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Sex workers' self-reported physical and mental health in Greece. A repeated cross-sectional study in 2009, 2013 and 2019

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Abstract

In Greece, given the precarious nature of the sex work industry, sex workers health and wellbeing is of concern. However, relevant research remains limited. This study examined whether sex workers' self-reported physical and mental health deteriorated across time points during the economic recession in Athens, Greece. The study focused on 13 areas where off-street and street-based sex work occured. Cross-sectional data was collected from the same areas in 2009 (i.e. before the economic recession began) and in 2013 and 2019 (i.e. at time points during the recession). Self-reported physical and mental health decreased in 2013 and in 2019 compared to 2009. A positive association was found between the country's gross domestic product and sex workers' self-reported physical and mental health. The opposite was found for annual aggregate unemployment. The determinants of better self-reported physical and mental health were sex workers' economic condition, Greek nationality, off-street sex work, and registered sex work status. The opposite was found for more years' involvement in sex work and drug consumption. Findings indicate the need for more inclusive health strategies, especially during periods of economic downturn when sex workers' physical/mental health is likely to decline. This is the first study to investigate the association between economic recession and sex workers' self-reported physical and mental health.

Keywords: sex work, physical health, mental health, economic recession, drug consumption

JEL Classification: J81; G01; I10; I12; I18

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1. Introduction

Given the sex work industry's precarious nature, the health and well-being of sex workers should be of interest, yet this is frequently overlooked by researchers and policymakers (Reeves et al. 2017; Sarafis, Igoumenidis and Tsounis 2013). In most countries, sex work is associated with stigma, trauma and violence (Krumrei-Mancuso 2017; Rekart 2015). It is also associated with health conditions such as sexually transmitted infections, drug dependency and mental health problems, which often amplify each other in an ongoing cycle of vulnerability (Krumrei-Mancuso 2017; Rekart 2015; TAMPEP 2010).

This study aimed to examine whether sex workers' self-reported physical and mental health deteriorated across time points in the economic recession in Athens, Greece. It identified 13 areas in which off-street and street-based sex work takes place and collected data from the same areas in 2009, 2013 and 2019. Comparing patterns before (in 2009) and at specific time points during Greece's economic recession (in 2013 and 2019) allowed for an evaluation of the study's research questions. For more than a decade, Greece has experienced the adverse effects of the EU economic crisis. In 2019, the country's annual aggregate unemployment rate (i.e. 17.2%) was approximately double that before the onset of the economic recession in 2009 (Eurostat 2019). Due to harsh austerity measures, GDP dropped by 25%, people in poverty rose to 36%, and public health budgets experienced significant reductions (Papanastasiou and Papatheodorou 2018; Drydakis, 2015). To the author's knowledge, this is the first study to investigate the association between economic recession and sex workers' self-reported physical and mental health.

In Greece, the 2734/1999 Legislation Act declares that sex work is legal at age 18 (Polichroniou 2019). Individuals, regardless of gender must register at the local prefecture and carry a medical card updated every two weeks at a public hospital (Polichroniou 2019). Registered sex workers can decide to pay insurance contributions to the country's social security system and thereby enjoy health and benefit coverage and future pensions. Sex work is legal only in licensed establishments ('οίκοι ανοχής'), and the state issues the owners of these establishments with licenses. Authorities require that establishments operate in accordance with relevant health and safety guidelines. Thus, based on the law, a legal sex worker is one who is registered with the local prefecture, carries a valid medical card, and works in a licensed establishment. If one of these criteria is not met, the sex worker may face prosecution (fines). Street-based sex work is illegal. Clients engaging with sex workers do not face prosecution in Greece (Koutra and Katzaki 2017; Macioti and Geymonat 2016).

Sex work policies in Greece have received criticism for marginalising sex workers and creating structural and social factors that endanger their well-being (Koutra and Katzaki 2017; Macioti and Geymonat 2016). Adults can register as sex workers at the local prefecture if they are unmarried or divorced, legal migrants and do not have a sexually transmitted infection, psychiatric problems, drug dependency, and certain criminal records (Koutra and Katzaki 2017; Macioti and Geymonat 2016). However, it remains difficult for an establishment to meet the criteria to become a licenced establishment ('οίκος ανοχής') (Mazanis 2018). Such establishments must operate at least 200 meters away from public buildings, schools, churches, parks and squares. Between 2013 and 2017, estimates revealed the presence of between 600 and 800 establishments in Greece (Lazos 2017). However, in 2018, the Greek Association of Registered Sex Workers revealed that no establishment in Athens was licenced (Mazanis 2018), and in 2016, a study found that 88% of sex workers were unregistered (Red Umbrella Athens 2016).

Greek socio-legal research reveals that sex workers face stigmatisation and discrimination, societal abuse, legal prosecution, and the absence of health coverage and protection frameworks (Koutra and Katzaki 2017; Sarafis, Igoumenidis and Tsounis 2013; TAMPEP 2010). In Greece, women, unregistered, trans-gender and migrant sex workers experience particularly high levels of stigma and victimisation, while sex workers who have children experience more frequent legal prosecution (TAMPEP 2010). Access to health services has proved to be more difficult for unregistered sex workers and those at a high risk of involvement with drug use (TAMPEP 2010). Given the challenges sex workers face to obtaining a licence for an establishment and the prosecutions, exclusions and vulnerability that come from operating illegally, the sex industry in Greece is a precarious form of labour.

In Greece, no studies to date have assessed the determinants of sex workers' self-reported physical and mental health before and/or during the economic recession. One study conducted in Athens before the onset of the economic recession found that 'asymptomatic sex workers can be a source of sexually transmitted infections' (Papadogeorgaki et al. 2006). In 2016-17, a study utilising data collected during the economic recession in Athens and Thessaloniki indicated that 'sex workers are found to be at risk of HIV infection due to psychoactive substance use' (Xanthaki et al. 2019).

Since the onset of the financial recession in 2010, the number of sex workers in Greece has been reported to have increased by approximately 200% (Mazanis 2018). This situation is primarily due to increased unemployment, financial difficulties, and accumulated debt (Papaioannou 2019; Mazanis 2018; Macioti and Geymonat 2016). Increased numbers of young people have entered both off-street and street-based sex work (Mazanis 2018). In 2018-2019 sex workers experienced

increased violence and pressure for unprotected sexual intercourse (Papaioannou, 2019; Kousoulos 2019; Mazanis 2018). During the recession, the precariousness in the sex industry increased, and sex workers experienced reduced income and deteriorated working conditions (Papaioannou 2019; Kousoulos 2019; Mazanis 2018; Macioti and Geymonat 2016).

