The Gender Pay Gap in New York City and Long Island: 1986–2006

by Bhaswati Sengupta

Working women have won enormous progress in breaking through long-standing educational and occupational boundaries in recent years. However, a wide variety of statistical studies have found that sizable male-female pay gaps still persist in this country, at both the national and state levels. These findings have led to a considerable amount of research into the socio-economic factors that could explain gender wage differentials.[1] In this article, we focus on the much less-studied question of the dimensions and sources of the gender gap in the country's largest urban job market of New York City and Long Island.

In exploring the gender gap, it is natural to first ask the question: what explains the difference in earnings between *any* two individuals? A broadly defined list would attribute the difference to educational attainment, accumulated work experience, industry and occupation, wage-negotiating ability through union membership, etc. These are the *known* or measureable factors that explain the wage gap leaving the part of the wage gap not explained by these observable characteristics pointing to the more ominous issue of gender based discrimination. This, however, is the narrowest existing definition of discrimination since it assumes that the other determinants of wages emanate from choices women make given the same opportunities as men. It assumes away any complexities that limit options available to women that may lead them to acquire less experience or push them towards lower paying occupations than men.[2] For instance, a woman may have less accumulated work experience than a man of her age since women tend to take time off the workforce to look after young children. This is borne out in empirical observation,[3] but it suggests a more deep-seated cultural bias that expects less than the same level of sacrifice from men.

Another issue of considerable debate is if women choose lower paying jobs or if it is lack of access to higher paying jobs that leads then to cluster in traditional occupations that reduces the average wage in these occupations. There is more substantive evidence of a "crowding out" effect implying the latter. How systemic gender bias affects women's economic outcomes is a subject that can only be approached through an interdisciplinary frame since its scope is too wide for empirical economics alone.

This article is a more modest study of recent trends in the gender gap in New York City and Long Island that investigates data from the U.S. Census Bureau's large monthly Current Population Survey for the years 1986-2006. This data bank contains nationwide samples of wage and salary workers over the age of 16 who

worked full time.[4]   An hourly wage was calculated for all workers based on the following: if a valid hourly wage was available it was used in the analysis. An hourly wage was estimated for salaried workers who typically report a weekly wage by dividing it by their hours worked in the week.[5]   One limitation of this survey data is that the Census Bureau chooses to record incomes only up to a maximum, "top-coded" ceiling; ie., it does not record the actual incomes of the relatively small numbers of millionaires. Using theses top-codes as wage estimates leads to a downward bias in the average wage. To alleviate this bias, a common statistical method is used here to replace the CPS provided top-codes of high earners with more realistic average high-wage estimates.[6]   The estimated hourly wage series was then converted to 2006 dollars by using the government's main inflation-adjustment index (CPI-U) for New York, Northern New Jersey and Long Island.

Trends in the Wage Ratio: 1986-2006

The most often quoted measure of the national wage gap is the ratio of median earnings of women to men, currently 0.78. This ratio stood at a mere 0.58 in 1963, when Congress passed the Equal Pay Act, making it illegal to pay men and women employed in the same establishment different wages for "substantially equal" work. The increase in wage equity has been brought about by the direct impact of Civil Rights Legislation on the American workplace as well as more broad-based sociological changes over time. Over the last 45 years, there has been a considerable shift in the occupational distribution of women, with more and more women working in what were once considered traditionally male dominated jobs. Decreasing fertility rates and an increase in the age at which women have children has also increased the labor force participation among women. Regional wage ratios for New York City and Long Island show a similar upward trend and are presented for the years 1986-2006 in Figure 1.

We see a gradual trending upwards of the wage ratio for both Long Island and New York City reaching 0.8 and 0.9 in 2005 respectively. While gender inequality has been persistently higher in Long Island, the data over the last decade show a pretty remarkable catch-up to New York City. Even though the wage gap has been falling in both, it has been falling more rapidly in Long Island. This long-term movement in the wage ratio is often a better indicator of the true economic gains women have made, rather than its short term fluctuations. Since this value is the ratio of two wage series, it may often be the volatility of male wages driving changes in the ratio without much change in the real wage of women. This case is perfectly illustrated by the male and female wage trends for New York City this decade. As Figure 2 shows, women's wages have seen little movement during this time (trending slightly downwards) and it is the instability of the male wage that results in the rise and fall in the gender gap during this period.

In contrast, the two wage series for Long Island present more encouraging evidence of rising gender equality in the same period (Figure 3). For the five-year period 2000–2005, we see male wages more or less stagnant, while the female wage has seen a stable increase. This suggests that the increase in the wage ratio over

this period is a better indicator of true improvement in the economic status of women (as compared to New York City).

