To investigate the relationship between population density and income, a data set was created with the following variables by Census Tract (CT) for NYC:

- FAR = total building area of each CT divided by total lot area beneath the buildings.
- Total residential building area for each CT
- Median Household income for each CT
- Population Density is total population of the CT divided by area of CT (i.e., people per acre).

Sources

- Building areas and lot area from PLUTO file from the NYC Dept of City Planning (as of 2014).
- Median Household income, population, and CT area from the 2010 Census.

Descriptive Statistics (with outliers removed)

```
 . sum FAR popdenpera area_acres medianHHInc if FAR<20 & medianHHInc>0

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>FAR</td>
<td>2,108</td>
<td>1.70343</td>
<td>1.838916</td>
<td>.0025961</td>
<td>16.85772</td>
</tr>
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<td>popden</td>
<td>2,108</td>
<td>77.63733</td>
<td>55.52223</td>
<td>0</td>
<td>343.6401</td>
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<tr>
<td>area_acres</td>
<td>2,108</td>
<td>81.15334</td>
<td>141.6818</td>
<td>10.28023</td>
<td>2668.169</td>
</tr>
<tr>
<td>medianHHInc</td>
<td>2,107</td>
<td>54849.74</td>
<td>26344.5</td>
<td>8694</td>
<td>250000</td>
</tr>
</tbody>
</table>
```

Regression Results: Dep Var: ln(Pop. Density)

```
Variable | eq1 | eq2 | eq3
--------|-----|-----|-----
lnFAR    | 0.7100 | 0.9228 | 0.00 | 0.00
lnMedHHInc | -0.4039 | -0.2754 | -0.2827 | 0.00 | 0.00
lnResidArea | 0.7355 | 0.00 |
lnCTLandArea | -1.0098 | 0.00 |
_cons    | 8.2951 | 6.8705 | 11.5634 | 0.00 | 0.00
--------|-----|-----|-----|-----|-----|
N        | 2105| 2105| 2101|
r2       | 0.506 | 0.614 | 0.840|
r2_a     | 0.505 | 0.604 | 0.836|
PUMA FEs | No  | Yes | Yes|
--------|-----|-----|-----|-----|-----|
```

Legend: b/p
Equations 2 & 3 include PUMA neighborhood fixed effect dummies, where each PUMAs comprise several census tracts. Standard errors are clustered by PUMAs. The F-stats for the PUMA FE's are jointly statistically significant at greater than the 99% level.

For the regressions that include the neighborhood fixed effects, the elasticity of density with respect to income is around -0.28, suggesting a doubling of income leads to a 28% drop in density in a CT, *cet. par.*

**Wages of Bricklayers**

This graph gives the real wages of New York City bricklayers from 1874 to 1946. Annual wages (dollars per hour) were listed in a 1947 issue of *Engineering News Record*. The wage values were then divided by the CPI (from [http://measuringworth.com](http://measuringworth.com)). The wages were adjusted so that 1880 was assigned a value of 100. By 1914 (before zoning was implemented), the real wages of bricklayers were at an index value of 226.