Demographic analysis

To find out the socioeconomic impact of Highline in the neighborhood we also chose four indices from demographic field: age, race, income, and population density. The source of data is NYU Policymap where the demographic data is available there at census tract level for 2000, 2005-2009, 2011-2015.

Income:

To analyze income data, Since Highline has opened from 2009 we investigate the change of median income over the years, in three time (2000, 2005-2009, 2011-2015). In addition, to make sure that the change exclusively is the impact of Highline we selected the whole Manhattan without Highline area as our control group. To do that, first we had a null hypothesis: the income distribution of Manhattan without Highline and Highline area are not drawn from the same distribution.

We used km test [1] to test our hypothesis; we found out only for 2005- 2009 and2011-2015 the null hypothesis are rejected (Table 1).

Table 1. KS test						
	2000		**2005 - 2009**		**2011 - 2015**	
	P-Value	**Statistics**	**P-Value**	**Statistics**	**P-Value**	**Statistics**
Manhattan without Highline vs Highline	0.16	0.32	0.04	0.40	0.01	0.46

Then we used T test[2]to test our other two hypotheses;

1. The average score of median income does not differ significantly across Highline area from 2005-2009 to 2011-2015.

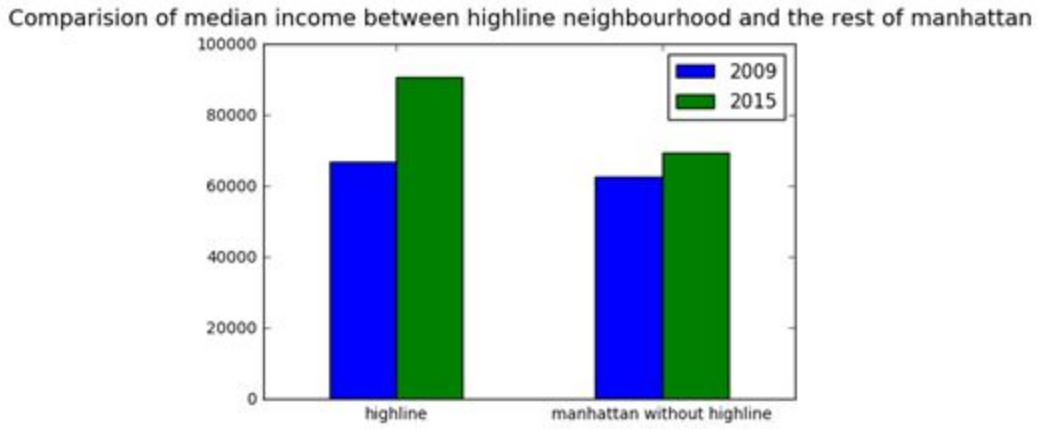
2. The average score of median income does not differ significantly across Manhattan without Highline area from 2005-2009 to 2011-2015(Table 2).

Table 2. T test		
	(2005-2009) vs (2011-2015)	
Data	**P-Value**	**Statistics**

Highline	0.001	4.29
Manhattan w/o Highline	2.7412290670898621e-10	6.57

Both two hypothesis rejected. After that we compare the average median income of both areas in two period(Figure 1).

Figure 1. Comparison btw median income avg



As we can see however the median income has differed significantly for both areas, the Highline area's change is more considerable(Table 3).

Table 3. Average median income		
	Mean	
Data	**2005-2009**	**2011-2015**
Highline	66992.90	90892.18
Manhattan w/o Highline	62668.14	69522.83

We did exactly same processes for age average, white population percentage, and population density indices but we couldn't find any significant change with those data.

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[1] (A two-sided test to test the null hypothesis that if 2 independent samples are drawn from the same continuous distribution.)

[2] T test measures whether the average score differs significantly across samples.