



# Grandparents on duty

**Assignment 2 Report**

**Analytic Methods of Urban Planning: Quantitative - Fall 2020**

by Cristina Dávila González

# Research question

## datasets and variables

On this year's Back to School season, most of public schools worldwide have decided to go remote. Coming from a current context of diaspora and mass migration of young/adult professionals, where sometimes elders are left in charge of their grandchildren, I decided to take a look at similar **family scenarios in the U.S. where grandparents are a key factor in making remote-learning feasible for their underage relatives.**

For this exercise I used person-level variables from the **American Community Survey 2018 (ACS 1-year data)** to eventually generate supporting information on the research question, specifically in the state of **Illinois**. As I developed my analysis on the selected variables, I decided to generate two datasets; one with underage enrolled students and another one considering grandparents of 50 years old and up in charge of their grandchildren.

Regarding the age interval selected for the grandparents dataset, I initially wanted to set the age in 65 and up, however, during the previous assignment I realized I could consider more individuals than the 813 resulted from this first analysis of variables. This led to the consideration of a lower number, and after investigating more on senior communities in the U.S., I decided to set 50 years as my base age, as according to the **American Association of Retired Persons 2018 Survey**, it is also the average age at first-grandchild in the country.

# List of variables

datasets and variables

## **Age / AGEP / continuous**

- a. of population under 18 within tract
- b. of population of 50 and over within tract

## **School enrollment / SCH / categorical**

## **Grade Level Attending / SCHG / categorical**

## **Self-care difficulty / FDDRSP / categorical**

- a. in population under 18 within tract
- b. in population of 50 and over within tract

## **Grandparents responsible for grandchildren / GCR / categorical**

## **Total persons income / PINCP / continuous**

in population of 50 and over within tract

**Total variables:** 6 (2 continuous + 4 categorical)

**Total datasets:** 2 (underage students + 50 y/o grandparents and over)

# Distribution of continuous variables

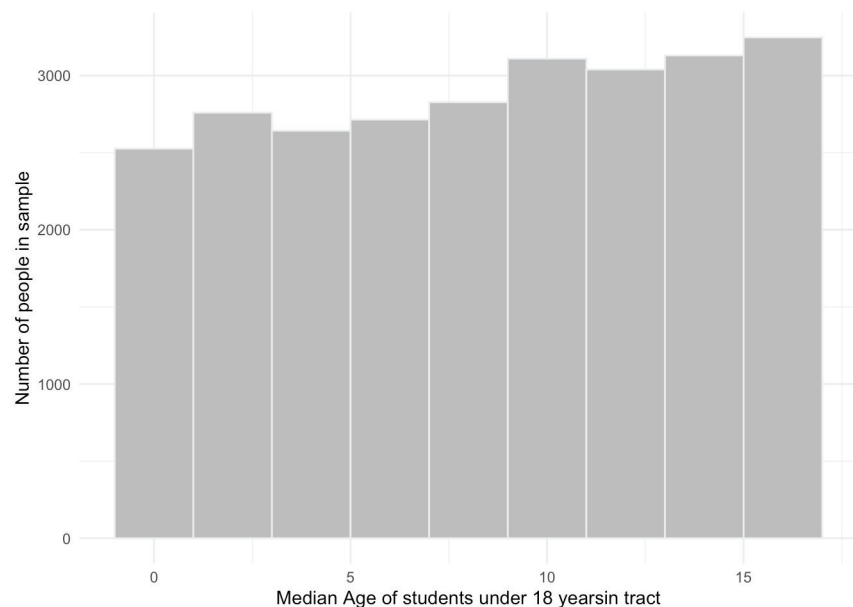
descriptive statistics - census tracts in Illinois

Statistic	Median age: Underage Students (< 18 years)	Median age: Potential Grandparents (>50)	Total Grandparent's income (>50)
Sample mean	8.9	63.6	33240
Median	9	62	21100
Standard deviation	5.19	8.71	45688
Interquartile range	4 to 13	57 to 69	8800 to 45000
Population mean (95% confidence)	8.84 to 8.97	63.3 to 64	31237 to 35243

histograms

**median age**  
(underage students)

In the underage student community of Illinois (25,993 ppl.), although there is a strong teenager community as outlier, the average age still remains below ten years old (8.9); a number associated to a population that still needs important attention from adults while at their school duties.

