Effects of Access to Recreational Cannabis on Home Values

Annie Bryan
annieb22@mit.edu

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1 Introduction

The legalization of cannabis has been advancing rapidly in the United States. Since 2012, 18 states and Washington D.C. have legalized recreational marijuana for adults over the age of 21. Nearly three-fourths of Americans live in a state in which cannabis has been legalized recreationally or medically. Dispensaries and delivery services have made access to the drug easier than ever.

However, the effects of legalization – good and bad – are still hotly debated in communities across the country. One one hand, the proponents say legalizing marijuana can free up police to focus on more serious offenses. Additionally, they say legalization will pump millions of tax dollars into state coffers. The biggest impact of all, they say, is that it can help many people through its medicinal properties (Jones 2019).

On the other hand, opponents fear that legalization will increase crime and cause a spike in the number of car crashes as people may drive under the influence. Critics worry that once marijuana is legalized, more people will use it and even turn to more addictive drugs (Jones 2019). Lastly, they worry that the presence of retail stores will devalue properties in their community. Ryan Smith, chief operating officer of cannabis dispensary Cure Holdings said, "We've faced some fierce opposition, with some zoning officials and some city councils not wanting us there," (Slane 2019).

This paper finds no conclusive effects of individual dispensaries on surrounding property values. However, this paper does find that statewide legalization of recreational marijuana increases average home values by $\$80k$ to $\$100k$ in the 4 to 8 years after legalization.

Section 2 provides background on previous legislation and reviews existing literature related to the effects of cannabis legalization. Section 3 introduces the data sets used in analysis, outlines the empirical method of a differences-in-differences approach using a dynamic event study model, and tests the necessary assumptions of parallel trends and stable unit treatment values (SUTVA). Section 4 describes the results of the analysis, and Section 5 comments on the implications of the results.

2 Background

2.1 Previous Legislation

In 1970, Congress enacted the Controlled Substances Act (CSA), which classified marijuana as a Schedule I controlled substance (Congressional Research Service 2020). Although the drug is illegal at the federal level, states are free to impose stricter or looser laws. In 1996, California became the first state to legalize medical marijuana, and in 2012, Colorado and Washington became the first states to legalize recreational marijuana (Ballotpedia 2022a). Today, marijuana is legal recreationally in 18 states and medically in 38 states.

In 2012, Massachusetts became the 18th state to legalize medical marijuana after voters passed the Massachusetts Medical Marijuana Initiative with 63% of votes in favor (Marijuana Policy Project 2022). In 2016, recreational marijuana became legal in Massachusetts after voters approved the Massachusetts Marijuana Legalization Initiative, with 53.66% of votes in favor (Ballotpedia 2022b).

However, the process for a dispensary to obtain a license can be lengthy, as it requires that the potential business owners draft several plans, hold a community outreach meeting, and sign an agreement with the municipality. Finally, the potential business owners submit an application to the Massachusetts Cannabis Control Commission, which can take up to 90 days to be approved or rejected (Cannabis Control Commission 2021). Since the process is so lengthy, it is necessary that I use dispensaries rather than legalization as my treatment variable, since legalization alone does not give individuals immediate access to the drug. Additionally, I am using a model that captures delayed time effects that would impact the price of a home over several time periods.

On November 20, 2018, nearly two years after marijuana was legalized in Massachusetts, New England Treatment Access (NETA) in Northampton became the state's first legal dispensary (Silva and Kaplan 2018). Since NETA's commencement, accessibility to cannabis has grown rapidly. Today, Massachusetts has more than 100 cannabis retailers and three delivery businesses, and statewide gross sales have surpassed $2 billion (Hanson 2021).

2.2 Related Literature

Much existing research has already been done on the effects of access to cannabis. My research adds to the existing literature by supporting the claim that legal cannabis increases housing values and decreases crime rates.

2.2.1 Effects on Housing Prices

A study published in Real Estate Economics analyzed the effect of retail marijuana establishments on house prices. Using a difference-in-differences approach, they compared houses that were within 0.1 miles of a retail marijuana store to those that were farther than 0.1 miles. They found that "single family residences close to a retail conversion increased in value by approximately 8% relative to houses that are located slightly farther away" (Conklin et al. 2017).

However, another study analyzed home prices in Vancouver. They found that home prices within 100m of a dispensary decreased by 37.6% (Tyndall 2019).

At a broader scale, another study looked at the home values in Colorado before and after legalization. They found that that legalization increased home values by 6% (Cheng et al. 2018).

2.2.2 Effects on Crime

A study published in Regional Science and Urban Economics analyzed crime data in Denver and found that "an additional dispensary in a neighborhood leads to a reduction of 17 crimes per month per $10,000$ residents" (Brinkman and Mok-Lamme 2017).

However, another study published in the IZA Institute of Labor Economics found no relationship between dispensaries and violent crime. The paper explored the effects of marijuana dispensary laws on California counties using a difference-in-differences design, and their results suggest "no relationship between county laws that legally permit dispensaries and reported violent crime" (Hunt et al. 2018). Additionally, they found "a negative and significant relationship" between dispensary allowances and property crime rates, which may have been a result of pre-existing trends.

A third study published in Justice Quarterly also found no effect on crime. This study analyzed the effect of marijuana legalization on crime in Colorado and Washington, the first 2 states to legalize marijuana. They used a multi-group interrupted time-series design and found that "marijuana legalization and sales have had minimal

to no effect on major crimes in Colorado or Washington" (Lu et al. 2019).

2.2.3 Additional Effects

Besides housing prices, other outcome variables of interest have been studied, with conflicting results. Specifically, one outcome variable that has been studied is the crime rate.

A study published in Regional Science and Urban Ecnonomics analyzed crime data in Denver and found that "an additional dispensary in a neighborhood leads to a reduction of 17 crimes per month per 10, 000 residents" (Brinkman and Mok-Lamme 2017). They claim that reductions in crime are highly localized, with no evidence of spillover effects on adjacent neighborhoods.

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Another outcome variable that has been studies is the rate of car crashes. A study published in Traffic Injury Prevention looked at monthly car crash rates in Colorado, Washington, and Oregon, which were compared to matched control states using segmented regression with autoregressive terms (Calvert and Erickson 2020). They found "no significant differences" in fatal motor vehicle crashes involving pedestrians, between states that have legalized cannabis versus control states.

However, another study published in the Journal of Studies on Alcohol and Drugs did find an increase in crashes. They found that legalization of recreational marijuana was associated with "a statistically significant 6.6% increase in injury crash rates and a nonsignificant 2.3% increase in fatal crash rates" (Farmer et al. 2021).

3 Data and Empirical Strategy

My analysis uses multiple datasets, which I describe in subsection 3.1. I then describe and justify the Event Study Model as my choice of empirical strategy in subsection 3.2. In subsection 3.3, I provide evidence in favor of the parallel trends assumption and single unit treatment values assumption (SUTVA).

3.1 Data

The independent variable for my research question is access to recreational cannabis. I have datasets that quantify the independent variable, measured by distance to a retail dispensary and legality at the state level. I describe and summarize these datasets in subsections 3.1.1 and 3.1.2, respectively. I describe the dependent variables, property values and housing prices in subsections 3.1.3 and 3.1.4.

3.1.1 Dispensary Data

I have a dataset of all approved applications for a license to operate a marijuana establishment in Massachusetts (Cannabis Control Commission 2022). For each approved application, the dataset includes the establishment's address and when it commenced operations. In Figure A1, I present a map showing the dispensary locations in the Boston area, with regions shaded to indicate whether properties in the region are considered "treated" or "untreated".

3.1.2 Legalization Data by U.S. State

To understand the legality of cannabis on a national scale, I have a state-wide dataset of recreational and medicinal legal status, along with the year of legalization. I manually compiled this data from Business Insider, which lists each state's current legal status, as well as Ballotpedia, which catalogs the history of marijuana referendums (Berke et al. 2022; Ballotpedia 2022a). In Figure A2, I present a map of this data, indicating each state's legal status, medically and recreationally. In Table 1, I display summary statistics outlining the number of states with each legal status.

3.1.3 Property Values in Boston

To analyze the housing prices in the greater Boston area, I have panel property-level assessment data with detailed characteristics. The assessments are conducted as a

	Legal	Illegal	Total
Medical	39	12	51
Recreational	19	32	51

Table 1. Number of U.S. states with legal cannabis

	Properties within 1 mi.			**Properties outside 1 mi.**		
	Mean	SD	Obs	Mean	SD	Obs
Assessed Value ($)	409057.20	499836.72	122789	306731.42	200534.27	189244
Living Area (sq.ft.)	2761.98	1092.69	122789	2173.00	922.30	189244
Price per Square Foot	150.87	112.82	122789	148.41	68.99	189244
Number of Floors	2.45	0.59	122789	2.00	0.57	189244
Number of Bedrooms	5.22	2.14	122789	4.26	1.73	189244

Table 2. Summary statistics of assessed property values, by proximity to a dispensary

census every fiscal year. Aside from the address of the property and its assessed value, other characteristics in the dataset include the square footage of the building, the year it was built, the year it was renovated, the number of bedrooms, bathrooms, and kitchens, and the type of heating and A/C. Additionally, the dataset includes the type of property: apartment/dorm, condominium, essential building (medical, church, office, etc.), or other residential buildings (i.e. single-family homes). Since these variables influence the assessed price of a property, I include them in my analysis as covariates. The dataset was published by the Department of Innovation and Technology and made available by Analyze Boston (Analyze Boston 2021). To visualize this dataset, I present maps of the average price per square foot (Fig. A3) and the average number of floors (Fig. A4) for a property in a given zipcode. In Table 2, I compare summary statistics of properties in "treated" regions versus those in "untreated" regions, where a property is treated if a dispensary will open within a mile of it at any point. Before generating the summary statistics table, I first filter the properties to only include those assessed before 2019, and thus before any dispensaries opened in the Boston area. I do this in order to evaluate the similarity between regions that would eventually be treated versus those that wouldn't, before they were treated (or not).

3.1.4 Housing Prices

To analyze housing prices on a broader scale, I have a zipcode-level dataset of the Zillow Home Value Index (ZHVI) from Zillow Research (Zillow Research 2021). The

ZHVI is a smoothed, seasonally adjusted measure of the value for homes in the 35^{th} to 65^{th} percentile range, provided each month.

3.2 Event Study Model

I perform a differences-in-differences (DID) analysis using a dynamic event study model. The first set of regressions, outlined in subsection 3.2.1, measures the effect of dispensaries on surrounding property values in the Greater Boston Area. The second set of regressions, outlined in 3.2.3, measures the effect that statewide legalization has on that state's housing prices.

3.2.1 Regression of Dispensaries on Property Values

Since the first retail cannabis dispensary in Massachusetts opened in November 2018, more than 200 more have opened statewide. It is natural to ask how the different neighborhoods in Boston were affected by these businesses. A micro level analysis will help to understand and quantify the impact a dispensary in a given zip code has on property values of the surrounding area.

For this set of regressions, the treatment variable is the distance from a property to a dispensary, implemented as rings around dispensaries at 1-mile increments. The regression equation is given by equation (1).

$$Y_{i,z,t} = \mu_z + \delta_t + \sum_{j=-\underline{j}}^{\overline{j}} \sum_{d \in D} \beta_{j,d} \, \texttt{treatment}_{i,t+j,d} + \theta X_{i,t} + \varepsilon_{i,t} \tag{1}$$

$\beta_{j,d}$ is the coefficient of interest, which measures the effect a dispensary has on a property's value located between $d-1$ and d miles away, experienced j years after the dispensary opens. $Y_{i,z,t}$ is the assessed value (in dollars per square foot) at time t of property i, which is located in zip code z, μ_z measures the fixed effects of zip code z, δ_t measures the fixed effects of time t, $\overline{j}$ and $\underline{j}$ are the number of lags and leads considered, and $D = \{\text{0-1 mi.}, \text{1-2 mi.}, \text{2-3 mi.}, \text{3-4 mi.}, \text{4-5 mi.}\}$ is the set of distance rings considered. $\texttt{treatment}_{i,t+j,d}$ is an indicator variable equaling 1 if a dispensary opened between $d-1$ and d miles away from property i at time t. $X_{i,t}$ is the set of time-varying covariates[1], and $\varepsilon_{i,t}$ is the error term.

[1]Covariates in this regression include: the size of living area, the number of floors, the number of bedrooms, the number of full bathrooms, the number of half bathrooms, the number of kitchens, how many years since the property was built, how many years since the property was remodeled (if applicable), the type of heating, and the type of property: apartments/dorms, condominiums, essential buildings (medical, government, church, office, etc.), and other residential buildings (i.e. single family homes).

3.2.2 Regression of Dispensaries on Crime Rates

In addition to estimating the effects that a dispensary has on the assessed values of the surrounding properties, I also estimate its effects on crime rates of the surrounding neighborhood. For this set of regressions, the treatment variable is the distance from a crime that occurred to the nearest dispensary at that time. The regression equation is given by equation (2).

$$Y_{z,y,d,m,h} = \mu_z + \delta_y + \gamma_d + \kappa_m + \phi_h + \sum_{j=-\underline{j}}^{\overline{j}} \sum_{d \in D} \beta_{j,d} \, \texttt{treatment}_{i,t+j,d} + \varepsilon_{i,t} \tag{2}$$

$\beta_{j,d}$ is the coefficient of interest, which measures the effect a dispensary has on the crime rate of a region located between $0.5(d-1)$ and $0.5d$ miles away, experienced j years after the dispensary opens. $Y_{z,y,d,m,h}$ is the number of crimes that occur in zipcode z, during year y, day of the week d, month m, and hour h. μ_z measures the fixed effects of zip code z, δ_y measures the fixed effects of year y, γ_d measures the fixed effects of the day of the week d, κ_m measures the fixed effects of month m, and ϕ_h measures the fixed effects of hour h. $\overline{j}$ and $\underline{j}$ are the number of lags and leads considered, and $D = \{\text{0-0.5 mi.}, \text{0.5-1 mi.}, \text{1-1.5 mi.}, \text{1.5-2 mi.}, \text{2-2.5 mi.}, \text{2.5-3 mi.}\}$ is the set of distance rings considered. $\texttt{treatment}_{i,t+j,d}$ is an indicator variable equaling 1 if a dispensary opened between $0.5(d-1)$ and $0.5d$ miles away from property i at time t, and $\varepsilon_{i,t}$ is the error term.

3.2.3 Regression of Statewide Legality on Housing Prices

Since 2012, 18 states and Washington D.C. have legalized recreational cannabis. The move came through legislative action or voters approving ballot measures. At the macro level, I analyze the effect that statewide legalization of cannabis has on that state's home values, compared to other states that didn't legalize the drug. For this set of regressions, the treatment variable is the legalization of cannabis in a given state. The regression equation is given by equation (3).

$$Y_{z,s,t} = \mu_z + \kappa_s + \delta_t + \sum_{j=-\underline{j}}^{\overline{j}} \beta_j \texttt{treatment}_{s,t,j} + \varepsilon_{i,t}. \tag{3}$$

β_j is the coefficient of interest, which measures the cumulative effect on a zip code's

average home price, experienced j months after recreational cannabis legalization in a given state. $Y_{z,s,t}$ is the average price of a home (in dollars) at time t of zip code z in state s, μ_z measures the fixed effects of zip code z, κ_s measures the fixed effects of state s, δ_t measures the fixed effects of time t, and $\overline{j}$ and $\underline{j}$ are the number of lags and leads considered. $\texttt{treatment}_{s,t,j}$ is an indicator variable equaling 1 if state s legalized marijuana in year $t - j$.

3.3 Testing Assumptions

While the Event Study Model has potential to show a causal relationship between variables, there are some critical assumptions that must be satisfied. I will outline these assumptions and how I test them in subsections 3.3.1, 3.3.2, and 3.3.3.

3.3.1 Parallel Trends

One critical assumption for the validity of DID is that of parallel trends. This assumes that in the absence of treatment, the difference between the treatment and control groups is constant over time (Columbia University 2022). For my specific examples, this assumption states:

- **3.2.1:** In the absence of a new dispensary opening in the Boston area, the difference between assessed property values across zip codes in Boston would stay constant over time.
- **3.2.2:** In the absence of a new dispensary opening in the Boston area, the difference between crime rates across zip codes in Boston would stay constant over time.
- **3.2.3:** In the absence of statewide legalization of recreational cannabis, the difference between typical home values across states would stay constant over time.

3.3.2 Stable Unit Treatment Value Assumption (SUTVA)

Another important assumption for DID is SUTVA, which assumes that (1) a subject's outcome is not affected by other subjects' exposure to the treatment, and (2) there are no different forms or versions of each treatment level, which lead to different outcomes (Columbia University 2022). For my specific examples, assumption (1) states:

- **3.2.1:** The assessed property values in one Boston zip code are not affected by dispensaries opening in another Boston zip code.
- **3.2.2:** The crime rates in one Boston zip code are not affected by dispensaries opening in another Boston zip code.
- **3.2.3:** The typical home values in one state are not affected by cannabis legalization in another state.

Assumption (2) states:

- **3.2.1, 3.2.2:** There are no different forms or versions of the opening of a dispensary.
- **3.2.3:** There are no different forms or versions of a statewide cannabis legalization.

3.3.3 Demographic Balance

Demographic balance, which assumes that the demographics of the treatment and control groups are not significantly different, is not a necessary assumption for DID, but provides additional evidence in support of the parallel trends assumption outlined in subsection 3.3.1.

In Table 3, I present the results of a two-sample t-test comparing assessed property values in treated regions (located within a mile of a dispensary) to those in untreated regions, where I define treatment as being in a zipcode that will eventually receive a dispensary or be within a mile of a dispensary. From this table, we can conclude that regions that are treated have a lower building value, price per square foot, living area, number of floors, and number of bedrooms, compared to regions that are untreated.

	Treated	Untreated	Diff.	S.E.	Obs.
Building value	369231.5	550462.9	-181231.4	1294.088	561554
Price per square foot	199.7694	277.2996	-77.53012	.5946863	561554
Living area	2093.385	2484.713	-391.328	2.87863	561554
Number of floors	1.952544	2.253087	-.3005425	.0018614	561554
Number of bedrooms	4.094271	4.661969	-.5676981	.005559	561554
Observations	561554				

Table 3. Two-sample t-test comparing assessed property values in treated vs. untreated regions

4 Results

4.1 Effects of Dispensaries on Housing Prices

The results of the regression of dispensaries on assessed property values (as described in section 3.2.1) are presented in Table 4 and Figure 1. In this table, `treatment_d` represents the overall effect of receiving a dispensary at all. The variables `treatment_j_d` for values $j = \{-5, ..., 2\}$ represent the coefficient $\beta_{j,d}$.

From this table and figure, one coefficient of interest is `treatment_0_d` for $d = 0-1$ miles, which is 39.249. This implies that the assessed price of a property will be nearly $40 more per square foot in the year that a dispensary opens within a mile of the property, relative to the year before treatment. However, given that the standard error is 30.65, this change is not significant.

