

Title: Population growth within regional pattern of population change and male clients of sex workers in U.S. metropolitan areas.

Background

Men who pay for sex (clients) are more likely to engage in other high risk activities such as having a high number of sexual partners, practicing unsafe sex, and using illicit drugs. Clients also have an elevated prevalence of sexually transmitted infections (STIs). Men's migrant status has been associated with sexual risk behavior including purchasing sex. Urbanized areas can also concentrate settings where sex trade occurs as well as provide a more varied selection of sex trade and places where it may take place.

Population growth in the U.S. is predominantly driven by migration. Population growth in a municipality and surroundings reflects an area that is retaining skilled population and attracting populations from other municipalities. There is interrelatedness in population change within metropolitan areas as these may retain patterns of industry clusters, trends in human capital, and infrastructure features that influence a different pace of population change between metropolitan areas. Moreover, counties within metropolitan areas are by definition linked for having a high degree of economic integration as determined by work commuting patterns. This study analyzes census data matched with survey data to examine the relationship between county population growth relative to the population change of its metropolitan area with male clients of sex workers.

Methods

This study is a secondary analysis of the National STD Behavioral Measurement Experiment, a probability sample of English speaking men and women aged 18 to 45 years old

residing in U.S. households with a working landline telephone in 1999-2000 surveyed on a wide range of STI-related risk behaviors. Telephone interviewers screened 86.5% of the 14,250 generated telephone numbers for residential status with eligible adults. Of the 2,183 eligible respondents found, 1,543 (70.7%) adults were interviewed. The analytic sample consists of 303 men aged 26 to 45 years old residing in counties that increased population from 1990 to 2000 and are part of multiple-county metropolitan areas.

The behavioral outcome, "ever a client of a sex worker" was defined as any participant who answered yes to the question "have you ever had sex with a prostitute, either female or male, or with someone you paid for sex?" Population counts for non-institutionalized population at the county level were obtained using the 1990 and 2000 U.S. Census, Summary File 1 (SF-1). Counties were classified into their respective Metropolitan Area by U.S. Federal Information Processing System (FIPS) codes according to the 1993 Office of Management and Budget definitions for Metropolitan Statistical Areas/Consolidated Metropolitan Statistical Areas and the county-based alternative to the city-and-town-based metropolitan areas of New England, New England County Metropolitan Areas. The total household population in each metropolitan area was calculated by adding the household population of all its counties.

We used the location quotient (LQ) measure to quantify whether the county had a greater share of the population growth between 1990 to 2000 than expected for this period when compared to its metropolitan area (MA). The non-symmetric LQ distribution based on household population for multiple-county metropolitan areas in the U.S. was divided into third tile corresponding to the following outcomes and LQ ranges: 1) county outperformed its MA with LQ values 1.05 to 2.23; 2) county's change was similar to its MA with LQ values 0.99 to 1.05; and 3) county's change was worse than its MA with values 0.77 to 0.99. From the three

LQ outcome measures, counties that gained population only were retained and linked to survey data by FIPS code.

To account for differences in demographic composition among U.S. counties associated with population change and which may be disproportionately associated with factors that facilitate purchasing sex, variables relating to age, race/ethnicity, foreign born, and poverty were included in the analysis as covariates and obtained from the 1990 U.S. Census SF-1 and the Department of Health and Human Services' Area Resource File, aggregated at the county level. Generalized estimated equations, to account for clustering of participants from the same county, were used to calculate unadjusted prevalence ratio (PR), adjusted prevalence ratio (Adj. PR) with corresponding 95% confidence intervals (CI), and to determine association with clients of sex workers in an unweighted analysis.

Results

The prevalence of male clients in metropolitan counties that increased population from 1990 to 2000 was 17.5%. Clients of sex workers were not significantly associated with type of population growth in relation to their metropolitan area in unadjusted analysis and in the multivariate analysis adjusted for participants' age, educational attainment and history of substance use. Clients were however significantly associated with residing in counties that experienced population growth similar to their metropolitan area or better than their metropolitan area versus a slower growth than their metropolitan area only after accounting for both participant's characteristics and county compositional characteristics. Participants residing in counties that had a similar growth or a faster growth than their metropolitan area were more than twice as likely to have reported to have paid for sex than participants in residing in counties that

had a weaker population growth in relation to their metropolitan area (Adj. PR., 2.33, 95% CI, 1.1-5.0, and Adj. PR., 2.5, 95% CI, 1.1-5.9, respectively)

Conclusion

This study quantified a relationship in county growth with its own metropolitan area, and not the actual population growth of the county, to examine an association with male clients. The findings suggest that regional pattern of population change may play a role in waning or amplifying conditions for purchasing sex among adult men residing in a metropolitan county that is experiencing population growth.