04 – Spatial Demography Concepts and Databases II

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Outline

- Education Attainment Index
- Theil Index of Income Inequality
- GINI Coefficient of Income Inequality
- Normalization of variables and Creating an Index

Education Attainment Index

Education Attainment

Let's say that 85% of the U.S adult population had at least high school diploma, 27.7% had a bachelor's degree, and 10.2% had a graduate degree.

The education attainment score is .85+.277+.102=1.228.

Note:

Maximum score is 3

Minimum score is 0

You should scale the score for ease of interpretation

Saint Louis City (2006-2010 ACS)

80.6% had at least a high school diploma

26.9% had at least a bachelor's degree

04.0% had at leasta graduate degree.

The education score

is .806+.269+.040=1.115.

STATA Code

1. Educational Attainment for Population 25 Years and Over

Universe: Population 25 Years and Over
Name: T25
Variables:

T025_001: Population 25 Years and Over:
T025_002: Less than High School
T025_003: High School Graduate (Includes Equivalency)
T025_004: Some College
T025_005: Bachelor's Degree
T025_006: Master's Degree
T025_007: Professional School Degree
T025_008: Doctorate Degree

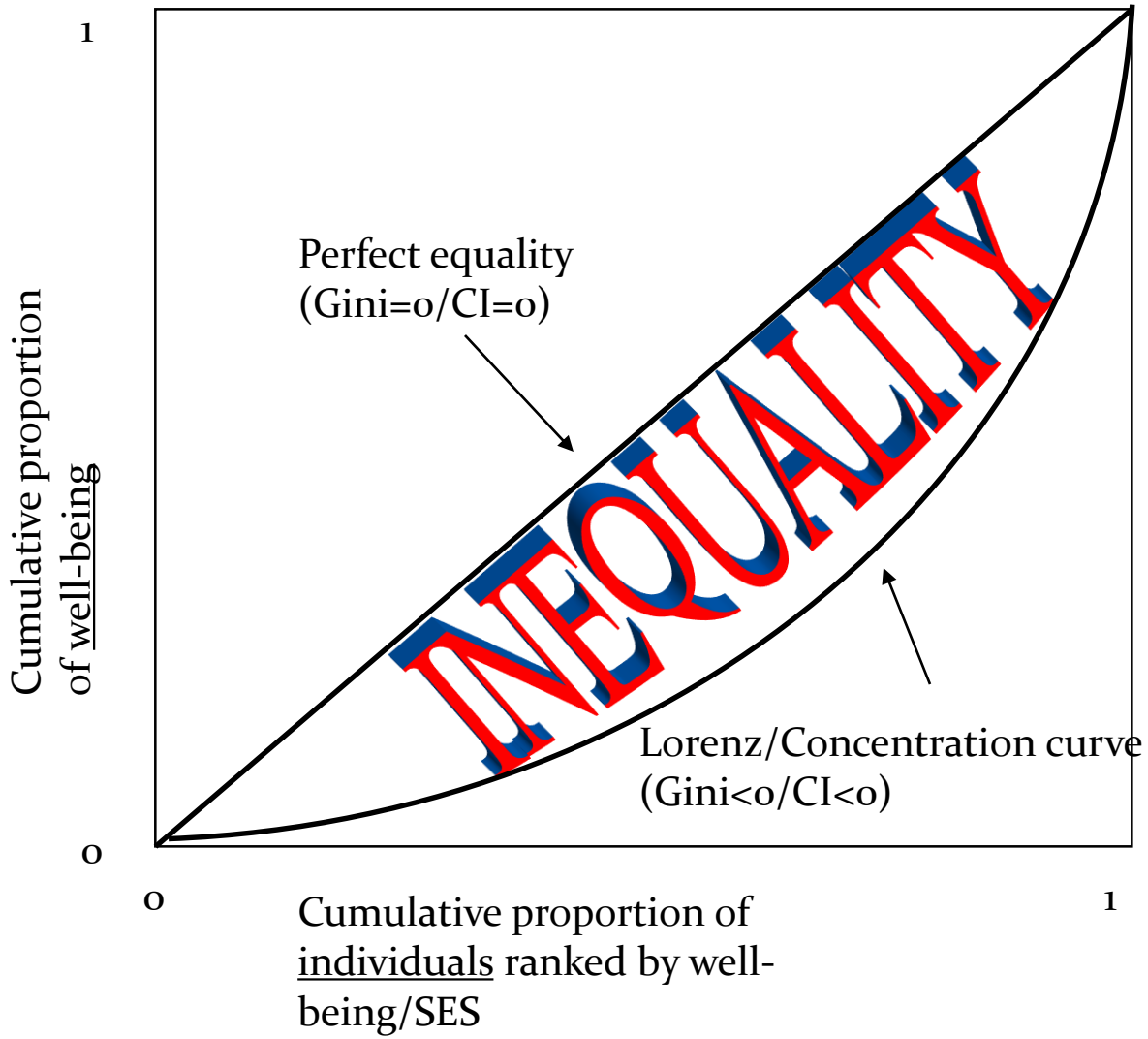
```
*EDUCATION ATTAINMENT.
gen E03=T025_003/T025_001
gen E04=T025_004/T025_001
gen E05=T025_005/T025_001
gen E06=T025_006/T025_001
gen E07=T025_007/T025_001
gen E08=T025_008/T025_001

gen ED_HS=(E03+E04+E05+E06+E07+E08)
gen ED_BS=(E05+E06+E07+E08)
gen ED_GD=(E06+E07+E08)
gen ED_TOT=ED_HS+ED_BS+ED_GD
```

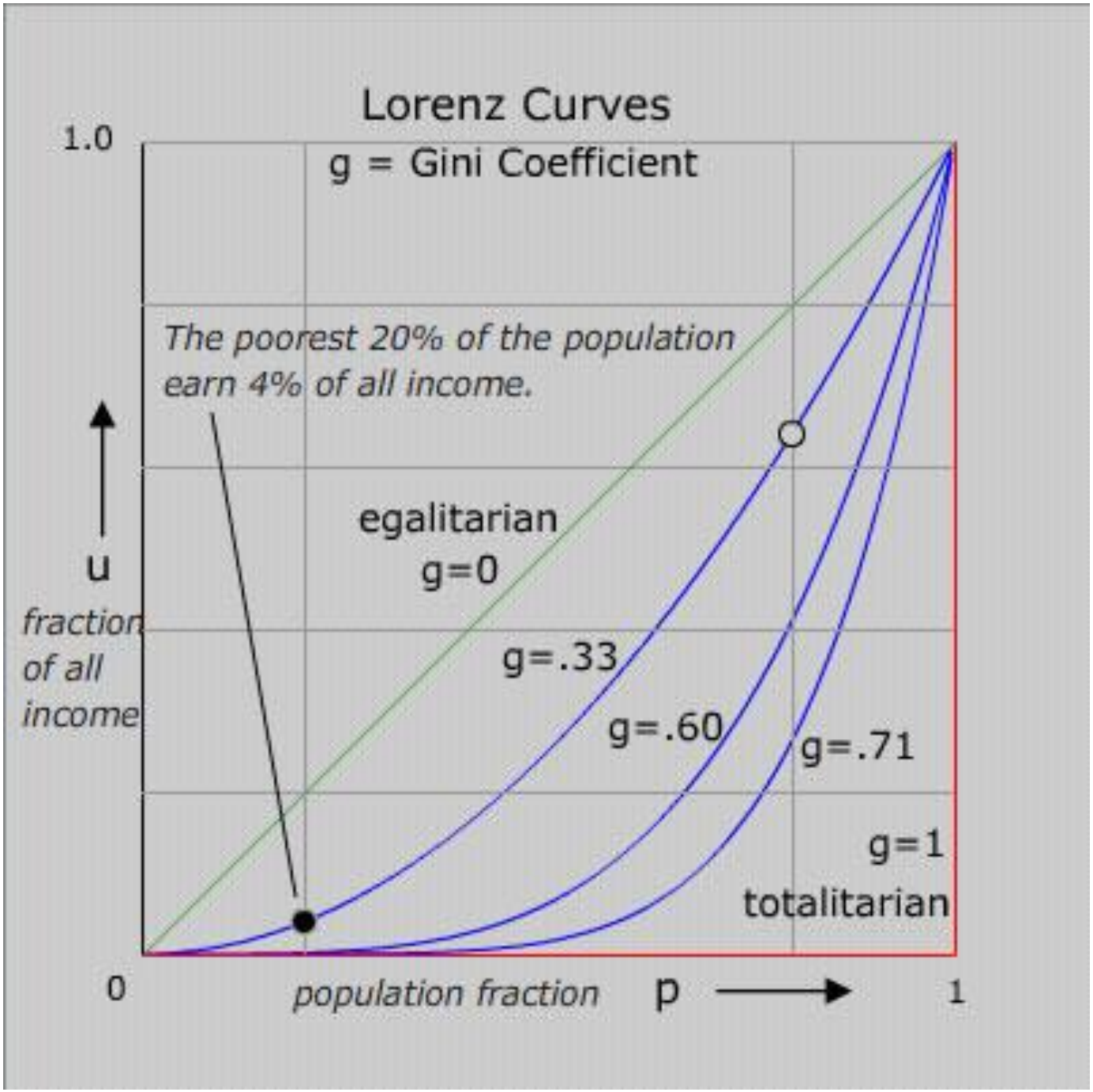
Income Inequality

Lorenz Curve

- Lorenz Curve
  - Max O. Lorenz
    - 1905
      - Represent inequality of the wealth distribution
  - Measures inequalities in the distribution of wealth or income
  - Depict the state of concentration of population and of other demographic aggregates'

Lorenz/Concentration Curve for Well-Being

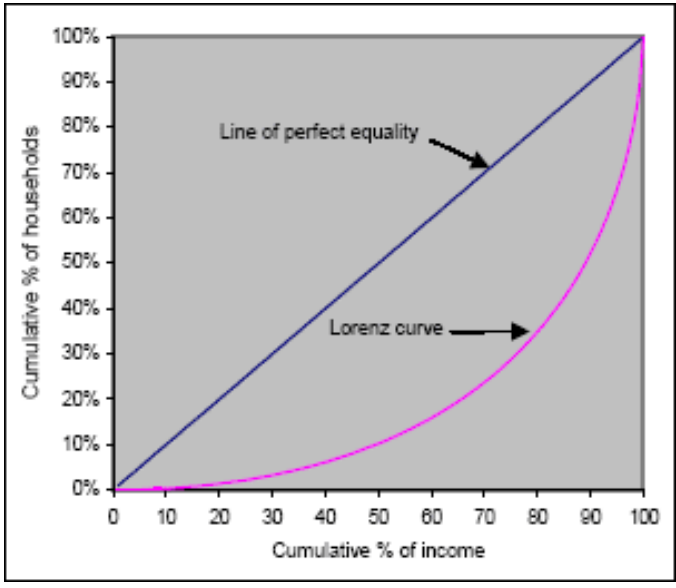



Lorenz Curves
g = Gini Coefficient
1.0
The poorest 20% of the population earn 4% of all income.
egalitarian
g=0
g=.33
g=.60
g=.71
g=1
totalitarian
u
fraction of all income
0
population fraction
p
1

Gini Concentration Ratio

- Corrado Gini – 1912

- Measures the proportion of the total area under the diagonal that lies in the area between the diagonal and the Lorenz Curve.