All of the confidence intervals span zero. Therefore, we can conclude that after controlling for year fixed effects, zip code fixed effects, and covariates, the presence of a dispensary will not significantly effect the assessed value of surrounding properties. These results are likely the result of two factors: the first being that dispensaries in Boston are relatively recent (the first opened in 2019, so we can only look at 2-3 years of effects) and there are only 11 dispensaries, which makes for a small sample size. The second reason is that the property-level dataset did not have more specific information on its location, likely due to privacy concerns. To find the distance from a property to a dispensary, I used the geographic centroid of the property's zipcode. Therefore, any localized effects of dispensaries were not able to be captured by my analysis.

Table 4. Effect of dispensaries on assessed property value

	(1)	(2)	(3)	(4)	(5)
	0-1 mi.	1-2 mi.	2-3 mi.	3-4 mi.	4-5 mi.
	b/se	b/se	b/se	b/se	b/se
treatment_d	15.538	46.579	14.583	-24.824	-26.555*
	(18.92)	(28.97)	(15.80)	(11.11)	(10.12)
treatment_-5_d	-9.114	-25.401	-11.096	11.138	6.091
	(15.01)	(19.09)	(15.08)	(7.51)	(6.64)
treatment_-4_d	-2.360	-4.066	-5.650	5.502	-0.979
	(5.81)	(5.05)	(8.92)	(4.41)	(5.50)
treatment_-3_d	4.505	-9.468	-7.111	2.419	1.155
	(4.76)	(8.26)	(5.41)	(4.39)	(4.65)
treatment_-2_d	-8.769	-15.300	0.127	2.805	-4.545
	(16.68)	(13.20)	(8.07)	(4.70)	(5.42)
treatment_0_d	39.249	-16.031	-24.782	-4.757	-2.944
	(30.65)	(14.31)	(20.69)	(6.33)	(6.65)
treatment_1_d	-37.727	-11.381	49.818	-14.306	-24.510
	(30.03)	(12.37)	(24.18)	(15.13)	(17.99)
treatment_2_d	-56.599*	-25.046	22.223	4.436	-4.343
	(20.47)	(20.08)	(26.10)	(16.72)	(18.31)
Observations	561554	561554	561554	561554	561554

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

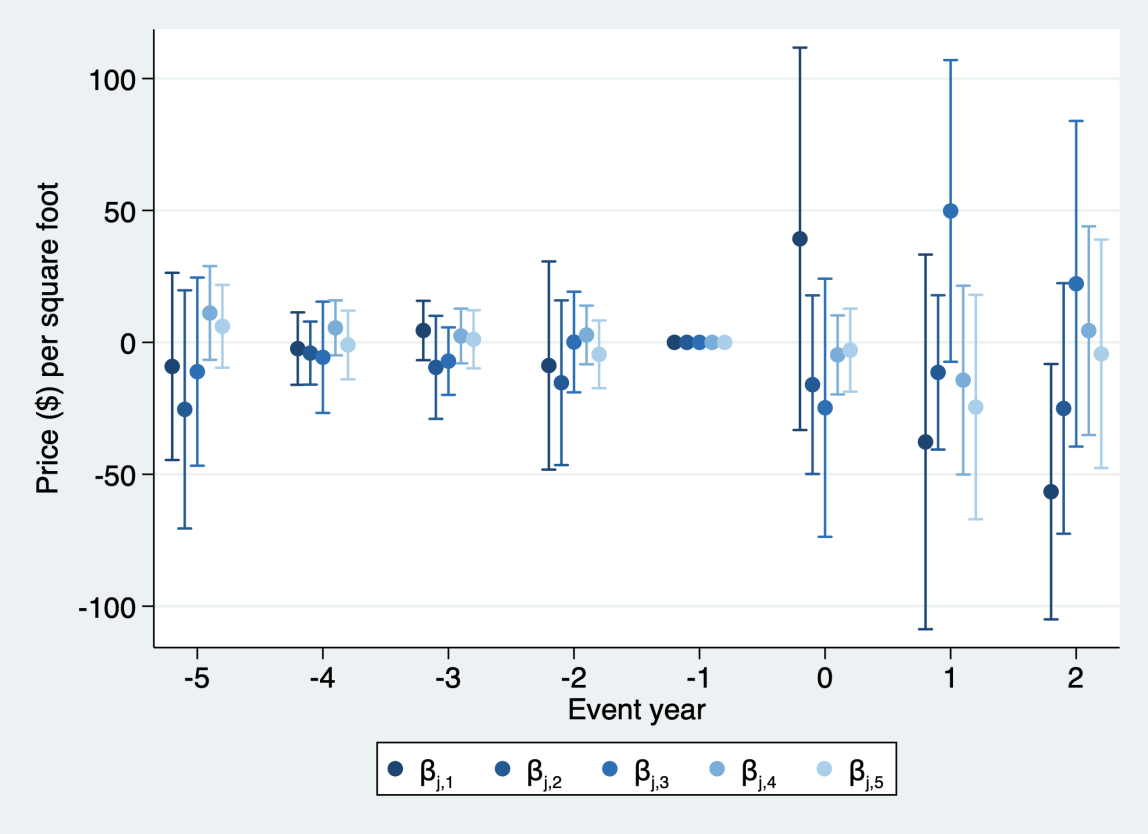

Figure 1. Effect of dispensaries on assessed property value

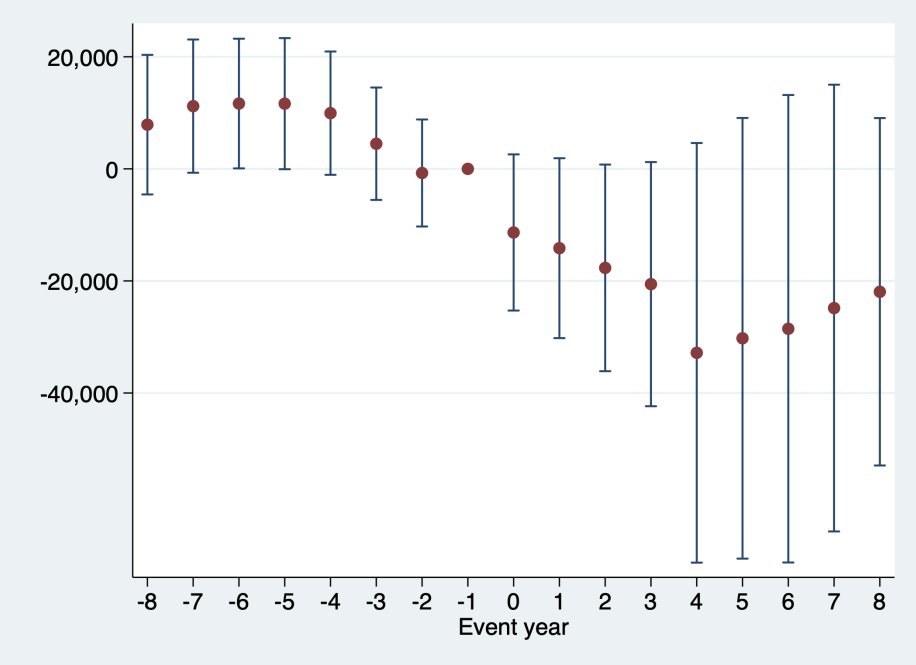

Figure 2. Effect of statewide medical marijuana legalization on home values

4.2 Effects on Statewide Legalization on Housing Prices

The results of the regressions of statewide legalization on home values (as described in section 3.2.3) are presented in the following figures. Figure 2 displays the coefficients of interest with their 95% confidence intervals, for legalization of medical marijuana, while Figure 3 displays the results for legalization of recreational marijuana.

From Figure 2, we can conclude that housing prices decrease in the first four years following legalization of medical marijuana. However, this decrease is likely a byproduct of the already-decreasing values, as observed in the pre-trends. The coefficients are negative, yet increasing, for years 4 through 8 following legalization.

From Figure 3, we can conclude that housing prices increase in the years following legalization of recreational marijuana. From the pre-trends, we observe that the housing prices were roughly constant in the years leading up to legalization, so we are able to assume that the parallel trends assumption holds. Thus, we can interpret the positive coefficients with confidence intervals above zero for years 4 through 8 following treatment as evidence that legalization of recreational marijuana increases that state's average home value, and this increase is experienced 4 to 8 years following legalization.

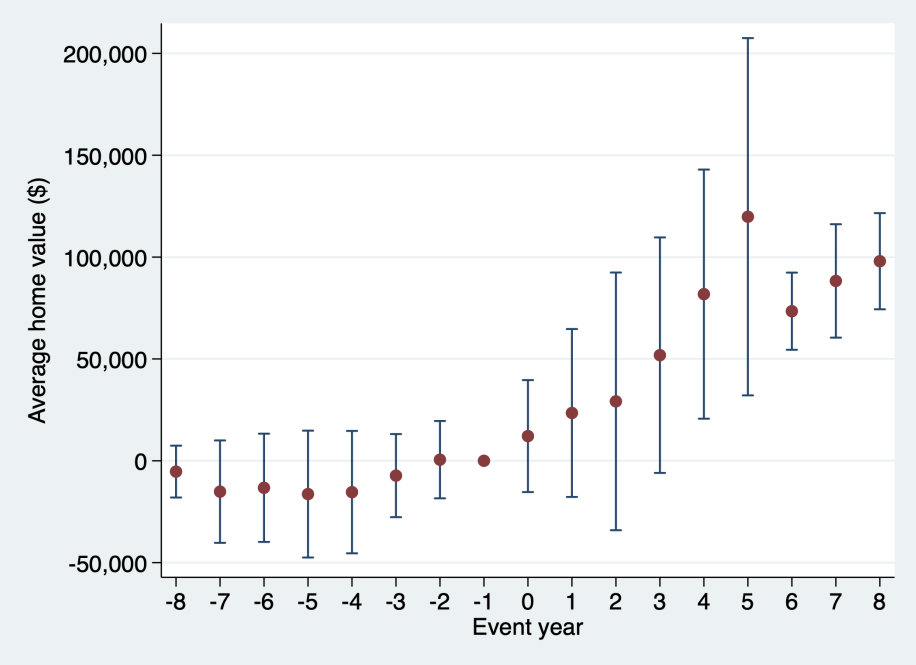

Figure 3. Effect of statewide recreational marijuana legalization on home values

5 Conclusions

In the analysis of individual dispensaries on surrounding property values (Section 4.1), we found that there was no significant effect, as all confidence intervals spanned zero. I argue that this is likely due to two factors. The first is that dispensaries in the Greater Boston Area are recent and a small sample size. There are only eleven dispensaries in the GBA and the first opened in 2019, so we can only examine $2-3$ years of effects on housing prices. The second reason is that the location information for the property-level dataset only included the property's zipcode. To calculate the distance between a property and a dispensary, I used the geographic centroid of the zipcode that the property was located in. Because of this, I was unable to capture any localized effects, such as an increase/decrease of home values for properties within a few blocks, which is more than likely the case.

In the state-level analysis, we found that home values decrease in the years immediately following the legalization of medical marijuana; however, this may be due to spillover pre-trends. For recreational marijuana, however, housing prices increase in the years following legalization. Specifically, the average home value in a state is over $\$80,000$ higher 4 years after legalization, and $\$100,000$ higher 8 years after legalization.

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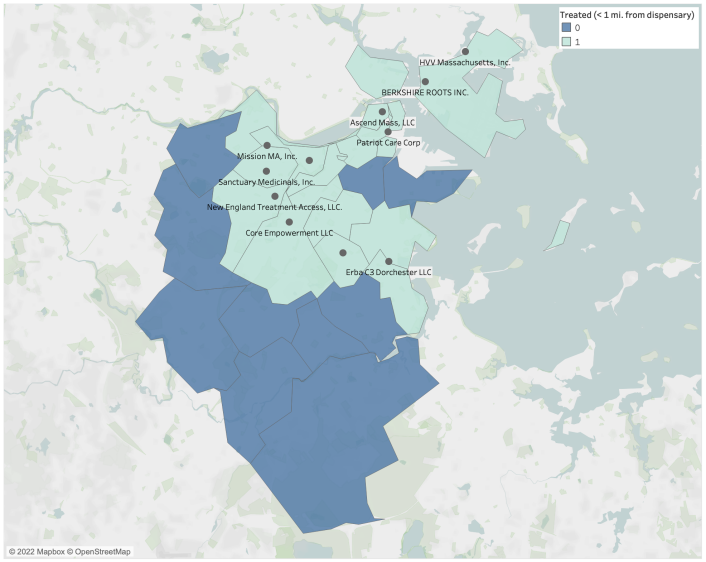
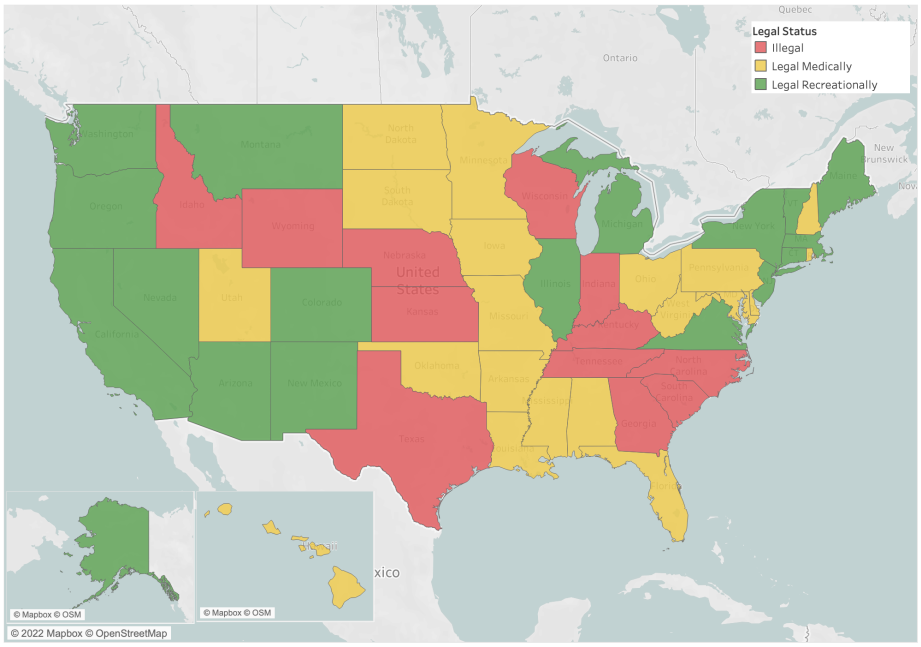
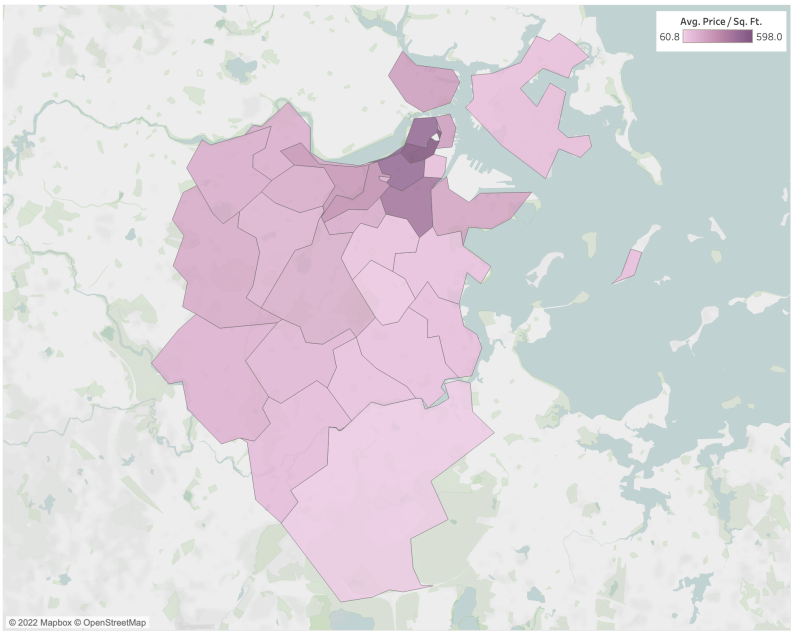
A Appendix Tables and Figures



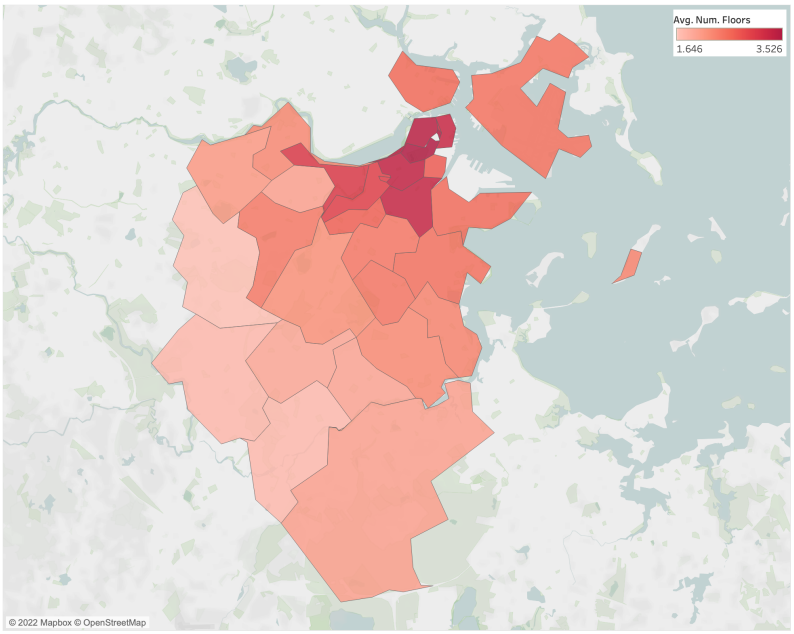
Appendix Figure A1. Recreational Cannabis Dispensaries in the Greater Boston Area



Appendix Figure A2. Legal Status of Cannabis, by U.S. State



Appendix Figure A3. Average Assessed Price per Square Foot of Properties in the Greater Boston Area



Appendix Figure A4. Average Number of Floors of Properties in the Greater Boston Area

	Mean	SD	Obs
Apartment/dorm			
Assessed value	202,706.7	202,225.1	1,114
Price per square foot	61.3	51.8	1,114
Living area	3,316.6	1,142.8	1,114
Number of floors	2.7	0.5	1,114
Condominium			
Assessed value	782,549.0	851,343.6	64,354
Price per square foot	699.6	331.8	64,354
Living area	1,084.4	582.0	64,354
Number of floors	1.3	0.8	64,354
Essential			
Assessed value	439,434.7	287,248.8	1,410
Price per square foot	175.8	97.4	1,410
Living area	2,808.6	1,366.8	1,410
Number of floors	2.1	0.7	1,410
Residential			
Assessed value	401,870.6	396,935.0	494,676
Price per square foot	172.0	100.4	494,676
Living area	2,406.1	1,035.2	494,676
Number of floors	2.2	0.6	494,676
Total			
Assessed value	445,195.5	486,778.2	561,554
Price per square foot	232.3	223.2	561,554
Living area	2,257.4	1,081.8	561,554
Number of floors	2.1	0.7	561,554

Appendix Table A1. Summary statistics of assessed property values, by type of property

B Anticipated Problems

I have a couple of concerns with my results:

1. Since the first dispensary in the Greater Boston Area opened in 2019, I am only able to regress using 2 lags, and I am concerned that this does not give the model enough flexibility to capture the true effect.