Based on the Absolute Health Income hypothesis (Grossman 2000) low-, insufficient-, or reduced income potentially results in decreased health and mental health outcomes due to unmet needs, increased debt, limited access to quality health services, and increased uncertainty (Drydakis 2015). At a macro-level, and based on the Preston curve framework (Preston, 1975), the decline in the health budget could reduce the provision, quantity, and quality of national support health services, such as health promotion and disease prevention programmes, timely health check-ups and treatments, and psychological counselling, resulting in further decreases in health-related outcomes (Drydakis 2015).

Given the above, periods of economic recession likely correlate with a decline in sex workers' self-reported physical health (Hypothesis 1) and mental health (Hypothesis 2) due to micro- and macro-level events associated with reduced income, material deprivation, unmet needs, limited access to health services, increased uncertainty, reduced public health budgets, restricted access to benefits, labour precariousness, and adverse working conditions (Papaioannou 2019; Kousoulos 2019; Mazanis 2018; Drydakis 2015; Rekart 2015).

2. Methods

2.1 Data collection

In 2009, the author, in consultation with governmental and non-governmental bodies involved in humanitarian efforts and public health with vulnerable populations groups, identified 13 areas in Athens where off-street and street-based sex work occurs (Table 1). The areas (i.e. streets, avenues and parks) are in densely populated neighbourhoods in the city centre. In these areas, sex workers can be encountered in establishments (οίκοι ανοχής) and/or in avenues and parks. There was found a segregation of sex work areas depending on gender (men/women) and gender identity (cis/trans). The governmental and non-governmental bodies provided the author with leaflets on health protection recommendations, leaflets with key health and mental health service provision contacts, and condoms to distribute to sex workers during the fieldwork. These resources enabled the team to approach sex workers and ask them to participate in the survey.

In November and December 2009, members of the study team visited each of the areas. The team members wore distinctive white gilets with the logos of the universities and governmental and non-governmental organisations involved in the study printed on them. On Fridays and Saturdays each week, the fieldwork took place. Each period of data collection lasted six hours between 20:00 to 02:00. During this time frame, the team sought to visit as many establishments as possible while also approaching other sex workers in avenues, parks and so on.

Establishments were easily identified by the 'red lights' on the front doors. In them, the team had the opportunity to directly approach housekeepers and sex workers, who they asked to receive the information materials and take part in a short socio-epidemiological survey to evaluate their lived experiences. Street-based sex workers were also approached in avenues and parks, received the information materials, and asked to participate in the survey[1]. The study followed the usual procedures for securing ethics approval and ensuring the anonymity of participants. Approval was provided by the ethics committee of Anglia Ruskin University, UK.

In November and December 2013, and again in November and December 2019, the team followed the same research protocol and procedure. The team visited the same 13 areas and interacted with off-street and street-based sex workers. The 2009 questionnaire was used for subsequent data collection. Hence, three repeated cross-sectional data sets were collected in 2009, 2013, and 2019 in the same 13 areas, using the same research protocol and questionnaire.

[1] The procedures used in this study adhered to the tenets of the Declaration of Helsinki. The ethics protocol stated that the study would use aggregate data. During data collection, participants did not have to reveal their identity. Informed consent was obtained verbally. Additionally, the addresses of 'οίκων ανοχής' were not recorded. Moreover, photography and video/voice recording were not allowed. Given the research protocol, participants were made aware of the kind of questions that would be asked before a brief interview. Participants were informed that they could terminate their interaction/collaboration with the team at any time. At the end of each interview, it was stressed that the study would only report aggregate data. Participants were also asked whether they had felt uncomfortable with any of the survey's questions. In cases where sex workers did not want to participate in the survey, the research team thanked them for talking and did not proceed. Given the research protocol, sensitive questions relating to the reasons behind involvement in sex work, workplace abuse, exploitation, family status/children, and immigration status were not included.

2.2 Variables

Each data collection survey had questions on sex workers' gender (male, female), gender identity (cis, trans), ethnicity, age, years of sex working, off-street/street-based sex working, sex work status (registered/not registered), self-reported economic condition[2] and drug consumption[3].

The study utilised the European Quality of Life Visual Analogue Scale (EQ-VAS) to measure self-reported physical health (Aitken 1969). The scale measures individuals' self-rated health on a vertical and visual analogue scale with endpoints labelled 'Best imaginable health state' and 'Worst imaginable health state' (McDowell 2006; Aitken 1969). This quantitative measure summarises overall health according to the individual's perspective (Feng, Parkin and Devlin 2014). Research has reported high levels of reliability for the EQ-VAS (Feng, Parkin and Devlin 2014; McDowell 2006; McCormack, Horne and Sheather 1988). The Center for Epidemiological Studies Depression Scale (CES-D) was used to measure self-reported adverse mental health symptoms (Radloff 1977). Twenty items asked whether individuals felt depressed, unhappy, and whether everything they did in the previous week was an effort. The CES-D has been shown to have good validity (Björgvinsson et al. 2013; McDowell 2006).

The 36-Item Short Form Health Survey's General Heath dimension (SF-36 GH) was used to assess self-reported physical health through five items, including whether people believe they are 'in good health, get sick a little easier than other people, and expect their health to get worse' (Garratt et al. 2002). Finally, the 36-Item Short Form Health Survey's General Mental Health dimension (SF-36 GMH) was used to assess self-reported mental health (Ware, Snow, Kosinski and Gandek 1993) using five items assessing, for instance, whether people believe that they 'feel happy, calm, and peaceful' (Alonso et al. 2004). The SF-36 GH/GMH has demonstrated good construct validity and replicability (Alonso et al. 2004).

[2] A five-point Likert-scale was used to enquire into participants' economic condition. Answers ranged from 'very bad' to 'very good'.

[3] To record illicit drug consumption, the study utilised WHO's Alcohol, Smoking and Substance Involvement Screening Test (WHO 2013) by asking participants whether they had 'consumed illicit drugs, such as cannabis, speed, mephedrone, cocaine, crystal meth, ecstasy, heroin, LSD and magic mushrooms, in the last four weeks.'

2.3 Estimation strategy

Ordinary least square models were used to assess the determinants of health indicators (Wooldridge 2010). For both EQ-VAS and CES-D indicators, three models were developed. Model I included sex workers' gender, gender identity, ethnicity, and time period as the key determinants. If estimates suggest the statistical significance of the time period controls (i.e. 2013 and 2019 dummy variables), this feature may indicate an association between the period (and its socio-economic features) and sex workers' physical/mental health outcomes. Models II and III included additional information in relation to off-street/street-based sex working, years of sex work, sex work status (registered/non-registered), drug consumption, and areas of sex working. If the estimates remained statistically significant in Model III, which included all covariates, then this feature may indicate that the empirical specification is not sensitive to unobserved factors related to the study's covariates. Better-informed specifications may then enable a reduction of potential omitted variable bias (Clarke 2005).

