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Is Selling Sex Good Business? : Prostitution in Nineteenth Century New York City

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In modern times, conventional wisdom suggests that prostitution is immoral, corrupt, and damaging to society. Yet, in nineteenth century New York, prostitution was a thriving enterprise for landlords, consumers, and prostitutes. Unregulated and unsupervised, the number of red light districts in Manhattan exploded throughout the 1800s. In 1839 there were more than ten thousand prostitutes in Manhattan. In 1869, this number jumped to between twenty and twenty-five thousand prostitutes.[1] Between five and ten percent of women in New York City during the nineteenth century engaged in prostitution. A major reason for the high numbers of prostitutes during this time period was the low wages associated with most female occupations.[2] Prostitution, because of its success, provided women with a better and more secure financial option.

The success of prostitution most likely impacted Manhattan's urban environment. Measuring the direct effect that prostitution had on neighborhood quality is not possible. Instead, by examining changes in land value that took place as a result of the expansion of the city's red light districts, it is possible to indirectly measure the effect of prostitution on Manhattan's neighborhoods. With New York City's thriving red light districts, it is not clear that prostitution would have lowered property values within the city. If the presence of red light districts raised land values, they would be considered an amenity within New York City. If prostitution was correlated with lowering land values, it would be considered a disamenity to New Yorkers.

Although economists have studied supply and demand in the market for prostitution, as well as the connection between crime and property values, little research has been done concerning prostitution's effect on an urban center's land values. My

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[1] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 58.
[2] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 59.

research uses a newly collected data set of property values from nineteenth century Manhattan. The data values were collected from the New York Times and are sale prices for vacant parcels of land. In addition to these property values, I use red light district locations and historical research on prostitution in New York City to estimate an empirical model that analyzes the relationship between Manhattan's red light districts and the resulting demand for land.

Even today, politicians and economists grapple with policy issues regarding prostitution. Urban officials in modern cities associate prostitution with crime and urban decay. Police and local governments spend a lot of time and money fighting prostitution. Through examining prostitution in New York City during the nineteenth century, I hope to gain a better understanding of the effect that red light districts had on city neighborhoods. Properly run red light districts may not have the effect that modern policy makers insist upon. However, in the end, economic analysis may be insufficient to answering the policy questions surrounding prostitution. A complete understanding of red light districts' history, work conditions, and economic successes are all important. Even though Manhattan's red light districts were profitable, the deplorable conditions and the devaluation of women within these brothels paint a very different picture.

In order to examine the effect of red light districts on Manhattan's land values, an in-depth understanding of the institution of prostitution during this time period must be gained. The history of prostitution in New York City begins with an influx of immigrants in the early 1800s. Prostitution flourished as an unregulated business until the 1870s when preventative societies began to privately regulate red light districts. The institution of prostitution was affected by the movement north of wealthy Manhattanites and the

emergence of preventative societies in the 1870s. After examining the institutional progression of Manhattan's red light districts, the following sections will begin to analyze these changes by looking at how the red light districts affected Manhattan's land values.

After the history section, this study presents an in-depth analysis of the monocentric model and its corresponding literature. Subsequent to the foundations of the monocentric model, this paper examines the bid rent functional form. An OLS regression estimates the effect of centers of prostitution on the change in price of vacant parcels of land in Manhattan. These estimation results will indicate if the centers of prostitution were considered amenities or disamenities. The regression will also reveal the significance of these red light districts in affecting Manhattan's land values.

History of Prostitution in New York City

The formation and development of Manhattan's red light districts is vital as a pretext to the economic analysis of prostitution's affect on New York's urban environment. The history of prostitution in New York City involves rapid growth and development in the beginning of the 1800s. Such initial success was met with increasing violence in the 1830s. The mob violence sparked major institutional changes within the business of brothels. Further institutional change occurred with the presence of preventative societies in the 1870s and their underground brothel raids. Child prostitution, destitute working conditions, and the prevalence of venereal diseases created little controversy within New York City. And, in the end, prostitution remained a profitable and widespread business throughout the nineteenth century. Understanding the institutional changes, working conditions, and environment within New York City's red

light districts will provide valuable insight into interpreting the estimation results of prostitution's affect on Manhattan's land values.

Throughout the 1820s New York City's prostitution industry expanded rapidly. Swarms of young male immigrants, sailors, and businessmen entered through Manhattan's ports demanding sex.[3] Sex became a tourist attraction for men visiting New York City. Gender imbalances contributed to the demand for prostitution by immigrants and sailors. On the supply side of this industry, an 1858 study on prostitution by Dr. William Sanger, a scholar who studied New York City prostitution, reveals "a general profile of the New York City prostitute: she was young, foreign-born, unmarried, had borne a child, came from a poor working-class family, and had experienced economic and/or other problems at home before entering prostitution."[4] Thus, surges of female immigrants, looking for better paying jobs and an escape from poverty, entered the city's sex industry. And, because of this increased demand and supply, the number and price of brothels boomed. For instance, Maria Williamson, a well known Manhattan prostitute, bought one brothel in 1819 for 3,500 dollars and within a few years she owned and controlled several brothels on Church and Duane Streets for a total value of 10,000 dollars.[5] In 2005, the 3,500 dollars and 10,000 dollars earned by Maria Williamson are equivalent to 55,437.96 dollars and 171,919.01 dollars, respectfully.[6]

Red light districts initially surfaced in tenant, slum-like districts because landlords needed to rent to prostitutes. Unlike the destitute working population, prostitutes had the income to steadily pay the full rent. At first, prostitution was dominated by foreign

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[3] Burrows, Edwin G., and Mike Wallace. Gotham. (Oxford: Oxford University Press, 1999) 483-484.

[4] Hill, Marilynn Wood. Their Sisters' Keepers. (Berkeley: University of California Press, 1993) 47.

[5] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 70.

[6] Measuring Worth. 2006. 28 February 2007 <http://www.measuringworth.com/calculators/compare/>.

immigrants, African Americans, and the poor—the inhabitants of these slum-like districts.[7] However, "as sex became an increasingly expensive and profitable commodity, New York's first exclusive, large-scale sex district appeared. From 1850 to the early 1870s, the area bounded by the Bowery and by Canal, Laurens, and Houston streets (called Soho in the late twentieth century) emerged as the center of the sex business."[8] In addition, unlike earlier districts, this area became part of a larger entertainment district that included department stores, theaters, restaurants, hotels, and saloons. This area pertains to two major prostitution centers, the Bowery and the Bleecker and Washington Square district, identified and analyzed later in this study's model. By the 1850s, different red light districts specialized in different sexual services like French love and model shows.[9] With time, prostitution, once a fairly homogenous product, transformed to reflect and cater to consumer demand. Now, red light districts had the financial resources and consistent clientele to specialize and put more money into their businesses. Prostitution had transformed into an extravagant and specialized entertainment industry with exclusive, wealthy clientele.

