Question: How many babies are born each year who reside in the Zone?

Exploring data from the U.S. Census Bureau
and the NYC Department of Health and Mental Hygiene

Specific Question HCZ is looking to answer:

How many babies are born each year who reside in the Zone?

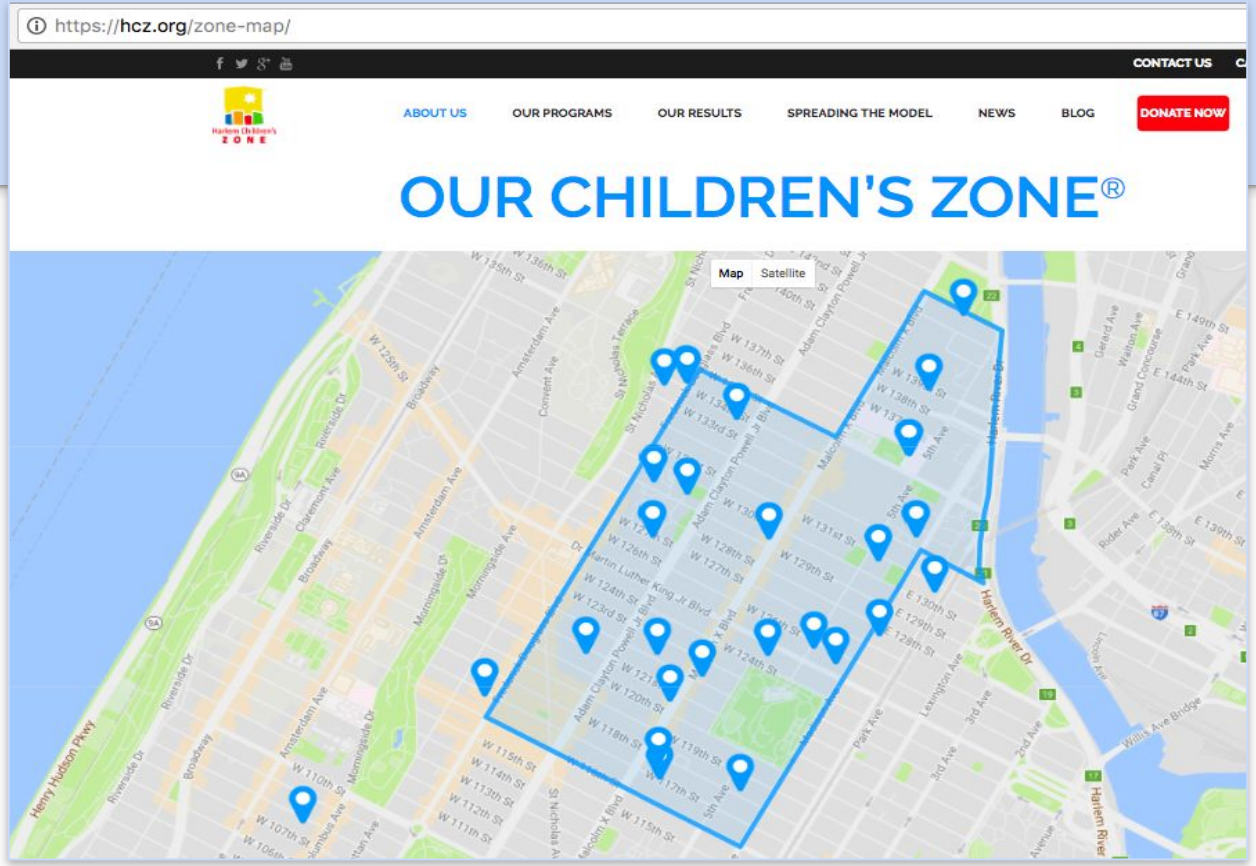
Project Goals

- **Minimum Goal:** Find better matching data
- **Ideal Goal:** Build a model to approximate the number of children born each year in the Zone

Deliverables

- Google Map
- Resources
- Data Sets
- Recommendations

The Zone - HCZ


https://hcz.org/zone-map/
CONTACT US
ABOUT US
OUR PROGRAMS
OUR RESULTS
SPREADING THE MODEL
NEWS
BLOG
DONATE NOW
OUR CHILDREN'S ZONE®
Map
Satellite

Initial Findings:
Public Data Sets

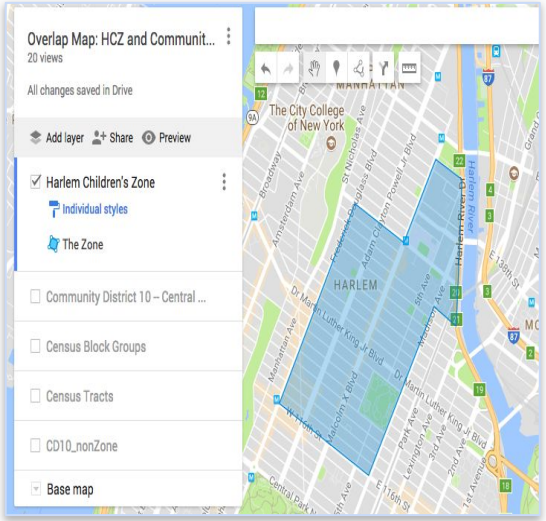
- **Source:**

  NYC Department of Health and Mental Hygiene, Bureau of Vital Statistics

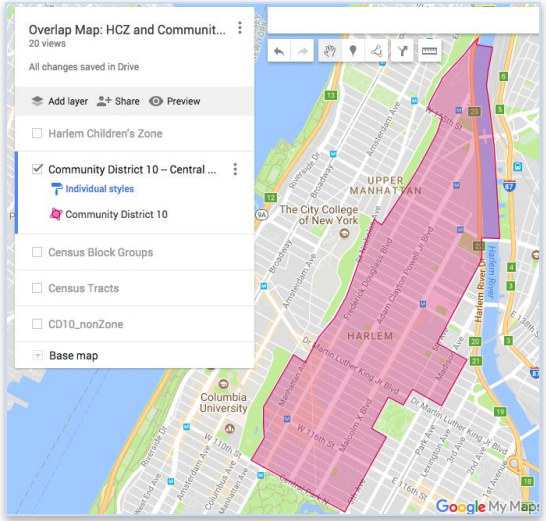
- **2 Geographic Areas:**
  - Community District 10
  - Census Tracts (within The Zone)

Initial Findings:
Public Data Sets

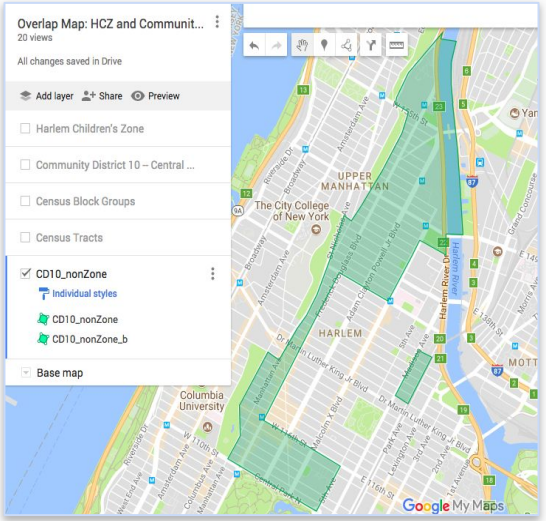
The Zone



Community District 10



CD10, Non-Zone



Initial Findings:
Public Data Sets

Birth Micro SAS Datasets

The Community District (CD) and Zip Code (ZC) micro-datasets include one-way and two-way counts of maternal and birth characteristics. The Census Tract (CT) Datasets include one-way counts *only*. For all datasets, cells smaller than four have been censored. **Descriptions of the Datasets** (PDF).

Census Tract - Aggregated 5 year counts
2000-2004
2002-2006
2004-2008
2006-2010
2010-2014

Community District - Single year aggregate counts
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014

Advantages/Disadvantages: Community District 10 and Census Tracts Data

Geographic Level	Advantages	Disadvantages
Community District 10	• 1-year aggregate counts • 15 datasets available • Other data available (including visualizations) • Model available • Two-way counts available	• Not specific to Zone • Imperfect overlap with the Zone • Need to compare with population within the Zone
Census Tract	• Specific to the Zone • Demographic data available	• 5-year aggregate counts • Overlap between datasets • Only one-way counts available • LESS data available

Other Data:
Community District 10

† Margin of error is at least 10 percent of the total value. Take care with this statistic.

Fertility

3.1%

Women 15-50 who gave birth during past year

about two-thirds of the rate in New York: 4.7%

about three-fifths of the rate in United States: 5.2%

Women who gave birth during past year, by age group

* Universe: Women 15 to 50 years

Hide data / Embed

Women who gave birth during past year, by age group (Table B13016) View table

Column	NYC-Manhattan Community District 10--Central Harlem PUMA				New York				United States			
15-19	1.7%†	±2.9%	55	±97	1%†	±0.2%	6,255	±1,236	1.4%	±0.1%	148,036	±6,768
20-24	10.2%†	±6.8%	610	±431	4.5%	±0.4%	30,820	±2,947	6.6%	±0.1%	711,800	±15,401
25-29	0%	±0%	0	±192	7.4%	±0.5%	55,736	±3,862	9.8%	±0.2%	1,093,572	±16,978
30-35	3.7%†	±3.1%	333	±278	9.5%	±0.6%	66,090	±4,135	10.4%	±0.2%	1,124,842	±18,939
35-39	4.3%†	±6.8%	231	±370	7.3%	±0.5%	47,599	±3,368	6%	±0.1%	628,906	±13,440
40-44	1.2%†	±2.1%	56	±97	2.5%†	±0.3%	14,802	±2,007	1.8%	±0.1%	178,209	±6,209
45-50	0%	±0%	0	±192	0.6%†	±0.1%	4,528	±1,134	0.5%	±0%	61,538	±3,929