Estimated pairwise comparisons of the predictive margins were used to examine whether, during periods of economic recession, women, trans-gender, non-Greek, street-based, unregistered, and drug-using sex workers experienced a decline in physical health and mental health compared to the relevant reference base (Mitchell 2015).

A robustness analysis was undertaken using alternative physical and mental health indicators (i.e. SF-36 GH and SF-36 GMH). A second robustness analysis was performed using information on annual gross domestic product (GDP), annual aggregate unemployment, and self-reported economic condition (Drydakis 2015). This approach examined whether the time period patterns (i.e. 2013- and 2019-time variables) could be verified employing alternative macro- and micro-economic performance indicators.

3. Study's contributions

The study has unique methodological characteristics as it utilised repeated cross-sectional data from the same areas where sex work occurs, enabling an examination of patterns before and during the economic recession. This research is the first international study simultaneously examining how sex workers' gender, gender identity, ethnicity, sex work placement, years of sex working, legal status, and drug consumption share a connection with self-reported physical/mental health. Additionally, the study assesses whether the aforementioned characteristics align with a decline in sex workers' physical/mental health in the economic recession (in 2013 and 2019). Moreover, by utilising four measurements to assess self-reported physical/mental health and

critical macroeconomic variables that capture a country's economic performance, the study considers the robustness of the empirical patterns. Finally, this study is the first systematic evaluation of the determinants of self-reported physical and mental health reported by sex workers in Greece.

4. Results

4.1 Descriptive statistics and zero-order correlations

Table 1 presents the descriptive statistics (means and standard deviations). Panel I presents data from 2009 (n=107). Panel II offers data from 2013 (n=136), and Panel III presents data from 2019 (n=109). Finally, Panel IV pools the three data periods (n=352). Standardised normal probability plots (Z-scores) indicate the normal distribution of dependent variables (Mitchell 2015)[4].

According to Panel IV, 73.5% of sex workers were women, 76.1% were cis-gender people, the mean age was 29.3 years, 38.6% were Greek, and the mean period of sex work was 8.3 years. Additionally, 22.7% of respondents were off-street sex workers, and 7.3% were registered sex workers. Meanwhile, Panels I and III offer comparisons on key measurements. In 2019, sex workers' self-reported physical health (EQ-VAS) was found to be worse compared to 2009 (diff=-5.64, t=-3.35, p<0.01). Moreover, in 2019, self-reported adverse mental health symptoms (CES-D) were higher than in 2009 (diff= 6.47, t=7.14, p<0.01). Additionally, in 2019, the values of alternative self-reported physical health (SF-36 GH) and mental health (SF-36 GMH) indicators were lower than in 2009 (diff= -4.45, t=-2.57, p<0.05; and diff=-4.41, t=-2.39, p<0.05, respectively).

Self-reported economic conditions were lower in 2019 than in 2009 (diff= -0.82, t=-7.37, p<0.01). Drug consumption was found to be higher in 2019 than in 2009 (diff= 0.12, t=2.00, p<0.01).

[Table 1 about here]

[4] The median and interquartile ranges of EQ-VAS and CES-D are given below:
2009 period; EQ-VAS {Median=60; IQR: 48; 68}; CES-D {Median=15; IQR: 10; 18}.
2013 period; EQ-VAS {Median=56.5; IQR: 46; 63}; CES-D {Median=19; IQR: 14; 23}.
2019 period; EQ-VAS {Median=53; IQR: 43; 63}; CES-D {Median=22; IQR: 15; 27}.
Total sample; EQ-VAS {Median=57; IQR: 46; 65}; CES-D {Median=18; IQR: 14; 24}.

Zero-order correlations indicated that self-reported physical health (EQ-VAS) negatively correlated with sex workers' age (r=-0.26; p<0.01), drug consumption (r=-0.71; p<0.01), years of sex work (r=-0.24; p<0.01), the time period 2019 (r=-0.13; p<0.01), and annual aggregate unemployment (r=-0.11, p<0.05). Self-reported physical health (EQ-VAS) positively correlated with Greek nationality (r=0.58; p<0.01), off-street sex work (r=0.25; p<0.01), registered sex work status (r=0.42; p<0.01), sex workers' economic condition (r=0.82; p<0.01), and annual GDP (r=0.19, p<0.01). Moreover, self-reported adverse mental health (CES-D) positively correlated with sex workers' age (r=0.21; p<0.01), drug consumption (r=0.47; p<0.01), years of sex work (r=0.18; p<0.01), the time period 2019 (r=0.27; p<0.01), and annual aggregate unemployment (r=0.21, p<0.01). Self-reported adverse mental health (CES-D) bore a negative correlation with sex workers' cis-gender status (r=-0.13; p<0.05), Greek nationality (r=-0.37; p<0.01), off-street sex work (r=-0.30; p<0.01), registered sex work status (r=-0.43; p<0.01), sex workers' economic condition (r=-0.76; p<0.01), and annual GDP (r=-0.37, p<0.01). The use of alternative self-reported physical/mental health indicators revealed comparable patterns (SF-36 GH, SF-E6 GMH).

4.2 Self-reported physical health (EQ-VAS) estimates

Table 2 presents the self-reported physical health estimates. Notice the high correlation of age with years of sex work. For multicollinearity reasons, years of sex work was only included in the regression analysis.

[Table 2 about here]

The full informative specification, i.e. Model III, found that sex workers' self-reported physical health during time points in the recession (i.e. in 2013 and 2019) declined relative to the time point before the economic recession (i.e. 2009) (b= -3.204, or -2.2%, CI= [-4.938, -1.747], and b= -5.185, or -2.8%, CI= [-7.012, -3.358], respectively). The outcomes indicate that in 2013, there was a 2.2% decline in the physical health score, while in 2019, there was a 2.8% decline in the health score relative to 2009 (elasticity effects). Based on the outcomes, Hypothesis 1 can be accepted. The difference between the 2013 and 2019 estimates was statistically significant (F=5.59, p<0.05).

A positive association existed between sex workers' self-reported physical health and off-street sex work (b= 7.441, or 3%, CI= [-1.981, 12.900]), registered sex work (b= 7.930, or 1.0%, CI= [4.916, 10.944]), and a Greek nationality (b= 7.913, or 5.4%, CI= [6.225, 9.601]). On the other hand, estimates indicated a negative association between sex workers' self-reported physical health and

years of sex work (b= -0.141, or -2.1%, CI= [-0.278, -0.005]), and drug consumption (b= -12.403, or -7.0%, CI= [-14.159, -10.646]).