Key Sources of the Gender Gap

Race and Ethnicity. Breaking up our sample by race and ethnicity, we consider the wage ratios for non-Hispanic White, Black and Asian as well as Hispanic (of all races) subsamples.[7] Gender ratios are presented for the periods 1987–1989, 1997–1999 and 2004–2006 in Figure 4. White and Asian Women have experienced consistent increases in gender equity from one period to the next with their male counterparts. In fact, Asian women achieved almost perfect wage parity in the last period, earning 97 percent of what Asian men earn. Even though white women make more than black, Asian and Hispanic men, their earnings are 87 percent of the earnings of white men, the most economically privileged demographic. While black women experience more gender equity than white women, this reflects the low wages earned on average by black men and not an improvement in their economic status. Hispanic women make the lowest incomes of all sub-groups. Using the earnings of white men as the base for comparison, wage ratios (of all race/ethnicities) are presented in Figure 5.

We find that Asian women had caught up with white women by 2006 and so compare equally favorably to white men (0.88). Non-Latina Black and Latina women make less than 65 percent of what non Latino white men earn, with gender wage ratios (0.64 and 0.61, respectively) comparable to those faced by the average woman 40 years ago.

Union Membership. Union members typically have a smaller wage dispersion compared to workers who are not union members. The reason is two-fold: i) the collective nature of wage bargaining lowers the disparities between members and ii) the non-unionized occupations (such as management) have a high dispersion of wages and worker attributes compared to the more homogenous unionized sectors.

Figure 6 presents women-to-men wage ratios for unionized and non-unionized workers in New York City and Long Island for the years 1986–2006. Two clear results emerge in this Figure: first, the gender gap has consistently fallen over time for unionized workers in both New York City and Long Island indicating that unions also decrease the volatility in male wages over time. And second, unionized women in Long Island have almost achieved near perfect parity with men (with a wage ratio of 0.97). While the wage gap on average in New York City is slightly lower for non-unionized workers, the last period (2004–2006) shows greater wage parity for the unionized workforce (0.92, compared to 0.89). Further exploring the notable effect of unions on gender equity in Long Island, we find that trends in union density (percent of the workforce that is unionized) reaffirm this finding.

Figure 7 presents the union density rates for New York City and Long Island for the three periods. Out of the four sub-groups, Long Island women are the *only* ones to have experienced rising density rates over the

period, while these rates have fallen for both men and women in New York City and for men in Long Island. Non-unionized women in Long Island face the biggest wage gap all the subcategories. The remarkable catch-up of wage ratios of Long Island to New York City that has been unfolding over the last 20 years may at least be partly explained by how well Long Island unions have performed in reducing the wage gap, as well as the increased participation rates of women in unions in Long Island.

Educational Attainment. The role of human capital, which is a composite of education and work experience, has an undisputed effect on wages. While the lower accumulation of work experience of women (due to low labor force participation in their child-bearing years) can explain away a third of the wage gap, the educational attainment of men and women are at comparable levels today. Hence, the level of education cannot prominently explain the gender wage gap. Figure 8 shows the percentage of men and women over the age of 24 who have a four-year college degree by race and ethnicity. It is clear that the distribution of educational attainment varies much more widely by race and ethnicity than it does by gender. We see women pulling ahead of their male counterparts in this measure, for every sub-category except Asians (though the gap is the smallest when comparing the two genders). The fact that gender gaps exist despite this phenomenon is suggestive of endemic gender discrimination.

Non-Hispanic whites and Asians have the highest percentages of higher educational attainment, while Hispanics have the lowest. The disappearance of the educational gap between men and women is a relatively recent historical phenomenon. For this reason, we would expect a bigger wage gap to exist for older women than for the relatively younger segment of the workforce, since fewer educational opportunities existed for them in the past. However, with the passing of time, as the younger and more educated cohorts of women get older, we should see much closer wage ratios for women of different ages (as compared to their male counterparts). Figure 9 presents the wage ratios for women under and over 40 years of age for the period 1986-2006.

The numbers confirm our expectations: Though the wage ratios are higher for older women than they are for younger women, the ratios for women over 40 improve consistently over time. We should expect the difference between the cohorts to disappear completely over time. Evidence to the contrary would suggest an "accumulation" of discrimination over time that puts women on a different, more disadvantaged path on the economic ladder as compared to men.

Occupational Distribution. Perhaps the largest contributor to the wage gap if the occupational segregation of men and women into higher and lower paying jobs. The first line of analysis is to look at wages in the broad occupational groups. Given this wage distribution across occupations, we can find how men and women are distributed across these occupations. For the major occupational categories in the CPS, we see the highest

average wage paid to Management, Professional and related occupations, followed by Construction and Maintenance Work, Sales and Office Administration, Production, Transportation and Material moving and Service. The average wage for these occupational groups is presented in Figure 10. While women are almost entirely absent from two of these three sectors (Construction and Production), the distribution of men is more even across these five categories. It is no surprise that low to no participation in construction related activities, the second highest paid occupation would explain a part of the wage gap.

Figure 11 presents the distribution of women in New York City and Long Island across these groups by race and ethnicity. The height of each bar may be interpreted as the likelihood that a woman of a given race and ethnicity works in a particular occupation. Construction and Production related activities have been categorized as "Other".