New York's red light districts expanded throughout the island as they moved northward with theaters, opera houses, hotels, department stores, concert saloons, male universities, and wealthy clientele.[10] With the improvements in transportation throughout the mid to late nineteenth century, many wealthy Manhattan citizens moved northward to avoid the crime, congestion, and pollution of the inner city. Houses of prostitution followed their wealthy clientele northward. The new transportation methods allowed the

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[7] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 120.
[8] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 119.
[9] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 165.
[10] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 47.

wealthy and prostitutes to move northward, but these advancements also allowed more access to all popular red light districts throughout Manhattan. For instance, the elevated railroad that "brought respectable women to shop at genteel department stores by day brought respectable men by night to shop for women. 'Ladies' Mile' took on a different meaning at night, as Sixth Avenue between 14th and 34th streets became a brightly lit whore's promenade."[11] In addition to prostitution emerging in wealthy neighborhoods, red light districts formed in entertainment centers with hotels. For example, hotels on Fifth Avenue and Broadway were soon accompanied by popular red light districts. Throughout the 1830s, "at least thirty-four houses of prostitution in the city (13 percent of the total) were within two and a half blocks of a hotel, and most were in the West Side. By the next decade, the figure tripled, to ninety-six (46 percent)."[12] Hotels, only invented in this century, provided an excellent working space for prostitutes. Therefore, the rise and movement of prostitution mirrored the rise and movement of New York's newest and finest hotels.

As seen, with time, brothels moved away from the ports and began to locate in parlor houses in the downtown business district. Attracting both the middle class and the wealthy, red light districts emerged throughout Manhattan. No longer just located in slums hidden in the outskirts of town, prostitution was now an openly public trade. And, "By mid-century prostitution had become deeply imbricated in the business life of the city. Dr. Sanger calculated its aggregate annual revenues as exceeding three million dollars and if liquor sales and rental income were added, the figure doubled, to an annual

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[11] Burrows, Edwin G., and Mike Wallace. <u>Gotham</u>. (Oxford: Oxford University Press, 1999) 1149.

[12] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 47.

cash value just below the garment industry's $7.5 million."[13] In 2005 dollars, the aggregate revenues equaled 72,692,307 dollars and the garment industry's profits totaled 181,730,769 dollars.[14] Prostitution became a very profitable enterprise for landlords, pimps, and corrupt politicians. Corrupt politicians formed underground rings that protected certain brothels and landlords. Through forming alliances with pimps and police, these corrupt politicians received tremendous bribes and gained needed votes within the marginalized sectors of the city.

Along with prostitution's geographical movement northward, the internal business of brothels transformed throughout the mid nineteenth century. Mob violence and the emergence of preventative societies shaped and reshaped the institution of prostitution. Yet, despite the growing desire for regulation of Manhattan's red light districts, prostitution continued to grow and stay profitable well into the twentieth century.

During the 1830s violence against houses of prostitution escalated. Known as the brothel riots, mobs would intermittently attack brothels with the intention to ruin their businesses. Few brothel riots resulted in murders or personal injuries. Many of the attacks were started by drunken males who were in pursuit of prostitutes they had come to love.[15] All in all, the brothel riots reflected a change toward disorderliness and violence in "the patterns of male leisure and social behavior."[16] Men, with increasing sexual freedom and with few legal consequences, had the liberty to engage in prostitution, mob violence, and other disorderly activities. As a result of this increased violence and attacks, brothels

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[13] Burrows, Edwin G., and Mike Wallace. Gotham. (Oxford: Oxford University Press, 1999) 807.
[14] Measuring Worth. 2006. 28 February 2007 <http://www.measuringworth.com/calculators/compare/>.
[15] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 76-78.
[16] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 81.

began to hire pimps to provide some male protection to their workers and clients. Another consequence of the brothel riots was the new alliance of ward bosses and local police who worked together to both protect and extort the profitable prostitution businesses. The brothel riots marked a turning point in which New York's red light districts needed male protection because female run brothels had become unsafe and unprofitable.[17]

Although violence against brothels was prevalent in the early 1800s, regulation of prostitution proved unsuccessful before 1870. Prostitution itself was not considered illegal, however the "police could and did arrest 'all common prostitutes who have no lawful employment' as vagrants or 'disorderly persons' . . . (in addition) though the police periodically raided Sixth Ward brothels and often hauled in streetwalkers from predominately immigrant areas, elite brothels were almost never disturbed."[18] (See Map 1 for New York City's wards) After 1870, moral reform societies surfaced as a private initiative to fight the vice of New York City. These reform societies provided underground law enforcement and increased public awareness on the corruption and vice found in Manhattan.

Anthony Comstock, a major moral reformer of the nineteenth century, started the Society for the Suppression of Vice (SSV) in the early 1870s. The SSV challenged the presence of red light districts throughout New York City. Comstock and his society did not work with local authorities. Instead, using extralegal means, the SSV raided dance halls, brothels, and gambling dens to enforce their moral law and suppress vice.[19] Although this underground enforcement challenged prostitution, red light districts

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[17] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 88.
[18] Burrows, Edwin G., and Mike Wallace. Gotham. (Oxford: Oxford University Press, 1999) 807.
[19] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 188.

remained pervasive and lucrative in New York through the early part of the twentieth century.