4.3 Self-reported adverse mental health (CES-D) estimates

Table 3 presents the self-reported adverse mental health symptoms estimates. The same estimation strategy was adopted as in Table 2. Model III shows that in 2013 and 2019, sex workers experienced higher self-reported adverse mental health than in 2009 (b= 4.221, or 8.7%, CI= [2.926, 5.516]; b= 6.709, or 11.1%, CI= [5.345, 8.074], respectively). Hypothesis 2 was accepted. The difference between the 2013 and 2019 estimates was statistically significant ($F=15.81$, $p<0.01$).

A positive relationship existed between self-reported adverse mental health and years of sex work (b= 0.151, or 6.8%, CI= [0.049, 0.253]), and drug consumption (b= 3.430, or 5.8%, CI= [2.117, 4.742]). Greek sex workers (b= -3.136, or -6.5%, CI= [-4.397, -1.875]), off-street sex workers (b= -4.153, or -5%, CI= [-8.232, -0.075]), and registered sex workers (b= -6.121, or -2.4%, CI= [-8.372, -3.869]) reported lower self-reported adverse mental health than non-Greek, street-based, and unregistered sex workers.

[Table 3]

4.4 Pairwise comparisons of the predictive margins. Self-reported physical health (EQ-VAS) and adverse mental health (CES-D)

In Table 4, Model I reveals that in 2013 and 2019, Greek sex workers' self-reported physical health was better than that of non-Greek sex workers (b= 5.996, or 10.4%, [z=3.93]; and b= 5.636, or 10.1% [z=3.12], respectively). Moreover, in 2019, registered sex workers' self-reported physical health was better than that of their unregistered counterparts (b= 8.631, or 14.3%, [z=2.82]). Additionally, in 2013 and 2019, the self-reported physical health of sex workers consuming drugs was worse in comparison to sex workers not using drugs (b= -11.865, or -20.6%; [z=-7.77]; and b= -12.085, or -21.5 %, [z=-6.85], respectively).

In the same table, Model II shows that in 2013 and 2019, Greek sex workers' self-reported adverse mental health was lower than that of non-Greek sex workers' (b= -3.044, or -15.7%, [z=-2.68]; and b= -3.155, or -14.8%, [z=-2.35], respectively). Moreover, in 2013 and 2019, registered sex workers' self-reported adverse mental health was lower than that of unregistered sex workers (b= -4.588, or -27.0%, [z=-2.05]; and b= -8.702, or -57.3%, [z=-3.82], respectively). In 2013 and 2019, drug-using sex workers' self-reported adverse mental health was higher than the self-reported

adverse mental health of non-drug-using sex workers (b= 4.093, or 20.3%, [z=3.60]; and b= 3.104, or 13.9%, [z=2.37], respectively).

[Table 4 about here]

4.5 Robustness tests. Alternative self-reported physical health and mental health indicators (SF-36 GH and SF-36 GMH)

Table 5 presents findings from a robustness analysis. Instead of the EQ-VAS and CES-D indicators, new specifications were offered which utilised the SF-36 General Health dimension (Model I) and the SF-36 General Mental Health dimension (Model II). Full-informative models were employed. The new estimates confirmed the patterns found in Tables 2 and 3. For instance, in 2013 and 2019, sex workers experienced reduced self-reported physical and mental health compared to 2009.

[Table 5 about here]

4.6 Robustness tests. Annual GDP, annual aggregate unemployment level, and individuals' economic condition on self-reported physical health (EQ-VAS) and adverse mental health (CES-D)

Table 6 presents findings from a further robustness analysis. Instead of time period controls, new specifications are offered which control for annual GDP, annual aggregate unemployment, and individuals' economic condition in 2009, 2013 and 2019. Full-informative models were employed. Multicollinearity makes it unfeasible to include information on annual GDP, annual aggregate unemployment, self-reported economic condition, and time period in the same specification.

Model I reveals a positive association between annual GDP and sex workers' self-reported physical health (b= 0.041, or 19%, CI= [0.026, 0.055]). Model II shows a negative association between annual aggregate unemployment and self-reported physical health (b= -0.132, or -4.4%, CI= [-0.228, -0.035]). Model III points to a positive association between self-reported economic condition and self-reported physical health (b= 7.199, or 29.3%, CI= [6.292, 8.106]).

According to Model IV, a negative association exists between annual GDP and self-reported adverse mental health (b= -0.053, or -74%, CI= [-0.064, -0.042]). Model V reveals a positive association between annual aggregate unemployment and self-reported adverse mental health (b= 0.175, or 17.4%, CI= [0.098, 0.252]). Model VI indicates a negative association between self-reported

economic conditions and self-reported adverse mental health (b= -5.719, or -69.6%, CI= [-6.463, -4.975]).

[Table 6 about here]

Table's 6 outcomes confirm the patterns found in Tables 2 and 3. That is, an association exists between adverse economic conditions and declines in sex workers self-reported physical and mental health.

5. Discussion

This study hypothesised that periods of economic recession bear a possible association with decreases in self-reported physical and mental health for sex workers mainly due to reductions in income, enhanced material deprivation, more limited access to health services, and increased social vulnerability. According to the findings, during time points in the recession (in 2013 and 2019), sex workers' self-reported physical and mental health declined relative to time points before the economic recession (in 2009). In Greece, since 2010, sex workers have experienced reduced income and increased labour precarity (Papaioannou 2019; Kousoulos 2019; Mazanis 2018). Moreover, public spending in relation to physical/mental health services has significantly reduced (Drydakis 2015). These adverse micro- and macro-oriented socio-economic conditions may have been associated with sex workers' decreased self-reported physical and mental health.

A substantial body of international research has shown that responses to self-reported physical and mental health scales such as the EQ-VAS, CES-D, and SF-36 GH/GMH, are associated with mortality, specific health problems (e.g. cancer, psychiatric and other mental health conditions), disease progress, use of health services, individuals' socio-economic status, demographic characteristics, and regions' wealth (Ahmad et al. 2014; Bowling 2005).

In this study, poor economic conditions, a non-Greek status, street-based sex working, unregistered status, drug consumption, and more time spent in sex work correlated with a decline in self-reported physical and mental health. The study's patterns thereby align with those of international literature. Street-based sex work characteristics include social marginalisation and vulnerability to multiple health morbidities (Puri, Shannon, Nguyen and Goldenberg, 2017). Comparable patterns hold for sex workers consuming drugs, migrants, and those working outside of regulatory frameworks (Sanders 2016; Surratt et al. 2012).

The present study's outcomes indicated that during the Greek economic recession, sex workers who were migrants, unregistered, drug users and street-based, experienced worse self-reported physical and mental health. The findings suggest that sex workers' vulnerability at this time aligns with limited safety nets and public support, exposing sex workers to harm leading to a reduced physical/mental health (Macioti and Geymonat 2016). In the international literature, effective legal frameworks, occupational health and safety provision, sexual health education, social support, access to health care, and support for empowerment and human-rights have been shown to be associated with improved physical and mental health among sex workers (Mazanis 2018; Koutra and Katzaki 2017; Rekart 2015; Macioti and Geymonat 2016; TAMPEP 2010).