Non-Hispanic white women are most likely to work in management positions followed by Sales and Office Administration. Asian women have a more even but similar distribution. It is clear that the high proportions of white and Asian women who make it to the highest wage occupation is the reason for their high wages and is directly correlated with their educational achievement. The reason for more gender parity among Asians can be inferred from the occupational distribution of men (Figure 12).

Note that only 8% of Asian men work in construction and maintenance, the second highest paying occupation that has almost no representation for women. Moreover, they are slightly less likely to in management and professional occupations than Asian women, driving the average wage across genders to roughly the same level.

For non-Hispanic white women, who are in fact more likely have management and professional jobs than their male counterparts (reflecting higher educational attainment as a group), there are three factors that lead to lower wage ratios. The wage gap in management and professional jobs (the wage ratio is 0.89, see Figure 13) negates their higher representation in the occupation when we estimate their average earnings across occupations. This is because higher-level management jobs are notoriously skewed towards men. And 16% of white men work in construction, which also pays relatively high blue-collar wages.

For both Hispanic men and women, the service sector is their single biggest employer. Since this occupation has the lowest wage, the average wage of both men and women tends to be lowered. Like non-Hispanic white women, Hispanic women are more likely to be in management and professional jobs than Hispanic men (though significantly lower proportions are represented here as compared to the white workforce). This again, is clearly a function of higher educational achievement that Hispanic women have over Hispanic men (but significantly lower than white women). Some 20 percent of Hispanic men work in the construction industry, and the high wage in this sector results in the low wage ratio of men to women when we look at average earnings. Non-Hispanic black men and women are generally more evenly distributed across occupations than all other race/ethnicities and have similar profiles. This similarity also results in a smaller wage gap between the genders.

Conclusion

This study analyzed government survey data on gender pay differences for New York City and Long Island in each year since the mid-1980s. Our results generally conform to broad patterns found at the national level. For every demographic where women had a higher rate of educational attainment than men, they were also represented in greater strengths in the highest-paying occupation. However, within every occupation, a gender wage gap still persists that tends to counter greater occupational representation that women achieve through education. The gender gap for older women falls over time as the educational opportunities available to younger women are carried over successive cohorts. We also find that women who are union members experience a steady improvement in pay equity over time. A proportion of the gender gap due to occupational choice (women not working in the high paying construction sector) is natural and likely to persist, unless we see more women being represented in management and professional jobs. This is a source of growth that would come from better educational opportunities made available to young Latina and non-Latina black women, as well as better representation of all women in the highest tiers of this occupation.

Perhaps the most interesting finding of this study has been the remarkable performance of women in Long Island, who had a wage ratio much below the national average that now looks poised to catch up to New York City in coming years. This recent trend inspires confidence since the wage gap was reduced not due to the poor performance of men's wages (as is the case for New York City), but rising real wages for women in the face a stagnant wage for men. Women in Long Island are the only major demographic that has increased its rate of participation in unions over the last 20 years.[8] Unionized women have also achieved near perfect gender equity since the late 1990s. Higher unionization rates combined with the wage parity achieved by these unions seems to be an important underlying force for the improved wage ratios.

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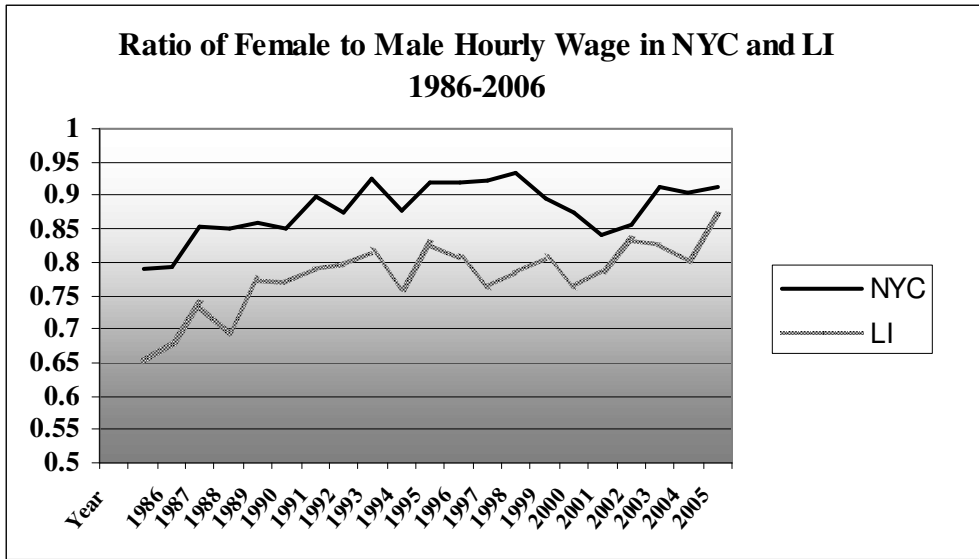
Figure 1: Ratio of Female to Male Average Hourly Wage in New York City and Long Island 1986 – 2006
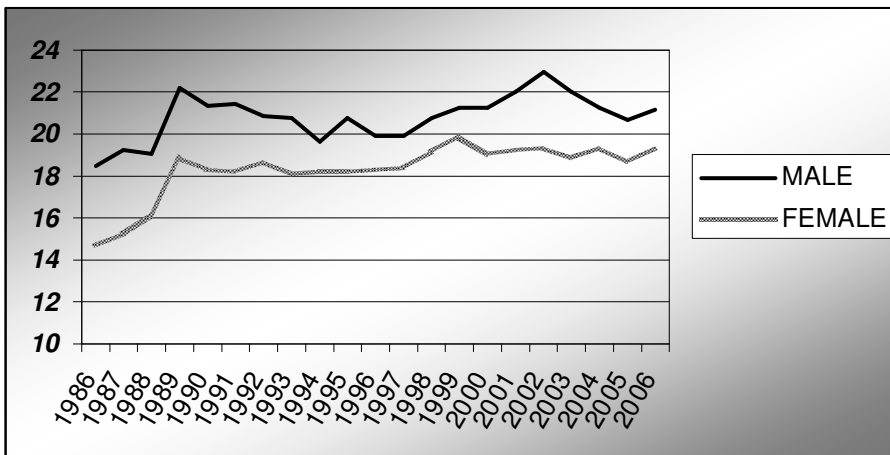