The tale of prostitution in nineteenth century New York City is not just one of profits, expansion, and entertainment. Prostitution provoked debates on morality and personal liberty. While preventative societies formed to combat the evils and vices they believed infested New York City, these preventative societies used extralegal means and invasive methods to achieve their morally righteous goals. In the end, preventative societies could be blamed for infringing on personal liberties, just as corrupt policing threatened New Yorkers' right to safety and protection under the law. Personal liberty, then and now, remains a controversial issue. Should women have the right to prostitute themselves? Should men have the right to accept their services? Anthony Comstock said no. However, certain urban policy makers believe that regulated prostitution is less dangerous than underground and marginalized red light districts. For instance, Frances M. Shaver, a public policy analyst of the 1980s, advocates a policy of decriminalization instead of legalization or criminalization.[20]

Within this morality debate, another important issue arises. Do women have the choice to not prostitute themselves? Did women in the nineteenth century have access to jobs, financial security, and protection under the law? When historians study the demographics of New York's nineteenth century prostitutes, a stereotype emerges of a young, poor, immigrant girl looking for work. Prostitution was the best option for many young women. Prostitution raises questions on gender and class roles. Working as a prostitute during the 1800s in Manhattan implied varying degrees of oppression,

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[20] Shaver, Fraces M. "Prostitution: A Critical Analysis of Three Policy Approaches." Canadian Public Policy 11.3 (Sept., 1985). JSTOR. Davidson College Library, Davidson, North Carolina. 26 December 2006. 1.

violence, exploitation, and marginalization. Despite such negative realities, female prostitutes had sustainable and profitable work. Nineteenth century women had limited job opportunities, all of which rarely paid a living wage. Prostitution provided a better income than these other types of work. Overall, red light districts were successful because the commodity they sold, young women, were in high demand and policing was in short supply.

One rather disturbing piece of prostitution's success lies in the selling of virginity and the use of children and teenagers in prostitution rings. Many brothels recruited children and teenagers for prostituting. It was not until the mid-1830s that child prostitution became a public issue and welfare societies like the Reformation of Juvenile Delinquents were established. Although one-third of all prosecuted rape cases in 1810 to 1876 involved female victims of the age twelve or younger, the "Government did little to discourage such sexual exploitation. The low age of consent in New York (ten years) was hardly a deterrent."[21] Many historians, like Dr. Timothy Gilfoyle, cite "the harsh socioeconomic realities of the marketplace" as the cause of the rise of teenage prostitutes.[22] Most child and teenage prostitutes came from backgrounds of poverty, neglect, and immigrant and unskilled laborer parents.[23]

Prostitution emerged from the destitute conditions prevalent in nineteenth century Manhattan. Functioning on the fringe of society, early red light districts had no impact on the businesses of urban Manhattan.[24] With time, prostitution provided an opportunity for women to gain social and income mobility. Such economic success came with certain

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[21] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 69.
[22] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 63.
[23] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 64-65.
[24] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 313.

costs. Prostitutes lost their right to sexual freedom, while continually risking incidences of mob violence and sexual oppression. In such destitute conditions, many prostitutes suffered from sexually transmitted diseases. According to Dr. William Sanger, "at least forty percent of the prostitutes he studied confessed that they contracted syphilis or gonorrhea at least once."[25] The rough conditions felt by many female prostitutes did not hinder prostitution's expansion or overall success. As prostitution expanded into downtown New York, wealthy clientele further contributed to brothels' profits. By the mid-1800s, red light districts both led and followed Manhattan's economy, shaping the urban core and influencing social realities.

The Monocentric Model and other Applicable Research

The effect of prostitution on Manhattan's urban environment can be indirectly measured through red light districts' impact on New York's land values. Estimating the impact of red light districts on the value of land in New York City requires the use of an economic model known as the monocentric model. The monocentric model posits a relationship between a city's land values and the distance of those parcels of land from the city center. The following section will explain the basics of the monocentric city model. After developing a foundation for the empirical work in this paper, Manhattan's red light districts can be incorporated into the basic model in order to estimate the relationship between land value and the distance from both the city center and red light districts.

The monocentric city is characterized by a central business district where citizens commute for jobs. As urban economist Arthur O'Sullivan describes, "[In a monocentric city,] the city center is the focal point of the entire metropolitan area: Manufacturers are

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[25] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 62.

oriented toward the railroad terminal; office firms are oriented toward the central market area; households are oriented toward employment in the central core area; and retailers are oriented to the hub of the streetcar system."[26] In a monocentric city, there are large incentives to locate close to production and transportation nodes in order to decrease freight costs. The closer to production sites and transportation nodes, the more a firm is willing to pay for land. Therefore, the monocentric city developed and changed with technological advances of transportation because more efficient and cheaper transportation allowed firms to economize on transportation costs and time. Transportation technology of the 1800s included horse-drawn wagons, hub-and-spoke streetcar systems, and elevated rails. Furthermore, with the growth of the monocentric city and central business core, urban centers saw the rise of central export nodes, or centers of transportation, and the formation of agglomeration economies, where firms locate close together to share common inputs and information.

The monocentric model contains several underlying assumptions. First of all, this model assumes that there are no time costs of commuting and that noncommuting travel is insignificant.[27] Also, "The simple monocentric model is based on the assumption that nothing except commuting costs varies with the distance to the city center. In real cities, there is spatial variation in public goods, taxes, environmental quality, and amenities."[28] Varied topography or topographical amenities within a city are prime examples of spatial variations not accounted for in the monocentric model.

With time and further industrialization, the monocentric model began to deteriorate. Decentralization and suburbanization occurred with the development of the

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[26] O'Sullivan, Arthur. Urban Economics. 5th ed. (Boston: McGraw-Hill, 2003) 168.
[27] O'Sullivan, Arthur. Urban Economics. 5th ed. (Boston: McGraw-Hill, 2003) 185-186.
[28] O'Sullivan, Arthur. Urban Economics. 5th ed. (Boston: McGraw-Hill, 2003) 186.

modern city. Negative externalities associated with old housing, race, income, crime, and poor educational opportunities in the city center attributed to the increase in suburbanization. Throughout the nineteenth and twentieth century, many New Yorkers moved to the outer boroughs like Brooklyn and Queens to avoid the congestion and filth of central Manhattan. Lower commuting costs and increased incomes also contributed to urban sprawl and the deterioration of the monocentric city because citizens had the means and finances to move outside the congested and polluted city center. However, throughout the nineteenth century, American cities mirrored the monocentric model in their formation, development, and appearance.

The monocentric city uses the bid-rent function to explain a city's spatial structure. The bid-rent function is founded on the left-over principle, a firm's transportation costs, and the ability to substitute between land and nonland costs. First, within the formation of the bid rent model, firms bid for the available land. Eventually, this competition will cause the firms' economic profits to be equal to zero. O'Sullivan explains that "The price of land equals the difference between total revenue and total nonland costs. This is the leftover principle: After a firm uses its revenue to pay its other input suppliers, the landowner gets whatever is left over."[29] Following this principle, each firm has an economic profit equal to zero. Therefore, the bid-rent function for a firm is dependent on the overall profit of the firm, total nonland costs, and freight costs. A firm's willingness to pay for land decreases when it locates farther from an export node because of the increased transportation costs. With urban development and increased competition for land, firms and households began to economize on land by substituting nonland inputs for land in order to produce the same quantity of output on smaller plots of land.