The outcomes of this study indicate the need for more inclusive health and related strategies, especially during periods of economic downturn when sex workers' self-reported health/mental health is likely to decline.

5.1 Limitations and future research

Care should be taken in generalising from this study. Data collection took place only in parts of the capital city, Athens. New research collecting data from additional areas could enable an examination of whether area or region moderates the relationships under consideration. Moreover, the patterns identified in this study were based on self-reported physical and mental health scales. New studies using other forms of health assessment could evaluate impact on other outcomes.

Numerous reciprocal relationships exist between socio-economic conditions, drug use and dependency, social vulnerability, and physical and mental health (Balfour and Allen 2014; Comte 2014). This study's use of repeated cross-sectional data rather than panel data suggests that the presented outcomes should be treated as associations and not causal relationships (Drydakis 2015). Although the various models included key information, they did not specify that the decline in sex workers' self-reported physical/mental health was (only) attributable to the effects of economic recession. New research might also aim to take into account the effects of trauma and socio-economic background.

6. Conclusions

This study found that periods of economic recession bear an association with decreases in self-reported physical and mental health for sex workers in Athens, Greece. The determinants of better self-reported physical/mental health were estimated to be sex workers' economic condition,

Greek nationality, off-street sex working, a registered status, fewer years of involvement in sex work and no level of drug consumption.

References

Ahmad, F., A. K. Jhajj, D. E. Stewart, M. Burghardt, and A. S. Bierman. 2014. "Single Item Measures of Self-Rated Mental Health: A Scoping Review." *BMC Health Services Research* 14: 398.

Aitken, R. C. B. 1969. "Measurement of Feelings Using Visual Analogue Scales." *Proceedings of the Royal Society Medicine* 62(10): 989–993.

Alonso, J., M. Ferrer, B. Gandek, J. E. Ware, N. K. Aaronson, P. Mosconi, N. K. Rasmussen, M. Bullinger, S. Fukuhara, S. Kaasa, and A. Leplege. (2004). "Health Related Quality of Life Associated with Chronic Conditions in Eight Countries: Results from the International Quality of Life Assessment (IQOLA) Project." *Quality of Life Research* 13 (2): 283-298.

Balfour, R. and J. Allen. 2014. *A Review of the Literature on Sex Workers and Social Exclusion*. London: UCL Institute of Health Equity.

Björgvinsson, T., S. J. Kertz, J. S. Bigda-Peyton, K. L. McCoy, and I. M. Aderka, 2013. "Psychometric Properties of the CES-D-10 in a Psychiatric Sample." *Assessment* 20 (4): 429-436.

Bowling, A. 2005. "Just One Question: If One Question Works Why Ask Several?." *Journal of Epidemiology and Community Health* 59: 342e345.

Clarke, K. A. 2005. "The Phantom Menace: Omitted Variable Bias in Econometric Research." *Conflict Management and Peace Science* 22 (4): 341–352.

Drydakis, N. 2015. "The Effect of Unemployment on Self-reported Health and Mental Health in Greece from 2008 to 2013: A Longitudinal Study Before and During the Financial Crisis." *Social Science & Medicine* 128: 43-51.

Eurostat. 2019. *Greece: Unemployment Rate*. Luxemburg: Statistical Office of the European Commission.

Feng, Y., D. Parkin and N. J. Devlin. 2014. "Assessing the Performance of the EQ-VAS in the NHS PROMs Programme." *Quality of Life Research* 23 (3): 977-989.

Garratt, A., L. Schmidt, A. Mackintosh and R. Fitzpatrick. 2002. "Quality of Life Measurement: Bibliographic Study of Patient Assessed Health Outcome Measures." *British Medical Journal* 324 (7351): 1417–1421.

Grossman, M. 2000. "The Human Capital Model" in *Handbook of Health Economics,* edited by A. J. Culyer and J. P. Newhouse, vol. 1., 347-408. Oxford: Elsevier.

Kousoulos, P. 2019. *Top Story: The Dark Road of Prostitution in Greece* [Documentary Video]. Athens: Open TV. YouTube. https://www.youtube.com/watch?v=kGz9cJ6h69M

Koutra, E. L. and A. Katzaki. 2017. *Written Comments to the European Court of Human Rights*. Athens: Greek Transgender Support Association.

Krumrei-Mancuso, E. 2017. “Sex Work and Mental Health: A Study of Women in the Netherlands.” *Archives of Sexual Behavior* 46 (6):1843-1856.

Lazos, G. 2017. *Sex Work in Greece: Realities and Perspectives* [Conference Presentation Video]. Athens: Greek Association of People Living with HIV and Healthcare Foundation Europe. YouTube https://www.youtube.com/watch?v=PLM1GGBcyic&t=1849s

Macioti, P. G. and G. G. Geymonat. 2016. *Sex Workers Speak. Who Listens?* London: Open Democracy.

Mazanis, C. 2018. *Sex Trafficking File: Prostitution* [Documentary Video]. Athens: ZouglaGr. YouTube. https://www.youtube.com/watch?v=VPAdXxWmzvs

McCormack, H., D. Horne and S. Sheather. 1988. “Clinical Applications of Visual Analogue Scales: A Critical Review.” *Psychological Medicine* 18 (4): 1007–1019.

McDowell, I. 2006. *Measuring Health: A Guide to Rating Scales and Questionnaires*. Oxford: Oxford University Press.

Mitchell, M. N. 2015. *Stata for the Behavioral Sciences*. College Station, Texas: Stata Press Publication.

Papadogeorgaki, H., C. Caroni, E. Frangouli, A. Flemetakis, A. Katsambas, and M. Hadjivassiliou. M. 2006. “Prevalence of Sexually Transmitted Infections in Female Sex Workers in Athens, Greece- 2005.” *European Journal of Dermatology* 16 (6): 662-225.

Papaioannou, S. 2019. *360 Degrees: Male Sex Workers in Omonoia Square* [Documentary Video]. Athens: Alpha TV. YouTube. https://www.youtube.com/watch?v=_BjKuAWS8-M&t=10s

Papanastasiou, S. and C. Papatheodorou. 2018. “The Greek Depression: Poverty Outcomes and Welfare Responses.” *Journal of Economics and Business* XXI (1-2): 205-222.

Polichroniou, A. 2019. “The Question of the Prohibition of Prostitution in Europe: A Comparative Overview of the Nordic and the German- Dutch Model and the Inconsistencies of the Greek Legislation (in Greek).” *Bioethica* 5 (1): 67-87.

Puri, N., K. Shannon, P. Nguyen, and S. M. Goldenberg. 2017. “Burden and Correlates of Mental Health Diagnoses Among Sex Workers in an Urban Setting.” *BMC Women’s Health* 17 (133): 1-9.

