GIS models for the Civil Legal Services Steering Committee
May 2017

Economics + Demographics = Underserved
The opinions, findings, and conclusions or recommendations expressed in this report are those of the author and do not necessarily reflect those of the Department of Justice or Colorado Department of Public Safety. Any questions regarding this data or the mapping can be directed to the author or found at American Community Survey.
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Colorado Self Sufficiency Standard Index

This map shows an index value which represents the amount of money needed for self-sufficiency while living in Colorado, as compared to the Federal Poverty Level (FPL). The values for the self-sufficiency standard were calculated by the Colorado Center on Law and Policy for each county within Colorado for 2015. The federal poverty level is a single rate per person that applies to the entire country uniformly.

Method: The Colorado Self-Sufficiency Standard is calculated based on 1) an individual living alone 2) an adult with a preschooler 3) an adult with an infant and preschooler 4) two adults and two children. The values calculated for 1-4 people household was compared to the federal poverty levels for 1-4 persons household. The dollar value of the CSSS was divided by the FPL dollar value yielding index value above the FPL necessary to live self-sufficiently. For example, in Denver County an adult living alone needs 1.86 (or 186% of the FPL) to live independently. Meanwhile an adult living with a preschoooler would need 3.01 (or 301% of the FPL) to live independently. These 4 different living conditions were averaged to yield a single index value for each county which is the value that appears on the map.
Colorado Self Sufficiency Standard Index

Adams County

CSSS/FPL
$25,831 1 Person $11,770 1 Person 2.19
$50,719 2 Person $15,930 2 Person 3.18
$60,937 3 Person $20,090 3 Person 3.03
$68,541 4 Person $24,250 4 Person 2.83
Average : 2.81

CSSS FPL
sebuckingham@hotmail.com
Colorado Self Sufficiency Standard vs Per Capita income

This map shows a comparison of the amount of money needed for self-sufficiency while living in Colorado compared to per capita income values calculated by the American Community Survey. Areas mapped as green show localities where the average per capita income **EXCEEDS** the highest amount necessary for self-sufficiency. Areas in orange are localities where the average income per capita is **WITHIN THE RANGE** of the self-sufficiency standard. Thus, those areas at labeled as “At Poverty” because the fall near or within the CSSS range of values. The red areas are localities where the average per capita income is **BELOW** the range of the CSSS thus they are labeled as “Below Poverty”.

Method: The Colorado Self-Sufficiency Standard is calculated based on 1) an individual living alone 2) an adult with a preschooler 3) an adult with an infant and preschooler 4) two adults and two children. The values calculated for 1-4 people household was compared to the Average Per Capita Income. The average per capita values for each block group were averaged for each county.
Colorado Self Sufficiency Standard vs Per Capita income

Data:
- American Community Survey 2010-2014 5-year estimate by block group
- Self-Sufficiency Standard for Colorado 2015 (Colorado Center on Law and Policy)

Per Capita Income compared to CSSS

- Below Poverty
- At Poverty
- Above Poverty
Social Vulnerability Models

The social vulnerability models combine population percentages of disabled persons, older persons, children, foreign born Latina and non-white.

These values are aggregated by assigning values 0-3 to each distribution of a variable. For example, in localities where more than 20% are foreign born, are assigned a value of 3 while areas with less than 5% are assigned a 0. The numbers are then all added together to provide a single value or 1 to 9. Areas with larger values are areas where higher percentages of target populations live.

Social Vulnerability 1 (All variables equal)

Disabled + Older + Latino + Non-White + Foreign born

<table>
<thead>
<tr>
<th>Disabled</th>
<th>Rank</th>
<th>Older Folks</th>
<th>Rank</th>
<th>Latino</th>
<th>Rank</th>
<th>Non White</th>
<th>Rank</th>
<th>Foreign Born</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>12% &lt;</td>
<td>0</td>
<td>12% &lt;</td>
<td>0</td>
<td>17% &lt;</td>
<td>0</td>
<td>35% &lt;</td>
<td>0</td>
<td>5% &lt;</td>
<td>0</td>
</tr>
<tr>
<td>12- 20%</td>
<td>1</td>
<td>12- 20%</td>
<td>1</td>
<td>17-30%</td>
<td>1</td>
<td>35- 50%</td>
<td>1</td>
<td>5-10%</td>
<td>1</td>
</tr>
<tr>
<td>20% &gt;</td>
<td>2</td>
<td>20% &gt;</td>
<td>2</td>
<td>30% &gt;</td>
<td>2</td>
<td>50% &gt;</td>
<td>2</td>
<td>10-20% &gt;</td>
<td>2</td>
</tr>
</tbody>
</table>

20% > 3
Social Vulnerability Model
Social Vulnerability Models

The social vulnerability models combine population percentages of disabled persons, older persons, children, foreign born Latina and non-white.