Gini Concentration Ratio

- The coefficient varies between
- 0 which reflects complete equality
- 1 which indicates complete inequality
- (one person has all the income or consumption, all others have none).
- The Gini coefficient can be used to indicate how the distribution of income has changed within a country over a period of time
- It can be used to compare income distributions across different population sectors as well as countries

GINI Coefficient

$$G_i = 1 - \sum_{i=1}^{N} (X_i - X_{i-1})(Y_i + Y_{i+1})$$

X=Cum. Per. of Income Distribution
(i.e, households or family)

Y=Cum. Per. of Aggregate Income Distribtuion
(need to use midpoint)

Theil-index

- While less commonly used than the Gini coefficient, the Theil-index of inequality has the advantage of being additive across different subgroups or regions in the country.
- The Theil index, however, does not have a straightforward representation and lacks the appealing interpretation of the Gini coefficient.
- The Theil index is part of a larger family of measures referred to as the General Entropy class.

Theil Income Inequality T statistic

$$H_{(y)} = \sum_{i=1}^{m} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where :

p_i is the population of the group i,

P is the total population,

y_i is the average income in group i,

μ is the average income across the entire population

Decomposition of the Global City Index

- The sum of the neighborhoods will equal the index for the city
- Between Income Groups (within tracts)
- Within Income Groups (Between tracts)

- For example
- .146 is the index for a city, we may ask how much of the inequality is within the tracts or between the tracts

(1) Calculate the weights for each tract P_{I_i}

(2) Calculate the between group score $A = H_y * P_{I_i} = .062$ (43%)

(3) Calculate the within group score $B = P_{I_i} * \ln\left(P_{I_i} * \left(\sum_{1}^{5} IG / IG_i\right)\right) = .084$ (57%)

Example of Theil Income Inequality

Mid Point Average Income	$25,000	$45,000	$60,000	$75,000	$95,000	Total Population	Average Income	Inequality Within Tract
Neighborhood 1	130	1	1	1	47	180	$43,861	0.213
Neighborhood 2	20	40	60	40	20	180	$60,000	0.054
Neighborhood 3	0	0	0	0	180	180	$95,000	0.000
Neighborhood 4	180	0	0	0	0	180	$25,000	0.000
Neighborhood 5	36	36	36	36	36	180	$60,000	0.085

Example NH 2 - Individuals in the top two income groups contribute positive elements. Individuals in the middle income group contributes nothing to the Theil's T Statistic because the group average salary is equal to the population average. Individuals in the bottom two groups contribute negative elements

STATA Code – Part 1 – Calculate Midpoint for the Income Group

2. Household Income (In <DollarYear> Inflation Adjusted Dollars)

Universe: Households
Name: T56
Variables:

T056_001: Households:
T056_002: Less than $10,000
T056_003: $10,000 to $14,999
T056_004: $15,000 to $19,999
T056_005: $20,000 to $24,999
T056_006: $25,000 to $29,999
T056_007: $30,000 to $34,999
T056_008: $35,000 to $39,999
T056_009: $40,000 to $44,999
T056_010: $45,000 to $49,999
T056_011: $50,000 to $59,999
T056_012: $60,000 to $74,999
T056_013: $75,000 to $99,999
T056_014: $100,000 to $124,999
T056_015: $125,000 to $149,999
T056_016: $150,000 to $199,999
T056_017: $200,000 or More

```
*compute midpoint values for each income category aka as Yi.
gen  mp01=5000
gen  mp02=12499
gen  mp03=17499
gen  mp04=22499
gen  mp05=27499
gen  mp06=32499
gen  mp07=37499
gen  mp08=42499
gen  mp09=47499
gen  mp10=54499
gen  mp11=67499
gen  mp12=87499
gen  mp13=112499
gen  mp14=137499
gen  mp15=174999
gen  mp16=325000
```

Data and Methods

- Theil Income Inequality T statistic

$$H_{(y)} = \sum_{i=1}^{m} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where :

p_i is the population of the group i,

P is the total population,

y_i is the average income in group i,

μ is the average income across the entire population

STATA Code – Part 2 – Calculate Average Income for census tracts

2. Household Income (In <DollarYear> Inflation Adjusted Dollars)

Universe: Households

Name: T56

Variables:

T056_001: Households:
T056_002: Less than $10,000
T056_003: $10,000 to $14,999
T056_004: $15,000 to $19,999
T056_005: $20,000 to $24,999
T056_006: $25,000 to $29,999
T056_007: $30,000 to $34,999
T056_008: $35,000 to $39,999
T056_009: $40,000 to $44,999
T056_010: $45,000 to $49,999
T056_011: $50,000 to $59,999
T056_012: $60,000 to $74,999
T056_013: $75,000 to $99,999
T056_014: $100,000 to $124,999
T056_015: $125,000 to $149,999
T056_016: $150,000 to $199,999
T056_017: $200,000 or More

```
*Compute total income in each category. This will allow us to calculate average income.
gen I01=T056_002*mp01
gen I02=T056_003*mp02
gen I03=T056_004*mp03
gen I04=T056_005*mp04
gen I05=T056_006*mp05
gen I06=T056_007*mp06
gen I07=T056_008*mp07
gen I08=T056_009*mp08
gen I09=T056_010*mp09
gen I10=T056_011*mp10
gen I11=T056_012*mp11
gen I12=T056_013*mp12
gen I13=T056_014*mp13
gen I14=T056_015*mp14
gen I15=T056_016*mp15
gen I16=T056_017*mp16
gen
INC=(I01+I02+I03+I04+I05+I06+I07+I08+I09+I10+I11+I12
+I13+I14+I15+I16)
gen AVEINC=INC/T056_001
```

Data and Methods

- Theil Income Inequality T statistic

$$H_{(y)} = \sum_{i=1}^{m} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where:

p_i is the population of the group i,

P is the total population,

y_i is the average income in group i,

μ is the average income across the entire population

STATA Code – Part 3 – Calculate Part 1 of the formula

```
*Compute Part 1 of the formula - Proportion Breakdown within Neighborhood for Income Groups.
gen P01=T056_002/T056_001
gen P02=T056_003/T056_001
gen P03=T056_004/T056_001
gen P04=T056_005/T056_001
gen P05=T056_006/T056_001
gen P06=T056_007/T056_001
gen P07=T056_008/T056_001
gen P08=T056_009/T056_001
gen P09=T056_010/T056_001
gen P10=T056_011/T056_001
gen P11=T056_012/T056_001
gen P12=T056_013/T056_001
gen P13=T056_014/T056_001
gen P14=T056_015/T056_001
gen P15=T056_016/T056_001
gen P16=T056_017/T056_001
gen PTOT=(P01+P02+P03+P04+P05+P06+P07+P08+P09+P10+P11+P12+P13+P14+P15+P16)
```

Data and Methods

- Theil Income Inequality T statistic

$$H_{(y)} = \sum_{i=1}^{m} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where:

p_i is the population of the group i,

P is the total population,

y_i is the average income in group i,

μ is the average income across the entire population

STATA Code – Part 4 – Calculate Part 2 of the formula

```
*Compute Part 2 of the formula  Yi/m m=average income.
gen T101=mp01/AVEINC
gen T102=mp02/AVEINC
gen T103=mp03/AVEINC
gen T104=mp04/AVEINC
gen T105=mp05/AVEINC
gen T106=mp06/AVEINC
gen T107=mp07/AVEINC
gen T108=mp08/AVEINC
gen T109=mp09/AVEINC
gen T110=mp10/AVEINC
gen T111=mp11/AVEINC
gen T112=mp12/AVEINC
gen T113=mp13/AVEINC
gen T114=mp14/AVEINC
gen T115=mp15/AVEINC
gen T116=mp16/AVEINC
```

Data and Methods

- Theil Income Inequality T statistic

$$H_{(y)} = \sum_{i=1}^{m} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where:

p_i is the population of the group i,

P is the total population,

y_i is the average income in group i,

μ is the average income across the entire population

STATA Code – Part 5 – Calculate Part 3 of the formula

```
*Compute Part 3 of the fomula ln(Yi/m) m=average income.
gen T201=ln(T101)
gen T202=ln(T102)
gen T203=ln(T103)
gen T204=ln(T104)
gen T205=ln(T105)
gen T206=ln(T106)
gen T207=ln(T107)
gen T208=ln(T108)
gen T209=ln(T109)
gen T210=ln(T110)
gen T211=ln(T111)
gen T212=ln(T112)
gen T213=ln(T113)
gen T214=ln(T114)
gen T215=ln(T115)
gen T216=ln(T116)
```

Data and Methods

- Theil Income Inequality T statistic

$$H_{(y)} = \sum_{i=1}^{m} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where:

p_i is the population of the group i,

P is the total population,

y_i is the average income in group i,

μ is the average income across the entire population

STATA Code – Part 6 – Calculate Part 4 of the formula

```
*Compute Part 4 of the formula Part01*Part02*Part03.
gen T301=P01*T101*T201
gen T302=P02*T102*T202
gen T303=P03*T103*T203
gen T304=P04*T104*T204
gen T305=P05*T105*T205
gen T306=P06*T106*T206
gen T307=P07*T107*T207
gen T308=P08*T108*T208
gen T309=P09*T109*T209
gen T310=P10*T110*T210
gen T311=P11*T111*T211
gen T312=P12*T112*T212
gen T313=P13*T113*T213
gen T314=P14*T114*T214
gen T315=P15*T115*T215
gen T316=P16*T116*T216

*Create your income inequality score
gen theil15=(T301+T302+T303+T304+T305+T306+T307+T308+T309+T310+T311+T312+T313+T314+T315+T316)
```

Other STATA Code

5. Ratio of Income in to Poverty Level

Universe: Population for whom poverty status Is determined

Name: A13004

Variables:

A13004_001: Population for Whom Poverty Status Is Determined:
A13004_002: Under .50
A13004_003: .50 to .74
A13004_004: .75 to .99
A13004_005: 1.00 to 1.49
A13004_006: 1.50 to 1.99
A13004_007: 2.00 and Over

Anything under 1 is in poverty

(A13004_002+A13004_003+A13004_004)/ A13004_001

6. Health Insurance

Universe: Civilian Noninstitutionalized Population

Name: A20001

Variables:

A20001_001: Total:

A20001_002: No Health Insurance Coverage

A20001_003: With Health Insurance Coverage:

A20001_004: Public Health Coverage

A20001_005: Private Health Insurance

*percent no health insurance=0 Health Insurance Coverage/Total

gen nhi= A20001_002/ A20001_001

Normalization

Index

Conceptual Formula for the Index

(1) $V_i = \left(\frac{X_j - Y_i}{Z_i - Y_i} \right)$

(2) $S_i = \frac{\sum_i^N V_i}{N}$

V_i is the standarized index score for each observation

X_j = actual value for each observation

Y_i =minimum value in the universe of observations

Z_i =maximum value in the universe of observations

S_i is the index sore for each grid cell

N is the number of dimensions

*gen ed_sc15(ED_TOT-min)/(max-min)
*gen mhi_sc15=(log(mhi15)-log(min))/(log(max)-log(min))
*Income Inequality Scale - High values are bad and low values are good
*gen inc_sc15=(theil15-min)/(max-min)
*Recode income Inequality Scale - High values are good and low values are bad
*gen rinc_sc15=1-inc_sc15
*gen index01=(ed_sc15+rinc_sc15+mhi_sc15)/3