Figure 2: Male and Female Average Hourly Wage (in 2006 dollars) in New York City 1986 – 2006
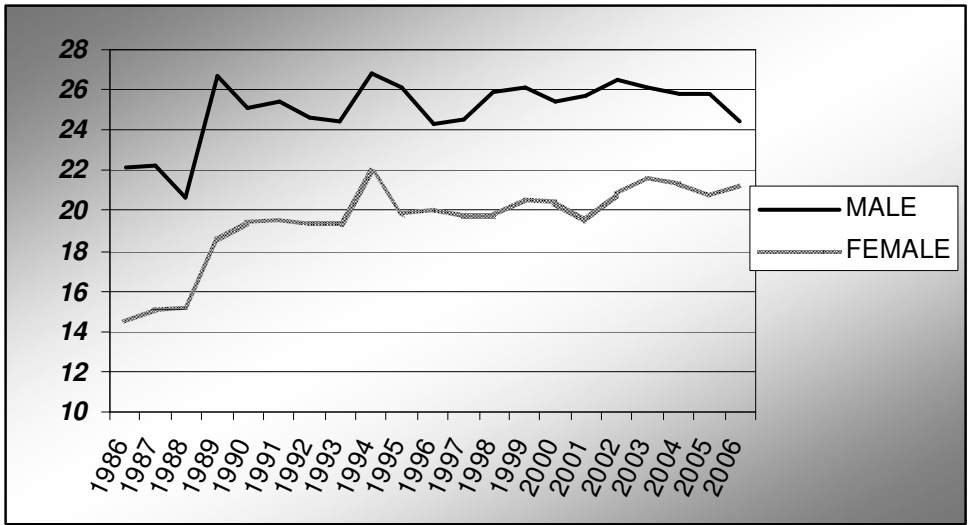
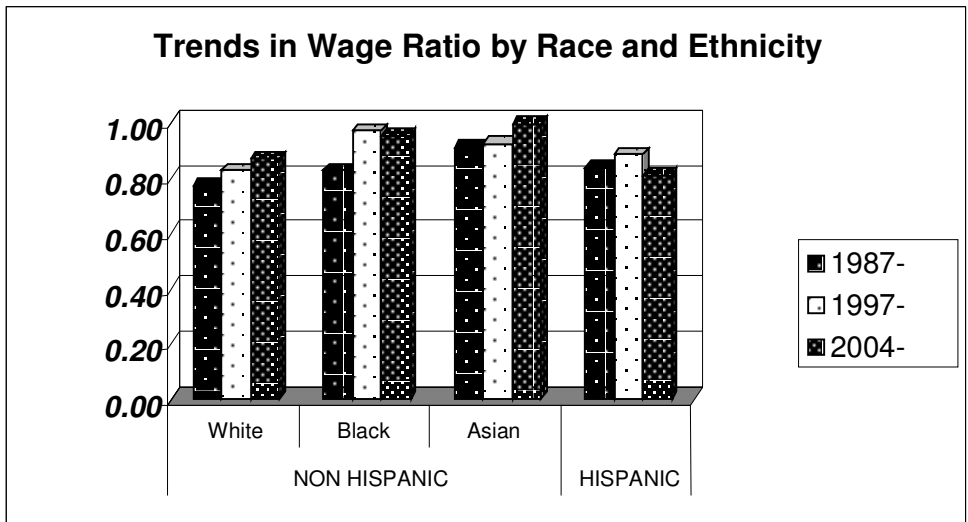**Figure 3: Male and Female Average Hourly Wage (in 2006 dollars) in Long Island 1986 – 2006**