[29] O'Sullivan, Arthur. Urban Economics. 5th ed. (Boston: McGraw-Hill, 2003) 168-169.

The slope of the bid-rent function depends on transportation costs, so the industry with the highest transportation costs will locate closest to the city center, assuming the city center in the transportation center. Businesses require the transportation of people, which is relatively more expensive than transporting goods. And because the distribution of information through face-to-face contact requires such high transportation costs, these offices and the financial industries will locate in the city center. Offices outbid manufacturers for the land at the urban core. The monocentric city has an office core, followed by a manufacturing district, with an outer residential area. Graph 1 shows the bid-rent functions for each sector in the monocentric model. Because the business sector has the highest transportation costs associated with transporting people, these offices pay the largest amount of money to locate in the city center. Next, the manufacturing sector will locate in the middle with the residential sector on the fringe of the city.

Many economists still use the monocentric model as a foundation for their empirical work. In the article "Location, Location Location! The Price Gradient for Vacant Urban Land: New York, 1835 to 1900," Jeremy Atack and Robert A. Margo found that distance from the central business district (CBD) explained over two-thirds of the variation in prices of land. Collecting data from New York City newspapers on auctions, lands for sale, and transfers of real estate for the years 1835, 1845, 1860, 1870, 1875, 1880, 1885, 1890, 1895, and 1900, Atack and Margo used vacant parcels of land in a bid rent function to explain the changes in the demand for land. In the end, population growth, economic activity, and transportation technology affected Manhattan's real estate market.

Other studies further demonstrate the power of the monocentric model. Economist Daniel P. McMillen states how land value depends on distance from the city center and other amenities and disamenities. In his study, "One Hundred Fifty Years of Land Values in Chicago," he describes the limitations of the monocentric model in not accounting for other employment centers, racial discrimination, or pollution. However, he concludes by saying, "Nevertheless, the inadequacy of the monocentric model should not be overstated. The CBD continues to dominate land values, and the regression surfaces are smooth and predictable."[30] Despite topographical differences, the monocentric model can be used efficiently to estimate relationships between distance from central business district and land values.

Foundations of the monocentric model can be seen in many economic analyses. For example, economists Naroff, Hellman, and Skinner estimated the impact of crime on property values. They used a utility function, budget constraint, and a bid-rent function to determine crime's effect on Boston's land prices. Because they found that a decrease in crime would raise Boston's tax revenue due to increased property values, Naroff, Hellman, and Skinner advocate further policing policies to combat city-wide crime.

Description of Model

The bid rent function establishes a relationship between land rent and the distance from the city center. In the model employed in this paper, the city center is assumed to be City Hall. As firms or households move away from the city center the decrease in the land rent would correlate with an increase in commuting costs. This model assumes a

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[30] McMillen, Daniel P. "One Hundred Fifty Years of Land Values in Chicago: A Nonparametric Approach." Journal of Urban Economics 40 (1996): 122.

featureless plane, no taxes, equal access to transportation for all areas, and no disamenities.

The model also controls for a parcel's distance from the red light districts. Based on historical research, there are six major centers of prostitution during the years 1867 through 1876: the Tenderloin, Rialto, East Side, Bleecker Street and Washington Square, Bowery, and Five Points. See Chart 1 for detailed information concerning the location and description for each respective red light district. Chart 1 also includes the longitude and latitude of each district used in my estimation. Map 1 details the location of the center of each major red light district. The bid-rent function model estimates the price per square foot as function of distance from the city center and distances from each respective red light district. By incorporating the red light districts into the bid-rent model, the model will be estimating the impact of a red light district on the land prices of Manhattan's vacant parcels of land. The results of the estimation will shed light on whether prostitution had any impact on land values in New York City through the years 1867 to 1876. The estimation uses the years 1867 to 1876 as a framework to analyze the institutional change of red light districts with the formation of the preventative society, SSV, in 1870.

The econometric model uses the log of price per square foot. The model specification is the log of price per square foot of Manhattan's vacant parcels of land (for the years 1867 through 1876) as a function of distances from City Hall and distance from the Tenderloin center and the Bleecker and Washington Square district center. Table 2 is a model specification with each specific variable and its corresponding description. Overall the functional form is as follows:

$$\text{Log (price per square foot)} = \mathscr{f}(d, d2, d3, n, n2, n3, e, corner, td, bwd)$$

Using the semi-log functional form explains how unit increases in the independent variables, distance from city center and distance from red light district centers, will cause a percentage increase or decrease in price per square foot. In order to account for directional variation, this function includes distance, distance north, and distance east from city center in my model. These independent variables differentiate between parcels that may be equal distance from City Hall, but on different sides of Manhattan. If two locations are equal distance from City Hall, but one parcel is on the east side and one parcel is on the west side, the model will differentiate between them. Such differentiation will account for potential amenities or disamenities related to different sections of Manhattan. Furthermore, the distance and distance north variables have squared and third power terms to allow for further spatial variation. The multiple power distance variables allow for a nonlinear price versus distance graph.

In order to control for red light districts, this model includes distances to the center of the Tenderloin and the Bleecker and Washington Square district. The model includes only these two red light districts because they were the most densely populated with clusters of 8 or more houses of prostitution in a single block. The other red light districts had prostitution businesses throughout the districts, but without significant density of brothels.[31] Map 3 provides a map of Manhattan with blocks of houses of prostitution from 1870 to 1879. Map 3 indicates the blocks of eight houses or more, blocks of three to seven houses, and blocks with only single houses of prostitution. My model assumes that only the red light districts with large prostitution densities, the Tenderloin and Bleecker and Washington Square, belong in the model of estimation.

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[31] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 199-203.

Theoretically, the other districts, with less prostitution density, would not have the needed density to impact surrounding land values. Although prostitution was prevalent in all the major districts identified earlier, because of the lack of concentration of brothels, the impact of the prostitution would be less pronounced in those areas. This study assumes that blocks of brothels of eight houses or more had sufficient density to influence the surrounding urban environment.