STATA Code

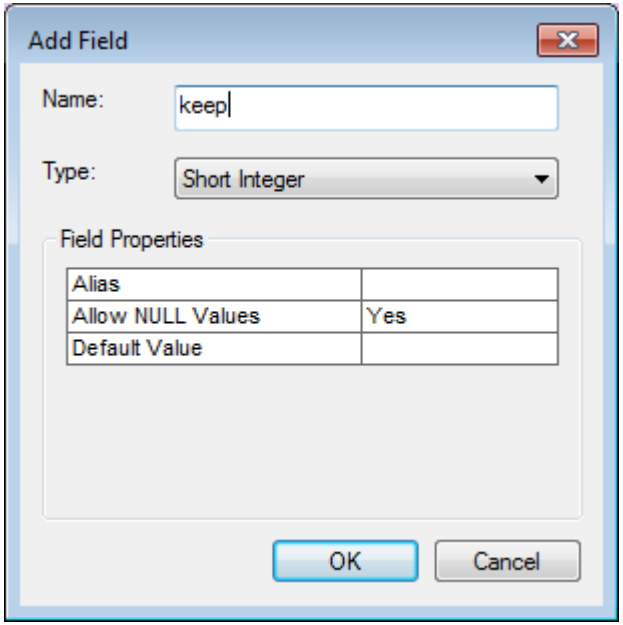
```
summarize theil15 ED_TOT mhi15


*    Variable |       Obs       Mean    Std. Dev.       Min       Max
*-------------+--------------------------------------------------------
*     theil15 |       614    .2980129    .0840118   .1302825    .744298
*      ED_TOT |       614    1.315936    .3371135   .5626781   2.433559
*       mhi15 |       614    57267.08    26618.61       9782     196286



*Education Scale - High values are good and low values are bad
gen ed_sc15=(ED_TOT-.5626781)/(2.433559-.5626781)

*Income Inequality Scale - High values are bad and low values are good
gen inc_sc15=(theil15-.1302825)/(.744298-.1302825)

*Recode income Inequality Scale - High values are good and low values are bad
gen rinc_sc15=1-inc_sc15

*Median Income - High is good and low is bad
gen mhi_sc15=(log(mhi15)-log(9782))/(log(196286)-log(9782))


*High is good and low is bad - all variables are equal
gen index01=(ed_sc15+rinc_sc15+mhi_sc15)/3

*High is good and low is bad - education is 50%, inequality is 25% and income is 25%
gen index02=(ed_sc15*.5)+(rinc_sc15*.25)+(mhi_sc15*.25)
```

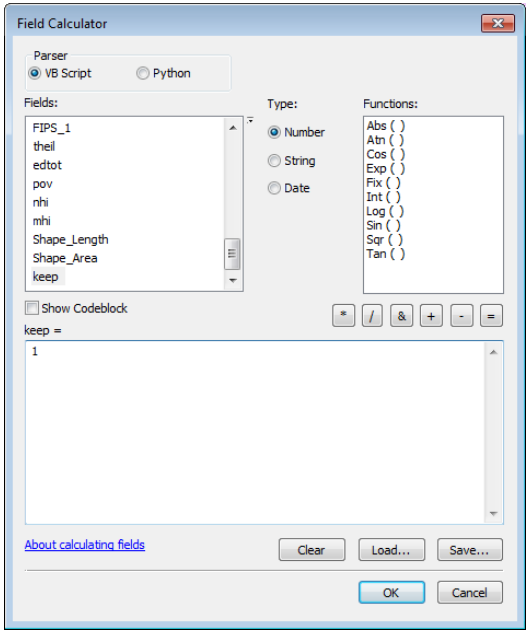
PROCEDURE

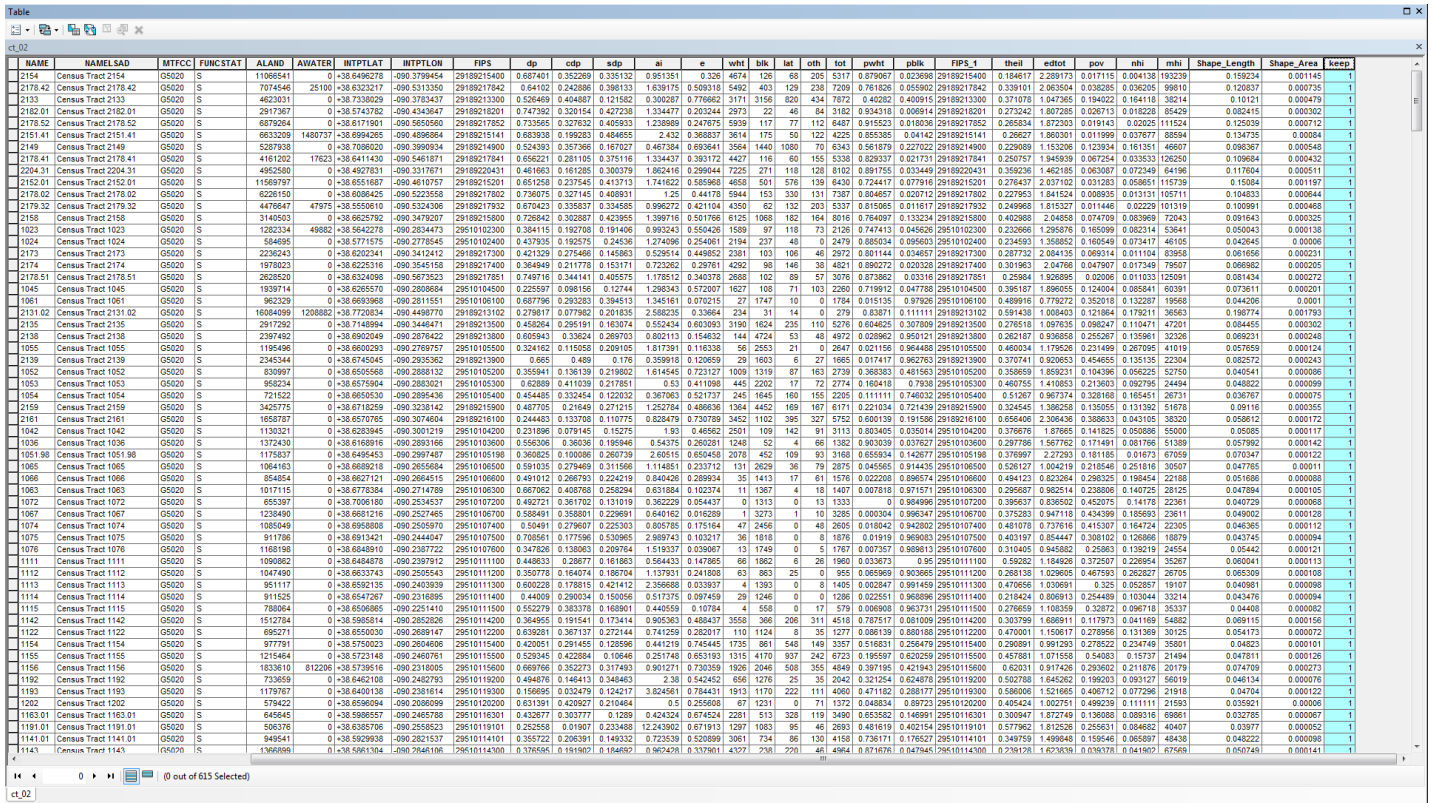
Methodology

1. Run STATA code to produce part01.xlsx
   - We did last week
2. Work to modify shapefiles to the Saint Louis MSA
   - We did this last week
3. Run STATA code to produce part02.xlsx
4. Join new data to shapefile for the Saint Louis MSA
   - Create a variable called keep
     - Input a value of 1
     - Make sure you clean and delete suspect data
5. Export this shapefile to a folder called “gis”
6. Run STATA code to read shapefile
   - Install the command if needed
7. Run STATA code to merge, produce final.xlsx
8. Join files in ArcMap
9. Project shapefile to UTM 15