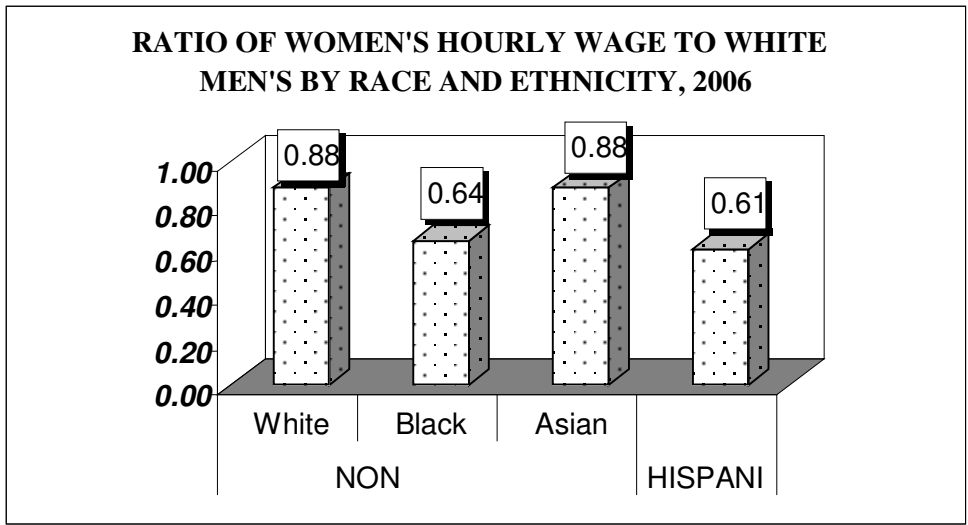**Figure 4: Trends in the Wage Ratio by Race and Ethnicity**

RATIO OF WOMEN'S HOURLY WAGE TO WHITE MEN'S BY RACE AND ETHNICITY, 2006
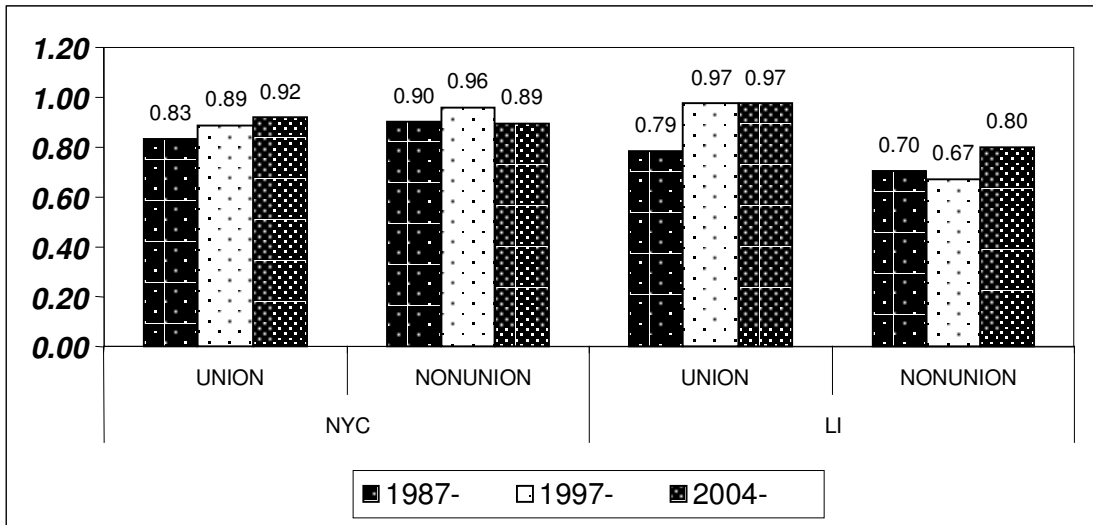
	White	Black	Asian	Hispanic
	0.88	0.64	0.88	0.61

NON | | | | HISPANI

Figure 5: Ratio of Women's Hourly Wage to White Men's by Race and Ethnicity, 2006

NYC — UNION: 0.83 (1987-), 0.89 (1997-), 0.92 (2004-)
NYC — NONUNION: 0.90 (1987-), 0.96 (1997-), 0.89 (2004-)
LI — UNION: 0.79 (1987-), 0.97 (1997-), 0.97 (2004-)
LI — NONUNION: 0.70 (1987-), 0.67 (1997-), 0.80 (2004-)