Preston, S. H. 1975. “The Changing Relation Between Mortality and Level of Economic Development.” *Population Studies* 29: 231–248.

Radloff, L. S. 1977. “CES-D Scale: A Self-Report Depression Scale for Research in the General PoçHOpulations.” *Applied Psychological Measurement* 1 (3): 385-401.

Red Umbrella Athens. 2016. *Red Umbrella Athens' Survey on 100 Sex Workers*. Athens: Red Umbrella Athens.

Reeves, A., Steele S, Stuckler D, McKee, M. Amato-Gauci, A. Semenza, J. C. 2017. "National Sex Work Policy and HIV Prevalence Among Sex Workers: An Ecological Regression Analysis of 27 European Countries." *The Lancet HIV* 4 (3): 134–140.

Rekart, M. L. 2015. "Caring for Sex Workers." *The British Medical Journal* 351 (4011): 1-5.

Sanders, T. 2016. "Inevitably Violent? Dynamics of Space, Governance, and Stigma in Understanding Violence Against Sex Workers." *Studies in Law, Politics and Society* 71: 5–93.

Sarafis, P., M. Igoumenidis, and A. Tsounis. 2013. "Exposure of HIV-Positive Sex Workers in Greece." *The Lancet: Infection* 13: 649-650.

Surratt, H. L., S. P. Kurtz, M. Chen and A. Mooss. 2012. "HIV Risk Among Female Sex Workers in Miami: The Impact of Violent Victimization and Untreated Mental Illness." *AIDS Care* 24 (5): 553-561.

TAMPEP. 2010. *TAMPEP National Mapping Reports*. Helsinki: The European Network for the Promotion of Rights and Health among Migrant Sex Workers.

Ware, J. E., K. K. Snow, M. Kosinski and B. Gandek. 1993. SF-36 Health Survey Manual and Interpretation Guide. Boston, MA: New England Medical Center, The Health Institute.

WHO. 2013. *The Alcohol, Smoking and Substance Involvement Screening Test* (ASSIST). Manual for Use in Primary Care. Geneva: WHO.

Wooldridge, J. M. 2010. *Econometric Analysis of Cross Section and Panel Data*. Second Edition. Cambridge MA: The MIT Press.

Xanthaki, M., A. Poulios, S. Chanos, G. Gkogidis, A. Kouroupou, S. Matis, D. Antoniou, A. Papatrechas, P. Triantafillou and A. Christopoulos. 2019. *HIV Infection and Associated Risk Factors Among Female (Cis and Trans) and Male Sex Workers in Greece: Innovative Evidences by "Red Umbrella Athens*". Athens: Red Umbrella Athens.

Table 1. Descriptive statistics

	Panel I 2009 year	Panel II 2013 year	Panel III 2019 year	Panel IV All years
Female sex workers^ (%)	73.83 (0.44)	72.05 (0.45)	75.22 (0.43)	73.57 (0.44)
Cis-gender sex workers^^ (%)	75.70 (0.43)	76.47 (0.42)	76.14 (0.42)	76.13 (0.42)
Age (c.)	30.28 (7.68)	28.99 (8.49)	28.93 (7.66)	29.36 (8.00)
Greek sex workers (%)	30.84 (0.46)	42.64 (0.49)	41.28 (0.49)	38.63 (0.48)
Years of sex working (c.)	10.07 (7.32)	7.67 (7.66)	7.63 (5.82)	8.39 (7.10)
Off-street sex workers^^^ (%)	23.36 (0.42)	21.32 (0.41)	23.85 (0.42)	22.72 (0.41)
Registered sex workers (%)	10.28 (0.30)	5.14 (0.22)	7.33 (0.26)	7.38 (0.26)
Self-reported physical health EQ-VAS (c.)	58.81 (12.88)	55.03 (10.27)	53.16 (11.87)	55.60 (11.80)
Self-reported adverse mental health symptoms CES-D (c.)	14.98 (6.21)	19.16 (5.93)	21.45 (7.14)	18.60 (6.87)
Self-reported physical health (SF-36 GH) (c.)	60.32 (13.07)	57.31 (11.18)	55.87 (12.39)	57.78 (12.25)
Self-reported mental health (SF-36 GMH) (c.)	61.45 (13.42)	58.38 (12.26)	57.04 (13.66)	58.90 (13.14)
Drug users (%)	23.36 (0.42)	35.29 (0.47)	35.77 (0.48)	31.81 (0.46)
Individuals' economic condition (c.)	2.71 (0.89)	2.20 (0.77)	1.88 (0.74)	2.26 (0.86)
Annual GDP (c.)	330.00 (0.00)	240.00 (0.00)	209.00 (0.00)	257.75 (49.51)
Annual aggregate unemployment (%)	9.2 (0.00)	27.40 (0.00)	17.2 (0.00)	18.70 (7.58)
Areas of sex work				
Plateia Metaxourgeiou (%)	6.54 (0.24)	7.35 (0.26)	7.33 (0.26)	7.10 (0.25)
Odos Filis (%)	7.47 (0.26)	6.61 (0.24)	10.09 (0.30)	7.95 (0.27)
Plateia Agiou Panteleimona (%)	3.73 (0.19)	3.67 (0.18)	2.75 (0.16)	3.40 (0.18)
Stathmos Larisis (%)	5.6 (0.23)	3.6 (0.18)	3.66 (0.18)	4.26 (0.20)
Plateia Vathis (%)	6.54 (0.24)	9.55 (0.29)	8.25 (0.27)	8.23 (0.27)
Plateia Victorias (%)	7.47 (0.26)	8.88 (0.28)	12.84 (0.33)	9.65 (0.29)
Odos Sofokleous (%)	8.41 (0.27)	5.88 (0.23)	5.5 (0.22)	6.53 (0.24)
Plateia Theatrou (%)	3.73 (0.19)	2.94 (0.16)	0.91 (0.09)	2.55 (0.15)
Leoforos Athinon (%)	10.28 (0.30)	8.82 (0.28)	9.1 (0.28)	9.37 (0.29)
Leoforos Andrea Syggrou (%)	14.01 (0.34)	14.70 (0.35)	14.67 (0.35)	14.48 (0.35)
Plateia Omonias (%)	9.34 (0.29)	10.29 (0.30)	7.33 (0.26)	9.09 (0.28)
Plateia Alexandrou Koumoundourou (%)	11.21 (0.31)	9.55 (0.29)	9.1 (0.28)	9.94 (0.29)
Alsos Pedion tou Areos (%)	5.6 (0.23)	8.08 (0.27)	8.25 (0.27)	7.38 (0.26)
Observations	107	136	109	352

Notes: The table reports the variables' mean and standard deviation. (^) The reference category is male sex workers. (^^) The reference category is trans-gender sex workers. (^^^) The reference category is street-based sex workers.

