

## Quantitative Reasoning Assessment

In the hypothetical situation, I have been offered a job for which I can choose the location. My options include New York, Chicago, and Los Angeles. My parents have given me their reasons for why I should choose the New York position, and they are as follows:

1. I will be the happiest in New York since the salary is the highest.
2. New York has the lowest home prices.
3. New York has the lowest crime rate.
4. The New York climate is cooler with less rain, and so I will be happier.
5. The New York air quality is the best.

I have done research on these topics with the provided assessment document and have come to my own conclusions about each of the reasons listed above. I will address them here in the following sections.

### 1. Evaluation of Parents' Claims

#### *Salary and Related Happiness*

I first evaluated the salaries of each position at face value, then looked into other expenses that will occur during the month. This includes rent and travel expenses. Information was provided for two modes of transportation to work: car and either bus or train. The table below shows monthly expenses for each mode of transportation and rent, then provides a "realistic" monthly salary value after subtracting these necessary expenses.

	New York	Chicago	Los Angeles
Yearly Salary	\$ 100,000	\$ 80,000	\$ 90,000
Monthly Salary	\$ 8,300	\$ 6,700	\$ 7,500
Rent	\$ 2,900	\$ 2,400	\$ 1,900
Monthly Car Commute	\$ 60	\$ 240	\$ 250
Monthly Bus/Train Commute	\$ 100	\$ 150	\$ 220
<b>Remaining Monthly Allowance</b>	<b>\$ 5,340</b>	<b>\$ 4,150</b>	<b>\$ 5,380</b>

\*Transportation chosen for each location was the cheapest and number of work days in a month was assumed to be 4 full work weeks of 20 days.

After the monthly expenses were taken into account, it becomes apparent that New York does not have the highest salary. There is less than a 1% difference in salaries between New York and Los Angeles. Choosing a job in either location in comparison to Chicago would result in about a 30% larger monthly allowance, however neither New York nor Los Angeles should be chosen over the other in terms of salary.

### Home Prices

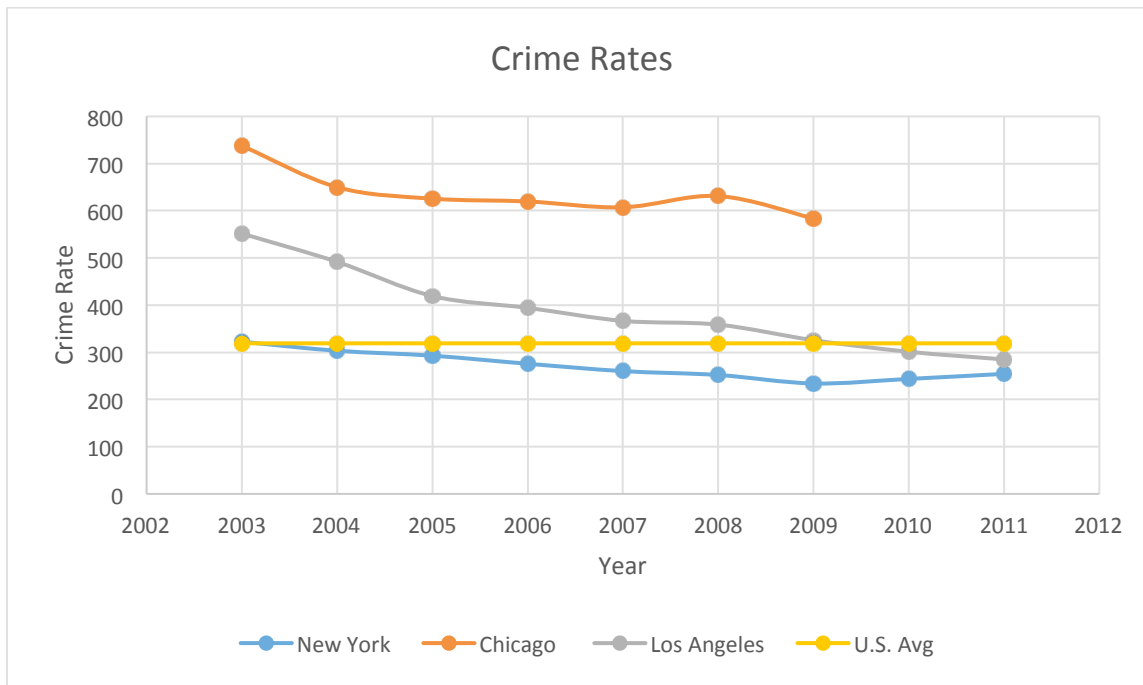
While researching home prices in each of the three locations, it was found that New York did not have the lowest home prices as of last year. The table below reports the median home cost during the last quarter of 2013 for all three locations.

	New York	Chicago	Los Angeles
Cost of Home	\$ 575,000	\$ 250,000	\$ 600,000

The research shows that Chicago's cost of a home is less than 50% of the cost of homes in either New York or Los Angeles. So while the monthly allowance after expenses is the lowest for Chicago, that money will go just as far during the purchase of a home. Chicago's home prices are also trending downward over the past few years, while those of Los Angeles and New York are trending up and holding consistently, respectively. In terms of purchasing a home, Chicago would be the ideal choice.

### Crime Rate

The data provided in the research for crime rates was plotted against each other and shown in the graph below.



New York has a clear advantage in terms of crimes rates, consistently below the U.S. average. However, Los Angeles should not be disregarded since it is trending downward and is now below the U.S. average as well.

### *Climate*

For precipitation amounts, New York was found to have the most rain. Its average of 4" per month is held fairly consistently throughout the year. In Chicago, they range from 1.5-4" per month and varies often throughout the year. In Los Angeles, most of the year is spent from about 0-1" and it only reaches up to 4" for about 3 months per year. Los Angeles has the advantage in terms of less rain.

The temperature is another consideration. Los Angeles is fairly consistent, ranging from 55-75 F over the year. New York and Chicago have wide ranges of temperatures, 30-80 F and 20-70 F, respectively. However, Chicago does reach slightly lower temperatures and has the advantage by temperature.

### *Air Quality*

By evaluating the air quality index, New York is most comparable to the U.S. average. While Chicago is slightly worse than average, Los Angeles has a definite higher air quality index than average. This gives New York the advantage in the area of air quality.

## 2. Chosen Position

Based on the research above I have chosen the New York Position. While it is not favored in categories of home cost or rain, it does win in terms of crime rates and air quality. It also finds a middle ground in terms of salary and temperatures. My research found different information than what my parents provided, however the conclusion to accept the position in New York remains the same.