2. Another concern I have is that since the property assessment data does not have location data aside from zip code (which covers a large area), so I am not able to test the effect of a dispensary on a smaller scale (such as every 0.5 miles or every 0.1 miles), as I would prefer. I'm concerned that including all properties within a 1-mile radius will reduce any effect that a dispensary has on the immediately surrounding properties.

C Responses to Comments

Key: gray represents original comments, black represents responses.

- Minor stylistic notes:
  - → Typo in 2nd paragraph of intro.

    I re-read the intro and I'm not sure what typo you're finding.
  - → Fold the single sentence 3rd paragraph of the intro into the 2nd (or consider cutting it).

    I added it to the second paragraph.
  - → Use the present tense everywhere.

    I changed several of my sections to use the present tense, but there are a few areas that make more sense in the past tense (e.g. background information, past legislation, etc.)
  - → Don't use an acronym without first defining what it stands for (e.g. SUTVA).

    I must have moved content around and forgot to change where I define the acronym. I updated the title of subsection 3.3.2 to define SUTVA.

- Introduction:
  - → In the "This paper..." paragraph, make sure the first sentence succinctly says the overall takeaway of your paper. Rather than saying "analyzes how", say what you found! Additionally, add more to the overview of what your paper does. What methods do you use? What time period/geography are you focusing on? How consistent are your results?
  - → Please flash out the paragraphs in the intro a bit more. In some cases they are only one sentence each. If they are not paragraph-length ideas, try to reorganize the flow of paragraphs overall and integrate individual sentences into paragraphs where they logically fit.

    I changed my introduction to reflect both of the above comments.

- Section 2.1: Consider the relevance of each paper to your research question. For example, why should I care about how long the dispensary permitting process is? Spell this out for me!

  I added a couple of sentences explaining why someone should care about the dispensary process, and how it affects my choice of analysis.

- Section 3:
  - → You can make the section/subsection takeaways slightly more informative. For example, rather than "I address the necessary assumptions and how I

test them in subsection 3.3", you can say "I provide evidence in favor of the parallel trends and single unit treatment value (SUTVA) assumptions".

I changed the introduction paragraph of section 3 to be more informative.

→ A lot of the sentences take the form "I present a map" or "I display a table". If these figures have a key takeaway that informs your analysis, say it! If they don't, then you should reconsider whether it belongs in the paper.

I changed these sentences to state the takeaway.

- Section 3.3.3: Demographic balance isn't a necessary assumption for DID. Unit fixed effect remove time-invariant imbalance. Balanced demographics would simply provide additional evidence in support of the parallel trends assumption– as demographic-specific shocks would affect both places similarly. It's good to discuss balance, but you should edit this section accordingly.

  Okay, thanks. I changed the wording a bit to reflect this.

- Table 5:

  → What is `treatment_d`? This doesn't appear in your estimating equation and it's unclear what it represents.

  I updated the section where I include the figure to explain this.

  → Furthermore, it would be helpful for you to discuss the interpretation of magnitude. The summary stats showed average $/sq ft of 150, so these impacts imply a 40% drop in home prices in the immediately surrounding area.

  Okay, I added some interpretation of magnitude as well to this section.

- Major Comment: please cluster your standard errors, e.g., at the neighborhood level (or at the city level for the broader analyses). Currently, each observation seems to be at the zipcode-year level. However, your data are not independent (e.g., within a zip code over time or across neighboring zip codes). Clustering will account for some of that non-independence.

  Okay, I clustered my standard errors, and now the graphs make a lot more sense! In fact, a lot of my confidence intervals now span zero. I updated my graphs and takeaways to reflect this.

- Figures 6-8: Is there any reason why you would expect crime rates to fall further away from the dispensary?

  I ended up taking crime out of my final draft. To answer your question, though, I would imagine that people who purchase products from a dispensary aren't necessarily spending all of their time in the immediate vicinity of the dispensary, as it's likely that they live and spend their time somewhere else. Therefore, I'd

expect that a change in crime would be the result of a dispensary in an area, and rather the exact location of a dispensary.

- Interpretation Comment: You have 3 different results on the effect on house prices. Table 5 shows a decrease around nearby dispensary opens, Table 6 shows a decrease in cities after bans, and Figure 9 shows a decrease following state-wide MML. You briefly say differences might be due to pre-trends. It would be helpful to have more discussion talking through possible interpretations of these results taken together. You touch on this in the conclusion, but that detail should be in the results section.

  Okay, I added some more interpretation to the results section (4.1, 4.2).

- Conclusion: Rather than restating what you found in each section of the results, provide the high-level takeaways from the results taken together. You could even hint at policy implications here.

  I updated the conclusion (Section 5) to give more of a high-level takeaway.

- After my presentation: It's a little tough to read the confidence intervals in your graph because so many are overlapping. You can make this clearer by slightly adjusting x-axis value by series (e.g. `replace relative_time = relative_time - 0.5 if ring_series == 1`).

  I agree, it was pretty hard to read. I changed the relative time vector to be offset based on the distance ring, so now my graph looks a bit more like Figure II from Hector's paper and it's a lot easier to read.

```
* OVERVIEW
*   All raw data are stored in /data
*   All tables are outputted to /results/tables
*   All figures are outputted to /results/figures
*
* TO PERFORM A CLEAN RUN, DELETE THE FOLLOWING TWO FOLDERS:
*   /processed
*   /results
**********************

global MyProject "/Users/anniebryan/Documents/College/2021-22/14.33/Project"

* Initialize log
clear
set more off
cap mkdir "$MyProject/scripts/logs"
cap log close
local datetime : di %tcCCYY.NN.DD!-HH.MM.SS `=clock("$S_DATE $S_TIME", "DMYhms")'
local logfile "$MyProject/scripts/logs/`datetime'.log.txt"
log using "`logfile'", text

ssc install estout, replace
ssc install outreg2
ssc install geodist
```

```
ssc install geodist

* Stata version control
version 17

* Create directories for output files
cap mkdir "$MyProject/processed"
cap mkdir "$MyProject/processed/intermediate"
cap mkdir "$MyProject/results"
cap mkdir "$MyProject/results/figures"
cap mkdir "$MyProject/results/intermediate"
cap mkdir "$MyProject/results/tables"

* Run project analysis
do "$MyProject/scripts/1_process_data.do"

do "$MyProject/scripts/2a_clean_zip_codes_data.do"
do "$MyProject/scripts/2b_clean_dispensaries_data.do"
do "$MyProject/scripts/2c_clean_census_income_data.do"
do "$MyProject/scripts/2d_clean_census_race_sex_data.do"
do "$MyProject/scripts/2e_clean_prop_assessments_data.do"
```

```
1  ************
2  * SCRIPT: 1_process_data.do
3  * PURPOSE: imports the raw datasets and converts them into a
   stata-readable format
4  ************
5
6  // US states legality data
7  insheet using "$MyProject/data/us-states-legality.csv", comma clear
8  compress
9  save "$MyProject/processed/us_states_legality.dta", replace
10
11 // MA dispensaries data
12 insheet using "$MyProject/data/dispensaries.csv", comma clear
13 compress
14 save "$MyProject/processed/intermediate/dispensaries_uncleaned.dta"
   , replace
15
16 // MA property assessments data
17 forvalues y = 2014/2021 {
18     insheet using
   "$MyProject/data/property_assessment/property-assessment-fy`y'.csv"
   , comma clear
19     compress
20     save
   "$MyProject/processed/intermediate/property_assessments_ma_`y'_uncle
   aned.dta", replace
```

```
    "$MyProject/processed/intermediate/property_assessments_ma_`y'_uncle
    aned.dta", replace
21  }
22
23  // Zillow home value data
24  insheet using "$MyProject/data/zhvi_sa_35_65.csv", comma clear
25  compress
26  save
    "$MyProject/processed/intermediate/zillow_home_values_uncleaned.dta"
    , replace
27
28  // Zip code centroids data
29  insheet using
    "$MyProject/data/ZIP_Code_Population_Weighted_Centroids.csv", comma
     clear
30  compress
31  save
    "$MyProject/processed/intermediate/zip_code_centroids_uncleaned.dta"
    , replace
32
33  // Census income data
34  forvalues y = 2011/2020 {
35      insheet using "$MyProject/data/census-income/ACSST5Y`y'.csv",
    comma clear
36      compress
37      save
    "$MyProject/processed/intermediate/census_income_`y'_uncleaned.dta"
    , replace
38  }
```

```
1  ************
2  * SCRIPT: 2a_clean_zip_codes_data.do
3  * PURPOSE: processes the zip code centroids dataset in preparation
   for analysis
4  ************
5
6  use
   "$MyProject/processed/intermediate/zip_code_centroids_uncleaned.dta"
   , clear
7
8  * Keep only zip codes in Massachusetts
9  keep if usps_zip_pref_state_1221=="MA"
10
11 * Select only desired columns
12 keep std_zip5 usps_zip_pref_city_1221 usps_zip_pref_state_1221
   latitude longitude
13
14 * Rename columns
15 rename std_zip5 zipcode
16 rename usps_zip_pref_city_1221 city
17 rename usps_zip_pref_state_1221 state
18
19 * Make city name proper
20 replace city = proper(city)
21
22 * Make zipcode type string
23 tostring zipcode, replace
24 replace zipcode = "0" + zipcode
25
26 * Save dataset
27 compress
```

```
**********
* SCRIPT: 2b_clean_dispensaries_data.do
* PURPOSE: processes the dispensaries dataset in preparation for analysis
**********

use "$MyProject/processed/intermediate/dispensaries_uncleaned.dta", clear

* Select only desired columns
keep business_name dba_name license_type establishment_address_1 establishment_city establishment_zip_code establishment_county commence_operations_date latitude longitude

* Keep only entries that have certain license types
keep if license_type=="Marijuana Retailer"
drop license_type

* Keep only entries that have commenced operations
keep if commence_operations_date!=""

* Create variables for commencement operations month, day, and year
split commence_operations_date, parse("/")
destring commence_operations_date1, gen(commence_month)
destring commence_operations_date2, gen(commence_day)
```

```
21  destring commence_operations_date2, gen(commence_day)
22  destring commence_operations_date3, gen(commence_year)
23  drop commence_operations_date commence_operations_date1
    commence_operations_date2 commence_operations_date3
24
25  * Change format of zip code to be 5 digits
26  format establishment_zip_code %05.0f
27
28  * Rename address variable
29  rename establishment_address_1 establishment_address
30
31  * Manually update lat/lon coordinates of HVV Massachusetts, Inc.
32  replace lat = 42.387990 if establishment_address=="220 William
    McClellan Hwy"
33  replace lon = -71.017820 if establishment_address=="220 William
    McClellan Hwy"
34
35  * Save dataset
36  compress
37  save "$MyProject/processed/dispensaries.dta", replace
38  outsheet using "$MyProject/processed/dispensaries.csv", comma
    replace
```

```
38  outsheet using "$MyProject/processed/dispensaries.csv", comma
    replace
39
40  * Create dataset with only dispensaries in the Boston area
41  keep if establishment_city=="Boston" | establishment_city==
    "Brookline"
42  gen id = _n
43  order id
44  compress
45  save "$MyProject/processed/dispensaries_boston.dta", replace
46  outsheet using "$MyProject/processed/dispensaries_boston.csv",
    comma replace
47
48  * Update zip codes data to include distance to dispensaries
49  * Get distance to dispensaries
50  forvalues i = 1/11 {
51      use "$MyProject/processed/dispensaries_boston.dta", clear
52      sort id
53      local disp_lat = latitude[`i']
54      local disp_lon = longitude[`i']
55
56      use "$MyProject/processed/zip_code_centroids.dta", clear
57      geodist `disp_lat' `disp_lon' latitude longitude, gen(dist_`i')
     mile
```

```
**********
* SCRIPT: 2c_clean_census_income_data.do
* PURPOSE: processes the census income datasets in preparation for analysis
**********

* Clean dataset for each year, one at a time
forvalues y = 2011/2020 {
    use "$MyProject/processed/intermediate/census_income_`y'_uncleaned.dta", clear

    * Keep only desired columns
    keep v2 v3 v25 v27

    * Rename variable names
    rename v2 zipcode
    rename v3 num_hh_`y'
    rename v25 est_hh_med_inc_`y'
    rename v27 est_hh_mean_inc_`y'

    * Keep only desired rows
    drop if _n<=2
    drop if missing(est_hh_med_inc_`y') | real(est_hh_med_inc_`y')==.
    drop if missing(est_hh_mean_inc_`y') | real(est_hh_mean_inc_`y')==.

    * Split zip code column
    split zipcode, parse(" ")
    drop zipcode zipcode1
```

```
26      drop zipcode zipcode1
27      rename zipcode2 zipcode
28      order zipcode
29
30      * Turn numeric values to ints
31      destring num_hh_`y', replace
32      destring est_hh_med_inc_`y', replace
33      destring est_hh_mean_inc_`y', replace
34
35      * Create variable for total income (mean income per household
    * # households)
36      gen total_inc_`y' = num_hh_`y' * est_hh_mean_inc_`y'
37
38      * Save dataset for year y
39      compress
40      save "$MyProject/processed/intermediate/census_income_`y'.dta",
     replace
41  }
42
43  * Merge datasets from 2011-2020 into one dataset containing all
    years
44  use "$MyProject/processed/intermediate/census_income_2011.dta",
    clear
45  forvalues y = 2012/2020 {
46      merge 1:1 zipcode using
    "$MyProject/processed/intermediate/census_income_`y'.dta"
47      drop _merge
48  }
```

```
* SCRIPT: 2d_clean_census_race_sex_data.do
* PURPOSE: processes the census race by sex datasets in preparation for analysis
************

* Clean dataset for each year and each race, one at a time
forvalues y = 2011/2020 {
    foreach race in "white" "black" "asian" "amind" "pacif" {
        use "$MyProject/processed/intermediate/census_age_sex_`race'_`y'_uncleaned.dta", clear

        * Keep only desired columns
        keep v3 v5 v7 v9 v11 v13 v15 v17 v19 v21 v23 v25 v27 v29 v31 v33 v35 v37 v39 v41 v43 v45 v47 v49 v51 v53 v55 v57 v59 v61 v64
        order v64

        * Rename variable names
        rename v64 zipcode

        rename v3 tot_`race'_male_`y'
        rename v5 num_under_5_`race'_male_`y'
        rename v7 num_5_to_9_`race'_male_`y'
        rename v9 num_10_to_14_`race'_male_`y'
        rename v11 num_15_to_17_`race'_male_`y'
```

```
22          rename v11 num_15_to_17_`race'_male_`y'
23          rename v13 num_18_to_19_`race'_male_`y'
24          rename v15 num_20_to_24_`race'_male_`y'
25          rename v17 num_25_to_29_`race'_male_`y'
26          rename v19 num_30_to_34_`race'_male_`y'
27          rename v21 num_35_to_44_`race'_male_`y'
28          rename v23 num_45_to_54_`race'_male_`y'
29          rename v25 num_55_to_64_`race'_male_`y'
30          rename v27 num_65_to_74_`race'_male_`y'
31          rename v29 num_75_to_84_`race'_male_`y'
32          rename v31 num_over_85_`race'_male_`y'
33
34          rename v33 tot_`race'_female_`y'
35          rename v35 num_under_5_`race'_female_`y'
36          rename v37 num_5_to_9_`race'_female_`y'
37          rename v39 num_10_to_14_`race'_female_`y'
38          rename v41 num_15_to_17_`race'_female_`y'
```

```
38          rename v41 num_15_to_17_`race'_female_`y'
39          rename v43 num_18_to_19_`race'_female_`y'
40          rename v45 num_20_to_24_`race'_female_`y'
41          rename v47 num_25_to_29_`race'_female_`y'
42          rename v49 num_30_to_34_`race'_female_`y'
43          rename v51 num_35_to_44_`race'_female_`y'
44          rename v53 num_45_to_54_`race'_female_`y'
45          rename v55 num_55_to_64_`race'_female_`y'
46          rename v57 num_65_to_74_`race'_female_`y'
47          rename v59 num_75_to_84_`race'_female_`y'
48          rename v61 num_over_85_`race'_female_`y'
49
50          * Keep only desired rows
51          keep if _n>2
52
53          * Split zip code column
54          split zipcode, parse(" ")
55          drop zipcode zipcode1
56          rename zipcode2 zipcode
57          order zipcode
58
59          * Turn numeric values to ints
```

```
59          * Turn numeric values to ints
60          foreach sex in "male" "female" {
61              destring tot_`race'_`sex'_`y', replace
62              foreach age in "under_5" "5_to_9" "10_to_14" "15_to_17"
     "18_to_19" "20_to_24" "25_to_29" "30_to_34" "35_to_44" "45_to_54"
    "55_to_64" "65_to_74" "75_to_84" "over_85" {
63                  destring num_`age'_`race'_`sex'_`y', replace
64              }
65          }
66
67          compress
68          save
    "$MyProject/processed/intermediate/census_age_sex_`race'_`y'.dta",
    replace
69      }
70
71      * Merge datasets from each race into one dataset containing
    all races
72      use
    "$MyProject/processed/intermediate/census_age_sex_white_`y'.dta",
    clear
73      foreach race in "black" "asian" "amind" "pacif" {
74          merge 1:1 zipcode using
    "$MyProject/processed/intermediate/census_age_sex_`race'_`y'.dta"
75          drop _merge
76      }
```

```
76      }
77
78      * Add columns for aggregate values across races
79      foreach sex in "male" "female" {
80          gen total_`sex'_`y' = 0
81      }
82
83      foreach age in "under_5" "5_to_9" "10_to_14" "15_to_17"
    "18_to_19" "20_to_24" "25_to_29" "30_to_34" "35_to_44" "45_to_54"
    "55_to_64" "65_to_74" "75_to_84" "over_85" {
84          gen total_`age'_`y' = 0
85      }
86
87      foreach race in "white" "black" "asian" "amind" "pacif" {
88          gen total_`race'_`y' = 0
89          foreach sex in "male" "female" {
90              replace total_`sex'_`y' = total_`sex'_`y' + tot_`race'_
    `sex'_`y'
91              replace total_`race'_`y' = total_`race'_`y' + tot_
    `race'_`sex'_`y'
92              foreach age in "under_5" "5_to_9" "10_to_14" "15_to_17"
     "18_to_19" "20_to_24" "25_to_29" "30_to_34" "35_to_44" "45_to_54"
    "55_to_64" "65_to_74" "75_to_84" "over_85" {
93                  replace total_`age'_`y' = total_`age'_`y' + num_
    `age'_`race'_`sex'_`y'
```

```
* SCRIPT: 2e_clean_prop_assessments_data.do
* PURPOSE: processes the massachusetts property assessments datasets in preparation for analysis
**********

* Clean dataset for each year, one at a time
forvalues y = 2014/2021 {
    use "$MyProject/processed/intermediate/property_assessments_ma_`y'_uncleaned.dta", clear

    * Rename 2021 variables to have the same name as other years
    if `y' == 2021 {
        rename bldg_value av_bldg
        rename yr_remodel yr_remod
        rename res_floor num_floors
        rename bed_rms r_bdrms
        rename full_bth r_full_bth
        rename hlf_bth r_half_bth
        rename kitchen r_kitch
        rename heat_type r_heat_typ
    }

    * Select only desired columns
    keep zipcode lu av_bldg living_area yr_built yr_remod num_floors r_bdrms r_full_bth r_half_bth r_kitch r_heat_typ

