# Notes

The raw data for this project originates from XXX. For this project, the raw data was scaled and standardized several ways. First, each variable was assigned to a category where a high value equates to a high opportunity ("higher value is better"), or where a high value equates to a low opportunity ("lower is better").

### Z-score

The z-score value represents the number of standard deviations x is from the mean. The z-score calculation is:

```
Where "higher is better": z\,score = \frac{x-mean}{standard\,deviation}
```

Where "lower is better": 
$$z \, score = \frac{x - mean}{standard \, deviation} \times (-1)$$

### Weights nominal

The weights nominal value represents where x falls nominally in the range of values, on a 0-10 scale. The weights nominal calculation is:

Where "higher is better": 
$$weights\,nominal = \frac{x-minimum\,value}{maximum\,value-minimum\,value} \times 10$$

Where "lower is better": 
$$weights\ nominal = 10 - \frac{x - minimum\ value}{maximum\ value - minimum\ value} \times 10$$

### Weights standard score

The weights standard score normally distributes the z score of x on a 0-10 scale. This is the primary variable mapped in this tool. It is calculated according to:

```
Where "higher is better": weights standard score = (normal distribution of z score) \times 10
```

Where "lower is better":  $weights standard score = 10 - (normal distribution of z score) \times 10$ 

## Weights rank

The weights standard score normally distributes the z score of x on a 0-10 scale. It is calculated according to:

Where "higher is better": 
$$weights \, rank = \frac{rank \, of \, the \, nominal \, weight \, of \, x}{number \, of \, tracts \, with \, data \, on \, x} \times 10$$

Where "lower is better": 
$$weights \, rank = \frac{rank \, of \, the \, nominal \, weight \, of \, x}{number \, of \, tracts \, with \, data \, on \, x} \times 10$$