■ 1987-   □ 1997-   ▨ 2004-

Figure 6: Wage Ratios by Union Status, New York City and Long Island: 1986-2006

	WOMEN (NYC)	MEN (NYC)	WOMEN (LI)	MEN (LI)
1987-1989	33.04	40.26	22.29	32.01
1997-1999	29.23	30.25	23.77	31.18
2004-2006	28.00	27.07	25.48	29.78
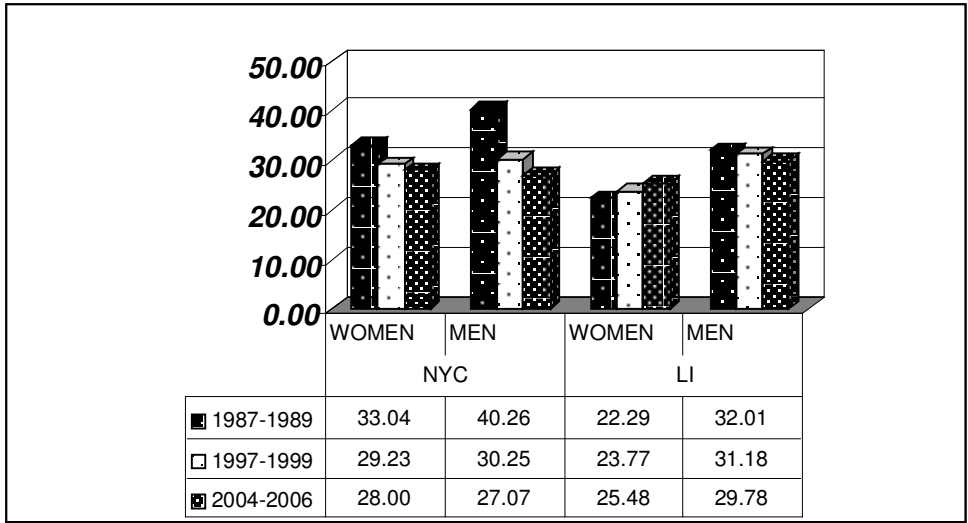
Figure 7: Unionization Rates, New York City and Long Island: 1986-2006

	White (NON HISPANIC)	Black (NON HISPANIC)	Asian (NON HISPANIC)	HISPANIC
MALE	48.98%	25.26%	51.48%	15.22%
FEMALE	51.34%	29.70%	49.77%	19.33%
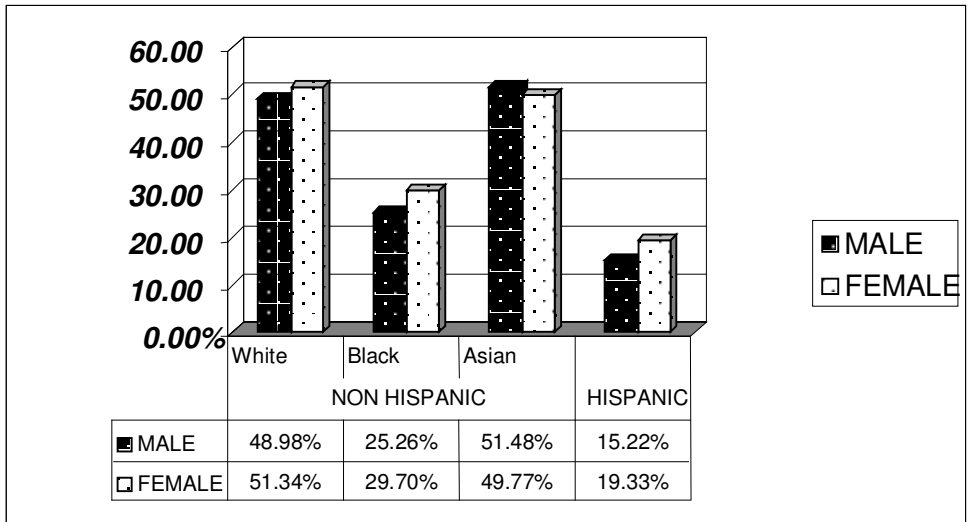
Figure 8: Percentage over Age 24 with a 4-Year College Degree, by Gender, Race and Ethnicity: NYC and Long Island: 2004-2006

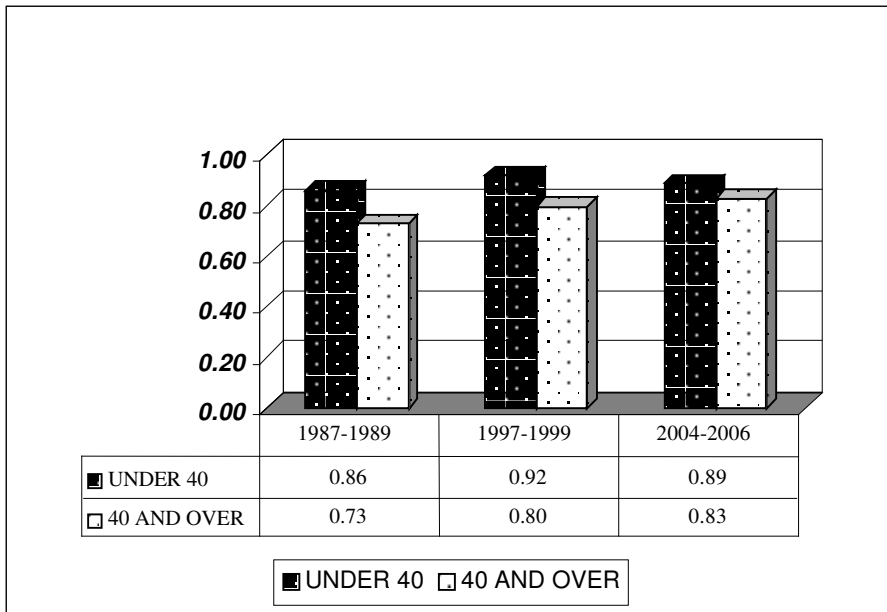|	1987-1989	1997-1999	2004-2006
■ UNDER 40	0.86	0.92	0.89
□ 40 AND OVER	0.73	0.80	0.83