The Tenderloin was the major red light district in Manhattan during this time period. In addition to its prostitution, the Tenderloin was a prominent entertainment district with opera houses, theaters and hotels. After the construction of the elevated rail in 1871 along Ninth Avenue, the Tenderloin exploded with pedestrians and entertainment. Department stores, restaurants, and offices emerged in this area. With the new congestion, upper class New Yorkers started moving northward. Therefore, most Tenderloin landlords rented to the working class and prostitutes. The increasing number of brothels made prostitution a major commercial activity of the Tenderloin throughout the nineteenth century.[32]

The Bleecker and Washington Square red light district was once an area of wealth and glamour in Manhattan. By the 1870s, however, most of the mansions were transformed into stores and saloons. Considered the "bohemian quarter of Gotham,"[33] the Bleecker Street and Washington Square area was populated by artists and musicians. Brothels and prostitution had been prominent in this area for decades. Many of the houses of prostitution had formed ethnic specializations that mirrored the nearby immigrant population. For instance, Bleecker Street and Washington Square was home to the

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[32] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 203-208.
[33] Gilfoyle, Timothy J. City of Eros. (New York: W.W. Norton and Company, 1992) 213.

"Frenchtown" brothel, Italian brothels, and "Negro Alley."[34] The prostitution in the

Italian and African American streets had "half-naked prostitutes" sitting in the windows,

both evoking sexuality and provoking negative attention from many Manhattanites.[35]

Results

OLS is used to estimate the model and the results are described in Table 3. Table

3 details the estimation results with each year's goodness of fit, variables of significance,

and the specific coefficients and p-values for the Tenderloin and Bleecker and

Washington Square distance variables.

Table 4 compares different model specifications. The first model includes the

price per square foot as a function of distance from City Hall. The second model includes

directional variations and a corner dummy variable. The last model uses a bid-rent

function to estimate the impact of distance from City Hall and distance from red light

districts on price per square foot of land in Manhattan. As indicated in Table 4, the

directional variations and distance to red light districts increase the model's goodness of

fit, indicated by a higher R^2, or coefficient of determination. For example, in the year

1872, the original R^2 of the simplified model was 0.2101. This value increased to 0.3072

with the addition of the squared and third power distance terms and the corner dummy

variable. Finally, with the addition of the distance to the Tenderloin and Bleecker and

Washington Square red light districts, the goodness of fit reached 0.3507. The coefficient

of determination value of 0.3507 indicates that the regression measures 35.07 percent of

the variation of price per square foot about its mean.

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[34] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 214.
[35] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 214.

After running the regression, diagnostic tests were completed. The full model, which includes all the distance terms and the distance to red light districts, has been corrected for heteroskedasticity. Heteroskedasticity was detected using the Bruesch-Pagan test. Although some multicollinearity exists between distance variables, the best course of action is to do nothing because no variables can be dropped from the model. Dropping certain variables would be theoretically unsound and could cause biases in the interpretation of the remaining variables. Multicollinearity, although present, does not bias the coefficient estimates.[36]

Upon completion of the diagnostic tests, an interpretation of the red light district distance independent variables is necessary to understand the effect of prostitution on Manhattan's urban environment. The marginal impact of distance to the Tenderloin on the price per square foot of land is consistently negative and significant. The negative coefficient of the distance to the Tenderloin variable explains that as distance from the Tenderloin increases, the price per square foot decreases. Thus, the Tenderloin is a positive amenity according to these results. The Bleecker and Washington Square district, on the other hand, is consistently positive and, therefore, a disamenity. The Tenderloin variable remains, on the whole, close to or greater than one in magnitude. A one unit increase in distance from the Tenderloin will cause a one percent negative change in the price per square foot of land. The Bleecker and Washington Square variable, when statistically significant, is much greater in magnitude than the Tenderloin variable. The Bleecker Street and Washington Square variable's coefficient for the years 1868, 1872, 1873, 1874, and 1876 (years of statistical significance) are 1.866, 2.097, 0.859, 1.49, and 2.33 respectfully. Therefore, the Tenderloin variable had a moderate impact as a positive

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[36] Studenmund, A.H. Using Econometrics. 5th ed. (Boston: Pearson, 2006) 392-394.

amenity on Manhattan's land values, while the Bleecker and Washington Square district had a large affect as a negative amenity.

Researcher Dr. Timothy Gilfoyle's historical descriptions help to explain the results obtained in this study. The Tenderloin, a major prostitution center, was also a prominent entertainment location with many, many positive amenities associated with commerce, restaurants, and the arts of the area. Being such a major entertainment center, the Tenderloin had a large positive impact on the surrounding urban environment. Bleecker and Washington Square, on the other hand, was populated by struggling artists and working immigrants. The prostitution in this district was much more revealing, crude, and publicly known and displayed. Neither district was characterized by upper class residents, but the Bleecker Street and Washington Square definitely had more disamenities associated with its prostitution.

When analyzing the econometric results it is important to place them in historical context. Within the history of prostitution in New York City during this time period, a major institutional change occurs in 1870 with the emergence of Comstock and the preventative society, Society for the Suppression of Vice. After 1870, both the Tenderloin and Bleecker and Washington Square variables are significant more often than not. Bleecker and Washington Square appears significant only one time in the period from 1867 to 1870, but significant four times in the period of 1871 to 1876. Perhaps, with the increased public awareness of the vices associated with prostitution due to the preventative societies and the illegal raids of brothels by the Society for the Suppression of Vice, Bleecker and Washington Square's red light district drew increasingly negative

public attention. This negative attention ultimately caused this red light district to be more significant as a disamenity to New Yorkers.

Conclusion

This study indirectly measured the effect of prostitution on New York City's urban environment through estimating the impact of red light districts on Manhattan's land values. The Tenderloin, a major entertainment center with shops, restaurants, theaters, and prostitution, was found to be a positive amenity. The Bleecker and Washington Square district, an area of immigrants, struggling artists, and public displays of prostitution, was found to be a large disamenity.