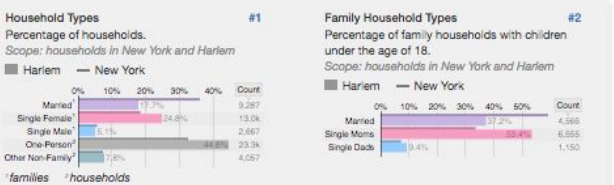
Other Data:
Community District 10

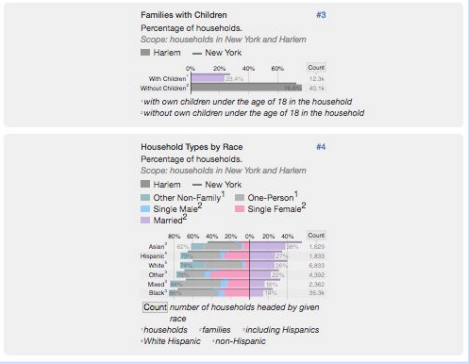
Harlem, New York, New York (Neighborhood)

125,528
52,334

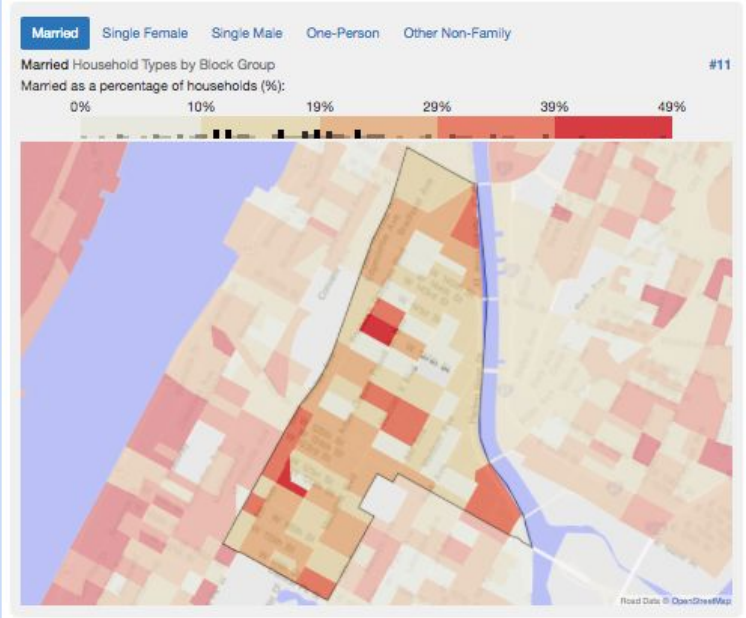
- **Overview**
- Population
- Age and Sex
- Race and Ethnicity
- Household Types
- Marital Status
- National Origin
- Ancestry
- Languages
- Household Income
- Employment Status
- Food Stamps
- Occupations
- Industries
- Sectors
- Educational Attainment
- School Enrollment

Household Types in Harlem, New York, New York (Neighborhood)

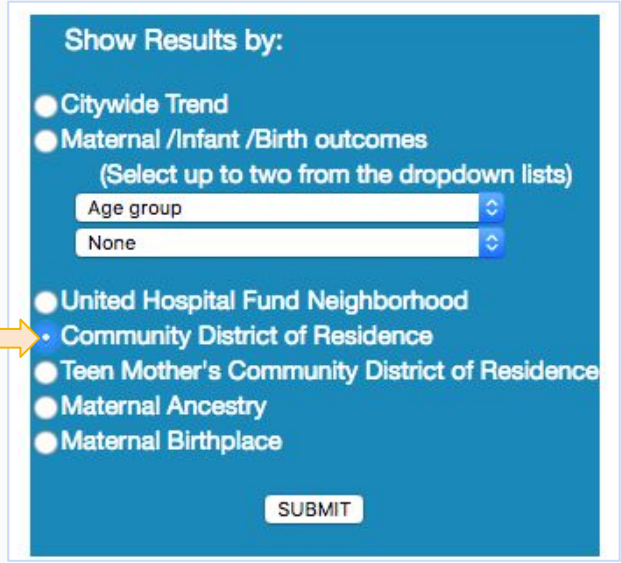




Map of Household Types by Block Group in Harlem



Existing Birth Rates Model: Community District 10



Existing Birth Rates Model: Community District 10

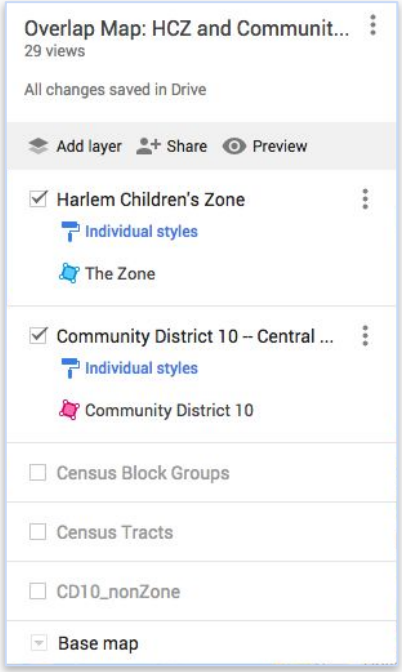
Community District	Births	Birth Rate per 1,000 pop.	Fertility Rate per 1,000 women aged 15-44	Percent of Total Live Births with Specified Characteristics									
				Mother's Ancestry Hispanic	Foreign Born Mother	First Live Birth	Low Birth Weight (< 2500 Grams)	Preterm Birth (<37 Weeks)	Late or No Prenatal Care	Mother Not Married	On Medicaid	Exclusive Breast Feeding	Pre-pregnancy Obesity
												Only available since 2008	
Manhattan													
Manhattanville (109)	1,092	9.8	36.2	50.8	48.4	49.0	7.0	8.2	11.0	52.8	61.7	39.8	21.0
Central Harlem (110)	1,571	13.4	52.7	27.1	38.6	45.5	10.0	10.3	11.0	56.0	60.8	40.8	26.3
East Harlem (111)	1,494	12.0	50.5	52.8	37.8	47.0	10.9	10.8	8.4	63.9	67.5	29.4	25.7
Washington Heights (112)	2,284	11.6	51.1	72.2	54.2	52.5	7.6	7.3	6.1	54.0	67.0	31.0	17.8

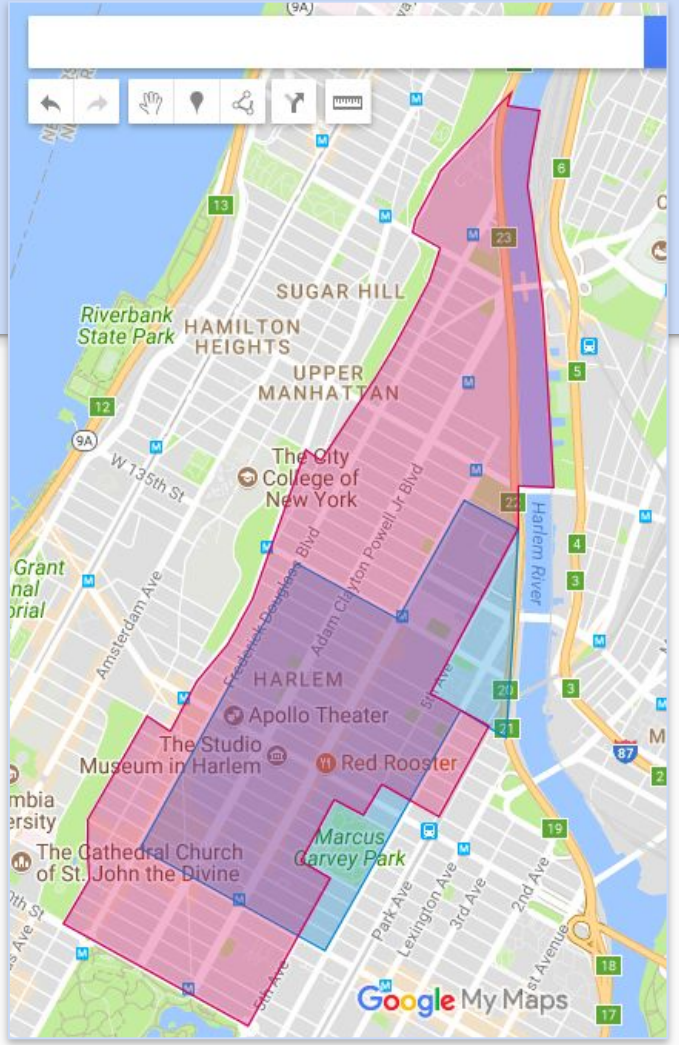
Overlap:
The Zone and CD10

Red:
Community District 10

Blue: The Zone

Purple: Overlap





Demographic Comparison: The Zone and Community District 10

Can data for the population in Community District 10 be used as a ‘proxy’ data set for the population within the Zone?

Comparison: American Community Survey (ACS) and Census Data

Survey	Purpose	Data Collection
Decennial Census (Long-Form)	Provide counts of people for the purpose of congressional apportionment and legislative redistricting.	Cross-sectional snapshot of the U.S. population, once every 10 years.
ACS	Measure the changing social and economic characteristics of the U.S. population. ACS estimates are controlled to match the Census Bureau's annual population estimates, by age, sex, race, and Hispanic origin.	ACS data is produced every year, but in exchange for this benefit, the sample size of the ACS is considerably smaller than that of the Census 2000 long-form sample.

Demographic Comparison: Public Data Sets

- **American Community Survey (ACS)**
  - American Fact Finder
  - 5 year estimates for the period of 2011 – 2015
  - Block group level

Demographic Comparison: Defining "Areas of Interest"

- Census block groups were used to filter ACS data sets (via their GEOIDs).
- Utilized Google Overlap Map to identify which block groups fell into the areas of interest.
- Certain block groups were excluded

Demographic Comparison: Overview of Analysis

- Compared percentages of total population for the following demographic attributes:
  - Gender, Age Groups, Race, Hispanic or Latino Origin, Household and Family Type, and Household Income
- Data Tables: (5-yr) Counts and Percent of Sample Population
- Stacked bar charts
- Population Pyramid
- Q-Q Plots

Demographic Comparison: Brief Overview of Q-Q Plots

- The q-q plot is used to answer the following questions:
  - Do two data sets come from populations with a common distribution?
  - Do two data sets have common location and scale?
  - Do two data sets have similar distributional shapes?
  - Do two data sets have similar tail behavior?