■ UNDER 40 □ 40 AND OVER

Figure 9: Wage Ratios for Women by Age for NYC and Long Island: 1986-2006
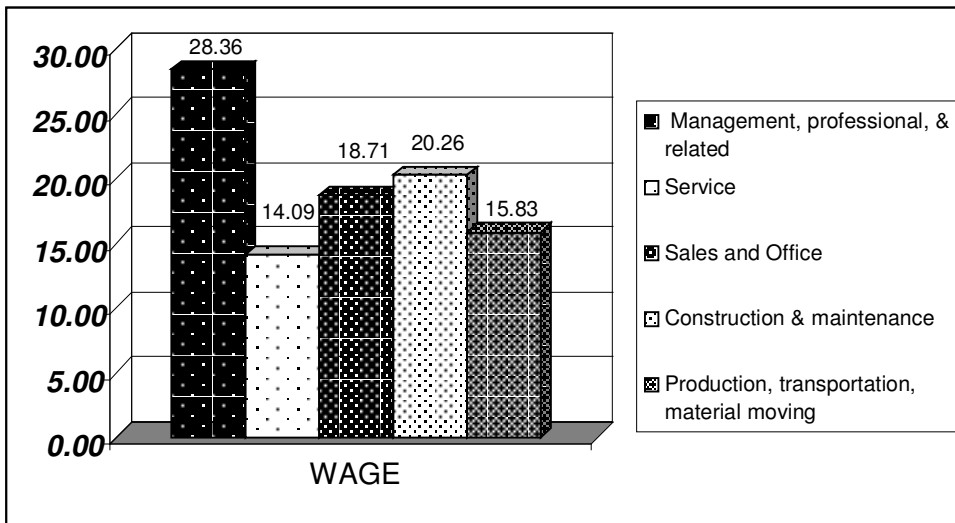

Figure 10: Average Hourly Wage by Occupational Group for NYC and Long Island: 2004-2006
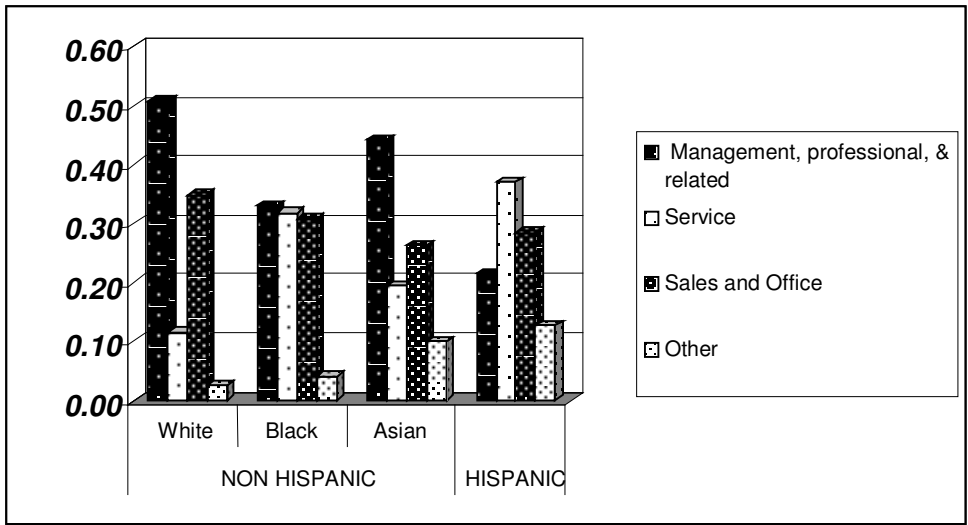
Figure 11: Occupational Distribution of Women by Race and Ethnicity in NYC and Long Island: 2004-2006
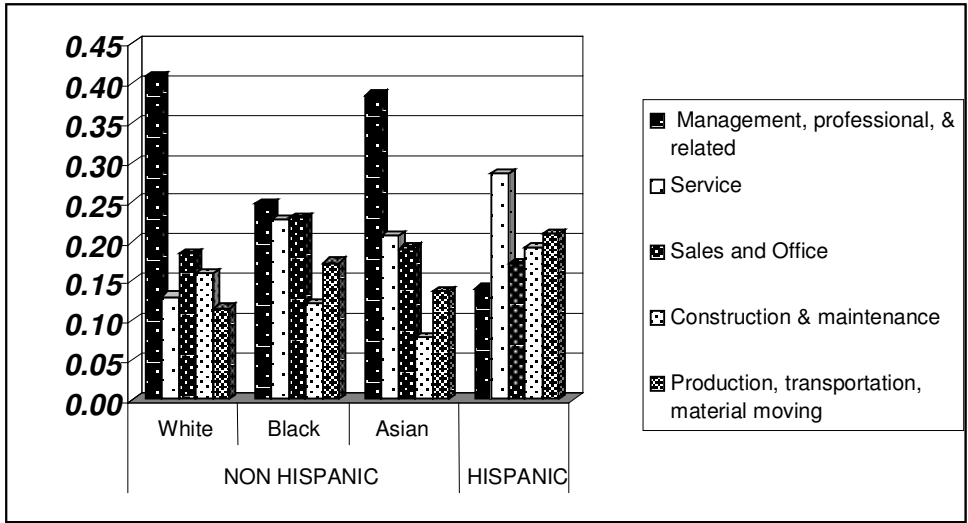