1. Add a new variable
2. Input “1”

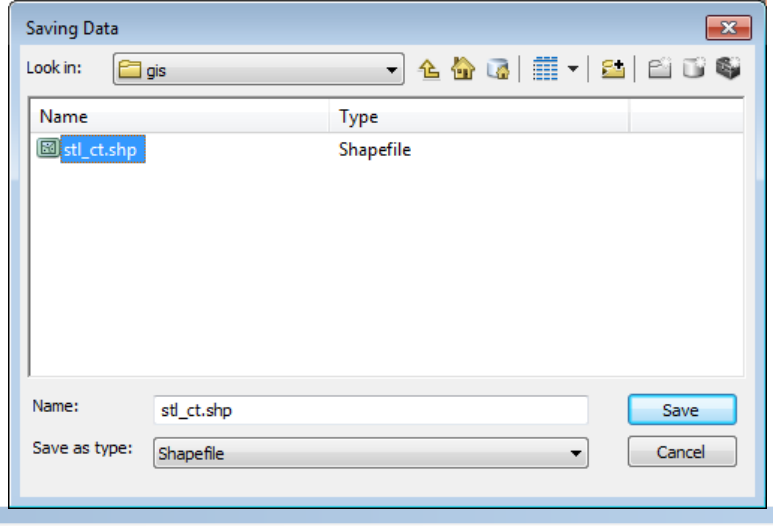






NAME	NAMELSAD	MTFCC	FUNCSTAT	ALAND	AWATER	INTPTLAT	INTPTLON	FIPS	dp	cdp	sdp	ai	e	whi	blk	lat	oth	tot	pwhi	pblk	FIPS_1	theil	edtot	pov	nhi	mhi	Shape_Length	Shape_Area	keep
2154	Census Tract 2154	G5020	S	11066541	0	+38.6496278	-090.3799454	29189215400	0.687401	0.352269	0.335132	0.951351	0.328	4674	126	68	205	5317	0.879067	0.023698	29189215400	0.184617	2.289173	0.017115	0.004138	193239	0.159234	0.001145	1
2178.42	Census Tract 2178.42	G5020	S	7074546	25100	+38.6323217	-090.5313350	29189217842	0.64102	0.242886	0.398133	1.639175	0.509318	5492	403	129	238	7209	0.761826	0.055902	29189217842	0.339101	2.063504	0.038285	0.036205	99610	0.120837	0.000735	1
2133	Census Tract 2133	G5020	S	4623031	0	+38.7338029	-090.3783437	29189213300	0.526469	0.404887	0.121582	0.300287	0.776662	3171	3156	820	434	7872	0.40282	0.400915	29189213300	0.371078	1.047365	0.194022	0.164118	38214	0.10121	0.000479	1
2182.01	Census Tract 2182.01	G5020	S	2917367	0	+38.5743782	-090.4343647	29189218201	0.747392	0.320154	0.427238	1.334477	0.203244	2973	22	46	84	3182	0.934318	0.006914	29189218201	0.273242	1.807285	0.026713	0.018228	85429	0.082415	0.000302	1
2178.52	Census Tract 2178.52	G5020	S	6879264	0	+38.6171901	-090.5650560	29189217852	0.733565	0.327632	0.405933	1.238889	0.247675	5939	117	77	112	6487	0.915523	0.018036	29189217852	0.265834	1.872303	0.019143	0.02025	111524	0.125039	0.000712	1
2151.41	Census Tract 2151.41	G5020	S	6633209	1480737	+38.6994265	-090.4896864	29189215141	0.683938	0.199283	0.484655	2.432	0.368837	3614	175	50	122	4225	0.855385	0.04142	29189215141	0.26627	1.860301	0.011999	0.037677	88594	0.134735	0.00084	1
2149	Census Tract 2149	G5020	S	5287938	0	+38.7086020	-090.3990934	29189214900	0.524393	0.357366	0.167027	0.467384	0.693641	3564	1440	1080	70	6343	0.561879	0.227022	29189214900	0.229089	1.153206	0.123934	0.161351	46607	0.098367	0.000548	1
2178.41	Census Tract 2178.41	G5020	S	4161202	17623	+38.6411430	-090.5461871	29189217841	0.656221	0.281105	0.375116	1.334437	0.393172	4427	116	60	155	5338	0.829337	0.021731	29189217841	0.250757	1.945939	0.067254	0.033533	126250	0.109684	0.000432	1
2204.31	Census Tract 2204.31	G5020	S	4952580	0	+38.4927831	-090.3317671	29189220431	0.461663	0.161285	0.300379	1.862416	0.299044	7225	271	118	128	8102	0.891755	0.033449	29189220431	0.359236	1.462185	0.063087	0.072349	64196	0.117604	0.000511	1
2152.01	Census Tract 2152.01	G5020	S	11569797	0	+38.6551687	-090.4610757	29189215201	0.651258	0.237545	0.413713	1.741622	0.585968	4658	501	576	139	6430	0.724417	0.077916	29189215201	0.276437	2.037102	0.031283	0.058651	115739	0.15084	0.001197	1
2178.02	Census Tract 2178.02	G5020	S	6226150	0	+38.6086425	-090.5223558	29189217802	0.736075	0.327145	0.408931	1.25	0.44178	5944	153	330	131	7387	0.804657	0.020712	29189217802	0.227953	1.841524	0.008935	0.013131	105711	0.104833	0.000644	1
2179.32	Census Tract 2179.32	G5020	S	4476647	47975	+38.5550610	-090.5324306	29189217932	0.670423	0.335837	0.334585	0.996272	0.421104	4350	62	132	203	5337	0.815065	0.011617	29189217932	0.249968	1.815327	0.011446	0.02229	101319	0.100991	0.000468	1
2158	Census Tract 2158	G5020	S	3140503	0	+38.6625792	-090.3479207	29189215800	0.726842	0.302887	0.423955	1.399716	0.501766	6125	1068	182	164	8016	0.764097	0.133234	29189215800	0.402988	2.04858	0.074709	0.083969	72043	0.091643	0.000325	1
1023	Census Tract 1023	G5020	S	1282334	49882	+38.5642278	-090.2834473	29510102300	0.384115	0.192708	0.191406	0.993243	0.550426	1589	97	118	73	2126	0.747413	0.045626	29510102300	0.232666	1.295876	0.165099	0.082314	53641	0.050043	0.000138	1
1024	Census Tract 1024	G5020	S	584695	0	+38.5771575	-090.2778545	29510102400	0.437935	0.192575	0.24536	1.274096	0.254061	2194	237	46	0	2479	0.885034	0.095603	29510102400	0.234593	1.358852	0.160549	0.073417	46105	0.042645	0.00006	1
2173	Census Tract 2173	G5020	S	2236243	0	+38.6202341	-090.3412412	29189217300	0.421329	0.275466	0.145863	0.529514	0.449852	2381	103	106	46	2972	0.801144	0.034657	29189217300	0.287732	2.084135	0.069314	0.011104	83958	0.061656	0.000231	1
2174	Census Tract 2174	G5020	S	1978023	0	+38.6225316	-090.3545158	29189217400	0.364949	0.211778	0.153171	0.723262	0.29761	4292	98	146	38	4821	0.890272	0.020328	29189217400	0.301963	2.04766	0.047907	0.017349	79507	0.066982	0.000205	1
2178.51	Census Tract 2178.51	G5020	S	2628520	0	+38.6324098	-090.5673523	29189217851	0.749716	0.344141	0.405575	1.178512	0.340378	2688	102	89	57	3076	0.873862	0.03316	29189217851	0.25984	1.926895	0.02006	0.011033	125091	0.081434	0.000272	1
1045	Census Tract 1045	G5020	S	1939714	0	+38.6265570	-090.2808684	29510104500	0.225597	0.098156	0.12744	1.298343	0.572007	1627	108	71	103	2260	0.719912	0.047788	29510104500	0.395187	1.896055	0.124004	0.085841	60391	0.073611	0.000201	1
1061	Census Tract 1061	G5020	S	962329	0	+38.6693968	-090.2811551	29510106100	0.687796	0.293283	0.394513	1.345161	0.970215	27	1747	10	0	1784	0.015135	0.97926	29510106100	0.489916	0.779272	0.352018	0.132287	19568	0.044206	0.0001	1
2131.02	Census Tract 2131.02	G5020	S	16084099	1208882	+38.7720834	-090.4498770	29189213102	0.279817	0.077882	0.201835	2.588235	0.33664	234	31	14	0	279	0.83871	0.111111	29189213102	0.591438	1.008403	0.121864	0.179211	36563	0.198774	0.001793	1
2135	Census Tract 2135	G5020	S	2917292	0	+38.7148994	-090.3446471	29189213500	0.458264	0.295191	0.163074	0.552434	0.603093	3190	1624	235	110	5276	0.604625	0.307809	29189213500	0.276518	1.097635	0.098247	0.110471	47201	0.084455	0.000302	1
2138	Census Tract 2138	G5020	S	2397492	0	+38.6902049	-090.2878422	29189213800	0.605943	0.33624	0.269703	0.802113	0.154632	144	4724	53	48	4972	0.028962	0.950121	29189213800	0.262187	0.936858	0.255287	0.135961	32326	0.069231	0.000248	1
1055	Census Tract 1055	G5020	S	1195496	0	+38.6600293	-090.2769757	29510105500	0.324162	0.115058	0.209105	1.817391	0.116338	56	2553	21	0	2647	0.021156	0.964488	29510105500	0.460034	1.179526	0.231499	0.267095	41019	0.057659	0.000124	1
2139	Census Tract 2139	G5020	S	2345344	0	+38.6745045	-090.2935362	29189213900	0.665	0.489	0.176	0.359918	0.120659	29	1603	6	27	1665	0.017417	0.962763	29189213900	0.370741	0.920653	0.454655	0.135135	22304	0.082572	0.000243	1
1052	Census Tract 1052	G5020	S	830997	0	+38.6505568	-090.2888132	29510105200	0.355941	0.136139	0.219802	1.614545	0.723127	1009	1319	87	163	2739	0.368363	0.481563	29510105200	0.358659	1.859231	0.104396	0.056225	52750	0.040541	0.000086	1
1053	Census Tract 1053	G5020	S	958234	0	+38.6575904	-090.2883021	29510105300	0.62889	0.411039	0.217851	0.53	0.411098	445	2202	17	72	2774	0.160418	0.7938	29510105300	0.460755	1.410853	0.213603	0.092795	24494	0.048822	0.000099	1
1054	Census Tract 1054	G5020	S	721522	0	+38.6650530	-090.2895436	29510105400	0.454485	0.332454	0.122032	0.367063	0.521737	245	1645	160	155	2205	0.111111	0.746032	29510105400	0.51267	0.967374	0.328168	0.165451	28731	0.036787	0.000075	1