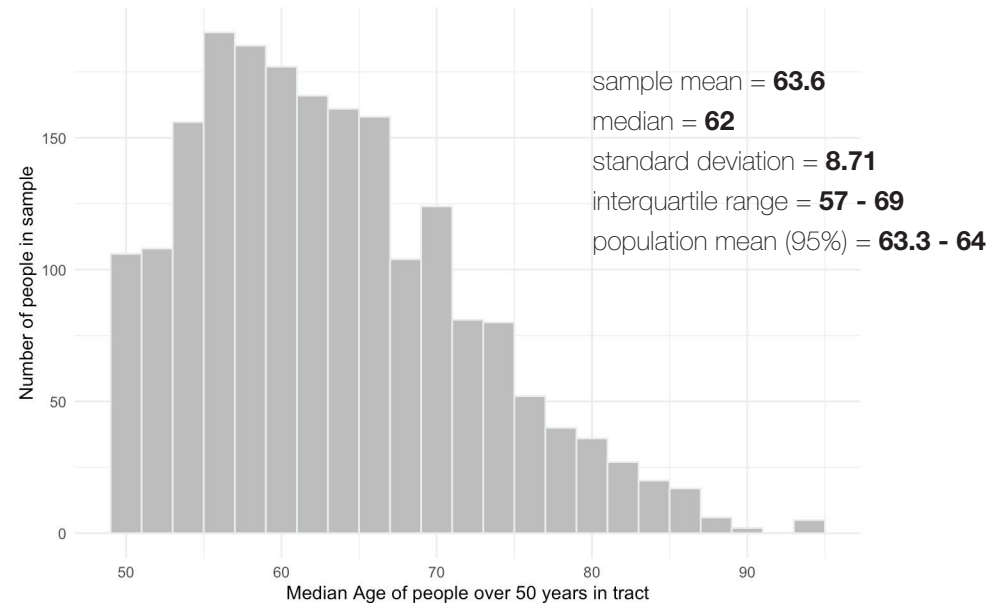


## histograms

### median age

(grandparents of 50 and over)

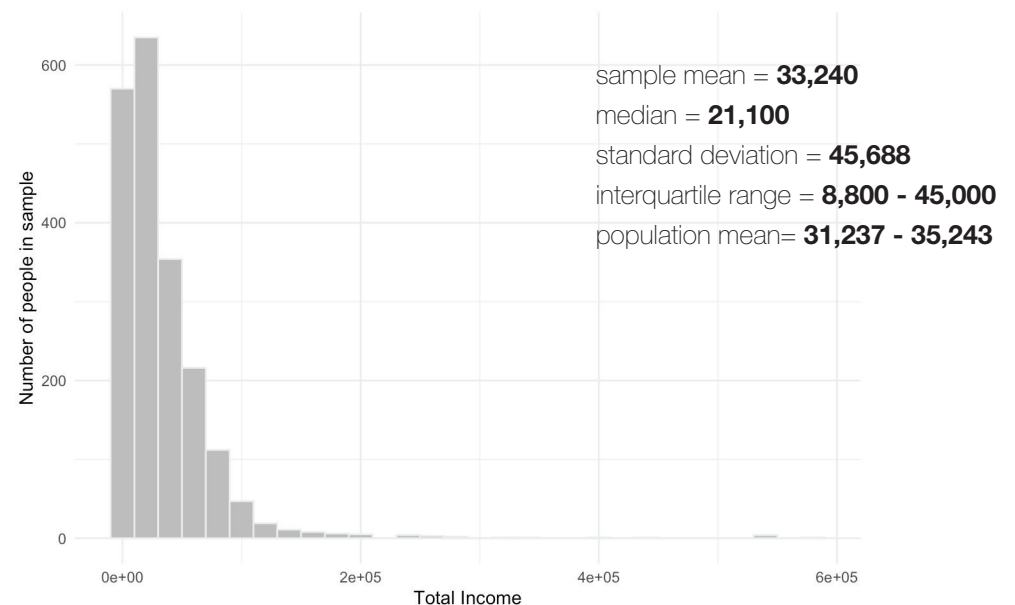
In the grandparents' community of Illinois who are responsible for their grandchildren (2,001 ppl.), the majority of people are aged between 57 and 69 years old, suggesting that it was definitely a good decision to broaden the scope of age study from my initial 65 y/o to 50 y/o as my base age number.



### total grandparent's income

(grandparents of 50 and over)

Even though this study shows a great amount of grandparents with a total income between 10,000 and 14,000 dollars above the average, their perceived income is strongly compromised when it is also seized to support a child's education, specially in a technology-based modality.



# Distribution of categorical variables

descriptive statistics - census tracts in Illinois

Grade Level Attending	Sample proportion	95-percent confidence interval
N/A (not attending school)	21.5 %	21% to 22%
Nursery school/preschool	7.78 %	7.45% to 8.1%
Kindergarten	5.13 %	4.86% to 5.4%
Grade 1	4.94 %	4.67% to 5.2%
Grade 2	5.14 %	4.87% to 5.41%
Grade 3	5.5 %	5.22% to 5.77%
Grade 4	5.55 %	5.27% to 5.83%
Grade 5	5.93 %	5.65% to 6.22%
Grade 6	5.89 %	5.61% to 6.18%
Grade 7	5.84 %	5.56% to 6.13%
Grade 8	5.79 %	5.51% to 6.08%
Grade 9	5.89 %	5.61% to 6.18%
Grade 10	6.1 %	5.81% to 6.39%
Grade 11	5.81 %	5.52% to 6.09%
Grade 12	3.04 %	2.83% to 3.25%
College undergraduate years	0.15 %	0.103% to 0.197%

## descriptive statistics - census tracts in Illinois

Self care difficulty (underage)	Sample proportion	95-percent confidence interval
N/A (less than 3 years old)	15%	14.6% to 15.5%
No, has not attended in the last 3 months	0%	NaN% to NaN%
Yes, private school or college or homeschool	11.5%	11.1% to 11.9%
Yes, public school or public college	67%	66.4% to 67.5%

Self care difficulty (underage)	Sample proportion	95-percent confidence interval
Yes	9.13 %	8.78% to 9.48%
No	90.9 %	90.5% to 91.2%

Self care difficulty (over 50)	Sample proportion	95-percent confidence interval
Yes	9.15 %	7.88% to 10.4%
No	90.9 %	89.6% to 92.1%

Grandparents responsible for grandchildren	Sample proportion	95-percent confidence interval
Yes	30.8 %	28.8% to 32.8%
No	69.2 %	67.2% to 71.2%



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