```

```
24
25      * Create variable for the year the building was assessed
26      gen year_assessed = `y'
27
28      * Change zipcode column to be of uniform format across years
29      if `y' == 2018 | `y' == 2019 | `y' == 2020 | `y' == 2021 {
30          tostring zipcode, replace
31          replace zipcode = "0" + zipcode
32      }
33      else {
34          replace zipcode = substr(zipcode, 1, 5)
35      }
36
37      * Convert dollar amount av_bldg to int (2021 only)
38      if `y' == 2021 {
39          split av_bldg, parse(".00") gen(dollars)
40          destring dollars1, replace ignore("$,")
41          drop av_bldg
42          rename dollars1 av_bldg
43      }
44
45      * Drop entries with missing, 0-valued, or unreasonable data
46      drop if av_bldg == 0 | missing(av_bldg)
```

```
46      drop if av_bldg == 0 | missing(av_bldg)
47      drop if living_area < 250 | missing(living_area)
48      drop if yr_built == 0 | missing(yr_built)
49      drop if num_floors == 0 | missing(num_floors)
50      drop if r_bdrms == 0 | missing(r_bdrms)
51
52      * Create variable for price per square foot
53      gen ppsqft = av_bldg / living_area
54      drop if ppsqft < 20
55
56      * Create variable for years since built
57      gen yrs_since_built = `y' - yr_built
58
59      * Create variable for years since remodel
60      replace yr_remod = 0 if missing(yr_remod)
61      replace yr_remod = yr_built if yr_remod==0
62      gen yrs_since_remodel = `y' - yr_remod
63      drop yr_built yr_remod
64
65      * Replace missing values with 0
66      replace living_area = 0 if missing(living_area)
67      replace r_full_bth = 0 if missing(r_full_bth)
```

```
* SCRIPT: 2f_clean_home_values_data.do
* PURPOSE: processes the zillow home value dataset in preparation for analysis
************

use "$MyProject/processed/intermediate/zillow_home_values_uncleaned.dta", clear

* Select only desired columns
drop regionid sizerank regiontype statename city metro countyname

* Rename zipcode
rename regionname zipcode

* Rename v10-v274 to their label (month/year)
foreach v of varlist v* {
    local x: variable label `v'
    local year = substr("`x'", 1, 4)
    local month = substr("`x'", 6, 2)
    rename `v' hv_`month'_`year'
}

* Make zipcode type string
tostring zipcode, replace
replace zipcode = "0" + zipcode if strlen(zipcode)==4
replace zipcode = "00" + zipcode if strlen(zipcode)==3