2159	Census Tract 2159	G5020	S	3425775	0	+38.6718259	-090.3238142	29189215900	0.487705	0.21649	0.271215	1.252784	0.486636	1364	4452	169	167	6171	0.221034	0.721439	29189215900	0.324545	1.386258	0.135055	0.131392	51678	0.09116	0.000355	1
2161	Census Tract 2161	G5020	S	1658787	0	+38.6570765	-090.3074604	29189216100	0.244483	0.133708	0.110775	0.828479	0.730789	3452	1102	395	327	5752	0.600139	0.191586	29189216100	0.656406	2.306436	0.388633	0.043105	38320	0.058612	0.000172	1
1042	Census Tract 1042	G5020	S	1130321	0	+38.6283945	-090.3001219	29510104200	0.231896	0.079145	0.15275	1.93	0.46562	2501	109	142	91	3113	0.803405	0.035014	29510104200	0.376676	1.87665	0.141825	0.050886	55000	0.05085	0.000117	1
1036	Census Tract 1036	G5020	S	1372430	0	+38.6168916	-090.2893166	29510103600	0.556306	0.36036	0.195946	0.54375	0.260281	1248	52	4	66	1382	0.903039	0.037627	29510103600	0.297786	1.567762	0.171491	0.081766	51389	0.057992	0.000142	1
1051.98	Census Tract 1051.98	G5020	S	1175837	0	+38.6495453	-090.2997487	29510105198	0.360826	0.100086	0.260739	2.60515	0.650458	2078	452	109	93	3168	0.655934	0.142677	29510105198	0.376997	2.27293	0.181185	0.01673	67059	0.070347	0.000122	1
1065	Census Tract 1065	G5020	S	1064163	0	+38.6688218	-090.2655684	29510106500	0.591035	0.279469	0.311566	1.114851	0.233712	131	2629	36	79	2875	0.045565	0.914435	29510106500	0.526127	1.004219	0.218546	0.251816	30507	0.047785	0.00011	1
1066	Census Tract 1066	G5020	S	854854	0	+38.6627121	-090.2664515	29510106600	0.491012	0.266793	0.224219	0.840426	0.289934	35	1413	17	61	1576	0.022208	0.896574	29510106600	0.494123	0.823264	0.298325	0.198454	22188	0.051686	0.000088	1
1063	Census Tract 1063	G5020	S	1017115	0	+38.6778384	-090.2714789	29510106300	0.667062	0.408768	0.258294	0.631884	0.102374	11	1367	4	18	1407	0.007818	0.971571	29510106300	0.295687	0.982514	0.238806	0.140725	28125	0.047894	0.000105	1
1072	Census Tract 1072	G5020	S	655397	0	+38.7006180	-090.2534537	29510107200	0.492721	0.361702	0.131019	0.362229	0.054437	0	1313	0	13	1333	0	0.984996	29510107200	0.395637	0.836502	0.452075	0.14178	22361	0.040729	0.000068	1
1067	Census Tract 1067	G5020	S	1238490	0	+38.6681216	-090.2527465	29510106700	0.588491	0.358801	0.229691	0.640162	0.016289	1	3273	1	10	3285	0.000304	0.996347	29510106700	0.375283	0.947118	0.434399	0.185693	23611	0.049002	0.000128	1
1074	Census Tract 1074	G5020	S	1085049	0	+38.6958808	-090.2505970	29510107400	0.50491	0.279607	0.225303	0.805785	0.175164	47	2456	0	48	2605	0.018042	0.942802	29510107400	0.481078	0.737616	0.415307	0.164724	22305	0.046365	0.000112	1
1075	Census Tract 1075	G5020	S	911786	0	+38.6913421	-090.2444047	29510107500	0.708561	0.177596	0.530965	2.989743	0.103217	36	1818	0	8	1876	0.01919	0.969083	29510107500	0.403197	0.854447	0.308102	0.126866	18879	0.043745	0.000094	1
1076	Census Tract 1076	G5020	S	1168198	0	+38.6848910	-090.2387722	29510107600	0.347826	0.138063	0.209764	1.519337	0.039067	13	1749	0	5	1767	0.007357	0.989813	29510107600	0.310405	0.945882	0.25863	0.139219	24554	0.05442	0.000121	1
1111	Census Tract 1111	G5020	S	1090862	0	+38.6484878	-090.2397912	29510111100	0.448633	0.28677	0.161863	0.564433	0.147865	66	1862	6	26	1960	0.033673	0.95	29510111100	0.59282	1.184928	0.372507	0.228954	35267	0.060041	0.000113	1
1112	Census Tract 1112	G5020	S	1047490	0	+38.6633743	-090.2505543	29510111200	0.350778	0.164074	0.186704	1.137931	0.241808	63	863	25	0	955	0.065969	0.903665	29510111200	0.268138	1.029605	0.467593	0.262827	26705	0.065309	0.000108	1
1113	Census Tract 1113	G5020	S	951117	0	+38.6592135	-090.2403939	29510111300	0.660228	0.178815	0.421412	2.356688	0.033937	4	1393	0	8	1405	0.002847	0.991459	29510111300	0.470656	1.030691	0.325	0.052857	19107	0.040981	0.000098	1
1114	Census Tract 1114	G5020	S	911525	0	+38.6547267	-090.2316895	29510111400	0.44009	0.290034	0.150056	0.517375	0.097459	29	1246	0	0	1286	0.022551	0.968896	29510111400	0.218424	0.806913	0.254489	0.103044	33214	0.043476	0.000094	1
1115	Census Tract 1115	G5020	S	788064	0	+38.6506865	-090.2251410	29510111500	0.552279	0.383378	0.168901	0.440559	0.10784	4	558	0	17	579	0.006908	0.963731	29510111500	0.276659	1.108359	0.32872	0.096718	35337	0.04408	0.000082	1
1142	Census Tract 1142	G5020	S	1512784	0	+38.5985814	-090.2852826	29510114200	0.364955	0.191541	0.173414	0.905363	0.488437	3558	366	206	311	4518	0.787517	0.081009	29510114200	0.303799	1.688911	0.117973	0.041169	54882	0.069115	0.000156	1
1122	Census Tract 1122	G5020	S	695271	0	+38.6550030	-090.2689147	29510112200	0.639281	0.367137	0.272144	0.741259	0.282017	110	1124	8	35	1277	0.086139	0.880188	29510112200	0.470001	1.150617	0.278956	0.131369	30125	0.054173	0.000072	1
1154	Census Tract 1154	G5020	S	977791	0	+38.5750023	-090.2604606	29510115400	0.420051	0.291455	0.128596	0.441219	0.745445	1735	861	548	149	3357	0.516831	0.256479	29510115400	0.290891	0.991293	0.278522	0.234749	35801	0.04823	0.000101	1
1155	Census Tract 1155	G5020	S	1215464	0	+38.5723148	-090.2460761	29510115500	0.529345	0.422884	0.10646	0.251748	0.653193	1315	4170	937	242	6723	0.195597	0.620259	29510115500	0.457881	1.071558	0.54083	0.15737	21494	0.047811	0.000126	1
1156	Census Tract 1156	G5020	S	1833610	812206	+38.5739516	-090.2318005	29510115600	0.669766	0.352273	0.317493	0.901271	0.730359	1926	2046	508	355	4849	0.397195	0.421943	29510115600	0.62031	0.917426	0.293602	0.211876	20179	0.074709	0.000273	1
1192	Census Tract 1192	G5020	S	733659	0	+38.6462108	-090.2482793	29510119200	0.494876	0.146413	0.348463	2.38	0.542452	656	1276	25	35	2042	0.321254	0.624878	29510119200	0.502788	1.645262	0.199203	0.093127	56019	0.046134	0.000076	1
1193	Census Tract 1193	G5020	S	1179767	0	+38.6400138	-090.2381614	29510119300	0.156895	0.032479	0.124217	3.824561	0.784431	1913	1170	222	111	4060	0.471182	0.288177	29510119300	0.586006	1.521685	0.406712	0.077296	21918	0.04704	0.000122	1
1202	Census Tract 1202	G5020	S	579422	0	+38.6596094	-090.2086099	29510120200	0.631391	0.420927	0.210464	0.5	0.255608	67	1231	0	71	1372	0.048834	0.89723	29510120200	0.405424	1.002751	0.499239	0.111111	21593	0.035921	0.00006	1
1163.01	Census Tract 1163.01	G5020	S	645645	0	+38.5986557	-090.2465788	29510116301	0.432677	0.303777	0.1289	0.424324	0.674524	2281	513	328	119	3490	0.653582	0.146991	29510116301	0.300947	1.872749	0.136088	0.089316	69861	0.032785	0.000067	1
1191.01	Census Tract 1191.01	G5020	S	506376	0	+38.6385706	-090.2558523	29510119101	0.252558	0.01907	0.233488	12.243902	0.671913	1297	1083	95	46	2693	0.481619	0.402154	29510119101	0.577962	1.812526	0.255631	0.084682	40407	0.03977	0.000052	1
1141.01	Census Tract 1141.01	G5020	S	949541	0	+38.5929938	-090.2821537	29510114101	0.355722	0.206391	0.149332	0.723539	0.520899	3061	734	86	130	4158	0.736171	0.176527	29510114101	0.349759	1.499848	0.159546	0.065897	48438	0.048222	0.000098	1
1143	Census Tract 1143	G5020	S	1366899	0	+38.5861304	-090.2846106	29510114300	0.376595	0.191902	0.184692	0.962428	0.337901	4327	238	220	46	4964	0.871676	0.047945	29510114300	0.239128	1.623039	0.036378	0.041902	67569	0.050749	0.000141	1