These values are aggregated by assigning values 0-3 to each distribution of a variable. For example, in localities where more than 20% are foreign born, are assigned a value of 3 while areas with less than 5% are assigned a 0. The numbers are then all added together to provide a single value or 1 to 10. Areas with larger values are areas where higher percentages of target populations live.

Social Vulnerability Model 2 is a weighted model where the weight of the percentage of disabled and the percentage of older adults are twice as much as the percentage of children or foreign born.

Social Vulnerability 2 (Weighted variables)

(Disabled * 2) + (Older*2) + Kids + Foreign born

<table>
<thead>
<tr>
<th>Disabled</th>
<th>Rank</th>
<th>Older Folks</th>
<th>Rank</th>
<th>Children under 18</th>
<th>Rank</th>
<th>Foreign Born</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>12% &lt;</td>
<td>0</td>
<td>12% &lt;</td>
<td>0</td>
<td>24% &lt;</td>
<td>0</td>
<td>5% &lt;</td>
<td>0</td>
</tr>
<tr>
<td>12% - 20%</td>
<td>1</td>
<td>12% - 20%</td>
<td>1</td>
<td>24% - 30%</td>
<td>1</td>
<td>5-10%</td>
<td>1</td>
</tr>
<tr>
<td>20% &gt;</td>
<td>2</td>
<td>20% &gt;</td>
<td>2</td>
<td>30% &gt;</td>
<td>2</td>
<td>10-20% &gt;</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>20% &gt;</td>
<td>3</td>
</tr>
</tbody>
</table>
Economic Models

The economic models combine population percentages of those on SNAP (welfare), unemployed, and those living in poverty.

These values are aggregated by assigning values 0-3 to each distribution of a variable. For example, in localities where more than 35% are in poverty, are assigned a value of 3 while areas with less than 12% (national average) are assigned a 0. The numbers are then all added together to provide a single value or 1 to 8. Areas with larger values are areas where higher percentages of target populations live.

**Economic Model 1 (All variables equal)**

Welfare + Unemployment + Poverty

<table>
<thead>
<tr>
<th>Welfare</th>
<th>Rank</th>
<th>Unemployment</th>
<th>Rank</th>
<th>Poverty</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% &lt;</td>
<td>0</td>
<td>5% &lt;</td>
<td>0</td>
<td>12% &lt;</td>
<td>0</td>
</tr>
<tr>
<td>5-10%</td>
<td>1</td>
<td>5-10%</td>
<td>1</td>
<td>12-25%</td>
<td>1</td>
</tr>
<tr>
<td>10-18%</td>
<td>2</td>
<td>10-20%</td>
<td>2</td>
<td>20-35%</td>
<td>2</td>
</tr>
<tr>
<td>20%&lt;</td>
<td></td>
<td>20%&lt;</td>
<td>3</td>
<td>35% &gt;</td>
<td>3</td>
</tr>
</tbody>
</table>
Economic Models

The economic models combine population percentages of those on SNAP (welfare), unemployed, and those living in poverty.

These values are aggregated by assigning values 0-3 to each distribution of a variable. For example, in localities where more than 35% are in poverty, are assigned a value of 3 while areas with less than 12% (national average) are assigned a 0. The numbers are then all added together to provide a single value or 1 to 3. Areas with larger values are areas where higher percentages of target populations live.

Economic model 2 is a weighted model where the percentage of receiving welfare are counted half the value of either Unemployment or Poverty.

Economic Model 2 (Weighted variables)

\[(\text{Welfare} \times 0.2) + (\text{Unemployment} \times 0.4) + (\text{Poverty} \times 0.4)\]

<table>
<thead>
<tr>
<th>Welfare</th>
<th>Rank</th>
<th>Unemployment</th>
<th>Rank</th>
<th>Poverty</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>5% &lt;</td>
<td>0</td>
<td>5% &lt;</td>
<td>0</td>
<td>12% &lt;</td>
<td>0</td>
</tr>
<tr>
<td>5-10%</td>
<td>1</td>
<td>5-10%</td>
<td>1</td>
<td>12-25%</td>
<td>1</td>
</tr>
<tr>
<td>10-18%</td>
<td>2</td>
<td>10-20%</td>
<td>2</td>
<td>20-35%</td>
<td>2</td>
</tr>
<tr>
<td>20%+</td>
<td>3</td>
<td>35%+</td>
<td>3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>