorting, street, etc.) differences in prostitution income in the UK.

To get an accurate ratio of male/trans sex workers: existing sex work support projects targeting male and transgender sex workers should be consulted to understand the percentages of male/trans sex workers and the prices of sexual services across different local settings in the UK. Anonymous surveys, diary keeping and cyber-outreach activities might be useful tools to analyse and estimate male/transgender income-generating activities. For instance, male street sex work is still a significant reality in Manchester[30] whereas in London male sex work happens almost exclusively indoors and through the practice of escorting. These local specificities have an impact on the identities, practices and economic transactions framing sex work, and ultimately on the overall income generated through sex work.

4. Conclusion

Our model takes account of the changes in working since the previous ONS study data was derived, as work in parlours and/or brothels falls away there is a shift towards individual and independent working. The new structure also takes account of the move towards more spatially mobile sex workers, and the different patterns of work of migrant workers. It is a model that can be built upon as data accrues. It must be acknowledged that there are enormous limitations in measuring these activities. The remaining knowledge gap and the ESA obligation makes the need for adequate research all the more necessary. Our model can adjust for population size, and our estimate shows that approximately 1 in 800 people are involved in sex work. As a crude verification of this we compared our data with a recent scoping study carried out in Leeds with 678 women, 241 men, and 37 transgender sex workers = 956 workers in a city with a population of 750,700 (Brown and More, 2014).

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[28] Maggin and Ellison (2014) found that of 693 profiles on one site on a given day, only 20-30 are actually providing a service on a given day.

[29] Response letter in Lancet by Natsal authors. Available at http://www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736(14)60437-2.pdf see also http://www.ph.ed.ac.uk/news/natsal-03-06-14

[30] For example around the Central Canal area.

The overall figures in this report are not drastically different to those found by the ONS in the past analysis (Abramsky and Drew, 2014) but it is vital to be aware that the past figures left out up to 50% of the market and massively double-counted the single market they explored.

Notwithstanding the assumptions inherent in any analysis of such a hidden activity, this is at least a representation drawn from primary survey data of health organisations bound by their NHS service agreements to maintain objective and accurate records of clients seen. The extrapolations include male sex work, transgender sex work, street sex work, and take account of the greater density sex work of London to provide a detailed breakdown of types of sex work in the different sectors. These figures have been verified by figures actually working in the sex industry and those who support it so have a degree of validity to those about whom they apply. All of which makes for greater comparability with EU Member States.

Other distinctions within sex work costs that might be interesting to look at are initial capital outlay costs, which vary widely within sex work trades. An independent professional dominatrix who furnishes her home dungeon will have a bigger initial outlay than would a street-based full-service worker. As the proliferation of ancillary businesses within sex work markets shows - e.g. social media marketers, photographers, web designers and sex / kink toy and furniture makers marketing to sex workers - there's a lot of money in those costs for some sex workers, and while this was all factored into premises costs in this analysis, future work could try to disaggregate these costs.

It is important to highlight that the nature of NOE is that the resulting estimates are subject to significant uncertainty which is necessarily higher than that of observable economic activities. Critical issues of definitions and interpretations exist along with the challenges of measurement in this attempt to create a coherent model of sex work income and expenditure. Further improvements in national estimates will be critical to gain further insight into this fascinating area of economic activity. One of the emerging areas is that there is large proportion of sex workers who combine sex work with other work and future research should explore this more fully.

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