1. Clean data
2. Export shapefile



Table

ct_02

NAME	NAMELSAD	MTFCC	FUNCSTAT	ALAND	AWATER	INTPTLAT	INTPTLON	FIPS	dp	cdp	sdp	ai	e	wht	blk	lat	oth	tot	pwht	pblk	FIPS_1	theil	edtot	pov	nhi	mhi	Shape_Length	Shape_Area	keep
9800	Census Tract 9800	G5020	S	75604824	5745419	+38.6934150	-090.7426541	29183980000	0.625	0.625	0	0	0	13	0	0	0	13	1	0	29183980000	0	1.5	0	0	<Null>	0.459816	0.008423	1
2131.02	Census Tract 2131.02	G5020	S	16084099	1208882	+38.7720834	-090.4498770	29189213102	0.279817	0.077982	0.201835	2.588235	0.33664	234	31	14	0	279	0.83871	0.111111	29189213102	0.591438	1.008403	0.121864	0.179211	36563	0.198774	0.001793	1
1115	Census Tract 1115	G5020	S	788064	0	+38.6506865	-090.2251410	29510111500	0.552279	0.383378	0.168901	0.440559	0.10784	4	558	0	17	579	0.006908	0.963731	29510111500	0.276659	1.108359	0.32872	0.096718	35337	0.04408	0.000082	1
4019.04	Census Tract 4019.04	G5020	S	2333611	177215	+38.7594499	-090.0927729	17119401904	0.669811	0.193396	0.476415	2.463415	0.09196	687	0	0	17	708	0.970339	0	17119401904	0.178437	1.011429	0.072034	0.04096	85243	0.115062	0.00026	1
1105	Census Tract 1105	G5020	S	1247137	0	+38.6659536	-090.2176533	29510110500	0.372404	0.139466	0.232938	1.670213	0.077201	25	900	0	0	925	0.027027	0.972973	29510110500	0.262562	0.884562	0.315676	0.095135	22356	0.052234	0.000129	1
1112	Census Tract 1112	G5020	S	1047490	0	+38.6633743	-090.2505543	29510111200	0.350778	0.164074	0.186704	1.137931	0.241808	63	863	25	0	955	0.065969	0.903665	29510111200	0.268138	1.029605	0.467593	0.262827	26705	0.065309	0.000108	1
5027	Census Tract 5027	G5020	S	1933037	0	+38.5794683	-090.1273292	17163502700	0.894643	0.542857	0.351786	0.648026	0.139225	9	1007	0	45	1061	0.008483	0.949105	17163502700	0.535554	0.853774	0.489161	0.186616	14474	0.0598	0.0002	1
1181	Census Tract 1181	G5020	S	1563877	0	+38.6235565	-090.2538984	29510118100	0.20524	0.145197	0.060044	0.413534	0.622791	532	460	95	10	1104	0.481884	0.416667	29510118100	0.493465	1.526627	0.24116	0.174819	41786	0.059353	0.000162	1
1267	Census Tract 1267	G5020	S	2224577	383318	+38.6626816	-090.1929647	29510126700	0.327751	0.229685	0.098086	0.427083	0.409208	242	837	6	25	1110	0.218018	0.754054	29510126700	0.346207	1.058215	0.327027	0.176577	27206	0.068279	0.00027	1
5025	Census Tract 5025	G5020	S	4079376	66329	+38.5857898	-090.1164529	17163502500	0.458333	0.291667	0.166667	0.571429	0.101779	15	1120	17	0	1155	0.012987	0.969697	17163502500	0.524793	0.947514	0.333916	0.122944	25625	0.124541	0.000429	1
5038	Census Tract 5038	G5020	S	10165498	71982	+38.5429744	-089.8521267	17163503800	0.553806	0.553806	0	0	0.533498	902	105	45	93	1184	0.761824	0.088682	17163503800	0.260959	2.181524	0.064035	0.017076	95938	0.192101	0.001058	1
1122	Census Tract 1122	G5020	S	695271	0	+38.6550030	-090.2689147	29510112200	0.639281	0.367137	0.272144	0.741259	0.282017	110	1124	8	35	1277	0.086139	0.880188	29510112200	0.470001	1.150617	0.278956	0.131369	30125	0.054173	0.000072	1
1114	Census Tract 1114	G5020	S	911525	0	+38.6547267	-090.2316895	29510111400	0.44009	0.290034	0.150056	0.517375	0.097459	29	1246	0	0	1286	0.022551	0.968896	29510111400	0.218424	0.806913	0.254489	0.103044	33214	0.043476	0.000094	1
2160	Census Tract 2160	G5020	S	875447	0	+38.6661786	-090.3054899	29189216000	0.436182	0.245283	0.190899	0.778281	0.622947	426	725	45	98	1294	0.329212	0.560278	29189216000	0.285775	1.257656	0.176198	0.165379	39635	0.039887	0.00007	1
9004.01	Census Tract 9004.01	G5020	S	208495094	665974	+38.6463037	-089.2016316	17027900401	0.56747	0.26988	0.29759	1.102679	0.119019	1239	0	62	0	1301	0.952344	0	17027900401	0.271709	1.095046	0.104167	0.046154	43688	0.786429	0.021641	1
1062	Census Tract 1062	G5020	S	1078879	0	+38.6802851	-090.2780862	29510106200	0.912104	0.661383	0.25072	0.379085	0.173622	37	1251	19	20	1327	0.027882	0.942728	29510106200	0.312087	0.729013	0.503058	0.091937	19900	0.046329	0.000112	1
1072	Census Tract 1072	G5020	S	655397	0	+38.7006180	-090.2534537	29510107200	0.492721	0.361702	0.131019	0.362229	0.054437	0	1313	0	13	1333	0	0.984996	29510107200	0.395837	0.836502	0.452075	0.14178	22361	0.040729	0.000068	1
2141	Census Tract 2141	G5020	S	1105485	0	+38.6770793	-090.3044709	29189214100	0.615846	0.411765	0.204082	0.495627	0.15081	48	1274	0	24	1346	0.035661	0.946508	29189214100	0.275309	1.015819	0.223626	0.145617	32098	0.044721	0.000114	1
1202	Census Tract 1202	G5020	S	579422	0	+38.6596094	-090.2086099	29510120200	0.631391	0.420927	0.210464	0.5	0.255868	67	1231	0	71	1372	0.048834	0.89723	29510120200	0.405424	1.002751	0.499239	0.111111	21593	0.035921	0.00006	1
1036	Census Tract 1036	G5020	S	1372430	0	+38.6168916	-090.2893166	29510103600	0.556306	0.36036	0.195946	0.54375	0.260281	1248	52	4	66	1382	0.903039	0.037627	29510103600	0.297786	1.567782	0.171491	0.081766	51389	0.057992	0.000142	1
1113	Census Tract 1113	G5020	S	951117	0	+38.6592135	-090.2403939	29510111300	0.600228	0.178815	0.421412	2.356688	0.033937	4	1393	0	8	1405	0.002847	0.991459	29510111300	0.470656	1.030691	0.325	0.052857	19107	0.040981	0.000098	1
1063	Census Tract 1063	G5020	S	1017115	0	+38.6778384	-090.2714789	29510106300	0.667062	0.408768	0.258294	0.631884	0.102374	11	1367	4	18	1407	0.007818	0.971571	29510106300	0.295687	0.982514	0.238806	0.140725	28125	0.047894	0.000105	1
5004	Census Tract 5004	G5020	S	2964324	0	+38.6303831	-090.1196244	17163500400	0.235294	0.022676	0.212418	9.285714	0.187172	83	1402	27	0	1512	0.054894	0.927249	17163500400	0.645201	0.91974	0.390873	0.117725	18205	0.079008	0.000307	1
1184	Census Tract 1184	G5020	S	1448164	0	+38.6286783	-090.2267576	29510118400	0.055052	0	0.055052	<Null>	0.761689	814	368	96	54	1514	0.537649	0.243065	29510118400	0.567579	0.916244	0.567696	0.029062	11769	0.055837	0.00015	1
5011	Census Tract 5011	G5020	S	2234577	0	+38.6023821	-090.1353464	17163501100	0.411163	0.110698	0.300465	2.714286	0.051306	11	1496	0	10	1517	0.007251	0.986157	17163501100	0.245714	1.000831	0.23797	0.182967	32414	0.074574	0.000231	1
105	Census Tract 105	G5020	S	131598028	11890923	+39.0180886	-090.5059765	17083010500	0.626993	0.250797	0.376196	1.5	0.221118	1417	44	32	33	1531	0.925539	0.028739	17083010500	0.381996	1.232727	0.196249	0.020764	51136	0.649698	0.014924	1
1066	Census Tract 1066	G5020	S	854854	0	+38.6627121	-090.2664515	29510106600	0.491012	0.266793	0.224219	0.840426	0.289934	35	1413	17	61	1576	0.022208	0.896574	29510106600	0.494123	0.823264	0.298325	0.198454	22188	0.051686	0.000088	1
1123	Census Tract 1123	G5020	S	851830	0	+38.6549037	-090.2573298	29510112300	0.474608	0.240997	0.23361	0.969349	0.249845	84	1433	0	80	1597	0.052599	0.897307	29510112300	0.456586	1.12312	0.418284	0.167815	20552	0.038656	0.000088	1
4024	Census Tract 4024	G5020	S	6237026	2503209	+38.8805394	-090.1569639	17119402400	0.579612	0.221359	0.358252	1.618421	0.473693	1121	437	11	58	1627	0.688998	0.268593	17119402400	0.541917	1.198437	0.351117	0.066131	23333	0.184621	0.000907	1
4012	Census Tract 4012	G5020	S	6112710	917763	+38.8571908	-090.1043204	17119401200	0.62266	0.347783	0.274877	0.790368	0.202513	1526	75	36	10	1647	0.926533	0.045537	17119401200	0.263381	1.057191	0.261162	0.026108	47639	0.164862	0.00073	1
2139	Census Tract 2139	G5020	S	2345344	0	+38.6745045	-090.2935362	29189213900	0.665	0.489	0.176	0.359918	0.120659	29	1603	6	27	1665	0.017417	0.962763	29189213900	0.370741	0.920653	0.454655	0.135135	22304	0.082572	0.000243	1
1171	Census Tract 1171	G5020	S	1083050	0	+38.6146101	-090.2620141	29510117100	0.289074	0.182094	0.10698	0.5875	0.631452	1137	317	76	106	1699	0.669217	0.18658	29510117100	0.284185	1.783282	0.205415	0.068864	41780	0.043257	0.000112	1
5024.01	Census Tract 5024.01	G5020	S	1982913	0	+38.6219122	-090.0999002	17163502401	0.46588	0.288964	0.176917	0.612245	0.095565	0	1678	0	62	1740	0	0.964368	17163502401	0.362509	0.827358	0.51092	0.056322	26599	0.067928	0.000205	1
1271	Census Tract 1271	G5020	S	1741684	0	+38.6505842	-090.2110922	29510127100	0.72434	0.346041	0.378299	1.09322	0.170352	98	1649	12	5	1764	0.055558	0.934807	29510127100	0.594012	0.860215	0.53066	0.145047	18173	0.054559	0.00018	1
1076	Census Tract 1076	G5020	S	1168198	0	+38.6848910	-090.2387722	29510107600	0.347826	0.138063	0.209764	1.519337	0.039067	13	1749	0	5	1767	0.007357	0.989813	29510107600	0.310405	0.945882	0.25863	0.139219	24554	0.05442	0.000121	1
1061	Census Tract 1061	G5020	S	962329	0	+38.6693968	-090.2811551	29510106100	0.687796	0.293283	0.394513	1.345161	0.070215	27	1747	10	0	1784	0.015135	0.97926	29510106100	0.489916	0.779272	0.352018	0.132287	19568	0.044206	0.0001	1
5029	Census Tract 5029	G5020	S	8801717	706574	+38.5864967	-090.0891888	17163502900	0.713606	0.24548	0.468126	1.906977	0.115033	82	1719	0	0	1801	0.04553	0.95447	17163502900	0.355724	1.041825	0.304031	0.079956	27904	0.182445	0.000983	1
4023	Census Tract 4023	G5020	S	1948752	1199472	+38.8967090	-090.1959493	17119402300	0.434817	0.18283	0.251987	1.378261	0.366328	1495	235	36	35	1805	0.828255	0.130194	17119402300	0.295873	1.511439	0.09301	0.06222	54194	0.089851	0.000327	1
3115	Census Tract 3115	G5020	S	146503429	12064526	+38.8599798	-090.6296978	29183311500	0.386032	0.237913	0.14812	0.622581	0.224392	1641	9	133	23	1806	0.908838	0.004983	29183311500	0.258538	0.953952	0.202104	0.145626	40846	0.83322	0.016456	1
5046	Census Tract 5046	G5020	S	3120772	0	+38.6299022	-090.1392228	17163504600	0.98136	0.676535	0.304825	0.450567	0.071193	35	1767	5	0	1807	0.019369	0.977864	17163504600	0.411536	0.8	0.469286	0.049253	19578	0.084863	0.000323	1
1270	Census Tract 1270	G5020	S	10277994	4697541	+38.7056278	-090.2219202	29510127000	0.233175	0.145479	0.087695	0.602804	0.367102	326	1443	5	40	1814	0.179713	0.79548	29510127000	0.421485	0.950161	0.440273	0.232082	23235	0.271292	0.001551	1
4036.03	Census Tract 4036.03	G5020	S	7575071	150714	+38.7473911	-089.6447743	17119403603	0.493432	0.264368	0.229064	0.86646	0.061738	1782	0	0	0	1819	0.979659	0	17119403603	0.300102	1.478654	0.053326	0.004948	82857	0.151728	0.000801	1
1211	Census Tract 1211	G5020	S	1098447	0	+38.6362683	-090.2248157	29510121100	0.482143	0.164773	0.31737	1.926108	0.365733	233	1517	23	10	1826	0.127601	0.830778	29510121100	0.328804	1.030962	0.404294	0.098028	17465	0.048147	0.000114	1
2172	Census Tract 2172	G5020	S	1155844	0	+38.6180868	-090.3280403	29189217200	0.357934	0.208856	0.149077	0.713781	0.674904	1196	303	87	158	1840	0.65	0.164674	29189217200	0.277914	1.542212	0.128804	0.125	44881	0.045679	0.00012	1
4019.01	Census Tract 4019.01	G5020	S	10916485	92390	+38.8698146	-090.0499822	17119401901	0.570101	0.253378	0.316723	1.25	0.364299	1597	76	100	65	1859	0.859064	0.040882	17119401901	0.25408	1.41704	0.048951	0.047337	64474	0.171124	0.001143	1
4008.01	Census Tract 4008.01	G5020	S	1333309	0	+38.7271339	-090.1150962	17119400801	0.582343	0.228202	0.353141	1.540741	0.262039	1688	45	94	21	1864	0.905579	0.024142	17119400801	0.22637	1.257703	0.109979	0.019313	58750	0.05751	0.000138	1
1075	Census Tract 1075	G5020	S	911786	0	+38.6913421	-090.2444047	29510107500	0.708561	0.177596	0.530965	2.989743	0.103217	36	1818	0	8	1876	0.01919	0.969083	29510107500	0.403197	0.854447	0.308102	0.126866	18879	0.043745	0.000094	1
1034	Census Tract 1034	G5020	S	909286	0	+38.6077397	-090.3015703	29510103400	0.298962	0.156401	0.142561	0.911504	0.391873	1547	125	34	171	1877	0.824188	0.066596	29510103400	0.24044	1.565902	0.035695	0.077784	77174	0.039874	0.000094	1
1104	Census Tract 1104	G5020	S	885191	0	+38.6591535	-090.2210771	29510110400	0.589525	0.187344	0.382182	2.04	0.076177	35	1841	0	9	1885	0.018568	0.976658	29510110400	0.496835	0.946715	0.339523	0.171883	22389	0.040905	0.000092	1
1246	Census Tract 1246	G5020	S	2152098	584568	+38.5886772	-090.2129101	29510124600	0.51241	0.469175	0.043235	0.09215	0.551373	461	1259	113	56	1889	0.244044	0.66649	29510124600	0.424694	0.956728	0.52508	0.178931	25192	0.085105	0.000283	1
2211	Census Tract 2211	G5020	S	4540423	81462	+38.5576834	-090.4259505	29189221100	0.654116	0.321366	0.33275	1.035422	0.212766	1754	72	25	14	1889	0.928534	0.038115	29189221100	0.258777	1.881784	0.024352	0.044997	121034	0.097885	0.000478	1
1103	Census Tract 1103	G5020	S	938326	0	+38.6650436	-090.2324074	29510110300	0.415856	0.267016	0.148841	0.557423	0.078595	23	1849	21	0	1893	0.01215	0.976756	29510110300	0.434555	0.997494	0.453777	0.1944	14735	0.044214	0.000097	1
4025	Census Tract 4025	G5020	S	1284271	0	+38.8950475	-090.1697901	17119402500	0.657343	0.436189	0.221154	0.507014	0.542524	969	838	68	21	1896	0.511076	0.441983	17119402500	0.466129	1.188327	0.271624	0.03692	43446	0.057675	0.000133	1
1025	Census Tract 1025	G5020	S	954055	0	+38.5719913	-090.2769595	29510102500	0.339766	0.152309	0.187457	1.230769	0.317267	1701	63	108	72	1944	0.875	0.032407	29510102500	0.309145	1.287975	0.129755	0.097737	47132	0.043095	0.000099	1
5022	Census Tract 5022	G5020	S	4145833	0	+38.6326870	-090.0887042	17163502200	0.541798	0.319401	0.222397	0.696296	0.188802	44	1814	97	0	1955	0.022506	0.927877	17163502200	0.294974	0.640625	0.469503	0.140665	17500	0.095637	0.000429	1
3104	Census Tract 3104	G5020	S	1673550	340052	+38.7939024	-090.4778356	29183310400	0.373596	0.233146	0.140449	0.60241	0.225575	1807	58	22	56	1956	0.923824	0.029652	29183310400	0.383853	1.257502	0.145757	0.13193	41780	0.076989	0.000209	1
1111	Census Tract 1111	G5020	S	1090862	0	+38.6484878	-090.2397912	29510111100	0.448633	0.28677	0.161863	0.564433	0.147865	66	1862	6	26	1960	0.033673	0.95	29510111100	0.59282	1.184928	0.372507	0.226954	35267	0.060041	0.000113	1
9002	Census Tract 9002	G5020	S	185664039	30672	+38.7043984	-089.4878640	17027900200	0.49811	0.272109	0.226002	0.830556	0.144818	1885	5	4	14	1982	0.95106	0.002523	17027900200	0.21378	1.156745	0.035822	0.043895	86667	0.654642	0.019229	1