The historical context helps to explain the estimation results. When examining the influence of the emergence of preventative societies in 1870, the Bleecker and Washington Square district variable appears consistently statistically significant after 1870 as a disamenity. The increase in public awareness and negative attention obviously influenced the perception of the Bleecker and Washington Square brothels. New Yorkers began to view this red light district as a disamenity to their city's neighborhoods.
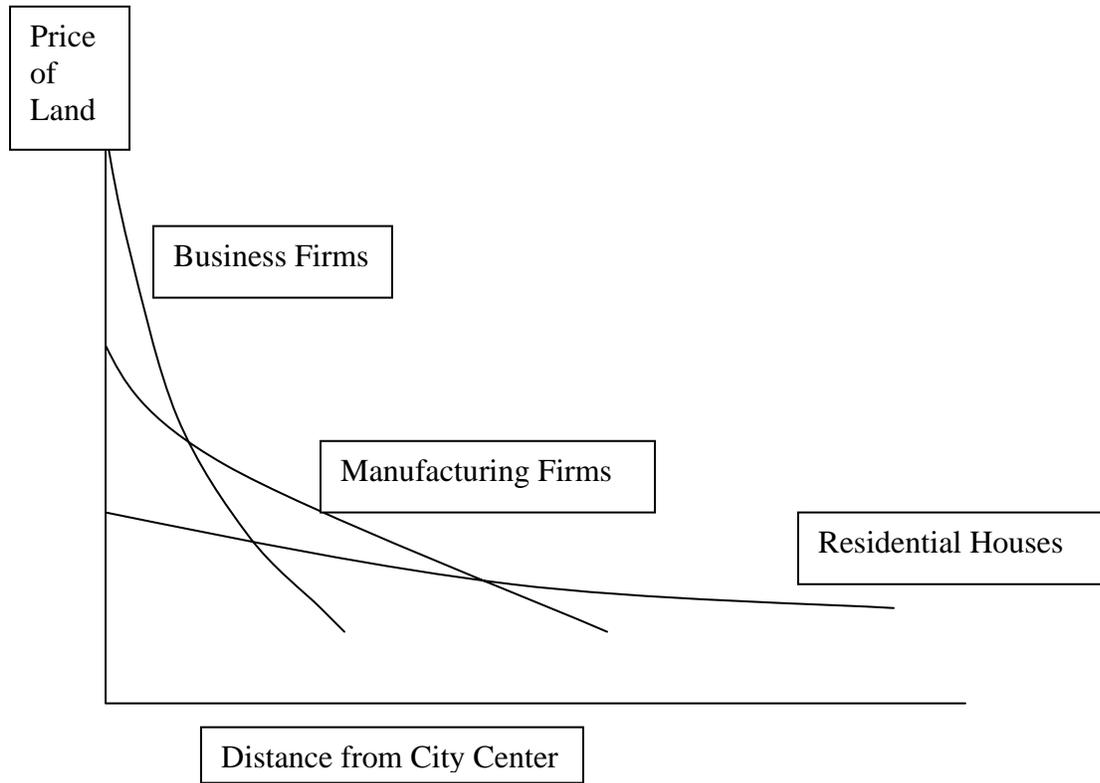
Many modern policy makers and government officials associate prostitution with crime and urban decay. As seen in the estimation results, that is not always the case. The Tenderloin functioned as both a major entertainment center and the number one red light district in the mid 1800s. And, the Tenderloin's brothels did not negatively impact the surrounding land values. During this time period, prostitution was a public affair for the rich and poor. Brothels operated with and among other centers of entertainment throughout the city, not always causing negative attention or public disapproval.

The profitability of red light districts and this economic analysis does not comprehensively address the issue of prostitution in nineteenth century Manhattan. Child prostitution, venereal diseases, and sexual abuse were associated with the prostitution business. The lack of employment choice for women left many girls with no option other than prostitution. As a result, prostitutes were generally poor and female. Deciding to be a prostitute meant giving up one's sexual freedom. During this time period, prostitution was not a decision made with personal liberty. Instead, chains of low wages, discrimination, and inadequate welfare systems forced many women into the prostitution business.

Anothony Comstock's regulation of red light districts sparked a public awareness on the vices and dangers associated with prostitution. The emergence of the SSV most likely influenced the Bleecker and Washington Square red light district in becoming a significant disamenity. However, it is important to remember that the SSV used extralegal and oppressive forces to accomplish their goals. Abusing human rights with the ultimate goal to stop other human right abuses is unwarranted, unjust, and unfavorable. Instead, modern policy makers should recognize the need for welfare programs and anti-discriminatory laws in the fight against prostitution. Although a potentially profitable business, the dangers of prostitution merit the use of legal means to regulate or terminate its practices.

Appendix

Graph 1
The Monocentric Model[37]

Price
of
Land

Business Firms

Manufacturing Firms

Residential Houses

Distance from City Center

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[37] O'Sullivan, Arthur. <u>Urban Economics</u>. 5th ed. (Boston: McGraw-Hill, 2003) 184.

Table 1[38]
Red Light District Information

Red Light Districts	Location in Manhattan	Center of each Red Light District	Description of Red Light Districts
Tenderloin	North from 23rd Street and between 5th and 8th Avenue	40.74568 Latitude 73.99264 Longitude	Largest entertainment district in Manhattan (theaters, hotels, department stores)
Rialto	14th Street from 3rd Avenue to Broadway and Union Square	40.73410 Latitude 73.98913 Longitude	Wealthy and fashionable with many hotels and theaters
East Side	North of Union Square East 22nd Street between 3rd and 4th Avenue	40.73880 Latitude 73.98513 Longitude	Fashionable prostitution
Bleecker and Washington Square	Bleecker Street and Washington Square	40.72821 Latitude 73.99729 Longitude	
Bowery	Bowery Street and Allen Street	40.71851 Latitude 73.99168 Longitude	Working class center with saloons, concert halls, gambling dens, theaters
Five Points	Five Points: Cross Street, Anthony Street, Orange Street. Chambers Street behind City Hall Park Water Street Mott Street from Chatham Square to Hester Street	40.71284 Latitude 73.99869 Longitude	Lower class center of prostitution

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[38] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 199-223.