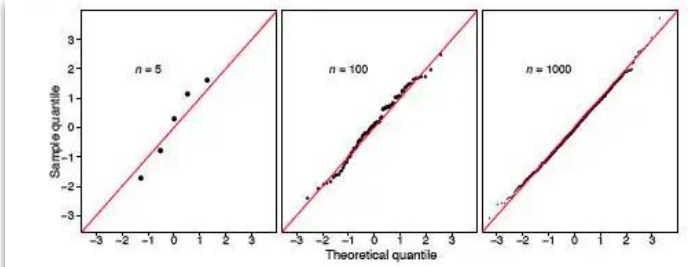


Figure 11. q-q plots of normal data.

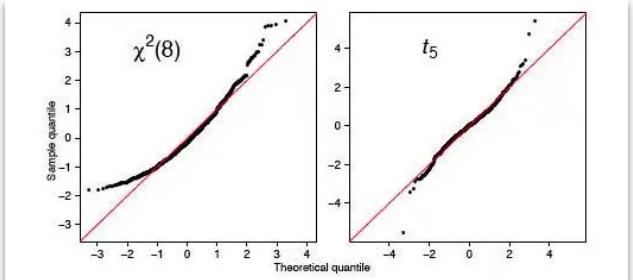
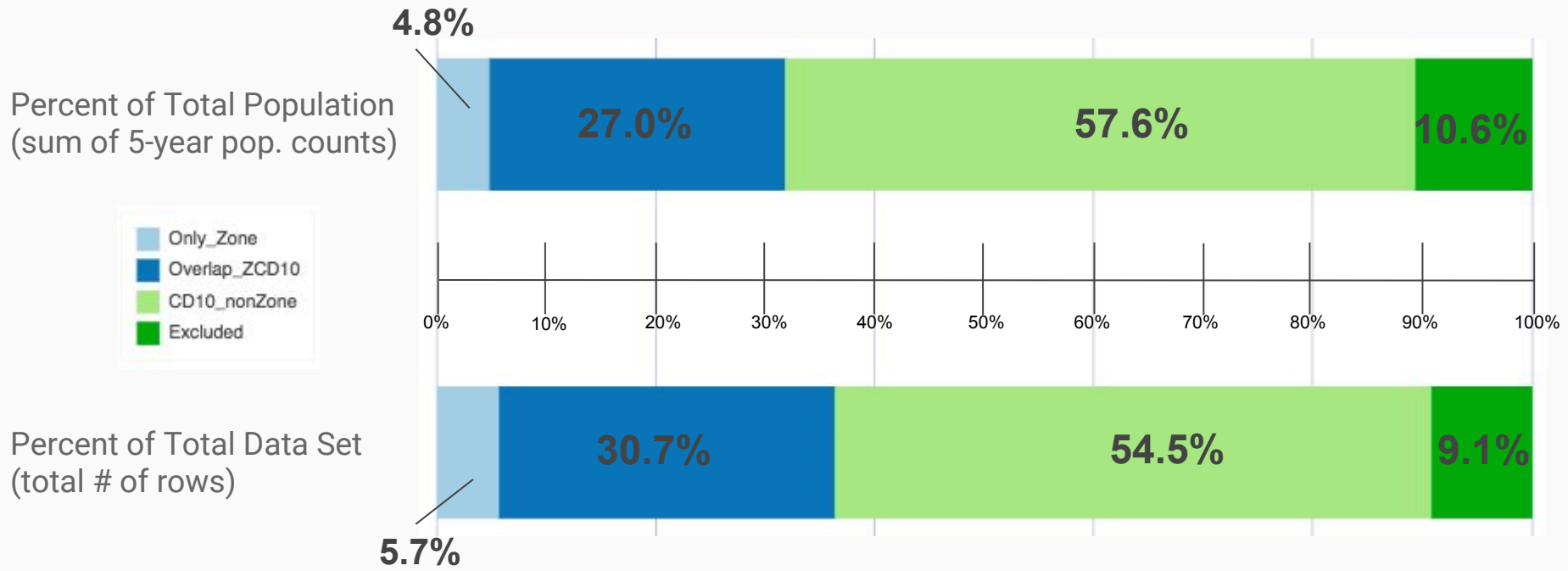


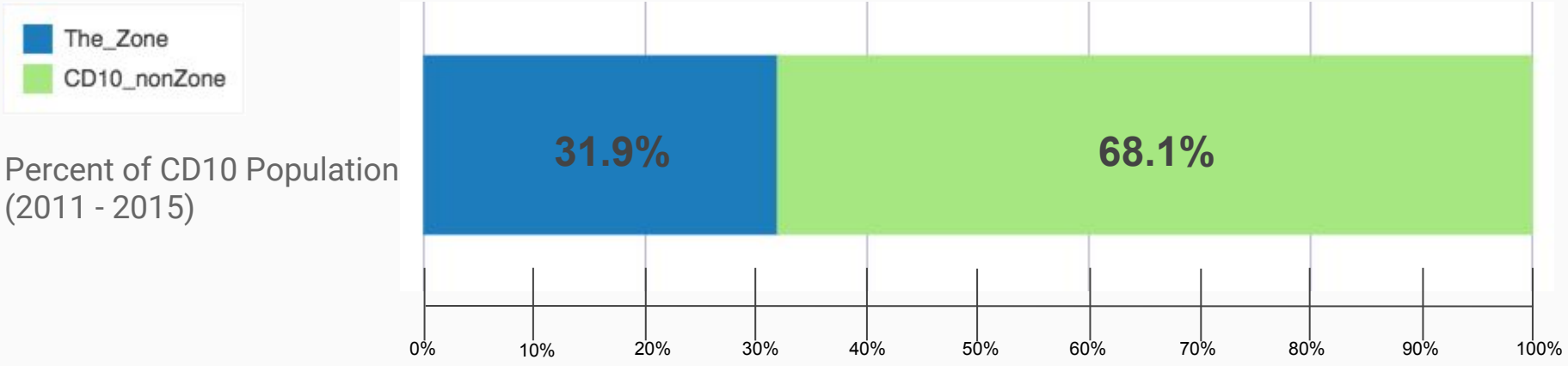
Figure 12. q-q plots for standardized non-normal data (n = 1000).

http://onlinestatbook.com/2/advanced_graphs/q-q_plots.html

Demographic Comparison:
Breakdown of Sample Data Set



Demographic Comparison:
Sample Populations,
% of Community District 10 Population