Table 2. OLS self-reported physical health (EQ-VAS) estimates

	Model I		Model II		Model III	
	b (SE)	95% CI	b (SE)	95% CI	b (SE)	95% CI
Female sex workers^	2.254 (1.140)	[-0.003, 4.513]	-0.612 (1.096)	[-2.770, 1.544]	-3.536 (2.570)	[-8.593, 1.519]
Cis-gender sex workers^^	5.46 (1.200)*	[3.103, 7.831]	-1.113 (1.073)	[-3.223, 0.997]	-3.951 (2.387)	[-8.647, 0.745]
Greek sex workers	15.367 (1.000)*	[13.395, 17.339]	7.873 (0.862)*	[6.117, 9.568]	7.913 (0.858)*	[6.225, 9.601]
2013 year^^^	-5.592 (1.161)*	[-7.876, -3.309]	-3.125 (0.885)*	[-4.866, -1.384]	-3.204 (0.881)*	[-4.938, -1.471]
2019 year^^^	-7.308 (1.220)*	[-9.709, -4.908]	-5.104 (0.928)*	[-6.930, -3.279]	-5.185 (0.928)*	[-7.012, -3.358]
Off-street sex workers [#]	-	-	4.509 (1.011)*	[2.519, 6.499]	7.441 (2.775)*	[1.981, 12.900]
Years of sex working	-	-	-0.159 (0.069)**	[-0.295, -0.023]	-0.141 (0.069)**	[-0.278, -0.005]
Registered sex workers	-	-	7.758 (1.514)*	[4.779, 10.736]	7.930 (1.532)*	[4.916, 10.944]
Drug users	-	-	-12.366 (0.891)*	[-14.119, -10.613]	-12.403 (0.892)*	[-14.159, -10.646]
Areas of sex working	No		No		Yes	
F	53.26		89.94		46.29	
Prob>F	0.000		0.000		0.000	
Adj. R^2	0.426		0.695		0.699	
Root MSE	8.934		6.515		6.474	
Observations	352		352		352	

Notes: (^) The reference category is male sex workers. (^^) The reference category is trans-gender sex workers. (^^^) The reference category is 2009 year. (#) The reference category is street-based sex workers. Standard errors are in parentheses. (*) Statistically significant at the 1% level. (**) Statistically significant at the 5% level.

Table 3. OLS self-reported adverse mental health (CES-D) estimates						
	Model I		Model II		Model III	
	b (SE)	95% CI	b (SE)	95% CI	b (SE)	95% CI
Female sex workers^	-2.120 (0.704)*	[-3.506, -0.733]	-0.868 (0.808)	[-2.459, 0.721]	1.271 (1.920)	[-2.506, 5.049]
Cis-gender sex workers^^	-4.223 (0.737)*	[-5.674, -2.772]	-0.274 (0.791)	[-1.831, 1.281]	0.934 (1.783)	[-2.573, 4.443]
Greek sex workers	-6.318 (0.615)*	[-7.528, -5.108]	-3.090 (0.635)*	[-4.340, -1.839]	-3.136 (0.641)*	[-4.397, -1.875]
2013 year^^^	4.928 (0.712)*	[3.526, 6.330]	4.146 (0.657)*	[2.862, 5.430]	4.221 (0.658)*	[2.926, 5.516]
2019 year^^^	7.185 (0.749)*	[5.712, 8.659]	6.614 (0.684)*	[5.268, 7.960]	6.709 (0.693)*	[5.345, 8.074]
Off-street sex workers #	-	-	-2.779 (0.745)*	[-4.246, -1.312]	-4.153 (2.073)**	[-8.232, -0.075]
Years of sex working	-	-	0.157 (0.050)*	[0.057, 0.257]	0.151 (0.051)*	[0.049, 0.253]
Registered sex workers	-	-	-6.082 (1.116)*	[-8.278, -3.885]	-6.121 (1.144)*	[-8.372, -3.869]
Drug users	-	-	3.370 (0.657)*	[2.077, 4.663]	3.430 (0.667)*	[2.117, 4.742]
Areas of sex working	No		No		Yes	
F	41.01		41.80		20.87	
Prob>F	0.000		0.000		0.000	
Adj. R^2	0.363		0.511		0.504	
Root MSE	5.484		4.804		4.836	
Observations	352		352		352	

Notes: (^) The reference category is male sex workers. (^^) The reference category is trans-gender sex workers. (^^^) The reference category is 2009 year. (#) The reference category is street-based sex workers. Standard errors are in parentheses. (*) Statistically significant at the 1% level. (**) Statistically significant at the 5%

Table 4. Pairwise comparisons of the predictive margins

	Model I Self-reported physical health (EQ-VAS)			Model II Self-reported adverse mental health (CES-D)		
	b (SE)	z	P>|z|	b (SE)	z	P>|z|
Female sex workers in 2013 versus male sex workers in 2013	-1.095 (1.723)	-0.64	0.525	-1.047 (1.283)	-0.82	0.415
Female sex workers in 2019 versus male sex workers in 2019	1.175 (2.017)	0.58	0.560	-0.952 (1.502)	-0.63	0.526
Cis-gender sex workers in 2013 versus trans-gender sex workers in 2013	-0.910 (1.918)	-0.47	0.635	-0.116 (1.428)	-0.08	0.935
Cis-gender sex workers in 2019 versus trans-gender sex workers in 2019	-0.683 (2.144)	-0.32	0.750	1.069 (1.597)	0.67	0.503
Greek sex workers in 2013 versus non-Greek sex workers in 2013	5.996 (1.527)*	3.93	0.000	-3.044 (1.137)*	-2.68	0.007
Greek sex workers in 2019 versus non-Greek sex workers in 2019	5.636 (1.805)*	3.12	0.002	-3.155 (1.344)**	-2.35	0.015
Off-street sex workers in 2013 versus street-based sex workers in 2013	2.781 (1.822)	1.53	0.127	-2.541 (1.357)	-1.87	0.061
Off-street sex workers in 2019 versus street-based sex workers in 2019	2.163 (2.006)	1.08	0.281	-2.730 (1.494)	-1.83	0.068
Registered sex workers in 2013 versus unregistered sex workers in 2013	5.155 (3.010)	1.71	0.087	-4.588 (2.242)**	2.05	0.041
Registered sex workers in 2019 versus unregistered sex workers in 2019	8.631 (3.056)*	2.82	0.005	-8.702 (2.276)*	-3.82	-3.82
Drug user sex workers in 2013 versus non drug user sex worker in 2013	-11.865 (1.526)*	-7.77	0.000	4.093 (1.136)*	3.60	0.000
Drug user sex workers in 2019 versus non drug user sex worker in 2019	-12.058 (1.760)*	-6.85	0.000	3.104 (1.311)**	2.37	0.018

Notes: N=352. The OLS regression controls for gender, gender identity, ethnicity, time periods, off-street/street-based sex work, years of sex work, sex worker status (registered/unregistered), and drug use. (*) Statistically significant at the 1% level. (**) Statistically significant at the 5% level.