Table 2
Model Specification

| Variable	Description
Lnpsf	Log of price per square foot
D	Distance from City Hall
D2	Distance from City Hall squared
D3	Distance from City Hall to the third power
N	Distance North from City Hall
N2	Distance North from City Hall squared
N3	Distance North from City Hall to the third power
E	Distance East from City Hall
Corner	If the vacant parcel is a corner lot (1 if yes, 0 if no)
Td	Distance from Tenderloin Center
Bwd	Distance from Bleecker and Washington Square District Center

Table 3
Estimation Results

Year	R^2	Variables with 10% Level of Significance	Tenderloin Variable Coefficient	Td P-value	Bleecker and Washington Square Variable Coefficient	Bleecker and Wasington Square P-value	F-test P-value
1867	0.4545	Corner, e, n2, n3, d2, d3	-0.512	0.164	0.247	0.692	0.000
1868	0.4091	D, d2,d3, n, n2, n3, e, td, bwd	-0.706	0.001	1.866	0.000	0.000
1869	0.2917	corner	-0.640	0.294	-0.420	0.506	0.000
1870	0.4202	D, d2,d3, n2, n3, e, corner, td	-1.33	0.003	0.230	0.747	
1871	0.5830	D, d3, n, n2, n3, e, corner, td	-1.59	0.008	0.677	0.568	
1872	0.3507	D, n2, e, td, bwd	-1.37	0.000	2.097	0.004	0.000
1873	0.2722	D, d2, n2, n3, e, corner, bwd	-0.423	0.291	0.859	0.073	0.000
1874	0.3866	D, n, n2, n3, e, corner, td, bwd	-1.06	0.034	1.49	0.003	0.000
1875	0.2324	D, d2, d3, n, n2, n3, e	0.353	0.481	0.648	0.192	0.000
1876	0.2825	D, d3, n2, n3, e, td, bwd	-1.17	0.014	2.33	0.011	0.000

Table 4
Model Comparisons

| Year	R^2 for model: lnpsf = f(d)	R^2 for model: lnpsf = f(d, d2,d3, n, n2, n3, e, corner)	R^2 for complete model: lnpsf = f(d, d2,d3, n, n2, n3, e, corner, td, bwd)
1867	0.3432	0.4514	0.4545
1868	0.2982	0.3892	0.4091
1869	0.2129	0.2853	0.2917
1870	0.0613	0.3776	0.4202
1871	0.1404	0.5370	0.5830
1872	0.2101	0.3072	0.3507
1873	*	*	0.2722
1874	0.2085	0.3580	0.3866
1875	0.1577	0.2247	0.2324
1876	0.1727	0.2298	0.2825

* due to data errors, these values have not been calculated

Map 1
New York City's Wards[39]
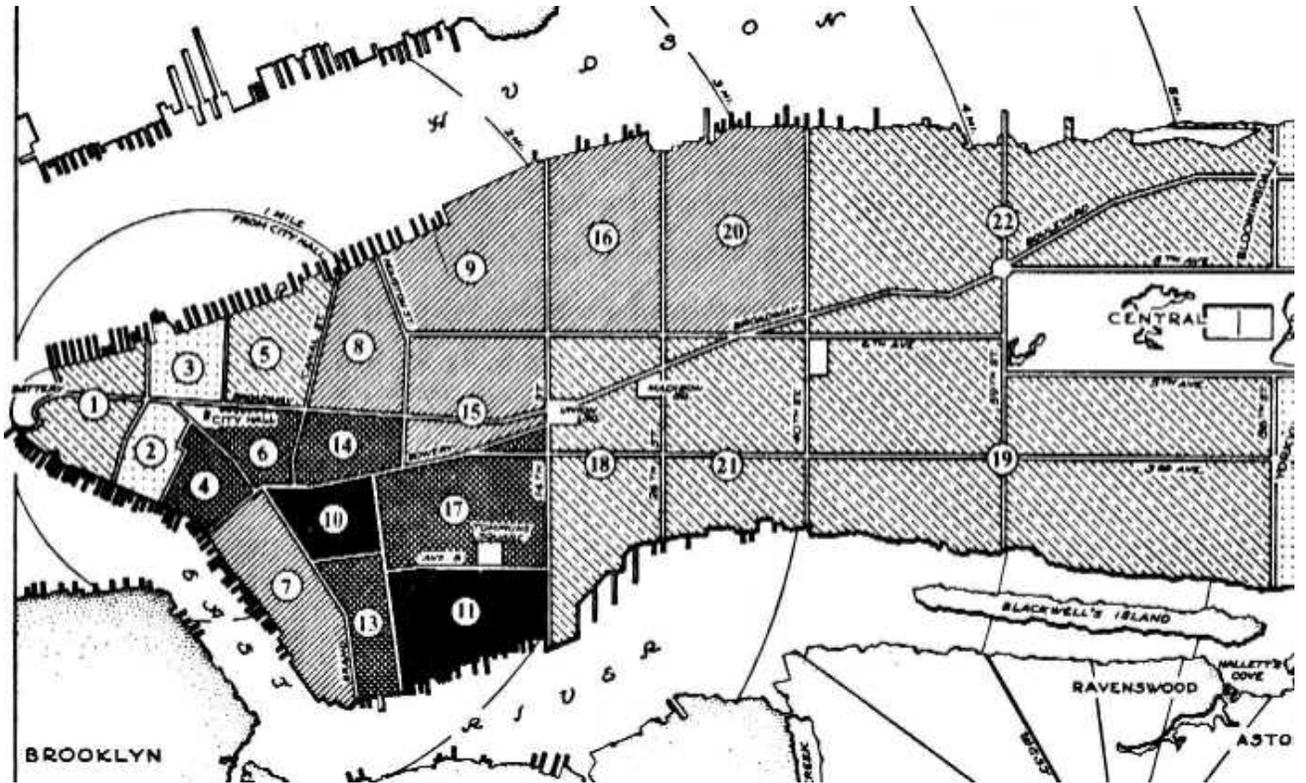
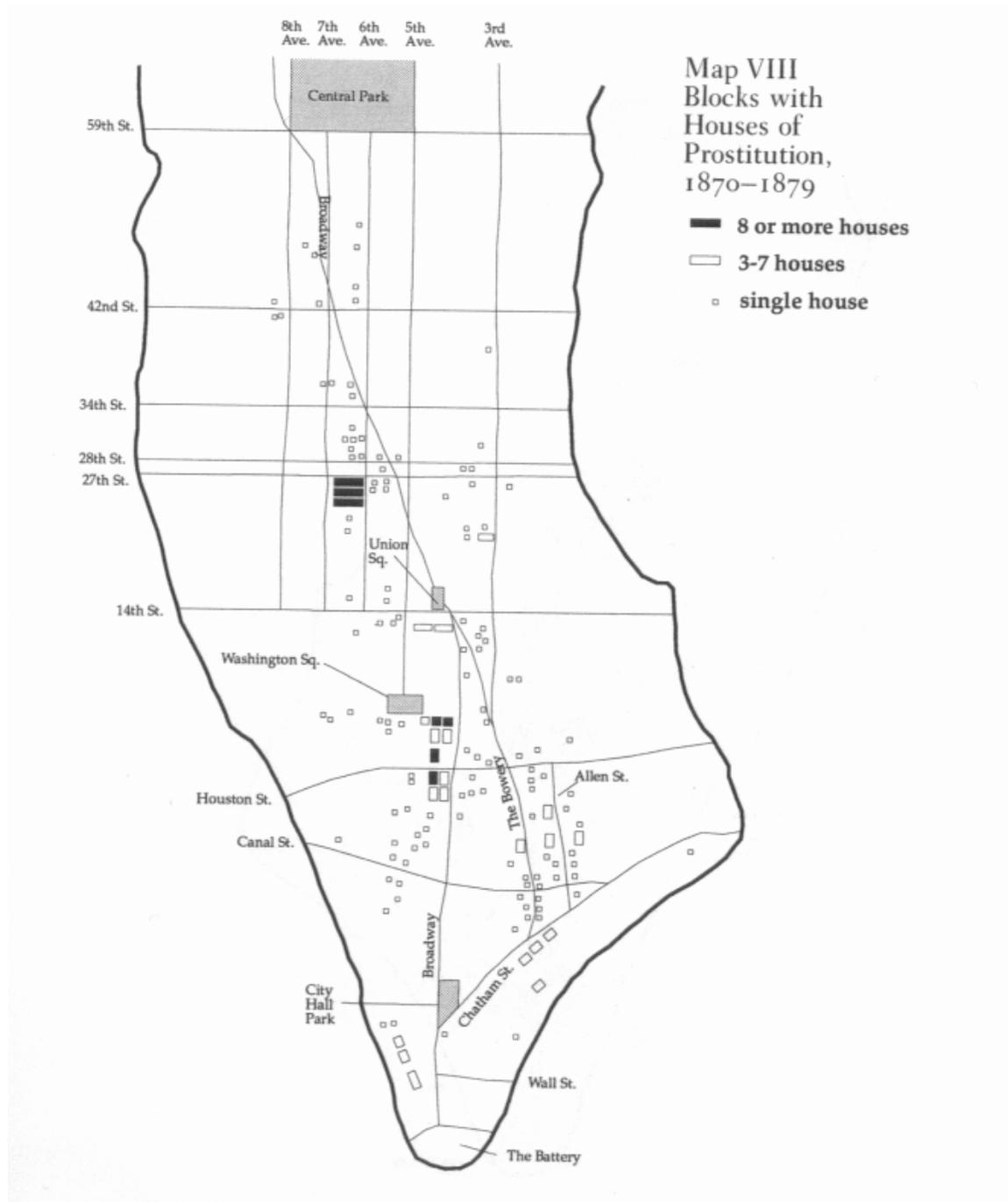[39] Mandelbaum, Seymour J. "Ward Boundaries and Population Densities, 1870." University of Connecticut. 28 February 2007 <http://vm.uconn.edu/~pbaldwin/wardtable.html>.