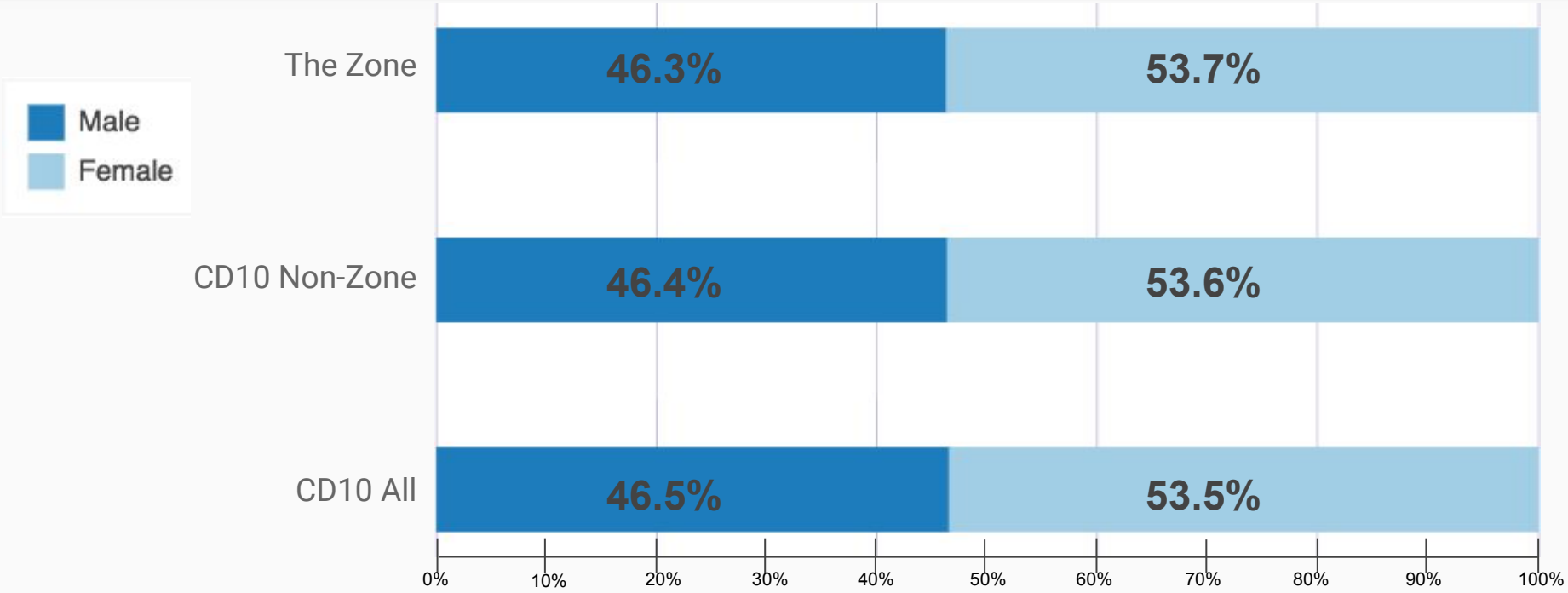


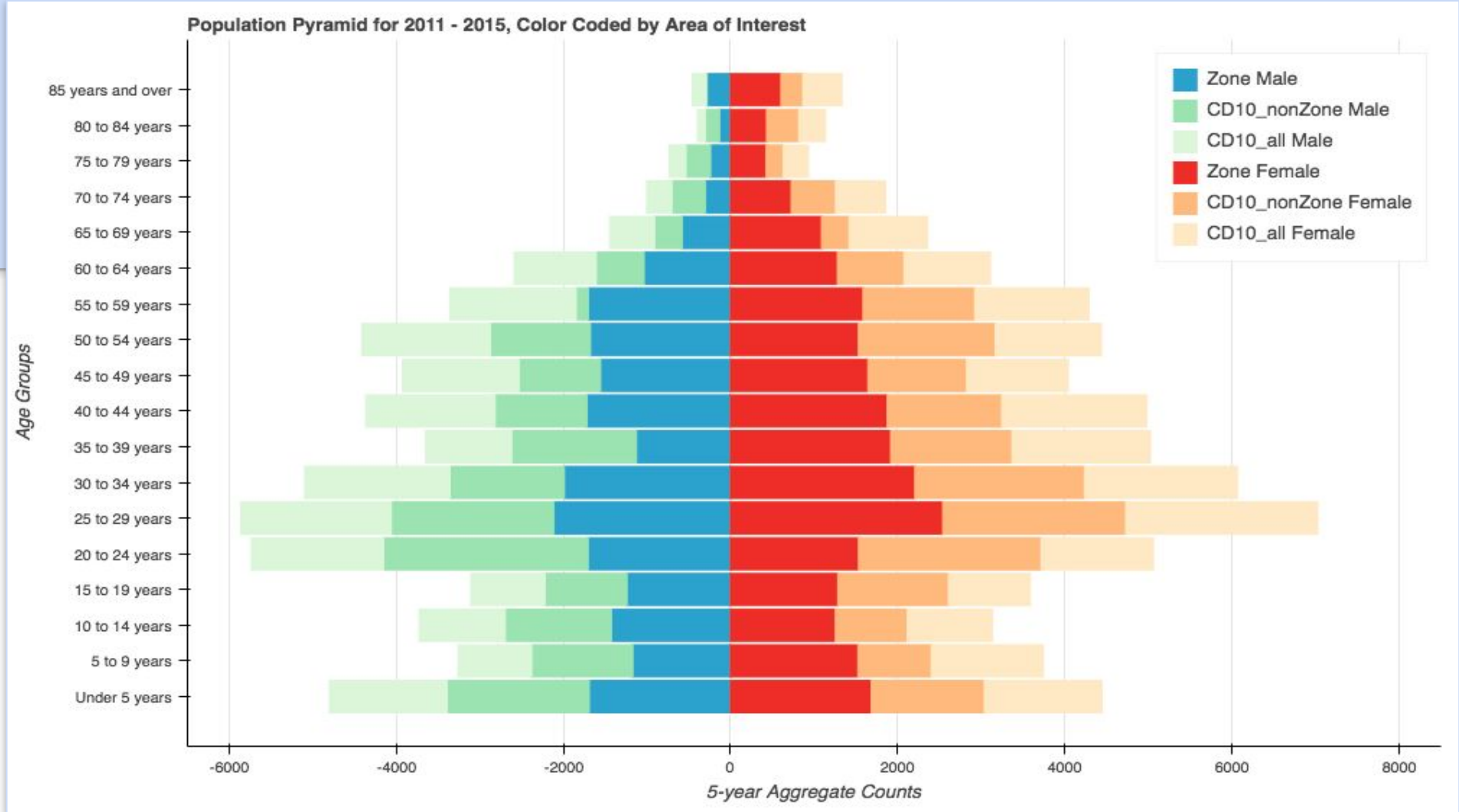
Percent of CD10 Population
(2011 - 2015)

Demographic Comparison: Analysis Summary

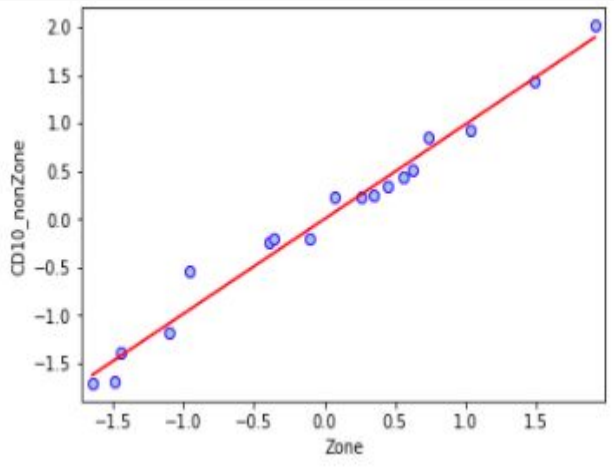
Target Population	Distributions Extremely Similar to CD10	Distributions Similar to CD10	Distributions Different than CD10
The Zone	Gender Race	Female Age Groups Population By Household Income Population By Hispanic Ancestry Population By Household Type Population By Family Household Type Female-Household Families By Age of Children Married-Couple Families By Age of Children	Male Age Groups Male-Household Families By Age of Children

Demographic Comparison:
Population By Gender, % Totals (2011-2015)

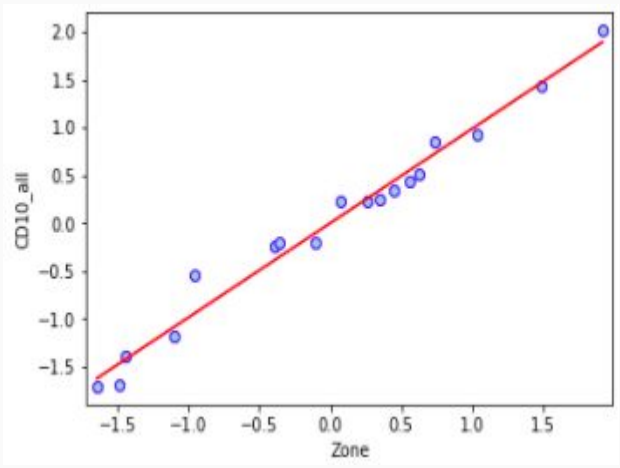



Population Pyramid for 2011 - 2015, Color Coded by Area of Interest
Zone Male
CD10_nonZone Male
CD10_all Male
Zone Female
CD10_nonZone Female
CD10_all Female
85 years and over
80 to 84 years
75 to 79 years
70 to 74 years
65 to 69 years
60 to 64 years
55 to 59 years
50 to 54 years
45 to 49 years
40 to 44 years
35 to 39 years
30 to 34 years
25 to 29 years
20 to 24 years
15 to 19 years
10 to 14 years
5 to 9 years
Under 5 years
Age Groups
-6000
-4000
-2000
0
2000
4000
6000
8000
5-year Aggregate Counts

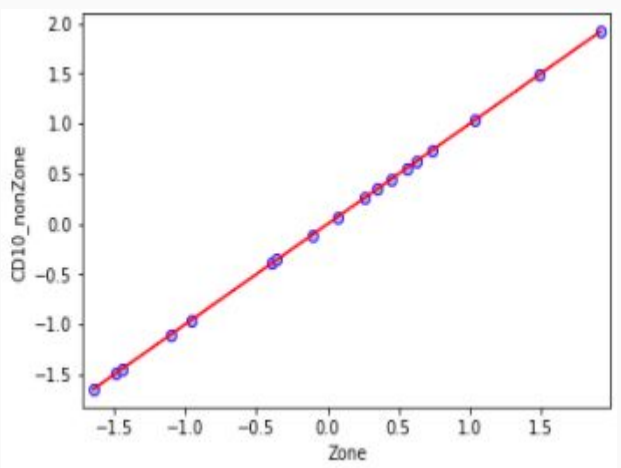
Demographic Comparison:
Q-Q Plot
Female Population By Age Group (2011-2015)



The Zone vs. CD10 Non-Zone

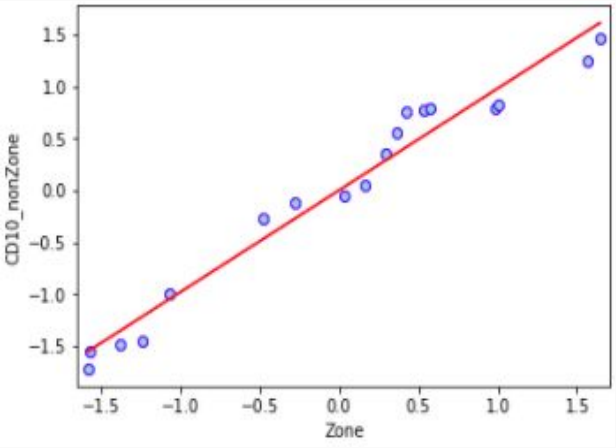


The Zone vs. CD10 (all)

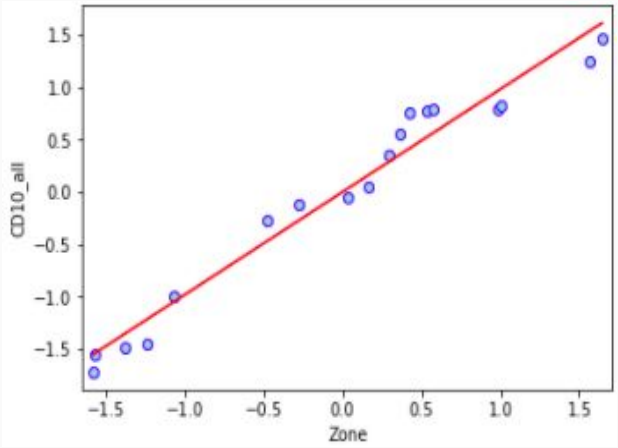


CD10 (all) vs. CD10 Non-Zone

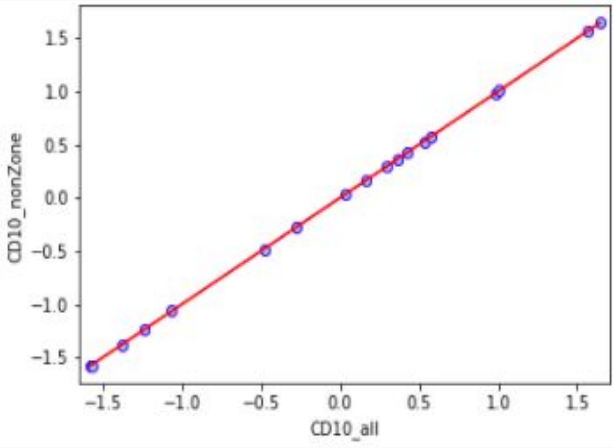
Demographic Comparison:
Q-Q Plot
Male Population By Age Group (2011-2015)