```

```
* SCRIPT: 3a_summarize_us_states_legality_data.do
* PURPOSE: summarizes the us states legality dataset
************

use "$MyProject/processed/us_states_legality.dta", clear

* Generate .csv to use in Tableau
gen status = cond(recreational==1, 2, medical)
keep state status
outsheet using "$MyProject/processed/us_states_legality.csv", comma
 replace

expand 2
sort state
gen type_legal = mod(_n, 2)
gen legal = (status == 1 | status == 2) if type_legal == 0 //
medical
replace legal = status == 2 if type_legal == 1 // recreational
gen illegal = 1 - legal
gen t = 1

* Summarize legal status by state
est clear
estpost tabstat legal illegal t, by(type_legal) stat(sum)
```

```
1  ************
2  * SCRIPT: 3b_summarize_dispensaries_data.do
3  * PURPOSE: summarizes the dispensaries dataset
4  ************
5
6  use "$MyProject/processed/dispensaries.dta", clear
7
8  * Generate month/year variable
9  gen month_str = cond(commence_month <= 4, "Jan-Apr", cond(
   commence_month <= 8, "May-Aug", "Sep-Dec"))
10 egen month_year_str = concat(month_str commence_year), punct(" ")
11
12 * Generate .csv to use in Tableau
13 outsheet using "$MyProject/processed/dispensaries_ma.csv", comma
   replace
14
15 ** EOF
16
```

```
* SCRIPT: 3e_summarize_prop_assessments_data.do
* PURPOSE: summarizes the property assessments dataset
************

use "$MyProject/processed/property_assessments_ma.dta", clear

* Assign labels describing types of properties
gen lu_int = 0
replace lu_int = 1 if lu == "CD"
replace lu_int = 2 if lu == "E"
replace lu_int = 3 if lu == "R"

label define origin 0 "Apartment/dorm" 1 "Condominium" 2 "Essential" 3 "Residential"
label values lu_int origin
label variable lu_int "Type"

* Make a table summarizing by property type
est clear
eststo clear

estpost tabstat av_bldg ppsqft living_area num_floors, by(lu_int) stat(mean sd count) col(stat)

esttab using "$MyProject/results/tables/property-types.tex", replace ///
```

```
24  esttab using "$MyProject/results/tables/property-types.tex",
    replace ///
25      cells("mean(fmt(%9.1fc)) sd(fmt(%9.1fc)) count(fmt(%9.0fc))")
    ///
26      collabels("Mean" "SD" "Obs") ///
27      coeflabel(av_bldg "Assessed value" ppsqft "Price per square
    foot" living_area "Living area" num_floors "Number of floors") ///
28      label nonumber noobs booktabs compress
29
30
31  * Add zipcode data
32  merge m:1 zipcode using
    "$MyProject/processed/zip_code_centroids.dta"
33  drop if _merge!=3
34  drop _merge
35
36  * Only considering property values before any dispensaries
37  drop if year_assessed >= 2019
38
39  * Divide properties into "close" vs. "not close"
40  gen close = min_dist_disp < 1
41  sort close
42
43  * Generate table of summary statistics
44  est clear
45  eststo clear
46
```

```
1  ************
2  * SCRIPT: 4a_test_demographic_balance_boston.do
3  * PURPOSE: runs a 2-sample t-test to check that the demographics
   in treatment/control groups are similar
4  ************
5
6  * Format property dataset
7  use "$MyProject/processed/property_assessments_ma.dta", clear
8
9  sort zipcode
10 merge m:1 zipcode using
   "$MyProject/processed/zip_code_centroids.dta"
11 keep if _merge==3
12 drop _merge
13
14 * Divide properties into "close" vs. "not close"
15 gen close = min_dist_disp < 1
16 sort close
17
18 * Run t-test
19 global controls av_bldg ppsqft living_area num_floors r_bdrms
20
21 est clear
22 estpost ttest $controls , by(close)
23
```

```
* SCRIPT: 4c_test_parallel_trends_property_assessments.do
* PURPOSE: plots assessed property values to test for parallel trends
**********

* Format property dataset
use "$MyProject/processed/property_assessments_ma.dta", clear

sort zipcode
merge m:1 zipcode using "$MyProject/processed/zip_code_centroids.dta"
keep if _merge==3
drop _merge

* Create set of treatment variables treat_j_d for j = -5 to 2, d = 1 to 5
* treat_j_d = 1 if a dispensary opens between d-1 and d miles away at time t-j
* treat_d   = 1 if a dispensary opens between d-1 and d miles away at any time

forvalues d = 1/5 {
    gen treat_d`d' = 0
    forvalues j = -5/2 {
        local abs_j = cond(`j' < 0, -`j', `j')
        local j_str = cond(`j' == 0, "0", cond(`j' < 0, "m`abs_j'", "p`j'"))
```

```
**********
* SCRIPT: 5a_regression_dispensaries_on_property_assessments.do
* PURPOSE: runs a regression of dispensaries on property assessments
**********

use "$MyProject/processed/dispensaries_on_property_assessments.dta", clear

destring zipcode, replace
format zipcode %05.0f

* Define covariates
local heat_type heat_electric heat_forced_hot_air heat_pump heat_space heat_steam
local covariates living_area num_floors r_bdrms r_full_bth r_half_bth r_kitch yrs_since_built yrs_since_remodel `heat_type'

* Run separate regression for each building type
set graphics off
est clear

encode lu, gen(lu_enc)

matrix rel_time = (-5, -4, -3, -2, -1, 0, 1, 2)'
```

```
21  matrix rel_time = (-5, -4, -3, -2, -1, 0, 1, 2)'
22  svmat rel_time
23
24  forvalues d = 1/5 {
25      local treatment treat_d`d' treat_jm5_d`d' treat_jm4_d`d'
    treat_jm3_d`d' treat_jm2_d`d' treat_j0_d`d' treat_jp1_d`d'
    treat_jp2_d`d'
26
27      local dm1 = `d'-1
28      qui reg ppsqft `treatment' i.year_assessed i.zipcode i.lu_enc
    `covariates', vce(cluster year_assessed zipcode)
29      eststo model_`d', title("`dm1'-`d' mi.")
30
31      * Plot coefficients from regression
32      matrix coefs_`d' = (_b[treat_jm5_d`d'], _b[treat_jm4_d`d'], _b[
    treat_jm3_d`d'], _b[treat_jm2_d`d'], 0, _b[treat_j0_d`d'], _b[
    treat_jp1_d`d'], _b[treat_jp2_d`d'])'
33      svmat coefs_`d'
34
35      matrix se_`d' = (_se[treat_jm5_d`d'], _se[treat_jm4_d`d'], _se[
    treat_jm3_d`d'], _se[treat_jm2_d`d'], 0, _se[treat_j0_d`d'], _se[
    treat_jp1_d`d'], _se[treat_jp2_d`d'])'
36
37      matrix high_`d' = coefs_`d' + invttail(e(df_r),0.025)*se_`d'
```

```
37      matrix high_`d' = coefs_`d' + invttail(e(df_r),0.025)*se_`d'
38      svmat high_`d'
39
40      matrix low_`d' = coefs_`d' - invttail(e(df_r),0.025)*se_`d'
41      svmat low_`d'
42  }
43
44  matrix d1_rel_time = rel_time - 0.2*(1, 1, 1, 1, 1, 1, 1, 1)'
45  svmat d1_rel_time
46
47  matrix d2_rel_time = rel_time - 0.1*(1, 1, 1, 1, 1, 1, 1, 1)'
48  svmat d2_rel_time
49
50  matrix d4_rel_time = rel_time + 0.1*(1, 1, 1, 1, 1, 1, 1, 1)'
51  svmat d4_rel_time
52
53  matrix d5_rel_time = rel_time + 0.2*(1, 1, 1, 1, 1, 1, 1, 1)'
54  svmat d5_rel_time
55
56  graph twoway (rcap high_1 low_1 d1_rel_time in 1/8, color("12 69
    118")) ///
57      (rcap high_2 low_2 d2_rel_time in 1/8, color("7 90 152")) ///
58      (rcap high_3 low_3 rel_time in 1/8, color("1 111 185")) ///
59      (rcap high_4 low_4 d4_rel_time in 1/8, color("108 175 220")) ///
```

```
**********
* SCRIPT: 5b_regression_state_legality_on_home_values.do
* PURPOSE: runs a regression of state legality on home values
**********

use "$MyProject/processed/zillow_home_values.dta", clear

destring zipcode, replace
format zipcode %05.0f

forvalues y = 2000/2021 {
    gen avg_hv_`y' = (hv_01_`y' + hv_02_`y' + hv_03_`y' + hv_04_`y' + hv_05_`y' + hv_06_`y' + hv_07_`y' + hv_08_`y' + hv_09_`y' + hv_10_`y' + hv_11_`y' + hv_12_`y')/12
}
drop hv_*

* Create one row for each observation
expand 22
bysort zipcode: gen year = 1999 + _n
gen avg_hv = .
forvalues y = 2000/2021 {
    replace avg_hv = avg_hv_`y' if year == `y'
}
```

```
}
drop avg_hv_*
drop if missing(avg_hv)

* Create enum variable for state
encode abbreviation, gen(abbrev)

* Create treatment variable
gen legal_med = medical & real(year_legalized_med) <= year

* Add lags/leads
gen c_m8_med = medical & real(year_legalized_med) == year + 8
gen c_m7_med = medical & real(year_legalized_med) == year + 7
gen c_m6_med = medical & real(year_legalized_med) == year + 6
gen c_m5_med = medical & real(year_legalized_med) == year + 5
gen c_m4_med = medical & real(year_legalized_med) == year + 4
gen c_m3_med = medical & real(year_legalized_med) == year + 3
gen c_m2_med = medical & real(year_legalized_med) == year + 2
gen c_0_med = medical & real(year_legalized_med) == year
gen c_p1_med = medical & real(year_legalized_med) == year - 1
gen c_p2_med = medical & real(year_legalized_med) == year - 2
```

```
gen c_p2_med = medical & real(year_legalized_med) == year - 2
gen c_p3_med = medical & real(year_legalized_med) == year - 3
gen c_p4_med = medical & real(year_legalized_med) == year - 4
gen c_p5_med = medical & real(year_legalized_med) == year - 5
gen c_p6_med = medical & real(year_legalized_med) == year - 6
gen c_p7_med = medical & real(year_legalized_med) == year - 7
gen c_p8_med = medical & real(year_legalized_med) == year - 8

local treatment_med medical c_m8_med c_m7_med c_m6_med c_m5_med
c_m4_med c_m3_med c_m2_med c_0_med c_p1_med c_p2_med c_p3_med
c_p4_med c_p5_med c_p6_med c_p7_med c_p8_med

* Run regression for medical
reg avg_hv `treatment_med' i.year i.abbrev, vce(cluster abbrev)

* Plot coefficients from regression
matrix coefs_med = (_b[c_m8_med], _b[c_m7_med], _b[c_m6_med], _b[
c_m5_med], _b[c_m4_med], _b[c_m3_med], _b[c_m2_med], 0, _b[c_0_med
], _b[c_p1_med], _b[c_p2_med], _b[c_p3_med], _b[c_p4_med], _b[
c_p5_med], _b[c_p6_med], _b[c_p7_med], _b[c_p8_med])'
```

```
    c_p5_med], _b[c_p6_med], _b[c_p7_med], _b[c_p8_med])'
57  svmat coefs_med
58
59  matrix stderrs_med = (_se[c_m8_med], _se[c_m7_med], _se[c_m6_med],
    _se[c_m5_med], _se[c_m4_med], _se[c_m3_med], _se[c_m2_med], 0, _se[
    c_0_med], _se[c_p1_med], _se[c_p2_med], _se[c_p3_med], _se[c_p4_med
    ], _se[c_p5_med], _se[c_p6_med], _se[c_p7_med], _se[c_p8_med])'
60  svmat stderrs_med
61
62  matrix high_med = coefs_med + invttail(e(df_r),0.025)*stderrs_med
63  svmat high_med
64
65  matrix low_med = coefs_med - invttail(e(df_r),0.025)*stderrs_med
66  svmat low_med
67
68  matrix rel_time = (-8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5
    , 6, 7, 8)'
69  svmat rel_time
70
71  graph twoway (rcap high_med low_med rel_time in 1/17) (scatter
    coefs_med rel_time), ///
72      xtitle("Event year") ///
73      xlabel(-8(1)8) ///
74      ylabel(-40000 "-40,000" -20000 "-20,000" 0 "0" 20000 "20,000",
    angle(0)) ///
```

```
-------------------------------------------------------------------------------
-------------------------------------------------------------------------------
-------------------------------------
      name:  <unnamed>
       log:  /Users/anniebryan/Documents/College/2021-22/14.33/
Project/scripts/logs/2022.05.09-20.28.38.log.txt
  log type:  text
 opened on:   9 May 2022, 20:28:38

.
. ssc install estout, replace
checking estout consistency and verifying not already installed...
all files already exist and are up to date.

. ssc install outreg2
checking outreg2 consistency and verifying not already installed...
all files already exist and are up to date.

. ssc install geodist
checking geodist consistency and verifying not already installed...
all files already exist and are up to date.


.
. * Stata version control
. version 17


.
. * Create directories for output files
. cap mkdir "$MyProject/processed"

. cap mkdir "$MyProject/processed/intermediate"

. cap mkdir "$MyProject/results"

. cap mkdir "$MyProject/results/figures"

. cap mkdir "$MyProject/results/intermediate"

. cap mkdir "$MyProject/results/tables"


.
. * Run project analysis
. do "$MyProject/scripts/1_process_data.do"

. ************
. * SCRIPT: 1_process_data.do
. * PURPOSE: imports the raw datasets and converts them into a stata-
readable format
. ************
.
```

```
. // US states legality data
. insheet using "$MyProject/data/us-states-legality.csv", comma clear
(6 vars, 51 obs)

. compress
  (0 bytes saved)

. save "$MyProject/processed/us_states_legality.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/us_states_legality.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/us_states_legality.dta saved

.
. // MA dispensaries data
. insheet using "$MyProject/data/dispensaries.csv", comma clear
(66 vars, 887 obs)

. compress
  (0 bytes saved)

. save "$MyProject/processed/intermediate/dispensaries_uncleaned.dta",
replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/dispensaries_uncleaned.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/dispensaries_uncleaned.dta saved

.
. // MA property assessments data
. forvalues y = 2014/2021 {
  2.         insheet using "$MyProject/data/property_assessment/
property-assessment-fy`y'.csv", comma clear
  3.         compress
  4.         save "$MyProject/processed/intermediate/
property_assessments_ma_`y'_uncleaned.dta", replace
  5. }
(56 vars, 164,091 obs)
  variable st_name was str25 now str24
  variable u_heat_typ was str2 now str1
  (328,182 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2014_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2014_uncleaned.dta
saved
(56 vars, 168,115 obs)
  variable st_name was str25 now str24
  variable st_name_suf was str4 now str3
```

```
  variable full_address was str55 now str48
  variable u_heat_typ was str2 now str1
  (1,681,150 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2015_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2015_uncleaned.dta
saved
(77 vars, 169,199 obs)
  variable st_name was str25 now str24
  variable st_name_suf was str4 now str3
  (338,398 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2016_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2016_uncleaned.dta
saved
(75 vars, 170,910 obs)
  variable st_name was str25 now str24
  variable st_name_suf was str4 now str3
  (341,820 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2017_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2017_uncleaned.dta
saved
(75 vars, 172,841 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2018_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2018_uncleaned.dta
saved
(75 vars, 174,668 obs)
  variable st_name was str25 now str24
  variable st_name_suf was str4 now str3
  (349,336 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2019_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2019_uncleaned.dta
saved
(75 vars, 175,052 obs)
  variable st_name_suf was str5 now str4
  (175,052 bytes saved)
```

```
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2020_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2020_uncleaned.dta
saved
(63 vars, 177,091 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2021_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2021_uncleaned.dta
saved

.
. // Zillow home value data
. insheet using "$MyProject/data/zhvi_sa_35_65.csv", comma clear
(274 vars, 30,468 obs)

. compress
  (0 bytes saved)

. save "$MyProject/processed/intermediate/
zillow_home_values_uncleaned.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/zillow_home_values_uncleaned.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/zillow_home_values_uncleaned.dta saved

.
. // Zip code centroids data
. insheet using "$MyProject/data/
ZIP_Code_Population_Weighted_Centroids.csv", comma clear
(10 vars, 35,352 obs)

. compress
  (0 bytes saved)

. save "$MyProject/processed/intermediate/
zip_code_centroids_uncleaned.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/zip_code_centroids_uncleaned.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/zip_code_centroids_uncleaned.dta saved

.
. // Census income data
. forvalues y = 2011/2020 {
  2.         insheet using "$MyProject/data/census-income/
```

```
ACSST5Y`y'.csv", comma clear
  3.         compress
  4.         save "$MyProject/processed/intermediate/
census_income_`y'_uncleaned.dta", replace
  5. }
(130 vars, 540 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2011_uncleaned.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2011_uncleaned.dta saved
(130 vars, 540 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2012_uncleaned.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2012_uncleaned.dta saved
(130 vars, 540 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2013_uncleaned.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2013_uncleaned.dta saved
(130 vars, 540 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2014_uncleaned.dta not found)
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processed/intermediate/census_income_2014_uncleaned.dta saved
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(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
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processed/intermediate/census_income_2018_uncleaned.dta not found)
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(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2020_uncleaned.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2020_uncleaned.dta saved

.
. // Census age/sex data
. forvalues y = 2011/2020 {
  2.         foreach race in "white" "black" "asian" "amind" "pacif" {
  3.                 insheet using "$MyProject/data/census-age-by-sex/
ACSDT5Y`y'-`race'.csv", comma clear
  4.                 compress
  5.                 save "$MyProject/processed/intermediate/
census_age_sex_`race'_`y'_uncleaned.dta", replace
  6.         }
  7. }
(64 vars, 540 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2011_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2011_uncleaned.dta saved
(64 vars, 540 obs)
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(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2011_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2011_uncleaned.dta saved
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found)
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processed/intermediate/census_age_sex_white_2013_uncleaned.dta not
found)
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processed/intermediate/census_age_sex_white_2013_uncleaned.dta saved
(64 vars, 540 obs)
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processed/intermediate/census_age_sex_black_2013_uncleaned.dta not
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(64 vars, 540 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2017_uncleaned.dta not
found)
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processed/intermediate/census_age_sex_black_2017_uncleaned.dta saved
(64 vars, 540 obs)
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processed/intermediate/census_age_sex_amind_2018_uncleaned.dta saved
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(64 vars, 540 obs)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2018_uncleaned.dta not
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(64 vars, 540 obs)
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found)
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processed/intermediate/census_age_sex_white_2020_uncleaned.dta saved
(64 vars, 540 obs)
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  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2020_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
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processed/intermediate/census_age_sex_pacif_2020_uncleaned.dta not
found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2020_uncleaned.dta saved

.
. ** EOF
.
end of do-file

.
. do "$MyProject/scripts/2a_clean_zip_codes_data.do"

. ************
. * SCRIPT: 2a_clean_zip_codes_data.do
. * PURPOSE: processes the zip code centroids dataset in preparation
for analysis
. ************
.
. use "$MyProject/processed/intermediate/
zip_code_centroids_uncleaned.dta", clear

.
. * Keep only zip codes in Massachusetts
. keep if usps_zip_pref_state_1221=="MA"
(34,776 observations deleted)
```

```
.
. * Select only desired columns
. keep std_zip5 usps_zip_pref_city_1221 usps_zip_pref_state_1221
latitude longitude


.
. * Rename columns
. rename std_zip5 zipcode

. rename usps_zip_pref_city_1221 city

. rename usps_zip_pref_state_1221 state


.
. * Make city name proper
. replace city = proper(city)
(576 real changes made)


.
. * Make zipcode type string
. tostring zipcode, replace
zipcode was long now str4

. replace zipcode = "0" + zipcode
variable zipcode was str4 now str5
(576 real changes made)


.
. * Save dataset
. compress
  variable city was str26 now str18
  (4,608 bytes saved)

. save "$MyProject/processed/zip_code_centroids.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved


.
. ** EOF
.
end of do-file

. do "$MyProject/scripts/2b_clean_dispensaries_data.do"

. ************
. * SCRIPT: 2b_clean_dispensaries_data.do
. * PURPOSE: processes the dispensaries dataset in preparation for
analysis
```

```
. ************
.
. use "$MyProject/processed/intermediate/dispensaries_uncleaned.dta",
clear

.
. * Select only desired columns
. keep business_name dba_name license_type establishment_address_1
establishment_city establishment_zip_code establishment_county
commence_operations_date latitude longitude

.
. * Keep only entries that have certain license types
. keep if license_type=="Marijuana Retailer"
(520 observations deleted)

. drop license_type

.
. * Keep only entries that have commenced operations
. keep if commence_operations_date!=""
(162 observations deleted)

.
. * Create variables for commencement operations month, day, and year
. split commence_operations_date, parse("/")
variables created as string:
commence_o~1  commence_o~2  commence_o~3

. destring commence_operations_date1, gen(commence_month)
commence_operations_date1: all characters numeric; commence_month
generated as byte

. destring commence_operations_date2, gen(commence_day)
commence_operations_date2: all characters numeric; commence_day
generated as byte

. destring commence_operations_date3, gen(commence_year)
commence_operations_date3: all characters numeric; commence_year
generated as int

. drop commence_operations_date commence_operations_date1
commence_operations_date2 commence_operations_date3

.
. * Change format of zip code to be 5 digits
. format establishment_zip_code %05.0f

.
. * Rename address variable
```

```
. rename establishment_address_1 establishment_address

.
. * Manually update lat/lon coordinates of HVV Massachusetts, Inc.
. replace lat = 42.387990 if establishment_address=="220 William
McClellan Hwy"
(1 real change made)

. replace lon = -71.017820 if establishment_address=="220 William
McClellan Hwy"
(1 real change made)

.
. * Save dataset
. compress
  variable business_name was str60 now str58
  variable dba_name was str64 now str32
  variable establishment_address was str54 now str51
  variable establishment_city was str18 now str16
  (7,995 bytes saved)

. save "$MyProject/processed/dispensaries.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries.dta saved

. outsheet using "$MyProject/processed/dispensaries.csv", comma
replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries.csv not found)

.
. * Create dataset with only dispensaries in the Boston area
. keep if establishment_city=="Boston" |
establishment_city=="Brookline"
(194 observations deleted)

. gen id = _n

. order id

. compress
  variable id was float now byte
  variable business_name was str58 now str34
  variable dba_name was str32 now str14
  variable establishment_address was str51 now str25
  variable establishment_city was str16 now str9
  variable establishment_county was str10 now str7
  (891 bytes saved)
```

```
. save "$MyProject/processed/dispensaries_boston.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries_boston.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries_boston.dta saved

. outsheet using "$MyProject/processed/dispensaries_boston.csv", comma
replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries_boston.csv not found)

.
. * Update zip codes data to include distance to dispensaries
. * Get distance to dispensaries
. forvalues i = 1/11 {
  2.         use "$MyProject/processed/dispensaries_boston.dta", clear
  3.         sort id
  4.         local disp_lat = latitude[`i']
  5.         local disp_lon = longitude[`i']
  6.
.         use "$MyProject/processed/zip_code_centroids.dta", clear
  7.         geodist `disp_lat' `disp_lon' latitude longitude,
gen(dist_`i') mile
  8.         save "$MyProject/processed/zip_code_centroids.dta",
replace
  9. }
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
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processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved
```

```
.
. * Get minimum distance to a dispensary
. egen min_dist_disp = rowmin(dist_1 dist_2 dist_3 dist_4 dist_5
dist_6 dist_7 dist_8 dist_9 dist_10 dist_11)

.
. * Get minimum distance to a dispensary
. gen min_dist_2019 = dist_8

. gen min_dist_2020 = min(dist_7, dist_8, dist_10, dist_11)

. gen min_dist_2021 = min(dist_1, dist_2, dist_3, dist_4, dist_5,
dist_7, dist_8, dist_9, dist_10, dist_11)

. gen min_dist_2022 = min(dist_1, dist_2, dist_3, dist_4, dist_5,
dist_6, dist_7, dist_8, dist_9, dist_10, dist_11)

.
. drop dist_1 dist_2 dist_3 dist_4 dist_5 dist_6 dist_7 dist_8 dist_9
dist_10 dist_11

.
. compress
  (0 bytes saved)

. save "$MyProject/processed/zip_code_centroids.dta", replace
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zip_code_centroids.dta saved

.
. * Create file containing only Boston zipcodes
. destring zipcode, replace
zipcode: all characters numeric; replaced as int

. format zipcode %05.0f

.
. local boston_zipcodes 02108 02109 02110 02111 02113 02114 02115
02116 02118 02119 02120 02121 02122 02124 02125 02126 02127 02128
02129 02130 02131 02132 02133 02134 02135 02136
>  02163 02199 02203 02210 02215 02222

. gen boston = 0

. foreach z in `boston_zipcodes' {
  2.         replace boston = 1 if zipcode==`z'
  3. }
(1 real change made)
(1 real change made)
(1 real change made)
```

```
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(0 real changes made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(1 real change made)
(0 real changes made)

. drop if boston == 0
(546 observations deleted)

. drop boston

.
. save "$MyProject/processed/boston_zip_code_centroids.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/boston_zip_code_centroids.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/boston_zip_code_centroids.dta saved

.
. ** EOF
.
end of do-file

. do "$MyProject/scripts/2c_clean_census_income_data.do"

. **********
```

```
. * SCRIPT: 2c_clean_census_income_data.do
. * PURPOSE: processes the census income datasets in preparation for
analysis
. ************
.
. * Clean dataset for each year, one at a time
. forvalues y = 2011/2020 {
  2.         use "$MyProject/processed/intermediate/
census_income_`y'_uncleaned.dta", clear
  3.
.         * Keep only desired columns
.         keep v2 v3 v25 v27
  4.
.         * Rename variable names
.         rename v2 zipcode
  5.         rename v3 num_hh_`y'
  6.         rename v25 est_hh_med_inc_`y'
  7.         rename v27 est_hh_mean_inc_`y'
  8.
.         * Keep only desired rows
.         drop if _n<=2
  9.         drop if missing(est_hh_med_inc_`y') |
real(est_hh_med_inc_`y')==.
 10.         drop if missing(est_hh_mean_inc_`y') |
real(est_hh_mean_inc_`y')==.
 11.
.         * Split zip code column
.         split zipcode, parse(" ")
 12.         drop zipcode zipcode1
 13.         rename zipcode2 zipcode
 14.         order zipcode
 15.
.         * Turn numeric values to ints
.         destring num_hh_`y', replace
 16.         destring est_hh_med_inc_`y', replace
 17.         destring est_hh_mean_inc_`y', replace
 18.
.         * Create variable for total income (mean income per
household * # households)
.         gen total_inc_`y' = num_hh_`y' * est_hh_mean_inc_`y'
 19.
.         * Save dataset for year y
.         compress
 20.         save "$MyProject/processed/intermediate/
census_income_`y'.dta", replace
 21. }
(2 observations deleted)
(15 observations deleted)
(0 observations deleted)
variables created as string:
```

```
zipcode1  zipcode2
num_hh_2011: all characters numeric; replaced as int
est_hh_med_inc_2011: all characters numeric; replaced as long
est_hh_mean_inc_2011: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2011.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2011.dta saved
(2 observations deleted)
(11 observations deleted)
(3 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2012: all characters numeric; replaced as int
est_hh_med_inc_2012: all characters numeric; replaced as long
est_hh_mean_inc_2012: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2012.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2012.dta saved
(2 observations deleted)
(16 observations deleted)
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2013: all characters numeric; replaced as int
est_hh_med_inc_2013: all characters numeric; replaced as long
est_hh_mean_inc_2013: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2013.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2013.dta saved
(2 observations deleted)
(16 observations deleted)
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2014: all characters numeric; replaced as int
est_hh_med_inc_2014: all characters numeric; replaced as long
est_hh_mean_inc_2014: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2014.dta saved
(2 observations deleted)
(21 observations deleted)
```

```
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2015: all characters numeric; replaced as int
est_hh_med_inc_2015: all characters numeric; replaced as long
est_hh_mean_inc_2015: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2015.dta saved
(2 observations deleted)
(20 observations deleted)
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2016: all characters numeric; replaced as int
est_hh_med_inc_2016: all characters numeric; replaced as long
est_hh_mean_inc_2016: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2016.dta saved
(2 observations deleted)
(23 observations deleted)
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2017: all characters numeric; replaced as int
est_hh_med_inc_2017: all characters numeric; replaced as long
est_hh_mean_inc_2017: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2017.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2017.dta saved
(2 observations deleted)
(19 observations deleted)
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2018: all characters numeric; replaced as int
est_hh_med_inc_2018: all characters numeric; replaced as long
est_hh_mean_inc_2018: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2018.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2018.dta saved
```

```
(2 observations deleted)
(23 observations deleted)
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2019: all characters numeric; replaced as int
est_hh_med_inc_2019: all characters numeric; replaced as long
est_hh_mean_inc_2019: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2019.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2019.dta saved
(2 observations deleted)
(28 observations deleted)
(0 observations deleted)
variables created as string:
zipcode1  zipcode2
num_hh_2020: all characters numeric; replaced as int
est_hh_med_inc_2020: all characters numeric; replaced as long
est_hh_mean_inc_2020: all characters numeric; replaced as long
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2020.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_income_2020.dta saved

.
. * Merge datasets from 2011-2020 into one dataset containing all
years
. use "$MyProject/processed/intermediate/census_income_2011.dta",
clear

. forvalues y = 2012/2020 {
  2.         merge 1:1 zipcode using "$MyProject/processed/
intermediate/census_income_`y'.dta"
  3.         drop _merge
  4. }

    Result                      Number of obs
    -----------------------------------------
    Not matched                             1
        from master                         0  (_merge==1)
        from using                          1  (_merge==2)

    Matched                               523  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
```

```
Not matched                             4
    from master                         3  (_merge==1)
    from using                          1  (_merge==2)

Matched                               521  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                             3
    from master                         3  (_merge==1)
    from using                          0  (_merge==2)

Matched                               522  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                             8
    from master                         8  (_merge==1)
    from using                          0  (_merge==2)

Matched                               517  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                             7
    from master                         7  (_merge==1)
    from using                          0  (_merge==2)

Matched                               518  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                            10
    from master                        10  (_merge==1)
    from using                          0  (_merge==2)

Matched                               515  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                             6
    from master                         6  (_merge==1)
    from using                          0  (_merge==2)

Matched                               519  (_merge==3)
```

```
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                            10
        from master                        10  (_merge==1)
        from using                          0  (_merge==2)

    Matched                               515  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                            15
        from master                        15  (_merge==1)
        from using                          0  (_merge==2)

    Matched                               510  (_merge==3)
    -----------------------------------------


. 
. * Add city name
. merge 1:1 zipcode using "$MyProject/processed/
zip_code_centroids.dta"

    Result                      Number of obs
    -----------------------------------------
    Not matched                           103
        from master                        26  (_merge==1)
        from using                         77  (_merge==2)

    Matched                               499  (_merge==3)
    -----------------------------------------

. drop if _merge!=3
(103 observations deleted)

. drop _merge latitude longitude min_dist_* state

. 
. * Save dataset containing all years
. compress
  (0 bytes saved)

. save "$MyProject/processed/census_income.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/census_income.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/census_income.dta saved
```

```
.
. ** EOF
.
end of do-file

. do "$MyProject/scripts/2d_clean_census_race_sex_data.do"

. ************
. * SCRIPT: 2d_clean_census_race_sex_data.do
. * PURPOSE: processes the census race by sex datasets in preparation
for analysis
. ************
.
. * Clean dataset for each year and each race, one at a time
. forvalues y = 2011/2020 {
  2.         foreach race in "white" "black" "asian" "amind" "pacif" {
  3.                 use "$MyProject/processed/intermediate/
census_age_sex_`race'_`y'_uncleaned.dta", clear
  4.
.                 * Keep only desired columns
.                 keep v3 v5 v7 v9 v11 v13 v15 v17 v19 v21 v23 v25 v27
v29 v31 v33 v35 v37 v39 v41 v43 v45 v47 v49 v51 v53 v55 v57 v59 v61
v64
  5.                 order v64
  6.
.                 * Rename variable names
.                 rename v64 zipcode
  7.
.                 rename v3 tot_`race'_male_`y'
  8.                 rename v5 num_under_5_`race'_male_`y'
  9.                 rename v7 num_5_to_9_`race'_male_`y'
 10.                 rename v9 num_10_to_14_`race'_male_`y'
 11.                 rename v11 num_15_to_17_`race'_male_`y'
 12.                 rename v13 num_18_to_19_`race'_male_`y'
 13.                 rename v15 num_20_to_24_`race'_male_`y'
 14.                 rename v17 num_25_to_29_`race'_male_`y'
 15.                 rename v19 num_30_to_34_`race'_male_`y'
 16.                 rename v21 num_35_to_44_`race'_male_`y'
 17.                 rename v23 num_45_to_54_`race'_male_`y'
 18.                 rename v25 num_55_to_64_`race'_male_`y'
 19.                 rename v27 num_65_to_74_`race'_male_`y'
 20.                 rename v29 num_75_to_84_`race'_male_`y'
 21.                 rename v31 num_over_85_`race'_male_`y'
 22.
.                 rename v33 tot_`race'_female_`y'
 23.                 rename v35 num_under_5_`race'_female_`y'
 24.                 rename v37 num_5_to_9_`race'_female_`y'
 25.                 rename v39 num_10_to_14_`race'_female_`y'
 26.                 rename v41 num_15_to_17_`race'_female_`y'
 27.                 rename v43 num_18_to_19_`race'_female_`y'
```

```
 28.                rename v45 num_20_to_24_`race'_female_`y'
 29.                rename v47 num_25_to_29_`race'_female_`y'
 30.                rename v49 num_30_to_34_`race'_female_`y'
 31.                rename v51 num_35_to_44_`race'_female_`y'
 32.                rename v53 num_45_to_54_`race'_female_`y'
 33.                rename v55 num_55_to_64_`race'_female_`y'
 34.                rename v57 num_65_to_74_`race'_female_`y'
 35.                rename v59 num_75_to_84_`race'_female_`y'
 36.                rename v61 num_over_85_`race'_female_`y'
 37.
.                * Keep only desired rows
.                keep if _n>2
 38.
.                * Split zip code column
.                split zipcode, parse(" ")
 39.                drop zipcode zipcode1
 40.                rename zipcode2 zipcode
 41.                order zipcode
 42.
.                * Turn numeric values to ints
.                foreach sex in "male" "female" {
 43.                          destring tot_`race'_`sex'_`y', replace
 44.                          foreach age in "under_5" "5_to_9"
"10_to_14" "15_to_17" "18_to_19" "20_to_24" "25_to_29" "30_to_34"
"35_to_44" "45_to_54" "55_to_64" "65_to_74" "75_to
> _84" "over_85" {
 45.                                   destring
num_`age'_`race'_`sex'_`y', replace
 46.                          }
 47.                }
 48.
.                compress
 49.                save "$MyProject/processed/intermediate/
census_age_sex_`race'_`y'.dta", replace
 50.         }
 51.
.         * Merge datasets from each race into one dataset containing
all races
.         use "$MyProject/processed/intermediate/
census_age_sex_white_`y'.dta", clear
 52.         foreach race in "black" "asian" "amind" "pacif" {
 53.                merge 1:1 zipcode using "$MyProject/processed/
intermediate/census_age_sex_`race'_`y'.dta"
 54.                drop _merge
 55.         }
 56.
.         * Add columns for aggregate values across races
.         foreach sex in "male" "female" {
 57.                gen total_`sex'_`y' = 0
 58.         }
```

```
 59.
.         foreach age in "under_5" "5_to_9" "10_to_14" "15_to_17"
"18_to_19" "20_to_24" "25_to_29" "30_to_34" "35_to_44" "45_to_54"
"55_to_64" "65_to_74" "75_to_84" "over_85" {
 60.                   gen total_`age'_`y' = 0
 61.         }
 62.
.         foreach race in "white" "black" "asian" "amind" "pacif" {
 63.                   gen total_`race'_`y' = 0
 64.                   foreach sex in "male" "female" {
 65.                           replace total_`sex'_`y' = total_`sex'_`y'
+ tot_`race'_`sex'_`y'
 66.                           replace total_`race'_`y' =
total_`race'_`y' + tot_`race'_`sex'_`y'
 67.                           foreach age in "under_5" "5_to_9"
"10_to_14" "15_to_17" "18_to_19" "20_to_24" "25_to_29" "30_to_34"
"35_to_44" "45_to_54" "55_to_64" "65_to_74" "75_to
> _84" "over_85" {
 68.                                   replace total_`age'_`y' =
total_`age'_`y' + num_`age'_`race'_`sex'_`y'
 69.                           }
 70.                   }
 71.         }
 72.
.         gen total_`y' = total_male_`y' + total_female_`y'
 73.
.         foreach sex in "male" "female" {
 74.                   gen prop_`sex'_`y' = total_`sex'_`y' / total_`y'
 75.         }
 76.
.         foreach race in "white" "black" "asian" "amind" "pacif" {
 77.                   gen prop_`race'_`y' = total_`race'_`y' /
total_`y'
 78.         }
 79.
.         gen total_under_9_`y' = total_under_5_`y' + total_5_to_9_`y'
 80.            gen total_under_14_`y' = total_under_9_`y' +
total_10_to_14_`y'
 81.         gen total_under_18_`y' = total_under_14_`y' +
total_15_to_17_`y'
 82.         gen total_under_20_`y' = total_under_18_`y' +
total_18_to_19_`y'
 83.         gen total_under_25_`y' = total_under_20_`y' +
total_20_to_24_`y'
 84.         gen total_under_30_`y' = total_under_25_`y' +
total_25_to_29_`y'
 85.         gen total_under_35_`y' = total_under_30_`y' +
total_30_to_34_`y'
 86.         gen total_under_45_`y' = total_under_35_`y' +
total_35_to_44_`y'
```

```
 87.         gen total_under_55_`y' = total_under_45_`y' +
total_45_to_54_`y'
 88.         gen total_under_65_`y' = total_under_55_`y' +
total_55_to_64_`y'
 89.         gen total_under_75_`y' = total_under_65_`y' +
total_65_to_74_`y'
 90.         gen total_under_85_`y' = total_under_75_`y' +
total_75_to_84_`y'
 91.
.         gen half_total = total_`y'/2
 92.         gen median_age_`y' = cond(half_total < total_under_9_`y',
5+(9-5)*(half_total-total_under_5_`y')/(total_under_9_`y'-
total_under_5_`y'), ///
>                 cond(half_total < total_under_14_`y',
9+(14-9)*(half_total-total_under_9_`y')/(total_under_14_`y'-
total_under_9_`y'), ///
>                 cond(half_total < total_under_18_`y',
14+(18-14)*(half_total-total_under_14_`y')/(total_under_18_`y'-
total_under_14_`y'), ///
>                 cond(half_total < total_under_20_`y',
18+(20-18)*(half_total-total_under_18_`y')/(total_under_20_`y'-
total_under_18_`y'), ///
>                 cond(half_total < total_under_25_`y',
20+(25-20)*(half_total-total_under_20_`y')/(total_under_25_`y'-
total_under_20_`y'), ///
>                 cond(half_total < total_under_30_`y',
25+(30-25)*(half_total-total_under_25_`y')/(total_under_30_`y'-
total_under_25_`y'), ///
>                 cond(half_total < total_under_35_`y',
30+(35-30)*(half_total-total_under_30_`y')/(total_under_35_`y'-
total_under_30_`y'), ///
>                 cond(half_total < total_under_45_`y',
35+(45-35)*(half_total-total_under_35_`y')/(total_under_45_`y'-
total_under_35_`y'), ///
>                 cond(half_total < total_under_55_`y',
45+(55-45)*(half_total-total_under_45_`y')/(total_under_55_`y'-
total_under_45_`y'), ///
>                 cond(half_total < total_under_65_`y',
55+(65-55)*(half_total-total_under_55_`y')/(total_under_65_`y'-
total_under_55_`y'), ///
>                 cond(half_total < total_under_75_`y',
65+(75-65)*(half_total-total_under_65_`y')/(total_under_75_`y'-
total_under_65_`y'), ///
>                 cond(half_total < total_under_85_`y',
75+(85-75)*(half_total-total_under_75_`y')/(total_under_85_`y'-
total_under_75_`y'), 85))))))))))))
 93.
.         gen prop_under_18_`y' = total_under_18_`y' / total_`y'
 94.         gen prop_under_35_`y' = total_under_35_`y' / total_`y'
 95.         gen prop_under_65_`y' = total_under_65_`y' / total_`y'
```

```
 96.
.         keep zipcode total_`y' prop_male_`y' prop_white_`y'
prop_black_`y' prop_asian_`y' prop_amind_`y' prop_under_18_`y'
prop_under_35_`y' prop_under_65_`y' median_age
 97.         order zipcode total_`y'
 98.
.         * Save dataset containing all races
.         compress
 99.         save "$MyProject/processed/intermediate/
census_age_sex_`y'.dta", replace
100. }
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2011: all characters numeric; replaced as int
num_under_5_white_male_2011: all characters numeric; replaced as int
num_5_to_9_white_male_2011: all characters numeric; replaced as int
num_10_to_14_white_male_2011: all characters numeric; replaced as int
num_15_to_17_white_male_2011: all characters numeric; replaced as int
num_18_to_19_white_male_2011: all characters numeric; replaced as int
num_20_to_24_white_male_2011: all characters numeric; replaced as int
num_25_to_29_white_male_2011: all characters numeric; replaced as int
num_30_to_34_white_male_2011: all characters numeric; replaced as int
num_35_to_44_white_male_2011: all characters numeric; replaced as int
num_45_to_54_white_male_2011: all characters numeric; replaced as int
num_55_to_64_white_male_2011: all characters numeric; replaced as int
num_65_to_74_white_male_2011: all characters numeric; replaced as int
num_75_to_84_white_male_2011: all characters numeric; replaced as int
num_over_85_white_male_2011: all characters numeric; replaced as int
tot_white_female_2011: all characters numeric; replaced as int
num_under_5_white_female_2011: all characters numeric; replaced as int
num_5_to_9_white_female_2011: all characters numeric; replaced as int
num_10_to_14_white_female_2011: all characters numeric; replaced as
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num_15_to_17_white_female_2011: all characters numeric; replaced as
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num_18_to_19_white_female_2011: all characters numeric; replaced as
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num_20_to_24_white_female_2011: all characters numeric; replaced as
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num_25_to_29_white_female_2011: all characters numeric; replaced as
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num_30_to_34_white_female_2011: all characters numeric; replaced as
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num_35_to_44_white_female_2011: all characters numeric; replaced as
int
num_45_to_54_white_female_2011: all characters numeric; replaced as
int
num_55_to_64_white_female_2011: all characters numeric; replaced as
int
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num_65_to_74_white_female_2011: all characters numeric; replaced as
int
num_75_to_84_white_female_2011: all characters numeric; replaced as
int
num_over_85_white_female_2011: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2011.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2011.dta saved
(2 observations deleted)
variables created as string:
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tot_black_male_2011: all characters numeric; replaced as int
num_under_5_black_male_2011: all characters numeric; replaced as int
num_5_to_9_black_male_2011: all characters numeric; replaced as int
num_10_to_14_black_male_2011: all characters numeric; replaced as int
num_15_to_17_black_male_2011: all characters numeric; replaced as int
num_18_to_19_black_male_2011: all characters numeric; replaced as int
num_20_to_24_black_male_2011: all characters numeric; replaced as int
num_25_to_29_black_male_2011: all characters numeric; replaced as int
num_30_to_34_black_male_2011: all characters numeric; replaced as int
num_35_to_44_black_male_2011: all characters numeric; replaced as int
num_45_to_54_black_male_2011: all characters numeric; replaced as int
num_55_to_64_black_male_2011: all characters numeric; replaced as int
num_65_to_74_black_male_2011: all characters numeric; replaced as int
num_75_to_84_black_male_2011: all characters numeric; replaced as int
num_over_85_black_male_2011: all characters numeric; replaced as int
tot_black_female_2011: all characters numeric; replaced as int
num_under_5_black_female_2011: all characters numeric; replaced as int
num_5_to_9_black_female_2011: all characters numeric; replaced as int
num_10_to_14_black_female_2011: all characters numeric; replaced as
int
num_15_to_17_black_female_2011: all characters numeric; replaced as
int
num_18_to_19_black_female_2011: all characters numeric; replaced as
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num_20_to_24_black_female_2011: all characters numeric; replaced as
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num_25_to_29_black_female_2011: all characters numeric; replaced as
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num_30_to_34_black_female_2011: all characters numeric; replaced as
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num_35_to_44_black_female_2011: all characters numeric; replaced as
int
num_45_to_54_black_female_2011: all characters numeric; replaced as
int
num_55_to_64_black_female_2011: all characters numeric; replaced as
int
num_65_to_74_black_female_2011: all characters numeric; replaced as
```

```
int
num_75_to_84_black_female_2011: all characters numeric; replaced as
int
num_over_85_black_female_2011: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2011.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2011.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2011: all characters numeric; replaced as int
num_under_5_asian_male_2011: all characters numeric; replaced as int
num_5_to_9_asian_male_2011: all characters numeric; replaced as int
num_10_to_14_asian_male_2011: all characters numeric; replaced as int
num_15_to_17_asian_male_2011: all characters numeric; replaced as int
num_18_to_19_asian_male_2011: all characters numeric; replaced as int
num_20_to_24_asian_male_2011: all characters numeric; replaced as int
num_25_to_29_asian_male_2011: all characters numeric; replaced as int
num_30_to_34_asian_male_2011: all characters numeric; replaced as int
num_35_to_44_asian_male_2011: all characters numeric; replaced as int
num_45_to_54_asian_male_2011: all characters numeric; replaced as int
num_55_to_64_asian_male_2011: all characters numeric; replaced as int
num_65_to_74_asian_male_2011: all characters numeric; replaced as int
num_75_to_84_asian_male_2011: all characters numeric; replaced as int
num_over_85_asian_male_2011: all characters numeric; replaced as int
tot_asian_female_2011: all characters numeric; replaced as int
num_under_5_asian_female_2011: all characters numeric; replaced as int
num_5_to_9_asian_female_2011: all characters numeric; replaced as int
num_10_to_14_asian_female_2011: all characters numeric; replaced as
int
num_15_to_17_asian_female_2011: all characters numeric; replaced as
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num_18_to_19_asian_female_2011: all characters numeric; replaced as
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num_20_to_24_asian_female_2011: all characters numeric; replaced as
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num_25_to_29_asian_female_2011: all characters numeric; replaced as
int
num_30_to_34_asian_female_2011: all characters numeric; replaced as
int
num_35_to_44_asian_female_2011: all characters numeric; replaced as
int
num_45_to_54_asian_female_2011: all characters numeric; replaced as
int
num_55_to_64_asian_female_2011: all characters numeric; replaced as
int
num_65_to_74_asian_female_2011: all characters numeric; replaced as
int
```

```
num_75_to_84_asian_female_2011: all characters numeric; replaced as
int
num_over_85_asian_female_2011: all characters numeric; replaced as int
  (0 bytes saved)
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processed/intermediate/census_age_sex_asian_2011.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2011.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_amind_male_2011: all characters numeric; replaced as int
num_under_5_amind_male_2011: all characters numeric; replaced as byte
num_5_to_9_amind_male_2011: all characters numeric; replaced as byte
num_10_to_14_amind_male_2011: all characters numeric; replaced as byte
num_15_to_17_amind_male_2011: all characters numeric; replaced as byte
num_18_to_19_amind_male_2011: all characters numeric; replaced as byte
num_20_to_24_amind_male_2011: all characters numeric; replaced as byte
num_25_to_29_amind_male_2011: all characters numeric; replaced as byte
num_30_to_34_amind_male_2011: all characters numeric; replaced as byte
num_35_to_44_amind_male_2011: all characters numeric; replaced as byte
num_45_to_54_amind_male_2011: all characters numeric; replaced as byte
num_55_to_64_amind_male_2011: all characters numeric; replaced as byte
num_65_to_74_amind_male_2011: all characters numeric; replaced as byte
num_75_to_84_amind_male_2011: all characters numeric; replaced as byte
num_over_85_amind_male_2011: all characters numeric; replaced as byte
tot_amind_female_2011: all characters numeric; replaced as int
num_under_5_amind_female_2011: all characters numeric; replaced as
byte
num_5_to_9_amind_female_2011: all characters numeric; replaced as byte
num_10_to_14_amind_female_2011: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2011: all characters numeric; replaced as
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num_18_to_19_amind_female_2011: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2011: all characters numeric; replaced as
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num_25_to_29_amind_female_2011: all characters numeric; replaced as
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num_30_to_34_amind_female_2011: all characters numeric; replaced as
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num_35_to_44_amind_female_2011: all characters numeric; replaced as
byte
num_45_to_54_amind_female_2011: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2011: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2011: all characters numeric; replaced as
byte
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```
num_75_to_84_amind_female_2011: all characters numeric; replaced as
byte
num_over_85_amind_female_2011: all characters numeric; replaced as
byte
  (0 bytes saved)
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file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2011.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2011: all characters numeric; replaced as byte
num_under_5_pacif_male_2011: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2011: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2011: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2011: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2011: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2011: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2011: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2011: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2011: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2011: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2011: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2011: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2011: all characters numeric; replaced as byte
num_over_85_pacif_male_2011: all characters numeric; replaced as byte
tot_pacif_female_2011: all characters numeric; replaced as int
num_under_5_pacif_female_2011: all characters numeric; replaced as int
num_5_to_9_pacif_female_2011: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2011: all characters numeric; replaced as
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num_20_to_24_pacif_female_2011: all characters numeric; replaced as
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num_25_to_29_pacif_female_2011: all characters numeric; replaced as
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num_30_to_34_pacif_female_2011: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2011: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2011: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2011: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2011: all characters numeric; replaced as
byte
```

```
num_75_to_84_pacif_female_2011: all characters numeric; replaced as
byte
num_over_85_pacif_female_2011: all characters numeric; replaced as
byte
  (0 bytes saved)
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file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2011.dta saved

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
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(532 real changes made)
(488 real changes made)
(485 real changes made)
(491 real changes made)
(485 real changes made)
(474 real changes made)
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(490 real changes made)
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(518 real changes made)
(504 real changes made)
(503 real changes made)
(457 real changes made)
(531 real changes made)
```