0 (1 out of 615 Selected)

ct_02

STATA code to read shapefile

First, we need to export shapefile out the geodatabase

Second, install *shp2dta* if it is not installed

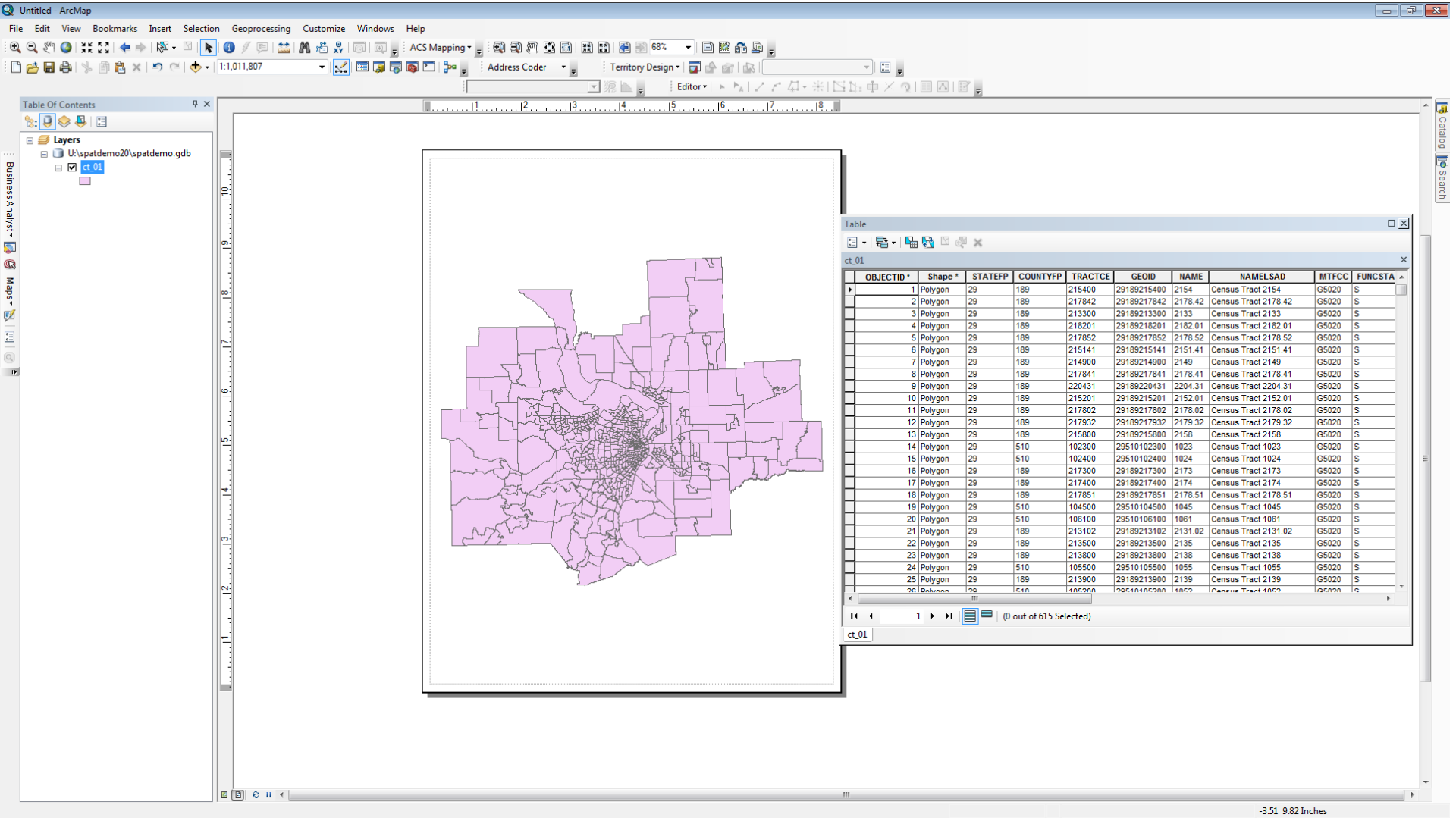
Third, import shapefile into geodatabase

```
clear
set more off
cd U:\spatdemo20\data\gis
shp2dta using stl_ct, database(geo_stl) coordinates(uscd))
```

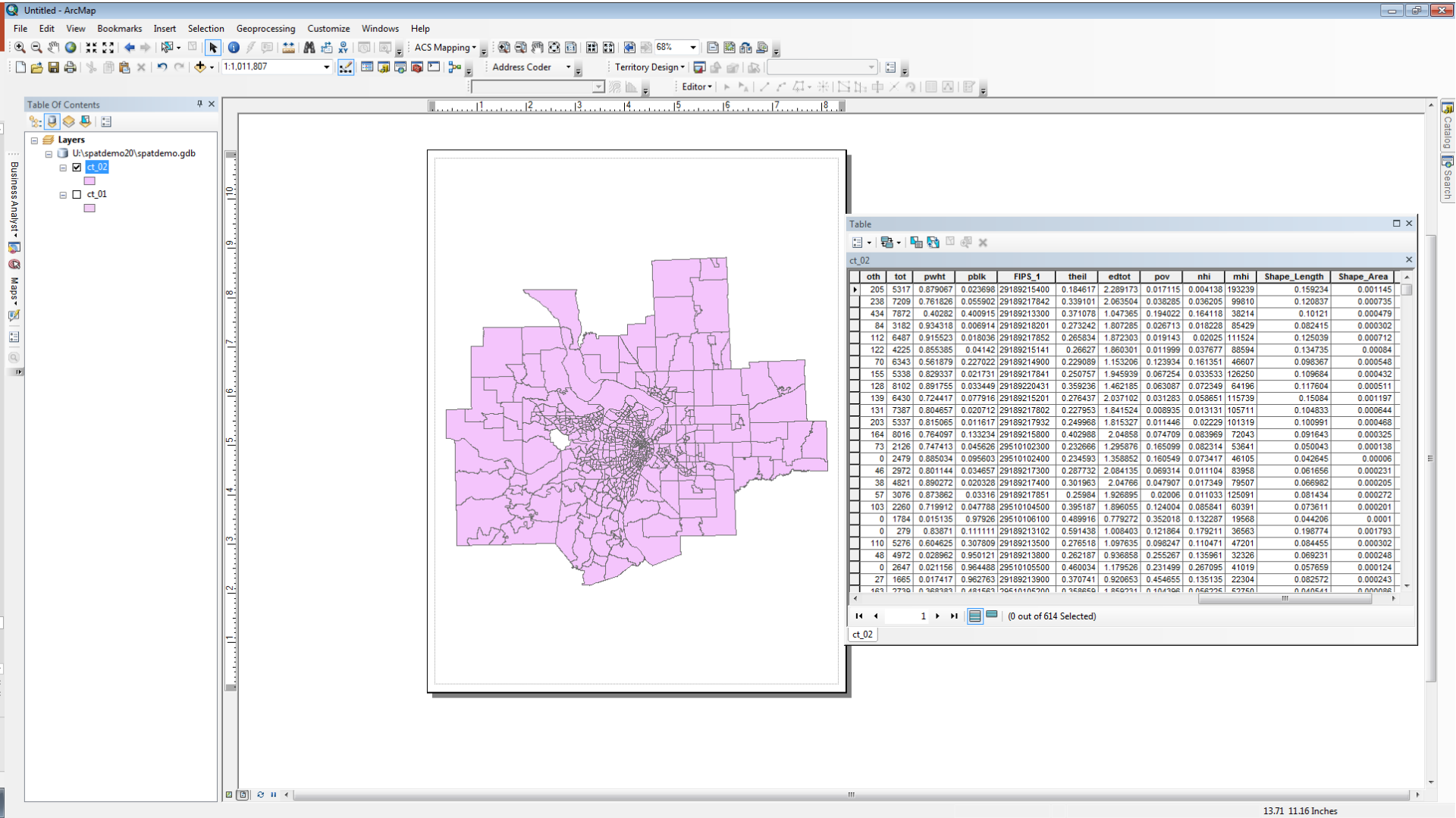
Run STATA code to merge & produce final.xlsx

```
clear
set more off

use "U:\spatdem020\data\gis\geo_stl.dta"

sort FIPS

save "U:\spatdem020\data\gis\geo_stl01.dta", replace

use "U:\spatdem020\data\lab02\stl_part02.dta"

sort FIPS

merge 1:1 FIPS using "U:\spatdem020\data\gis\geo_stl01.dta"

keep if keep==1

*keep if tot17>15

*Data Normalization =x-MIN/MAX/MIN replace min and max values.

*gen ed_sc15(ED_TOT-min)/(max-min)
*gen mhi_sc15=(log(mhi15)-log(min))/(log(max)-log(min))
*Income Inequality Scale - High values are bad and low values are good
*gen inc_sc15=(theil15-min)/(max-min)
*Recode income Inequality Scale - High values are good and low values are bad
*gen rinc_sc15=1-inc_sc15
*gen index01=(ed_sc15+rinc_sc15+mhi_sc15)/3

summarize theil edtot mhi

*    Variable |        Obs        Mean    Std. Dev.       Min        Max
*-------------+---------------------------------------------------------
*       theil |        614    .3002117    .0847341   .1283958   .6564058
*       edtot |        614    1.353836    .3409433   .5843374   2.449892
*         mhi |        614    63109.49     28748.2      11769     209096

*Education Scale - High values are good and low values are bad
gen ed_sc=(edtot-.5843374)/(2.449892-.5843374)

*Income Inequality Scale - High values are bad and low values are good
gen inc_sc=(theil-.128396)/(.6564058-.128396)

*Recode income Inequality Scale - High values are good and low values are bad
gen rinc_sc1=1-inc_sc

*Median Income - High is good and low is bad
gen mhi_sc=(log(mhi)-log(11769))/(log(209096)-log(11769))


*High is good and low is bad - all variables are equal
gen index01=(ed_sc+rinc_sc+mhi_sc)/3

*High is good and low is bad - education is 50%, inequality is 25% and income is 25%
gen index02=(ed_sc*.5)+(rinc_sc*.25)+(mhi_sc*.25)

export excel FIPS index01 index02  using "U:\spatdem020\data\lab02\final.xls", firstrow(variables) nolabel replace,

save "U:\spatdem020\data\lab02\mas_stl.dta", replace
```