The Zone vs. CD10 Non-Zone

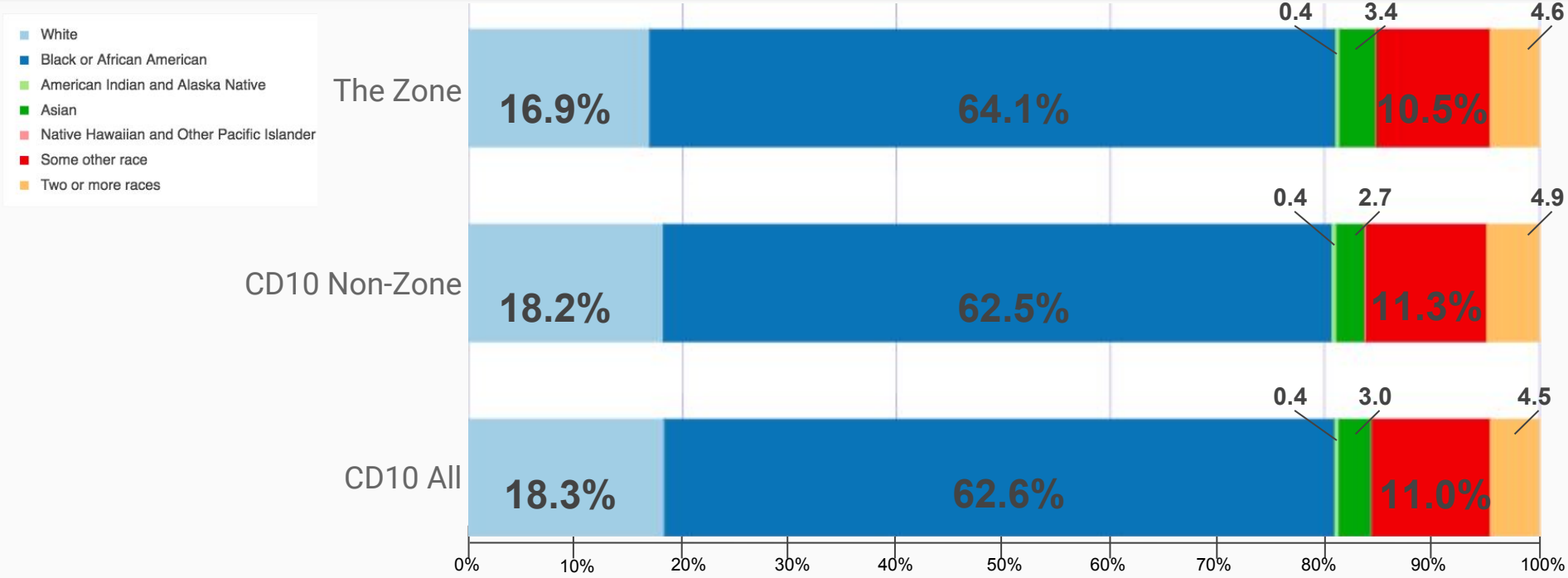


The Zone vs. CD10 (all)

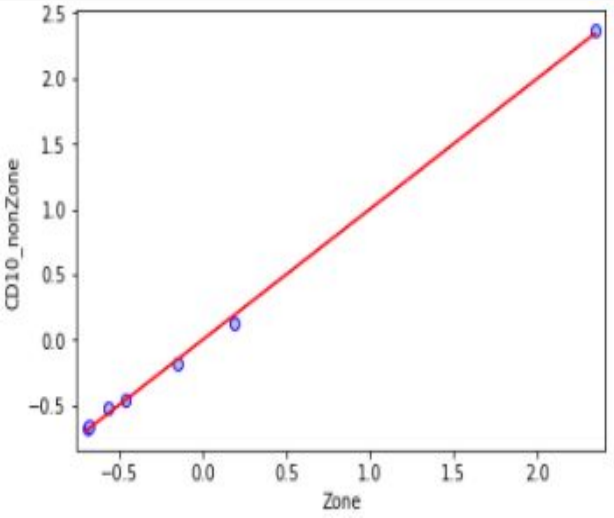


CD10 (all) vs. CD10 Non-Zone

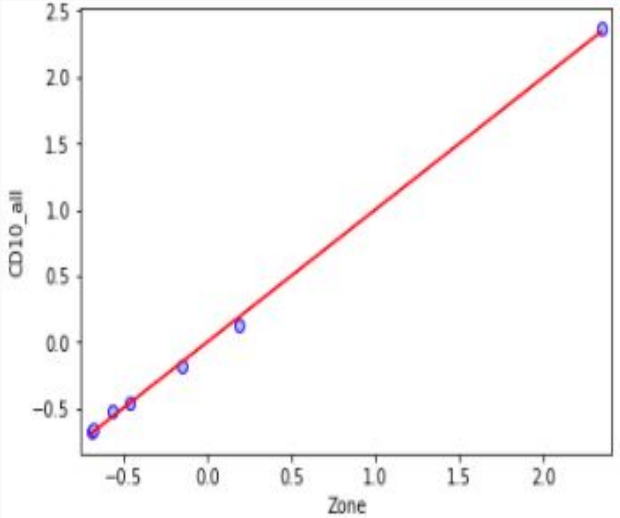
Demographic Comparison:
Population By Race, % Totals (2011-2015)



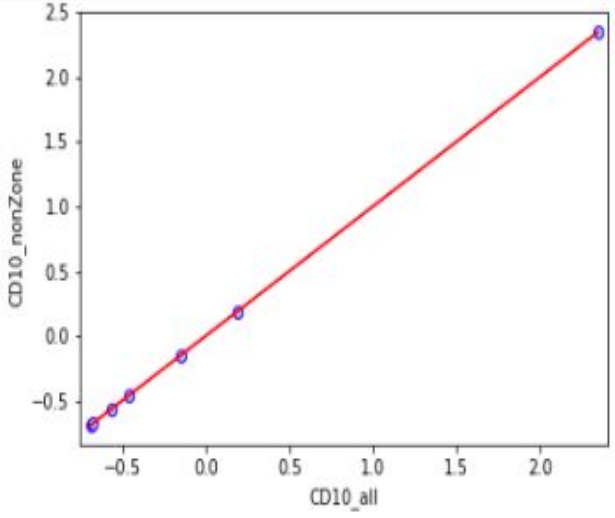
Demographic Comparison:
Q-Q Plot
Population By Race (2011-2015)



The Zone vs. CD10 Non-Zone

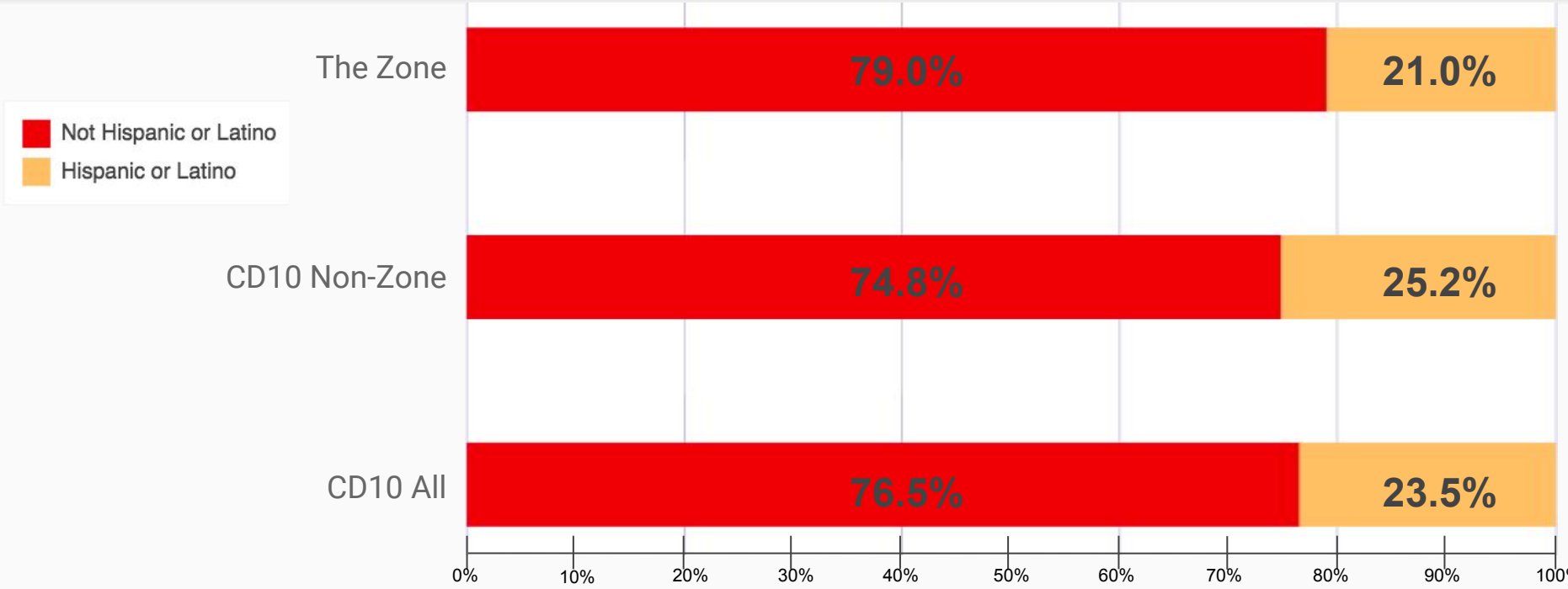


The Zone vs. CD10 (all)