(531 real changes made)
(482 real changes made)
(479 real changes made)
(488 real changes made)
(488 real changes made)
(466 real changes made)
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(490 real changes made)
(493 real changes made)
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(516 real changes made)
(507 real changes made)
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(0 real changes made)
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(5 missing values generated)
(5 missing values generated)
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(5 missing values generated)
(5 missing values generated)
(5 missing values generated)
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(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2011.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2011.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2012: all characters numeric; replaced as int
num_under_5_white_male_2012: all characters numeric; replaced as int
num_5_to_9_white_male_2012: all characters numeric; replaced as int
num_10_to_14_white_male_2012: all characters numeric; replaced as int
num_15_to_17_white_male_2012: all characters numeric; replaced as int
num_18_to_19_white_male_2012: all characters numeric; replaced as int
num_20_to_24_white_male_2012: all characters numeric; replaced as int
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num_35_to_44_white_male_2012: all characters numeric; replaced as int
num_45_to_54_white_male_2012: all characters numeric; replaced as int
num_55_to_64_white_male_2012: all characters numeric; replaced as int
num_65_to_74_white_male_2012: all characters numeric; replaced as int
num_75_to_84_white_male_2012: all characters numeric; replaced as int
num_over_85_white_male_2012: all characters numeric; replaced as int
tot_white_female_2012: all characters numeric; replaced as int
num_under_5_white_female_2012: all characters numeric; replaced as int
num_5_to_9_white_female_2012: all characters numeric; replaced as int
num_10_to_14_white_female_2012: all characters numeric; replaced as
int
num_15_to_17_white_female_2012: all characters numeric; replaced as
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num_18_to_19_white_female_2012: all characters numeric; replaced as
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num_20_to_24_white_female_2012: all characters numeric; replaced as
int
num_25_to_29_white_female_2012: all characters numeric; replaced as
int
num_30_to_34_white_female_2012: all characters numeric; replaced as
int
num_35_to_44_white_female_2012: all characters numeric; replaced as
int
num_45_to_54_white_female_2012: all characters numeric; replaced as
int
num_55_to_64_white_female_2012: all characters numeric; replaced as
int
num_65_to_74_white_female_2012: all characters numeric; replaced as
int
num_75_to_84_white_female_2012: all characters numeric; replaced as
```