The shapefile - ct_01 has part 1 of the data

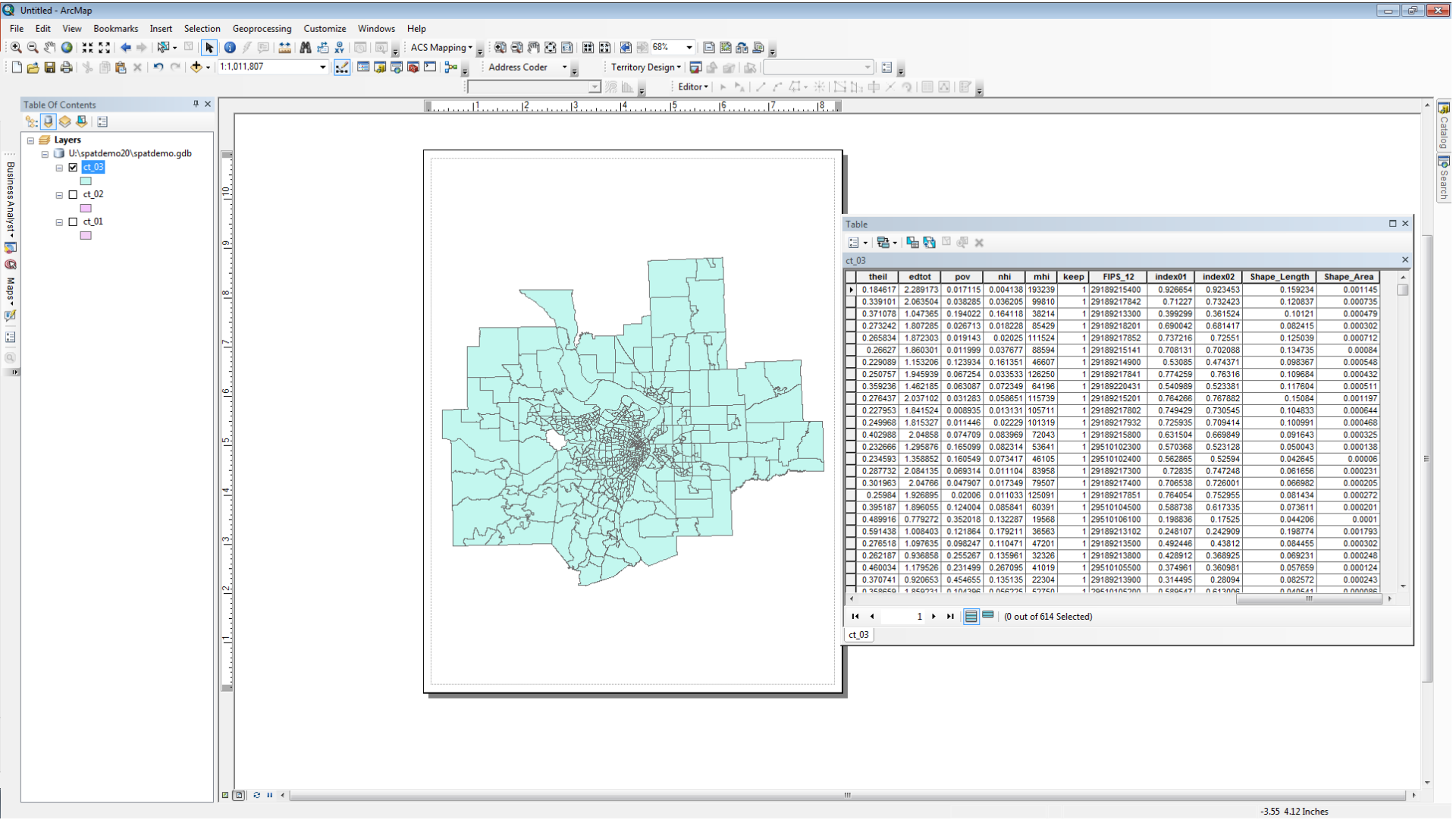


Join Part2 to ct_01 and make a permanent file called ct_02

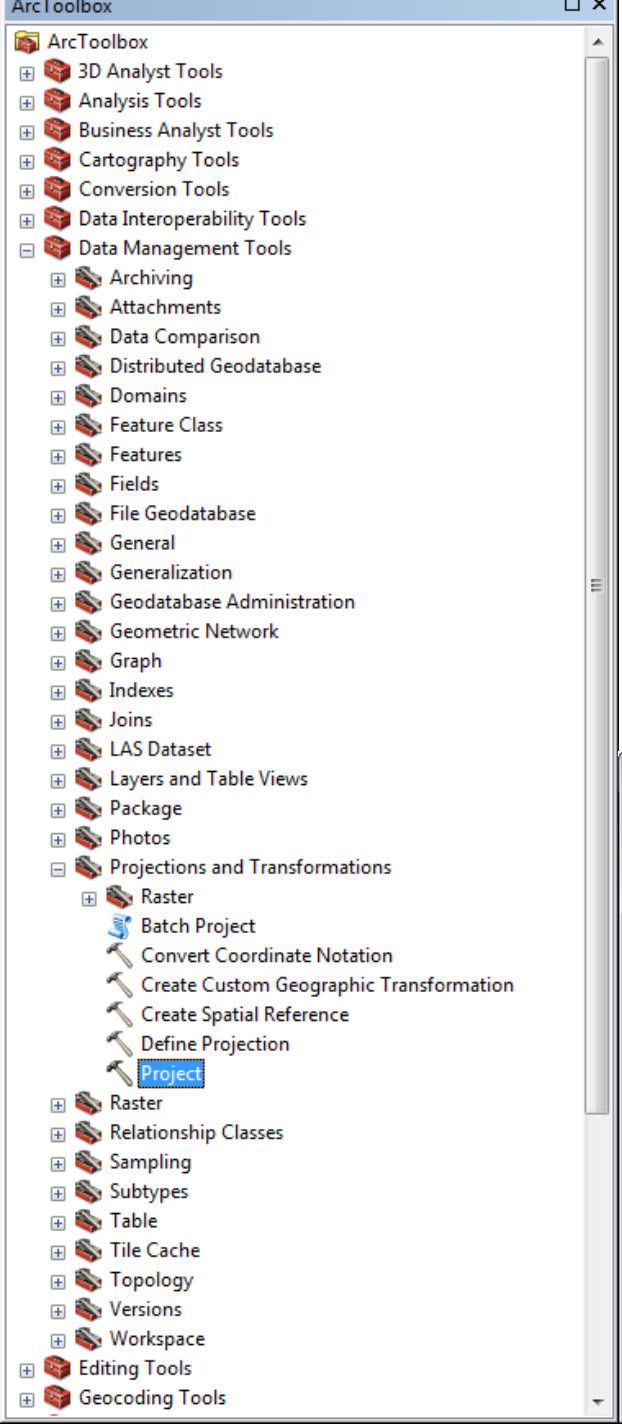


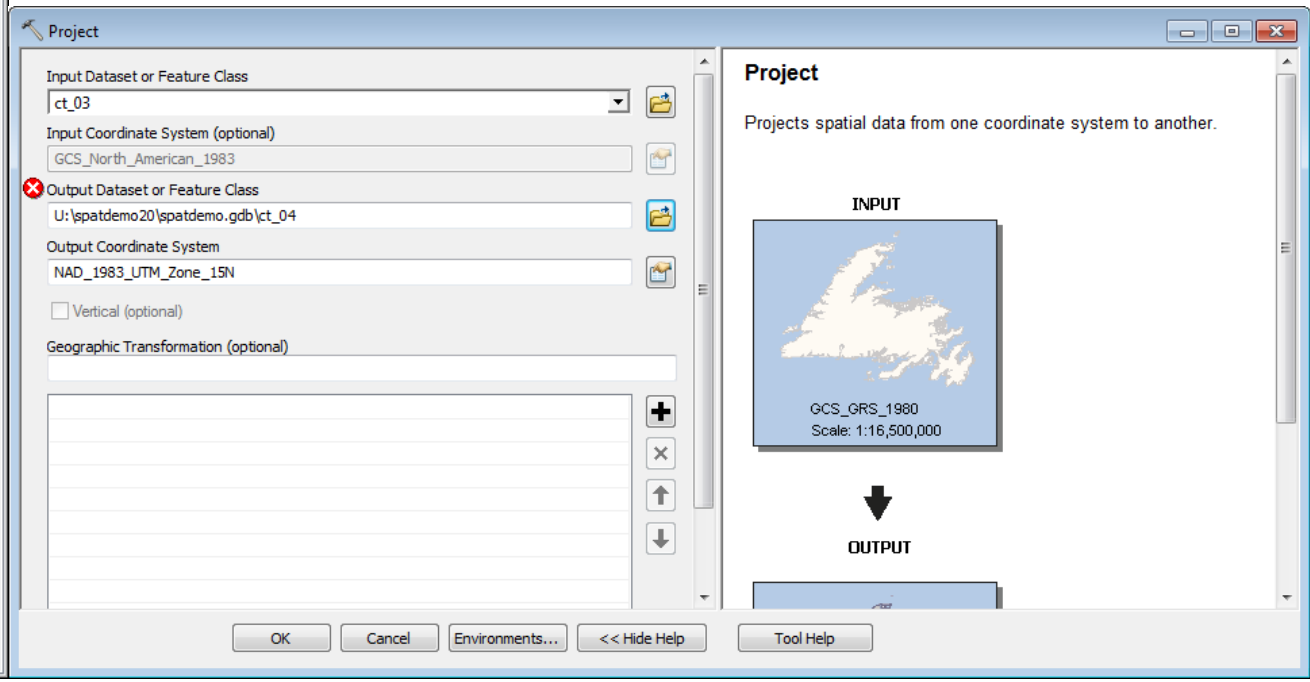
oth	tot	pwht	pblk	FIPS_1	theil	edtot	pov	nhi	mhi	Shape_Length	Shape_Area
205	5317	0.879067	0.023698	29189215400	0.184617	2.289173	0.017115	0.004138	193239	0.159234	0.001145
238	7209	0.761826	0.055902	29189217842	0.339101	2.063504	0.038285	0.036205	99810	0.120837	0.000735
434	7872	0.40282	0.400915	29189213300	0.371078	1.047365	0.194022	0.164118	38214	0.10121	0.000479
84	3182	0.934318	0.006914	29189218201	0.273242	1.807285	0.026713	0.018228	85429	0.082415	0.000302
112	6487	0.915523	0.018036	29189217852	0.265834	1.872303	0.019143	0.02025	111524	0.125039	0.000712
122	4225	0.855385	0.04142	29189215141	0.26627	1.860301	0.011999	0.037677	88594	0.134735	0.00084
70	6343	0.561879	0.227022	29189214900	0.229089	1.153206	0.123934	0.161351	46607	0.098367	0.000548
155	5338	0.829337	0.021731	29189217841	0.250757	1.945939	0.067254	0.033533	126250	0.109684	0.000432
128	8102	0.891755	0.033449	29189220431	0.359236	1.462185	0.063087	0.072349	64196	0.117604	0.000511
139	6430	0.724417	0.077916	29189215201	0.276437	2.037102	0.031283	0.058651	115739	0.15084	0.001197
131	7387	0.804657	0.020712	29189217802	0.227953	1.841524	0.008935	0.013131	105711	0.104833	0.000644
203	5337	0.815065	0.011617	29189217932	0.249968	1.815327	0.011446	0.02229	101319	0.100991	0.000468
164	8016	0.764097	0.133234	29189215800	0.402988	2.04858	0.074709	0.083969	72043	0.091643	0.000325
73	2126	0.747413	0.045626	29510102300	0.232666	1.295876	0.165099	0.082314	53641	0.050043	0.000138
0	2479	0.885034	0.095603	29510102400	0.234593	1.358852	0.160549	0.073417	46105	0.042645	0.00006
46	2972	0.801144	0.034657	29189217300	0.287732	2.084135	0.069314	0.011104	83958	0.061656	0.000231
38	4821	0.890272	0.020328	29189217400	0.301963	2.04766	0.047907	0.017349	79507	0.066982	0.000205
57	3076	0.873862	0.03316	29189217851	0.25984	1.926895	0.02006	0.011033	125091	0.081434	0.000272
103	2260	0.719912	0.047788	29510104500	0.395187	1.896055	0.124004	0.085841	60391	0.073611	0.000201
0	1784	0.015135	0.97926	29510106100	0.489916	0.779272	0.352018	0.132287	19568	0.044206	0.0001
0	279	0.83871	0.111111	29189213102	0.591438	1.008403	0.121864	0.179211	36563	0.198774	0.001793
110	5276	0.604625	0.307809	29189213500	0.276518	1.097635	0.098247	0.110471	47201	0.084455	0.000302
48	4972	0.028962	0.950121	29189213800	0.262187	0.936858	0.255267	0.135961	32326	0.069231	0.000248
0	2647	0.021156	0.964488	29510105500	0.460034	1.179526	0.231499	0.267095	41019	0.057659	0.000124
27	1665	0.017417	0.962763	29189213900	0.370741	0.920653	0.454655	0.135135	22304	0.082572	0.000243
163	2739	0.368383	0.481563	29510105200	0.358659	1.859231	0.104396	0.056225	53750	0.040541	0.000086

Join shapefile ct_02 to final and make a permanent file called ct_03



Project the shapefile ct_03 to ct_04
TM Zone 15





Change Data Frame Property to match projection