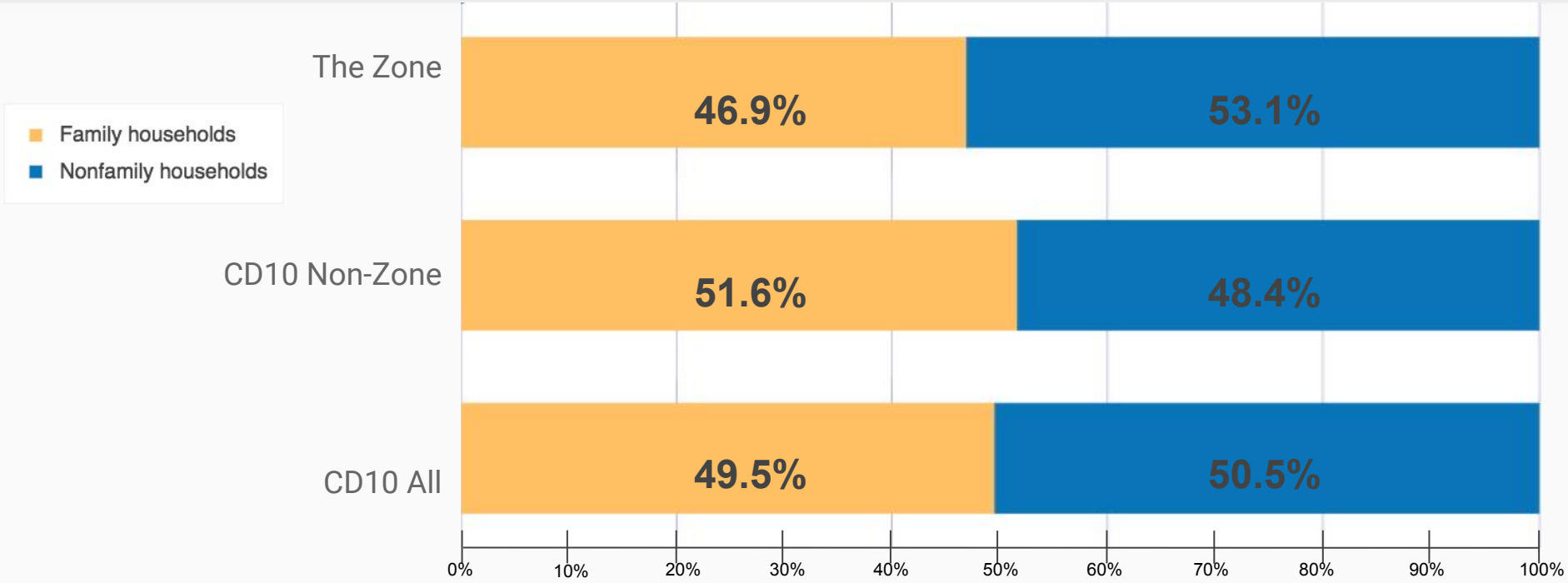


CD10 (all) vs. CD10 Non-Zone

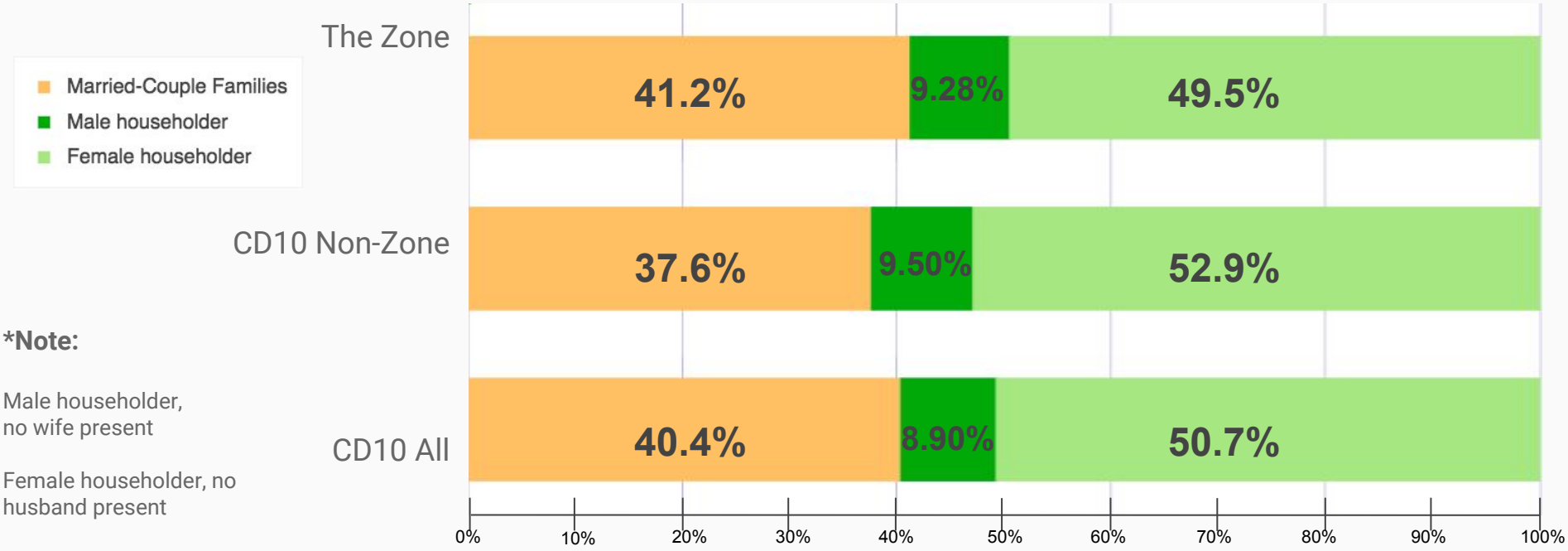
Demographic Comparison:
Population By Hispanic Ethnicity, % Totals (2011-2015)



Demographic Comparison:
Population By Household Type, % Totals (2011-2015)



Demographic Comparison:
Population By Family Household Type, % Totals (2011-2015)

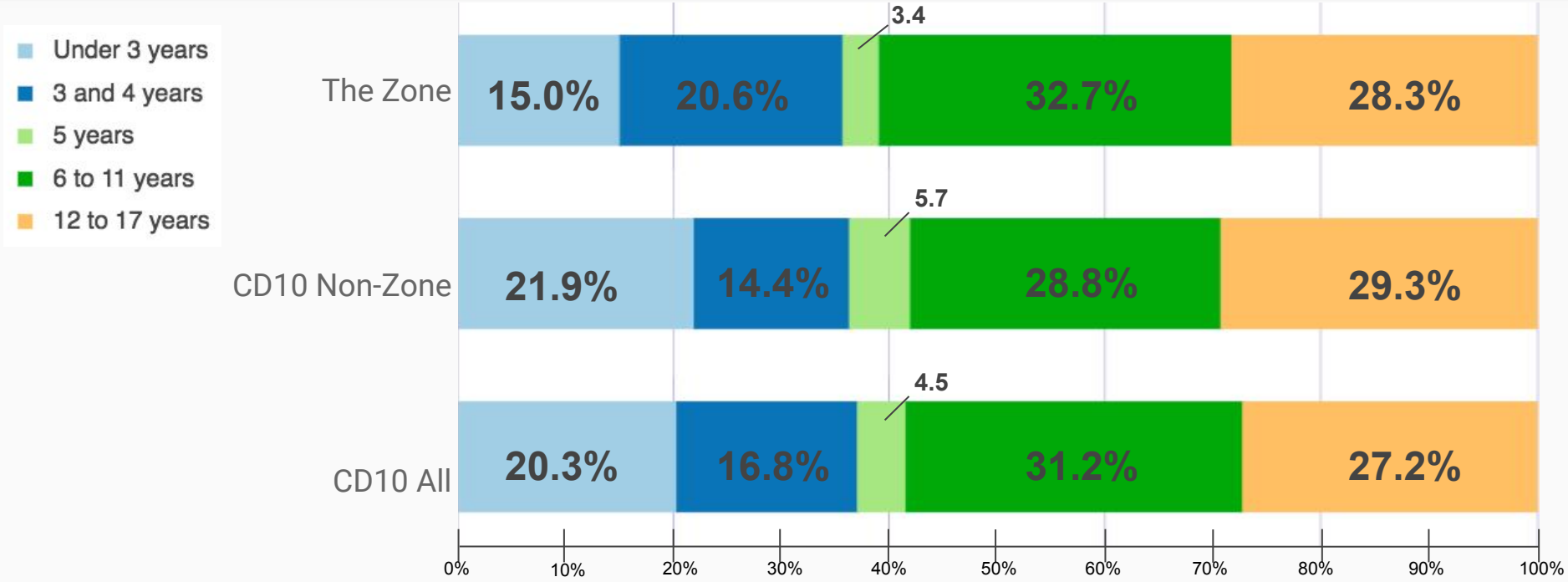


***Note:**

Male householder, no wife present

Female householder, no husband present

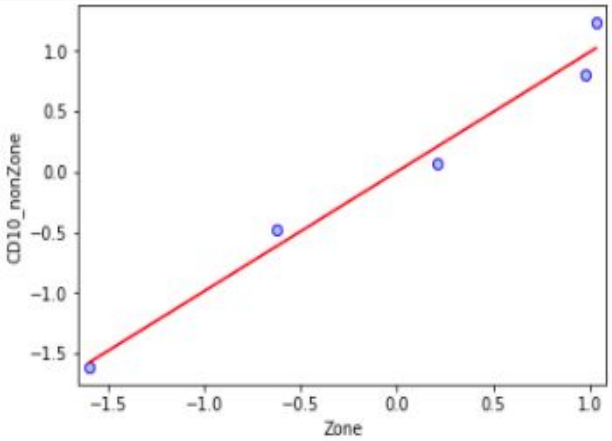
Demographic Comparison:
Population By Age Groups of Children In Married-Couple Families, % Totals (2011-2015)



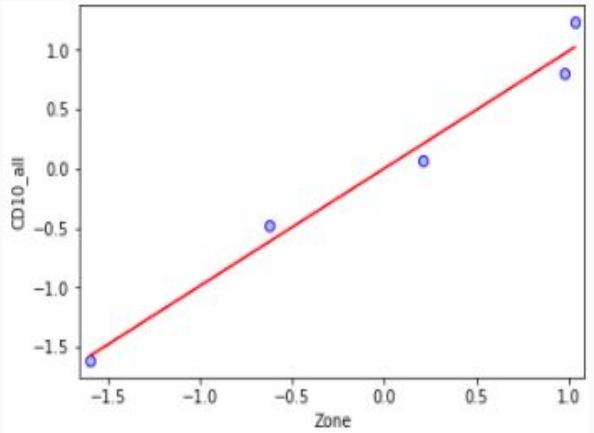
Demographic Comparison:

Q-Q Plot

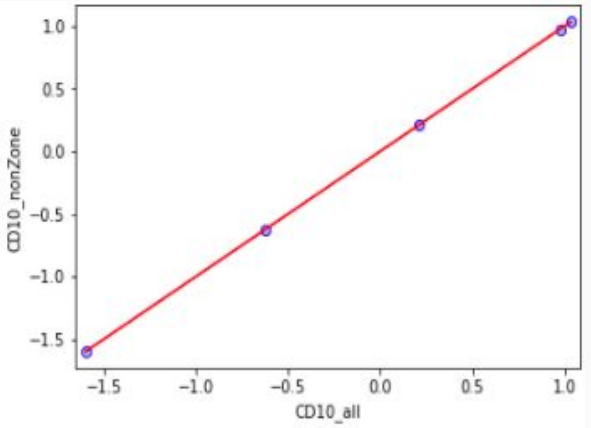
Population By Age Groups of Children In Married-Couple Families (2011-2015)



The Zone vs. CD10 Non-Zone

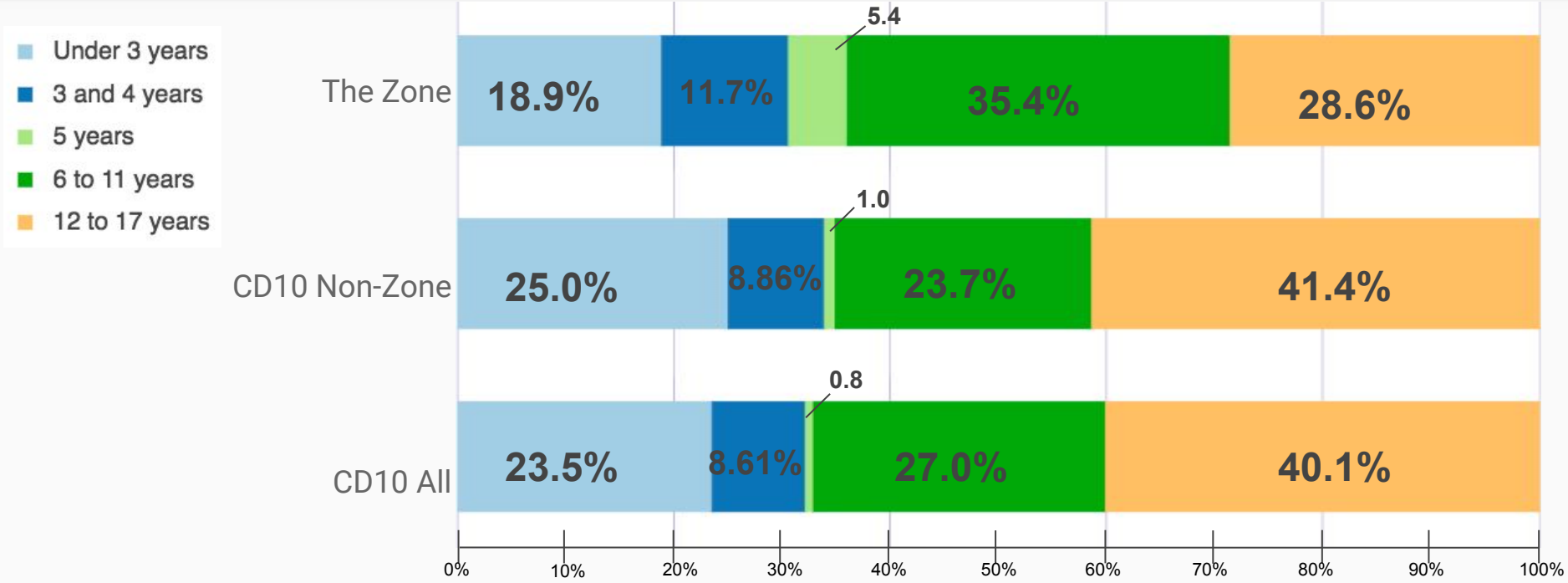


The Zone vs. CD10 (all)



CD10 (all) vs. CD10 Non-Zone

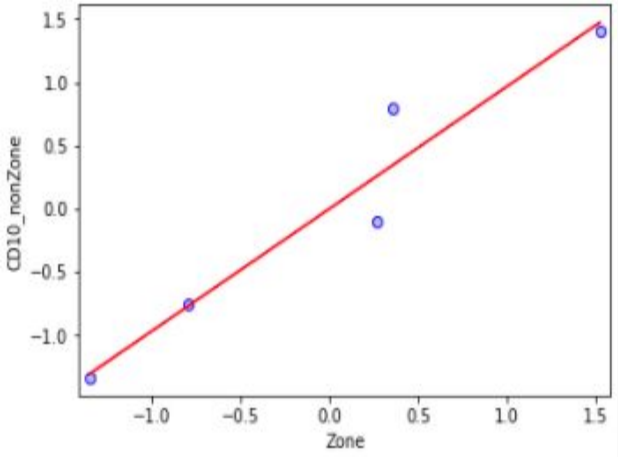
Demographic Comparison:
Population By Age Groups of Children In Male-Household Families, % Totals (2011-2015)



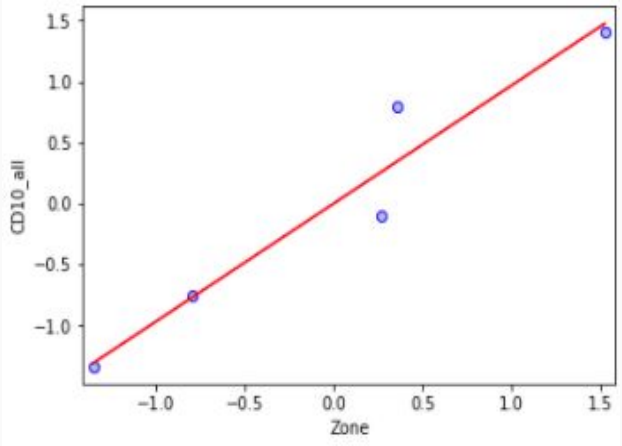
Demographic Comparison:

Q-Q Plot

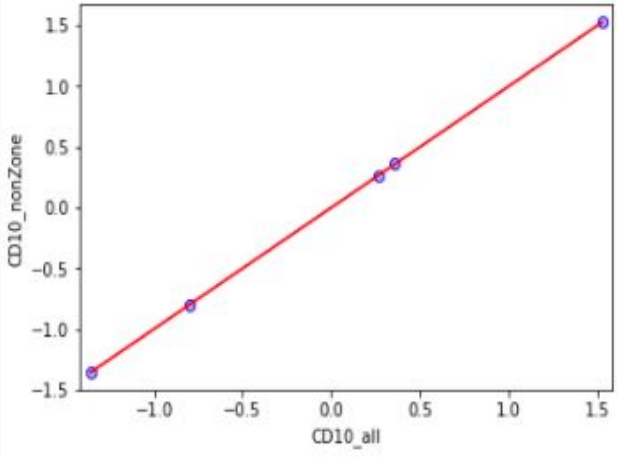
Population By Age Groups of Children In Male-Household Families (2011-2015)



The Zone vs. CD10 Non-Zone



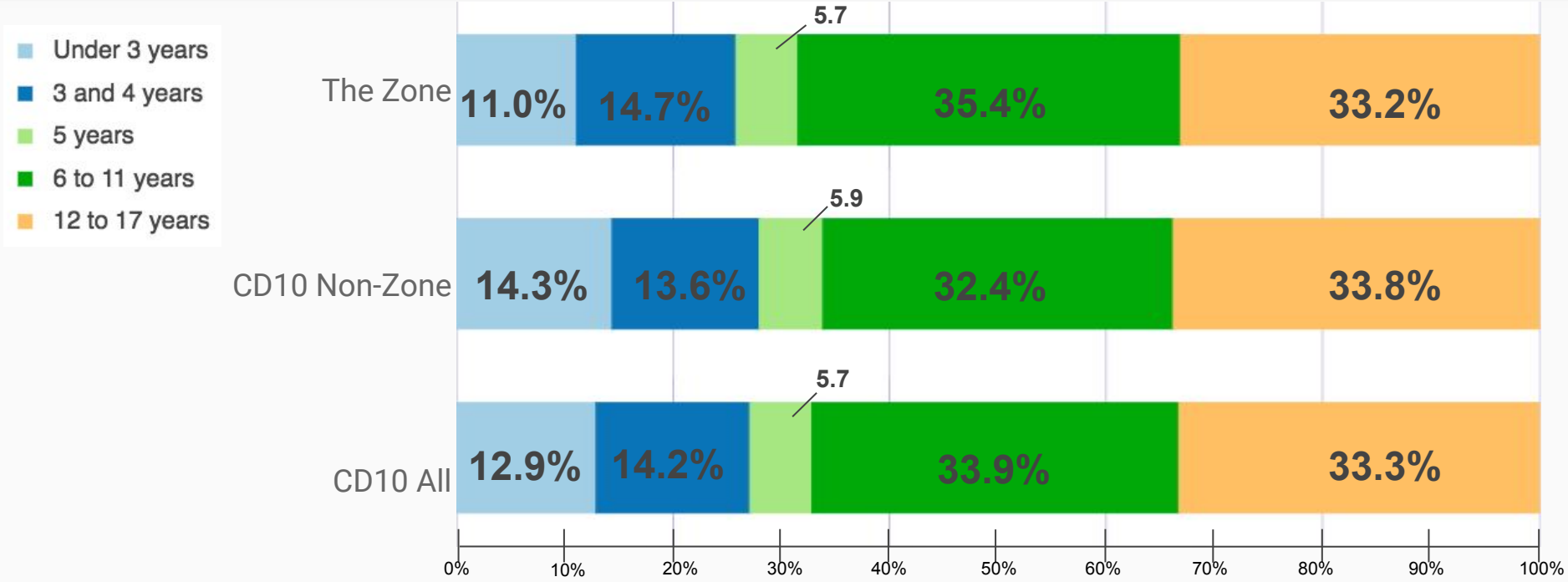
The Zone vs. CD10 (all)