Table 5. OLS self-reported physical health (SF-36 GH) and mental health (SF-36 GMH) estimates				
	Model I Self-reported physical health (SF-36 GH)		**Model II Self-reported mental health (SF-36 GMH)**	
	b (SE)	95% CI	b (SE)	95% CI
Female sex workers^	-0.232 (2.212)	[-4.585, 4.120]	-0.214 (2.454)	[-5.042, 4.614]
Cis-gender sex workers^^	-1.616 (1.876)	[-5.307, 2.075]	-1.501 (2.081)	[-5.596, 2.594]
Greek sex workers	7.447 (0.965)*	[5.547, 9.347]	8.476 (1.071)*	[6.369, 10.584]
2013 year^^^	-2.406 (0.991)**	[-4.357, -0.455]	-2.357 (1.100)**	[-4.522, -0.193]
2019 year^^^	-4.171 (1.048)*	[-6.232, -2.109]	-4.044 (1.162)*	[-6.331, -1.756]
Off-street sex workers [#]	5.004 (2.420)**	[0.242, 9.766]	6.503 (2.685)**	[1.220, 11.786]
Years of sex working	-0.145 (0.078)	[-0.299, 0.008]	-0.102 (0.080)	[-0.273, 0.068]
Registered sex workers	8.299 (1.723)*	[4.908, 11.690]	8.477 (1.912)*	[4.715, 12.239]
Drug users	-12.295 (0.008)*	[-14.275, -10.315]	-13.162 (1.116)*	[-15.358, -10.966]
Areas of sex working	Yes		Yes	
F	36.69		33.12	
Prob>F	0.000		0.000	
Adj. R^2	0.646		0.622	
Root MSE	7.285		8.081	
Observations	352		352	

Notes: (^) The reference category is male sex workers. (^^) The reference category is trans-gender sex workers. (^^^) The reference category is 2009 year. ([#]) The reference category is street-based sex workers. Standard errors are in parentheses. (*) Statistically significant at the 1% level. (**) Statistically significant at the 5% level.

Table 6. OLS self-reported physical health (EQ-VAS) and adverse mental health (CES-D) estimates

	Model I Self-reported physical health (EQ-VAS)		**Model II Self-reported physical health (EQ-VAS)**		**Model III Self-reported physical health (EQ-VAS)**		**Model IV Self-reported adverse mental health (CES-D)**		**Model V Self-reported adverse mental health (CES-D)**		**Model VI Self-reported adverse mental health (CES-D)**	
	b (SE)	95% CI	b (SE)	95% CI	b (SE)	95% CI	b (SE)	95% CI	b (SE)	95% CI	b (SE)	95% CI
Female sex workers^	-3.452 (2.567)	[-8.503, 1.598]	-3.109 (2.655)	[-8.332, 2.112]	-5.081 (2.043)**	[-9.101, -1.062]	1.171 (1.921)	[-2.608, 4.951]	0.722 (2.108)	[-3.425, 4.871]	0.236 (1.675)	[-0.926, 5.664]
Cis-gender sex workers^^	-3.874 (2.385)	[-8.566, 0.816]	-3.035 (2.459)	[-7.874, 1.803]	-0.395 (1.897)	[-4.127, 3.336]	0.844 (1.784)	[-2.666, 4.355]	-0.242 (1.953)	[-4.085, 3.601]	-2.396 (1.555)	[-5.456, 0.663]
Greek sex workers	7.971 (0.855)*	[6.289, 9.654]	7.562 (0.883)*	[5.823, 9.300]	5.286 (0.680)*	[3.947, 6.625]	-3.204 (0.640)*	[-4.463, -1.945]	-2.684 (0.702)*	[-4.065, -1.303]	-0.665 (0.557)	[-1.762, 0.432]
Off-street sex workers^^^	7.372 (2.773)*	[1.917, 12.827]	6.835 (2.865)**	[1.198, 12.471]	1.959 (2.224)	[-2.415, 6.334]	-4.073 (2.075)	[-8.155, 0.008]	-3.375 (2.275)	[-7.852, 1.102]	0.497 (1.823)	[-3.089, 4.084]
Years of sex working	-0.144 (0.069)**	[-0.280, -0.007]	-0.087 (0.070)	[-0.226, 0.052]	0.088 (0.054)	[-0.018, 0.194]	0.153 (0.051)*	[0.051, 0.255]	0.080 (0.056)	[-0.029, 0.191]	-0.076 (0.044)	[-0.164, 0.011]
Registered sex workers	7.844 (1.528)*	[4.837, 10.851]	8.228 (1.582)*	[5.116, 11.341]	4.547 (1.237)*	[2.113, 6.981]	-6.019 (1.143)*	[-8.269, -3.769]	-6.504 (1.256)*	[-8.976, -4.031]	-3.839 (1.014)*	[-5.834, -1.843]
Drug users	-12.355 (0.890)*	[-14.108, -10.603]	-13.034 (0.913)*	[-14.830, -11.238]	-7.340 (0.793)*	[-8.901, -5.778]	3.374 (0.666)*	[2.062, 4.686]	4.241 (0.725)*	[2.815, 5.668]	-0.026 (0.650)	[-1.306, 1.253]
Annual gross domestic product	0.041 (0.007)*	[0.026, 0.055]	-	-	-	-	-0.053 (0.005)*	[-0.064, -0.042]	-	-	-	-
Annual aggregate unemployment	-	-	-0.132 (0.049)*	[-0.228, -0.035]	-	-	-	-	0.175 (0.039)*	[0.098, 0.252]	-	-
Individuals' economic condition	-	-	-	-	7.199 (0.461)*	[6.292, 8.106]	-	-	-	-	-5.719 (0.378)*	[-6.463, -4.975]
Areas of sex working	Yes		Yes		Yes		Yes		Yes		Yes	
F	46.29		44.58		89.09		21.93		14.88		35.21	
Prob>F	0.000		0.000		0.000		0.000		0.000		0.000	
Adj. R^2	0.699		0.678		0.810		0.503		0.401		0.623	
Root MSE	6.474		6.690		5.142		4.843		5.314		4.216	
Observations	352		352		352		352		352		352	

Notes: (^) The reference category is male sex workers. (^^) The reference category is trans-gender sex workers. (^^^) The reference category is street-based sex workers. Standard errors are in parentheses. (*) Statistically significant at the 1% level. (**) Statistically significant at the 5%.