```
int
num_over_85_white_female_2012: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2012.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2012.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_black_male_2012: all characters numeric; replaced as int
num_under_5_black_male_2012: all characters numeric; replaced as int
num_5_to_9_black_male_2012: all characters numeric; replaced as int
num_10_to_14_black_male_2012: all characters numeric; replaced as int
num_15_to_17_black_male_2012: all characters numeric; replaced as int
num_18_to_19_black_male_2012: all characters numeric; replaced as int
num_20_to_24_black_male_2012: all characters numeric; replaced as int
num_25_to_29_black_male_2012: all characters numeric; replaced as int
num_30_to_34_black_male_2012: all characters numeric; replaced as int
num_35_to_44_black_male_2012: all characters numeric; replaced as int
num_45_to_54_black_male_2012: all characters numeric; replaced as int
num_55_to_64_black_male_2012: all characters numeric; replaced as int
num_65_to_74_black_male_2012: all characters numeric; replaced as int
num_75_to_84_black_male_2012: all characters numeric; replaced as int
num_over_85_black_male_2012: all characters numeric; replaced as int
tot_black_female_2012: all characters numeric; replaced as int
num_under_5_black_female_2012: all characters numeric; replaced as int
num_5_to_9_black_female_2012: all characters numeric; replaced as int
num_10_to_14_black_female_2012: all characters numeric; replaced as
int
num_15_to_17_black_female_2012: all characters numeric; replaced as
int
num_18_to_19_black_female_2012: all characters numeric; replaced as
int
num_20_to_24_black_female_2012: all characters numeric; replaced as
int
num_25_to_29_black_female_2012: all characters numeric; replaced as
int
num_30_to_34_black_female_2012: all characters numeric; replaced as
int
num_35_to_44_black_female_2012: all characters numeric; replaced as
int
num_45_to_54_black_female_2012: all characters numeric; replaced as
int
num_55_to_64_black_female_2012: all characters numeric; replaced as
int
num_65_to_74_black_female_2012: all characters numeric; replaced as
int
num_75_to_84_black_female_2012: all characters numeric; replaced as
int
```

```
num_over_85_black_female_2012: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2012.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2012.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2012: all characters numeric; replaced as int
num_under_5_asian_male_2012: all characters numeric; replaced as int
num_5_to_9_asian_male_2012: all characters numeric; replaced as int
num_10_to_14_asian_male_2012: all characters numeric; replaced as int
num_15_to_17_asian_male_2012: all characters numeric; replaced as int
num_18_to_19_asian_male_2012: all characters numeric; replaced as int
num_20_to_24_asian_male_2012: all characters numeric; replaced as int
num_25_to_29_asian_male_2012: all characters numeric; replaced as int
num_30_to_34_asian_male_2012: all characters numeric; replaced as int
num_35_to_44_asian_male_2012: all characters numeric; replaced as int
num_45_to_54_asian_male_2012: all characters numeric; replaced as int
num_55_to_64_asian_male_2012: all characters numeric; replaced as int
num_65_to_74_asian_male_2012: all characters numeric; replaced as int
num_75_to_84_asian_male_2012: all characters numeric; replaced as int
num_over_85_asian_male_2012: all characters numeric; replaced as byte
tot_asian_female_2012: all characters numeric; replaced as int
num_under_5_asian_female_2012: all characters numeric; replaced as int
num_5_to_9_asian_female_2012: all characters numeric; replaced as int
num_10_to_14_asian_female_2012: all characters numeric; replaced as
int
num_15_to_17_asian_female_2012: all characters numeric; replaced as
int
num_18_to_19_asian_female_2012: all characters numeric; replaced as
int
num_20_to_24_asian_female_2012: all characters numeric; replaced as
int
num_25_to_29_asian_female_2012: all characters numeric; replaced as
int
num_30_to_34_asian_female_2012: all characters numeric; replaced as
int
num_35_to_44_asian_female_2012: all characters numeric; replaced as
int
num_45_to_54_asian_female_2012: all characters numeric; replaced as
int
num_55_to_64_asian_female_2012: all characters numeric; replaced as
int
num_65_to_74_asian_female_2012: all characters numeric; replaced as
int
num_75_to_84_asian_female_2012: all characters numeric; replaced as
int
num_over_85_asian_female_2012: all characters numeric; replaced as int
```

```
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2012.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2012.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_amind_male_2012: all characters numeric; replaced as int
num_under_5_amind_male_2012: all characters numeric; replaced as byte
num_5_to_9_amind_male_2012: all characters numeric; replaced as byte
num_10_to_14_amind_male_2012: all characters numeric; replaced as byte
num_15_to_17_amind_male_2012: all characters numeric; replaced as byte
num_18_to_19_amind_male_2012: all characters numeric; replaced as byte
num_20_to_24_amind_male_2012: all characters numeric; replaced as byte
num_25_to_29_amind_male_2012: all characters numeric; replaced as byte
num_30_to_34_amind_male_2012: all characters numeric; replaced as byte
num_35_to_44_amind_male_2012: all characters numeric; replaced as byte
num_45_to_54_amind_male_2012: all characters numeric; replaced as byte
num_55_to_64_amind_male_2012: all characters numeric; replaced as byte
num_65_to_74_amind_male_2012: all characters numeric; replaced as byte
num_75_to_84_amind_male_2012: all characters numeric; replaced as byte
num_over_85_amind_male_2012: all characters numeric; replaced as byte
tot_amind_female_2012: all characters numeric; replaced as int
num_under_5_amind_female_2012: all characters numeric; replaced as
byte
num_5_to_9_amind_female_2012: all characters numeric; replaced as byte
num_10_to_14_amind_female_2012: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2012: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2012: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2012: all characters numeric; replaced as
byte
num_25_to_29_amind_female_2012: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2012: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2012: all characters numeric; replaced as
int
num_45_to_54_amind_female_2012: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2012: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2012: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2012: all characters numeric; replaced as
byte
num_over_85_amind_female_2012: all characters numeric; replaced as
```

```
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2012.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2012.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2012: all characters numeric; replaced as byte
num_under_5_pacif_male_2012: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2012: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2012: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2012: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2012: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2012: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2012: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2012: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2012: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2012: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2012: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2012: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2012: all characters numeric; replaced as byte
num_over_85_pacif_male_2012: all characters numeric; replaced as byte
tot_pacif_female_2012: all characters numeric; replaced as int
num_under_5_pacif_female_2012: all characters numeric; replaced as int
num_5_to_9_pacif_female_2012: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2012: all characters numeric; replaced as
byte
num_15_to_17_pacif_female_2012: all characters numeric; replaced as
byte
num_18_to_19_pacif_female_2012: all characters numeric; replaced as
byte
num_20_to_24_pacif_female_2012: all characters numeric; replaced as
byte
num_25_to_29_pacif_female_2012: all characters numeric; replaced as
byte
num_30_to_34_pacif_female_2012: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2012: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2012: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2012: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2012: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2012: all characters numeric; replaced as
byte
num_over_85_pacif_female_2012: all characters numeric; replaced as
```

```
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2012.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2012.dta saved

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
(533 real changes made)
(533 real changes made)
(487 real changes made)
(485 real changes made)
(491 real changes made)
(486 real changes made)
(476 real changes made)
(503 real changes made)
(493 real changes made)
(498 real changes made)
(511 real changes made)
(515 real changes made)
(521 real changes made)
(505 real changes made)
(498 real changes made)
(453 real changes made)
(533 real changes made)
(533 real changes made)
(484 real changes made)
(481 real changes made)
```

(488 real changes made)
(485 real changes made)
(468 real changes made)
(494 real changes made)
(491 real changes made)
(495 real changes made)
(515 real changes made)
(519 real changes made)
(515 real changes made)
(509 real changes made)
(506 real changes made)
(483 real changes made)
(423 real changes made)
(423 real changes made)
(165 real changes made)
(179 real changes made)
(175 real changes made)
(191 real changes made)
(179 real changes made)
(219 real changes made)
(190 real changes made)
(191 real changes made)
(264 real changes made)
(273 real changes made)
(241 real changes made)
(170 real changes made)
(109 real changes made)
(49 real changes made)
(403 real changes made)
(403 real changes made)
(170 real changes made)
(174 real changes made)
(196 real changes made)
(164 real changes made)
(179 real changes made)
(215 real changes made)
(176 real changes made)
(169 real changes made)
(229 real changes made)
(242 real changes made)
(215 real changes made)
(164 real changes made)
(133 real changes made)
(94 real changes made)
(389 real changes made)
(389 real changes made)
(200 real changes made)
(209 real changes made)
(214 real changes made)
(164 real changes made)

(141 real changes made)
(192 real changes made)
(179 real changes made)
(209 real changes made)
(284 real changes made)
(271 real changes made)
(226 real changes made)
(186 real changes made)
(108 real changes made)
(42 real changes made)
(429 real changes made)
(429 real changes made)
(196 real changes made)
(227 real changes made)
(224 real changes made)
(178 real changes made)
(128 real changes made)
(187 real changes made)
(200 real changes made)
(226 real changes made)
(304 real changes made)
(289 real changes made)
(246 real changes made)
(182 real changes made)
(122 real changes made)
(67 real changes made)
(199 real changes made)
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(22 real changes made)
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(15 real changes made)
(22 real changes made)
(39 real changes made)
(28 real changes made)
(26 real changes made)
(52 real changes made)
(74 real changes made)
(46 real changes made)
(27 real changes made)
(17 real changes made)
(3 real changes made)
(195 real changes made)
(195 real changes made)
(19 real changes made)
(23 real changes made)
(34 real changes made)
(26 real changes made)
(22 real changes made)
(31 real changes made)

(19 real changes made)
(33 real changes made)
(50 real changes made)
(65 real changes made)
(46 real changes made)
(27 real changes made)
(19 real changes made)
(13 real changes made)
(31 real changes made)
(31 real changes made)
(1 real change made)
(2 real changes made)
(0 real changes made)
(2 real changes made)
(2 real changes made)
(2 real changes made)
(1 real change made)
(4 real changes made)
(5 real changes made)
(5 real changes made)
(1 real change made)
(8 real changes made)
(1 real change made)
(0 real changes made)
(47 real changes made)
(47 real changes made)
(1 real change made)
(3 real changes made)
(3 real changes made)
(4 real changes made)
(6 real changes made)
(8 real changes made)
(9 real changes made)
(4 real changes made)
(8 real changes made)
(6 real changes made)
(3 real changes made)
(3 real changes made)
(1 real change made)
(0 real changes made)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)

```
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2012.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2012.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2013: all characters numeric; replaced as int
num_under_5_white_male_2013: all characters numeric; replaced as int
num_5_to_9_white_male_2013: all characters numeric; replaced as int
num_10_to_14_white_male_2013: all characters numeric; replaced as int
num_15_to_17_white_male_2013: all characters numeric; replaced as int
num_18_to_19_white_male_2013: all characters numeric; replaced as int
num_20_to_24_white_male_2013: all characters numeric; replaced as int
num_25_to_29_white_male_2013: all characters numeric; replaced as int
num_30_to_34_white_male_2013: all characters numeric; replaced as int
num_35_to_44_white_male_2013: all characters numeric; replaced as int
num_45_to_54_white_male_2013: all characters numeric; replaced as int
num_55_to_64_white_male_2013: all characters numeric; replaced as int
num_65_to_74_white_male_2013: all characters numeric; replaced as int
num_75_to_84_white_male_2013: all characters numeric; replaced as int
num_over_85_white_male_2013: all characters numeric; replaced as int
tot_white_female_2013: all characters numeric; replaced as int
num_under_5_white_female_2013: all characters numeric; replaced as int
num_5_to_9_white_female_2013: all characters numeric; replaced as int
num_10_to_14_white_female_2013: all characters numeric; replaced as
int
num_15_to_17_white_female_2013: all characters numeric; replaced as
int
num_18_to_19_white_female_2013: all characters numeric; replaced as
int
num_20_to_24_white_female_2013: all characters numeric; replaced as
int
num_25_to_29_white_female_2013: all characters numeric; replaced as
int
num_30_to_34_white_female_2013: all characters numeric; replaced as
int
num_35_to_44_white_female_2013: all characters numeric; replaced as
int
num_45_to_54_white_female_2013: all characters numeric; replaced as
int
num_55_to_64_white_female_2013: all characters numeric; replaced as
int
num_65_to_74_white_female_2013: all characters numeric; replaced as
int
num_75_to_84_white_female_2013: all characters numeric; replaced as
int
num_over_85_white_female_2013: all characters numeric; replaced as int
  (0 bytes saved)
```

```
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2013.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2013.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_black_male_2013: all characters numeric; replaced as int
num_under_5_black_male_2013: all characters numeric; replaced as int
num_5_to_9_black_male_2013: all characters numeric; replaced as int
num_10_to_14_black_male_2013: all characters numeric; replaced as int
num_15_to_17_black_male_2013: all characters numeric; replaced as int
num_18_to_19_black_male_2013: all characters numeric; replaced as int
num_20_to_24_black_male_2013: all characters numeric; replaced as int
num_25_to_29_black_male_2013: all characters numeric; replaced as int
num_30_to_34_black_male_2013: all characters numeric; replaced as int
num_35_to_44_black_male_2013: all characters numeric; replaced as int
num_45_to_54_black_male_2013: all characters numeric; replaced as int
num_55_to_64_black_male_2013: all characters numeric; replaced as int
num_65_to_74_black_male_2013: all characters numeric; replaced as int
num_75_to_84_black_male_2013: all characters numeric; replaced as int
num_over_85_black_male_2013: all characters numeric; replaced as int
tot_black_female_2013: all characters numeric; replaced as int
num_under_5_black_female_2013: all characters numeric; replaced as int
num_5_to_9_black_female_2013: all characters numeric; replaced as int
num_10_to_14_black_female_2013: all characters numeric; replaced as
int
num_15_to_17_black_female_2013: all characters numeric; replaced as
int
num_18_to_19_black_female_2013: all characters numeric; replaced as
int
num_20_to_24_black_female_2013: all characters numeric; replaced as
int
num_25_to_29_black_female_2013: all characters numeric; replaced as
int
num_30_to_34_black_female_2013: all characters numeric; replaced as
int
num_35_to_44_black_female_2013: all characters numeric; replaced as
int
num_45_to_54_black_female_2013: all characters numeric; replaced as
int
num_55_to_64_black_female_2013: all characters numeric; replaced as
int
num_65_to_74_black_female_2013: all characters numeric; replaced as
int
num_75_to_84_black_female_2013: all characters numeric; replaced as
int
num_over_85_black_female_2013: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
```

```
processed/intermediate/census_age_sex_black_2013.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2013.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2013: all characters numeric; replaced as int
num_under_5_asian_male_2013: all characters numeric; replaced as int
num_5_to_9_asian_male_2013: all characters numeric; replaced as int
num_10_to_14_asian_male_2013: all characters numeric; replaced as int
num_15_to_17_asian_male_2013: all characters numeric; replaced as int
num_18_to_19_asian_male_2013: all characters numeric; replaced as int
num_20_to_24_asian_male_2013: all characters numeric; replaced as int
num_25_to_29_asian_male_2013: all characters numeric; replaced as int
num_30_to_34_asian_male_2013: all characters numeric; replaced as int
num_35_to_44_asian_male_2013: all characters numeric; replaced as int
num_45_to_54_asian_male_2013: all characters numeric; replaced as int
num_55_to_64_asian_male_2013: all characters numeric; replaced as int
num_65_to_74_asian_male_2013: all characters numeric; replaced as int
num_75_to_84_asian_male_2013: all characters numeric; replaced as int
num_over_85_asian_male_2013: all characters numeric; replaced as int
tot_asian_female_2013: all characters numeric; replaced as int
num_under_5_asian_female_2013: all characters numeric; replaced as int
num_5_to_9_asian_female_2013: all characters numeric; replaced as int
num_10_to_14_asian_female_2013: all characters numeric; replaced as
int
num_15_to_17_asian_female_2013: all characters numeric; replaced as
int
num_18_to_19_asian_female_2013: all characters numeric; replaced as
int
num_20_to_24_asian_female_2013: all characters numeric; replaced as
int
num_25_to_29_asian_female_2013: all characters numeric; replaced as
int
num_30_to_34_asian_female_2013: all characters numeric; replaced as
int
num_35_to_44_asian_female_2013: all characters numeric; replaced as
int
num_45_to_54_asian_female_2013: all characters numeric; replaced as
int
num_55_to_64_asian_female_2013: all characters numeric; replaced as
int
num_65_to_74_asian_female_2013: all characters numeric; replaced as
int
num_75_to_84_asian_female_2013: all characters numeric; replaced as
int
num_over_85_asian_female_2013: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2013.dta not found)
```

```
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2013.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_amind_male_2013: all characters numeric; replaced as int
num_under_5_amind_male_2013: all characters numeric; replaced as byte
num_5_to_9_amind_male_2013: all characters numeric; replaced as byte
num_10_to_14_amind_male_2013: all characters numeric; replaced as byte
num_15_to_17_amind_male_2013: all characters numeric; replaced as byte
num_18_to_19_amind_male_2013: all characters numeric; replaced as byte
num_20_to_24_amind_male_2013: all characters numeric; replaced as byte
num_25_to_29_amind_male_2013: all characters numeric; replaced as byte
num_30_to_34_amind_male_2013: all characters numeric; replaced as byte
num_35_to_44_amind_male_2013: all characters numeric; replaced as byte
num_45_to_54_amind_male_2013: all characters numeric; replaced as byte
num_55_to_64_amind_male_2013: all characters numeric; replaced as byte
num_65_to_74_amind_male_2013: all characters numeric; replaced as byte
num_75_to_84_amind_male_2013: all characters numeric; replaced as byte
num_over_85_amind_male_2013: all characters numeric; replaced as byte
tot_amind_female_2013: all characters numeric; replaced as int
num_under_5_amind_female_2013: all characters numeric; replaced as
byte
num_5_to_9_amind_female_2013: all characters numeric; replaced as byte
num_10_to_14_amind_female_2013: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2013: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2013: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2013: all characters numeric; replaced as
byte
num_25_to_29_amind_female_2013: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2013: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2013: all characters numeric; replaced as
byte
num_45_to_54_amind_female_2013: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2013: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2013: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2013: all characters numeric; replaced as
byte
num_over_85_amind_female_2013: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
```

```
processed/intermediate/census_age_sex_amind_2013.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2013.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2013: all characters numeric; replaced as byte
num_under_5_pacif_male_2013: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2013: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2013: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2013: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2013: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2013: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2013: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2013: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2013: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2013: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2013: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2013: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2013: all characters numeric; replaced as byte
num_over_85_pacif_male_2013: all characters numeric; replaced as byte
tot_pacif_female_2013: all characters numeric; replaced as int
num_under_5_pacif_female_2013: all characters numeric; replaced as int
num_5_to_9_pacif_female_2013: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2013: all characters numeric; replaced as
byte
num_15_to_17_pacif_female_2013: all characters numeric; replaced as
byte
num_18_to_19_pacif_female_2013: all characters numeric; replaced as
byte
num_20_to_24_pacif_female_2013: all characters numeric; replaced as
byte
num_25_to_29_pacif_female_2013: all characters numeric; replaced as
byte
num_30_to_34_pacif_female_2013: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2013: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2013: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2013: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2013: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2013: all characters numeric; replaced as
byte
num_over_85_pacif_female_2013: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
```

```
processed/intermediate/census_age_sex_pacif_2013.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2013.dta saved

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
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(487 real changes made)
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(1 real change made)
(0 real changes made)
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(4 missing values generated)
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(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
(4 missing values generated)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2013.dta not found)
```