CD10 (all) vs. CD10 Non-Zone

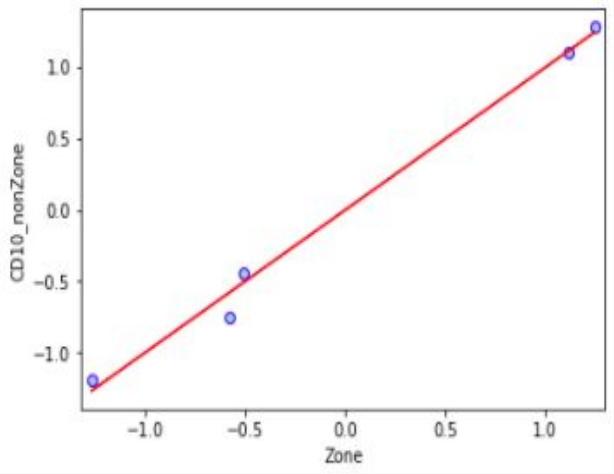
Demographic Comparison:

Population By Age Groups of Children In Female-Household Families, % Totals (2011-2015)

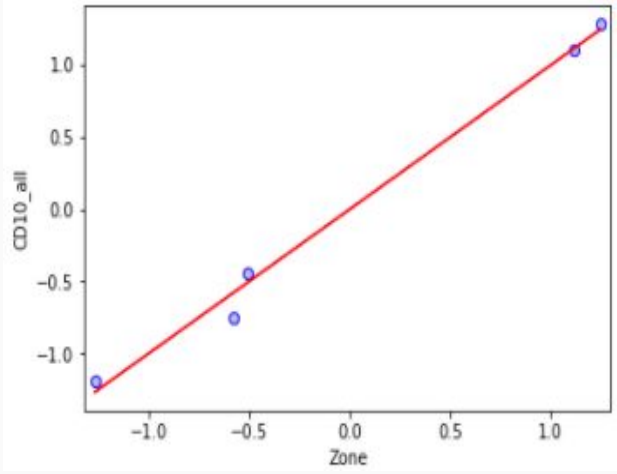


Demographic Comparison:

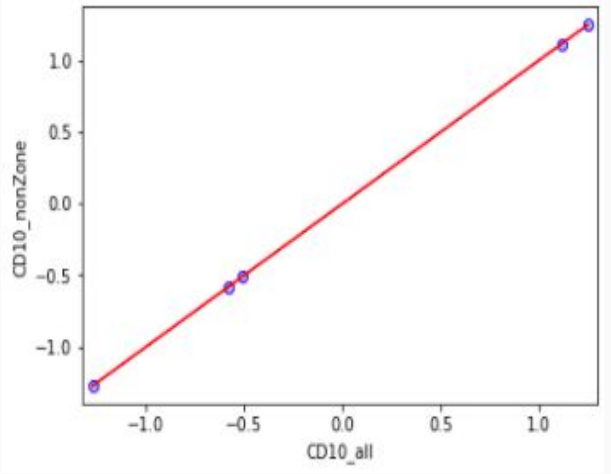
Q-Q Plot
Population By Age Groups of Children
In Female-Household Families (2011-2015)



The Zone vs. CD10 Non-Zone

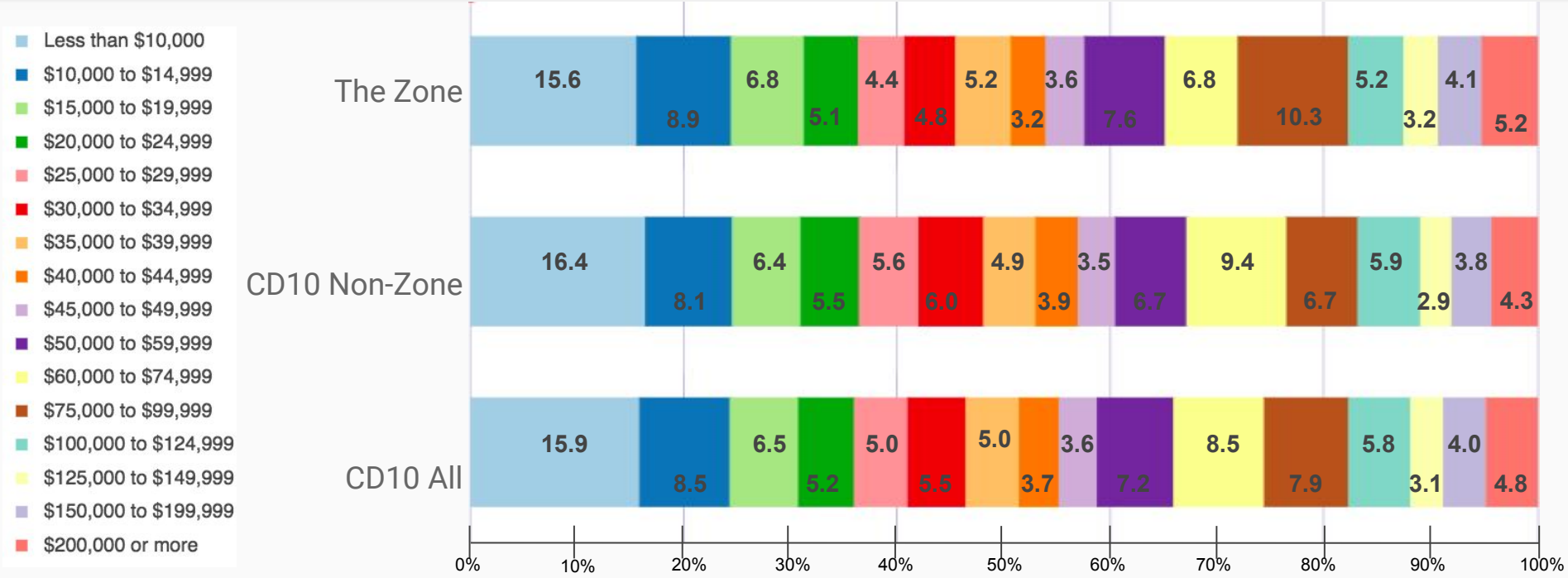


The Zone vs. CD10 (all)

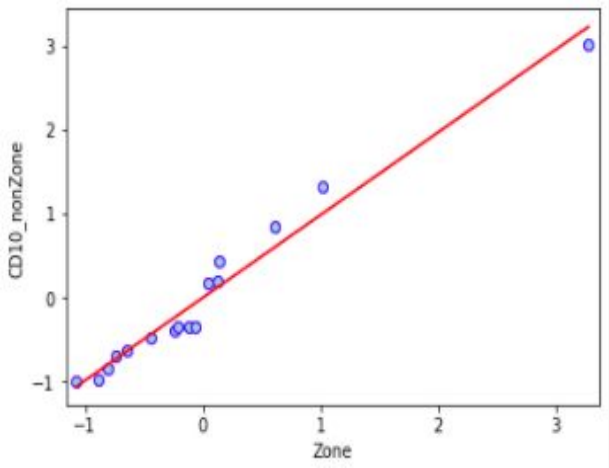


CD10 (all) vs. CD10 Non-Zone

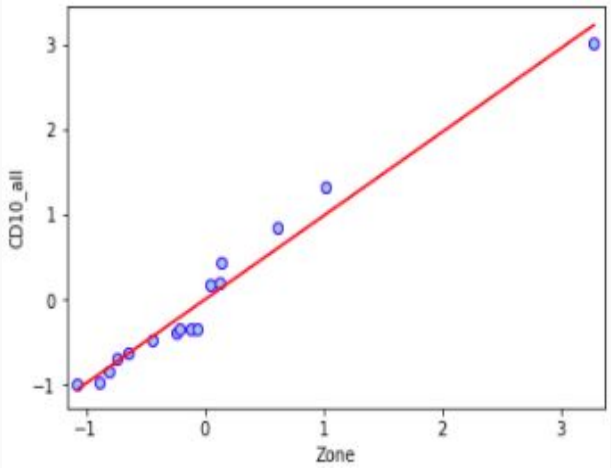
Demographic Comparison:
Population By Household Income, % Totals (2011-2015)



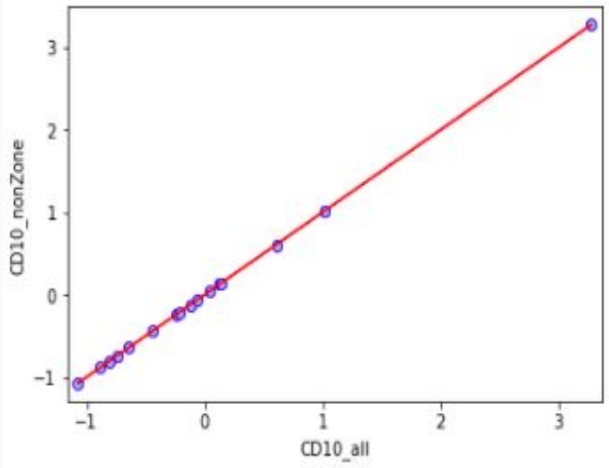
Demographic Comparison:
Q-Q Plot
Population By Household Income (2011-2015)



The Zone vs. CD10 Non-Zone



The Zone vs. CD10 (all)



CD10 (all) vs. CD10 Non-Zone

Demographic Comparison: Recommended Next Steps

- Use the EpiQuery Natality Module provided and maintained by the NYC Department of Health and Mental Hygiene, Bureau of Vital Statistics.
    - Step 1 -- Go to the following link: https://a816-healthpsi.nyc.gov/epiquery/Birth/index.html
    - Step 2 -- Choose year of interest and click 'SUBMIT'
    - Step 3 -- Choose 'Community District of Residence' on right-side menu and click 'SUBMIT'
    - Step 4 -- Download dataset and filter for Community District == Central Harlem (110)
- Explore available data resources for Community District 10:
    - https://statisticalatlas.com/neighborhood/New-York/New-York/Harlem/Overview
    - https://censusreporter.org/profiles/79500US3603803-nycmanhattan-community-district-10central-harlem-puma-ny/

Demographic Comparison: Conclusion

In conclusion, the sample populations within the Zone and Community District 10 are similar enough to validate the use of Community District 10 data resources to the answer the question “How many babies are born each year who reside in the Zone?”