Figure 12: Occupational Distribution of Men by Race and Ethnicity in NYC and Long Island: 2004-2006
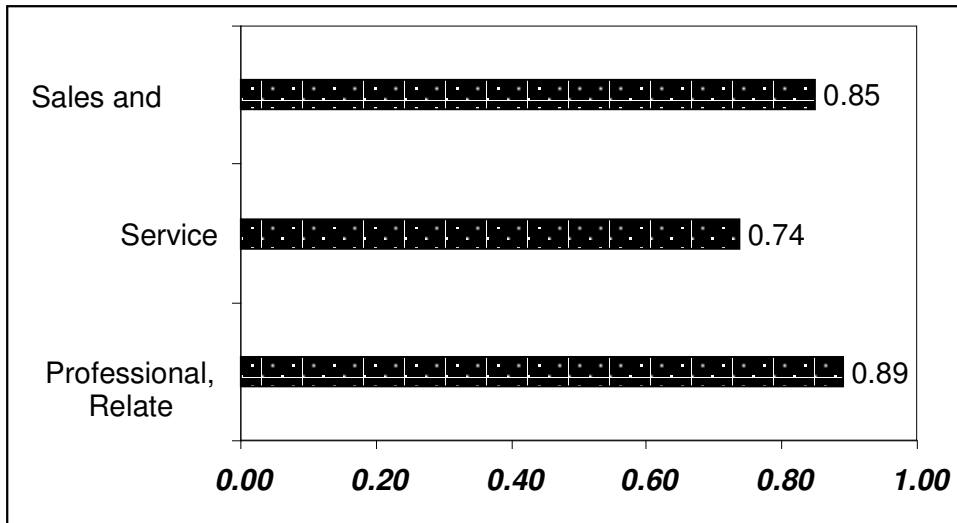
Figure 13: Wage Ratios for the Top Three Occupational Groups for Women: 2004-2006

NOTES

[1] See for example: the national research findings in Francine Blau, Marianne Ferber and Anne Winkler, *The Economics of Women, Men and Work*, 5th ed. (Upper Saddle River, NJ: Pearson/Prentice-Hall, 2005); at the state level, Erica Williams, *The Economic Status of Women in New York State* (Washington, DC: Institute for Women's Policy Research, 2008); and the New York Metro Area findings in Niev J. Duffy, "Recent Trends in the Gender Pay Gap in New York City & Long Island," *Regional Labor Review* (Fall 1999).

[2] Economists have found that if the industry and occupational distribution of men and women was the same, more than a third of the wage gap would be eliminated.

[3] Economists measure this factor to account for 1/3rd of the wage gap.

[4] The analysis here uses CPS Outgoing Rotation Group (ORG) Files, adjusted by Unicon Corp. for inter-year comparability. Full time workers were characterized as those working 35 or more hours a week and those who worked less *if* they indicated that their full time job demanded a lower commitment.

[5] The hourly wage does not include overtime, tips and commission (OTTC) and can thus lead to an undercount of the actual hourly earnings. However, earlier studies at the national level find that imputing a wage for these workers by dividing weekly earnings by hours worked result in implausible negative estimates of OTTC (See *The State of Working America: 2004-2005*, Economic Policy Institute 2005). We found this to be the case for regional level data as well.

[6] We estimated Pareto-imputed mean wages separately for men and women for each year. Values of the imputed means and the STATA code to estimate them generally are available on request from the author.

[7] The data analyses in the following sections presents separate results for New York City and Long Island in some sub-sections, and combined results for others. The latter approach is used when broader issues that are not location specific are analyzed or where subsamples are be too small to draw reliable inferences.

[8] See the detailed unionization rate estimates for NYC and Long Island in Gregory DeFreitas and Bhaswati Sengupta, "The State of New York Unions 2007," Regional Labor Review (Fall 2007).