Map 2
Prostitution Districts[40]

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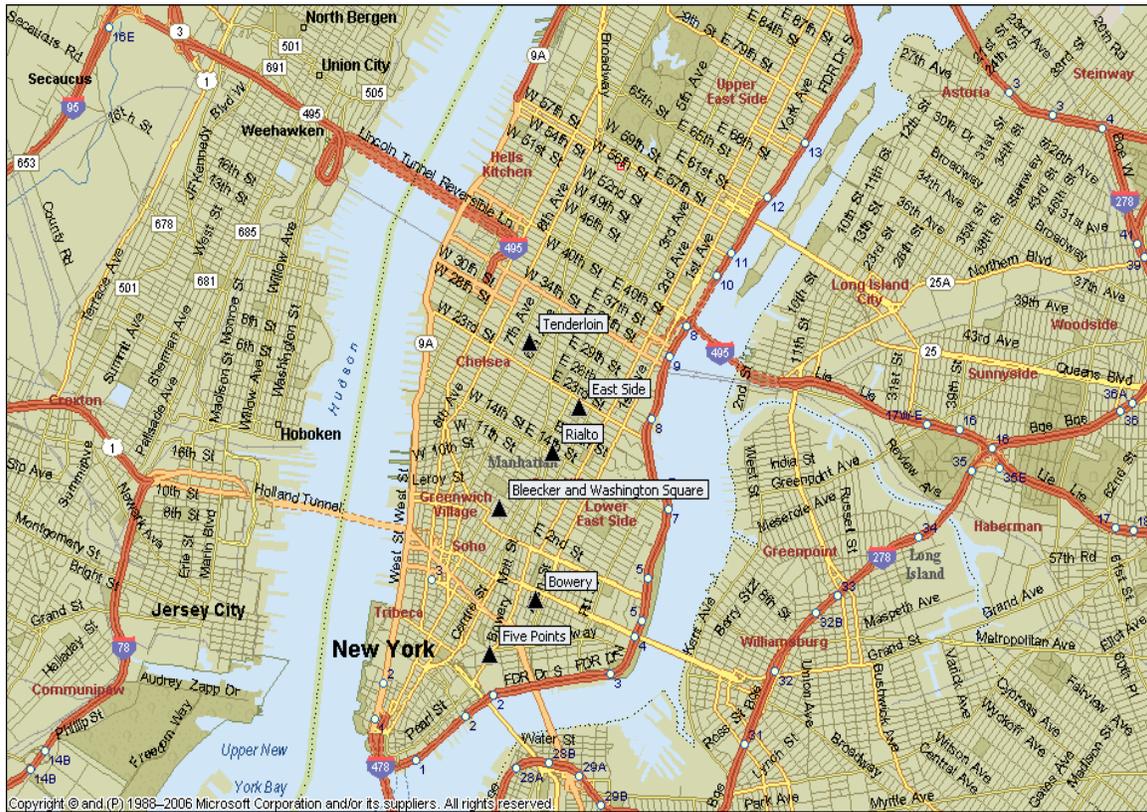
[40] Microsoft Corporation. Microsoft Streets and Trips. CD-ROM. Edition 2007. United States: NPD Group, 2006.

Map 3
Prostitution Densities in Manhattan[41]

[41] Gilfoyle, Timothy J. <u>City of Eros</u>. (New York: W.W. Norton and Company, 1992) 199.

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