```
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2013.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2014: all characters numeric; replaced as int
num_under_5_white_male_2014: all characters numeric; replaced as int
num_5_to_9_white_male_2014: all characters numeric; replaced as int
num_10_to_14_white_male_2014: all characters numeric; replaced as int
num_15_to_17_white_male_2014: all characters numeric; replaced as int
num_18_to_19_white_male_2014: all characters numeric; replaced as int
num_20_to_24_white_male_2014: all characters numeric; replaced as int
num_25_to_29_white_male_2014: all characters numeric; replaced as int
num_30_to_34_white_male_2014: all characters numeric; replaced as int
num_35_to_44_white_male_2014: all characters numeric; replaced as int
num_45_to_54_white_male_2014: all characters numeric; replaced as int
num_55_to_64_white_male_2014: all characters numeric; replaced as int
num_65_to_74_white_male_2014: all characters numeric; replaced as int
num_75_to_84_white_male_2014: all characters numeric; replaced as int
num_over_85_white_male_2014: all characters numeric; replaced as int
tot_white_female_2014: all characters numeric; replaced as int
num_under_5_white_female_2014: all characters numeric; replaced as int
num_5_to_9_white_female_2014: all characters numeric; replaced as int
num_10_to_14_white_female_2014: all characters numeric; replaced as
int
num_15_to_17_white_female_2014: all characters numeric; replaced as
int
num_18_to_19_white_female_2014: all characters numeric; replaced as
int
num_20_to_24_white_female_2014: all characters numeric; replaced as
int
num_25_to_29_white_female_2014: all characters numeric; replaced as
int
num_30_to_34_white_female_2014: all characters numeric; replaced as
int
num_35_to_44_white_female_2014: all characters numeric; replaced as
int
num_45_to_54_white_female_2014: all characters numeric; replaced as
int
num_55_to_64_white_female_2014: all characters numeric; replaced as
int
num_65_to_74_white_female_2014: all characters numeric; replaced as
int
num_75_to_84_white_female_2014: all characters numeric; replaced as
int
num_over_85_white_female_2014: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
```

```
processed/intermediate/census_age_sex_white_2014.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_black_male_2014: all characters numeric; replaced as int
num_under_5_black_male_2014: all characters numeric; replaced as int
num_5_to_9_black_male_2014: all characters numeric; replaced as int
num_10_to_14_black_male_2014: all characters numeric; replaced as int
num_15_to_17_black_male_2014: all characters numeric; replaced as int
num_18_to_19_black_male_2014: all characters numeric; replaced as int
num_20_to_24_black_male_2014: all characters numeric; replaced as int
num_25_to_29_black_male_2014: all characters numeric; replaced as int
num_30_to_34_black_male_2014: all characters numeric; replaced as int
num_35_to_44_black_male_2014: all characters numeric; replaced as int
num_45_to_54_black_male_2014: all characters numeric; replaced as int
num_55_to_64_black_male_2014: all characters numeric; replaced as int
num_65_to_74_black_male_2014: all characters numeric; replaced as int
num_75_to_84_black_male_2014: all characters numeric; replaced as int
num_over_85_black_male_2014: all characters numeric; replaced as int
tot_black_female_2014: all characters numeric; replaced as int
num_under_5_black_female_2014: all characters numeric; replaced as int
num_5_to_9_black_female_2014: all characters numeric; replaced as int
num_10_to_14_black_female_2014: all characters numeric; replaced as
int
num_15_to_17_black_female_2014: all characters numeric; replaced as
int
num_18_to_19_black_female_2014: all characters numeric; replaced as
int
num_20_to_24_black_female_2014: all characters numeric; replaced as
int
num_25_to_29_black_female_2014: all characters numeric; replaced as
int
num_30_to_34_black_female_2014: all characters numeric; replaced as
int
num_35_to_44_black_female_2014: all characters numeric; replaced as
int
num_45_to_54_black_female_2014: all characters numeric; replaced as
int
num_55_to_64_black_female_2014: all characters numeric; replaced as
int
num_65_to_74_black_female_2014: all characters numeric; replaced as
int
num_75_to_84_black_female_2014: all characters numeric; replaced as
int
num_over_85_black_female_2014: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2014.dta saved
```

```
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2014: all characters numeric; replaced as int
num_under_5_asian_male_2014: all characters numeric; replaced as int
num_5_to_9_asian_male_2014: all characters numeric; replaced as int
num_10_to_14_asian_male_2014: all characters numeric; replaced as int
num_15_to_17_asian_male_2014: all characters numeric; replaced as int
num_18_to_19_asian_male_2014: all characters numeric; replaced as int
num_20_to_24_asian_male_2014: all characters numeric; replaced as int
num_25_to_29_asian_male_2014: all characters numeric; replaced as int
num_30_to_34_asian_male_2014: all characters numeric; replaced as int
num_35_to_44_asian_male_2014: all characters numeric; replaced as int
num_45_to_54_asian_male_2014: all characters numeric; replaced as int
num_55_to_64_asian_male_2014: all characters numeric; replaced as int
num_65_to_74_asian_male_2014: all characters numeric; replaced as int
num_75_to_84_asian_male_2014: all characters numeric; replaced as int
num_over_85_asian_male_2014: all characters numeric; replaced as byte
tot_asian_female_2014: all characters numeric; replaced as int
num_under_5_asian_female_2014: all characters numeric; replaced as int
num_5_to_9_asian_female_2014: all characters numeric; replaced as int
num_10_to_14_asian_female_2014: all characters numeric; replaced as
int
num_15_to_17_asian_female_2014: all characters numeric; replaced as
int
num_18_to_19_asian_female_2014: all characters numeric; replaced as
int
num_20_to_24_asian_female_2014: all characters numeric; replaced as
int
num_25_to_29_asian_female_2014: all characters numeric; replaced as
int
num_30_to_34_asian_female_2014: all characters numeric; replaced as
int
num_35_to_44_asian_female_2014: all characters numeric; replaced as
int
num_45_to_54_asian_female_2014: all characters numeric; replaced as
int
num_55_to_64_asian_female_2014: all characters numeric; replaced as
int
num_65_to_74_asian_female_2014: all characters numeric; replaced as
int
num_75_to_84_asian_female_2014: all characters numeric; replaced as
int
num_over_85_asian_female_2014: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2014.dta saved
(2 observations deleted)
```

```
variables created as string:
zipcode1  zipcode2
tot_amind_male_2014: all characters numeric; replaced as int
num_under_5_amind_male_2014: all characters numeric; replaced as byte
num_5_to_9_amind_male_2014: all characters numeric; replaced as byte
num_10_to_14_amind_male_2014: all characters numeric; replaced as byte
num_15_to_17_amind_male_2014: all characters numeric; replaced as byte
num_18_to_19_amind_male_2014: all characters numeric; replaced as byte
num_20_to_24_amind_male_2014: all characters numeric; replaced as byte
num_25_to_29_amind_male_2014: all characters numeric; replaced as byte
num_30_to_34_amind_male_2014: all characters numeric; replaced as byte
num_35_to_44_amind_male_2014: all characters numeric; replaced as byte
num_45_to_54_amind_male_2014: all characters numeric; replaced as byte
num_55_to_64_amind_male_2014: all characters numeric; replaced as byte
num_65_to_74_amind_male_2014: all characters numeric; replaced as byte
num_75_to_84_amind_male_2014: all characters numeric; replaced as byte
num_over_85_amind_male_2014: all characters numeric; replaced as byte
tot_amind_female_2014: all characters numeric; replaced as int
num_under_5_amind_female_2014: all characters numeric; replaced as
byte
num_5_to_9_amind_female_2014: all characters numeric; replaced as byte
num_10_to_14_amind_female_2014: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2014: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2014: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2014: all characters numeric; replaced as
byte
num_25_to_29_amind_female_2014: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2014: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2014: all characters numeric; replaced as
byte
num_45_to_54_amind_female_2014: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2014: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2014: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2014: all characters numeric; replaced as
byte
num_over_85_amind_female_2014: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2014.dta saved
```

```
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2014: all characters numeric; replaced as byte
num_under_5_pacif_male_2014: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2014: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2014: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2014: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2014: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2014: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2014: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2014: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2014: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2014: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2014: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2014: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2014: all characters numeric; replaced as byte
num_over_85_pacif_male_2014: all characters numeric; replaced as byte
tot_pacif_female_2014: all characters numeric; replaced as byte
num_under_5_pacif_female_2014: all characters numeric; replaced as
byte
num_5_to_9_pacif_female_2014: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2014: all characters numeric; replaced as
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num_15_to_17_pacif_female_2014: all characters numeric; replaced as
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num_18_to_19_pacif_female_2014: all characters numeric; replaced as
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num_20_to_24_pacif_female_2014: all characters numeric; replaced as
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num_25_to_29_pacif_female_2014: all characters numeric; replaced as
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num_30_to_34_pacif_female_2014: all characters numeric; replaced as
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num_35_to_44_pacif_female_2014: all characters numeric; replaced as
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num_45_to_54_pacif_female_2014: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2014: all characters numeric; replaced as
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num_65_to_74_pacif_female_2014: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2014: all characters numeric; replaced as
byte
num_over_85_pacif_female_2014: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
```

```
processed/intermediate/census_age_sex_pacif_2014.dta saved

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
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(9 real changes made)
(3 real changes made)
(7 real changes made)
(4 real changes made)
(5 real changes made)
(3 real changes made)
(1 real change made)
(1 real change made)
(2 missing values generated)
(2 missing values generated)
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(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2014.dta saved
```

```
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2015: all characters numeric; replaced as int
num_under_5_white_male_2015: all characters numeric; replaced as int
num_5_to_9_white_male_2015: all characters numeric; replaced as int
num_10_to_14_white_male_2015: all characters numeric; replaced as int
num_15_to_17_white_male_2015: all characters numeric; replaced as int
num_18_to_19_white_male_2015: all characters numeric; replaced as int
num_20_to_24_white_male_2015: all characters numeric; replaced as int
num_25_to_29_white_male_2015: all characters numeric; replaced as int
num_30_to_34_white_male_2015: all characters numeric; replaced as int
num_35_to_44_white_male_2015: all characters numeric; replaced as int
num_45_to_54_white_male_2015: all characters numeric; replaced as int
num_55_to_64_white_male_2015: all characters numeric; replaced as int
num_65_to_74_white_male_2015: all characters numeric; replaced as int
num_75_to_84_white_male_2015: all characters numeric; replaced as int
num_over_85_white_male_2015: all characters numeric; replaced as int
tot_white_female_2015: all characters numeric; replaced as int
num_under_5_white_female_2015: all characters numeric; replaced as int
num_5_to_9_white_female_2015: all characters numeric; replaced as int
num_10_to_14_white_female_2015: all characters numeric; replaced as
int
num_15_to_17_white_female_2015: all characters numeric; replaced as
int
num_18_to_19_white_female_2015: all characters numeric; replaced as
int
num_20_to_24_white_female_2015: all characters numeric; replaced as
int
num_25_to_29_white_female_2015: all characters numeric; replaced as
int
num_30_to_34_white_female_2015: all characters numeric; replaced as
int
num_35_to_44_white_female_2015: all characters numeric; replaced as
int
num_45_to_54_white_female_2015: all characters numeric; replaced as
int
num_55_to_64_white_female_2015: all characters numeric; replaced as
int
num_65_to_74_white_female_2015: all characters numeric; replaced as
int
num_75_to_84_white_female_2015: all characters numeric; replaced as
int
num_over_85_white_female_2015: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2015.dta saved
(2 observations deleted)
```

```
variables created as string:
zipcode1  zipcode2
tot_black_male_2015: all characters numeric; replaced as int
num_under_5_black_male_2015: all characters numeric; replaced as int
num_5_to_9_black_male_2015: all characters numeric; replaced as int
num_10_to_14_black_male_2015: all characters numeric; replaced as int
num_15_to_17_black_male_2015: all characters numeric; replaced as int
num_18_to_19_black_male_2015: all characters numeric; replaced as int
num_20_to_24_black_male_2015: all characters numeric; replaced as int
num_25_to_29_black_male_2015: all characters numeric; replaced as int
num_30_to_34_black_male_2015: all characters numeric; replaced as int
num_35_to_44_black_male_2015: all characters numeric; replaced as int
num_45_to_54_black_male_2015: all characters numeric; replaced as int
num_55_to_64_black_male_2015: all characters numeric; replaced as int
num_65_to_74_black_male_2015: all characters numeric; replaced as int
num_75_to_84_black_male_2015: all characters numeric; replaced as int
num_over_85_black_male_2015: all characters numeric; replaced as int
tot_black_female_2015: all characters numeric; replaced as int
num_under_5_black_female_2015: all characters numeric; replaced as int
num_5_to_9_black_female_2015: all characters numeric; replaced as int
num_10_to_14_black_female_2015: all characters numeric; replaced as
int
num_15_to_17_black_female_2015: all characters numeric; replaced as
int
num_18_to_19_black_female_2015: all characters numeric; replaced as
int
num_20_to_24_black_female_2015: all characters numeric; replaced as
int
num_25_to_29_black_female_2015: all characters numeric; replaced as
int
num_30_to_34_black_female_2015: all characters numeric; replaced as
int
num_35_to_44_black_female_2015: all characters numeric; replaced as
int
num_45_to_54_black_female_2015: all characters numeric; replaced as
int
num_55_to_64_black_female_2015: all characters numeric; replaced as
int
num_65_to_74_black_female_2015: all characters numeric; replaced as
int
num_75_to_84_black_female_2015: all characters numeric; replaced as
int
num_over_85_black_female_2015: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2015.dta saved
(2 observations deleted)
variables created as string:
```

```
zipcode1  zipcode2
tot_asian_male_2015: all characters numeric; replaced as int
num_under_5_asian_male_2015: all characters numeric; replaced as int
num_5_to_9_asian_male_2015: all characters numeric; replaced as int
num_10_to_14_asian_male_2015: all characters numeric; replaced as int
num_15_to_17_asian_male_2015: all characters numeric; replaced as int
num_18_to_19_asian_male_2015: all characters numeric; replaced as int
num_20_to_24_asian_male_2015: all characters numeric; replaced as int
num_25_to_29_asian_male_2015: all characters numeric; replaced as int
num_30_to_34_asian_male_2015: all characters numeric; replaced as int
num_35_to_44_asian_male_2015: all characters numeric; replaced as int
num_45_to_54_asian_male_2015: all characters numeric; replaced as int
num_55_to_64_asian_male_2015: all characters numeric; replaced as int
num_65_to_74_asian_male_2015: all characters numeric; replaced as int
num_75_to_84_asian_male_2015: all characters numeric; replaced as int
num_over_85_asian_male_2015: all characters numeric; replaced as int
tot_asian_female_2015: all characters numeric; replaced as int
num_under_5_asian_female_2015: all characters numeric; replaced as int
num_5_to_9_asian_female_2015: all characters numeric; replaced as int
num_10_to_14_asian_female_2015: all characters numeric; replaced as
int
num_15_to_17_asian_female_2015: all characters numeric; replaced as
int
num_18_to_19_asian_female_2015: all characters numeric; replaced as
int
num_20_to_24_asian_female_2015: all characters numeric; replaced as
int
num_25_to_29_asian_female_2015: all characters numeric; replaced as
int
num_30_to_34_asian_female_2015: all characters numeric; replaced as
int
num_35_to_44_asian_female_2015: all characters numeric; replaced as
int
num_45_to_54_asian_female_2015: all characters numeric; replaced as
int
num_55_to_64_asian_female_2015: all characters numeric; replaced as
int
num_65_to_74_asian_female_2015: all characters numeric; replaced as
int
num_75_to_84_asian_female_2015: all characters numeric; replaced as
int
num_over_85_asian_female_2015: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2015.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
```

```
tot_amind_male_2015: all characters numeric; replaced as int
num_under_5_amind_male_2015: all characters numeric; replaced as byte
num_5_to_9_amind_male_2015: all characters numeric; replaced as byte
num_10_to_14_amind_male_2015: all characters numeric; replaced as byte
num_15_to_17_amind_male_2015: all characters numeric; replaced as byte
num_18_to_19_amind_male_2015: all characters numeric; replaced as byte
num_20_to_24_amind_male_2015: all characters numeric; replaced as byte
num_25_to_29_amind_male_2015: all characters numeric; replaced as byte
num_30_to_34_amind_male_2015: all characters numeric; replaced as byte
num_35_to_44_amind_male_2015: all characters numeric; replaced as byte
num_45_to_54_amind_male_2015: all characters numeric; replaced as byte
num_55_to_64_amind_male_2015: all characters numeric; replaced as byte
num_65_to_74_amind_male_2015: all characters numeric; replaced as byte
num_75_to_84_amind_male_2015: all characters numeric; replaced as byte
num_over_85_amind_male_2015: all characters numeric; replaced as byte
tot_amind_female_2015: all characters numeric; replaced as int
num_under_5_amind_female_2015: all characters numeric; replaced as
byte
num_5_to_9_amind_female_2015: all characters numeric; replaced as byte
num_10_to_14_amind_female_2015: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2015: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2015: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2015: all characters numeric; replaced as
int
num_25_to_29_amind_female_2015: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2015: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2015: all characters numeric; replaced as
byte
num_45_to_54_amind_female_2015: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2015: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2015: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2015: all characters numeric; replaced as
byte
num_over_85_amind_female_2015: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2015.dta saved
(2 observations deleted)
variables created as string:
```

```
zipcode1  zipcode2
tot_pacif_male_2015: all characters numeric; replaced as byte
num_under_5_pacif_male_2015: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2015: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2015: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2015: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2015: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2015: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2015: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2015: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2015: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2015: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2015: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2015: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2015: all characters numeric; replaced as byte
num_over_85_pacif_male_2015: all characters numeric; replaced as byte
tot_pacif_female_2015: all characters numeric; replaced as int
num_under_5_pacif_female_2015: all characters numeric; replaced as
byte
num_5_to_9_pacif_female_2015: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2015: all characters numeric; replaced as
byte
num_15_to_17_pacif_female_2015: all characters numeric; replaced as
byte
num_18_to_19_pacif_female_2015: all characters numeric; replaced as
byte
num_20_to_24_pacif_female_2015: all characters numeric; replaced as
int
num_25_to_29_pacif_female_2015: all characters numeric; replaced as
byte
num_30_to_34_pacif_female_2015: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2015: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2015: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2015: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2015: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2015: all characters numeric; replaced as
byte
num_over_85_pacif_female_2015: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2015.dta saved
```

```
    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
(534 real changes made)
(534 real changes made)
(481 real changes made)
(481 real changes made)
(485 real changes made)
(484 real changes made)
(473 real changes made)
(496 real changes made)
(494 real changes made)
(497 real changes made)
(517 real changes made)
(514 real changes made)
(520 real changes made)
(510 real changes made)
(507 real changes made)
(454 real changes made)
(533 real changes made)
(533 real changes made)
(482 real changes made)
(488 real changes made)
(484 real changes made)
(484 real changes made)
(469 real changes made)
(499 real changes made)
(491 real changes made)
(498 real changes made)
(513 real changes made)
```

(519 real changes made)
(512 real changes made)
(514 real changes made)
(507 real changes made)
(480 real changes made)
(435 real changes made)
(435 real changes made)
(169 real changes made)
(196 real changes made)
(195 real changes made)
(200 real changes made)
(186 real changes made)
(245 real changes made)
(194 real changes made)
(200 real changes made)
(277 real changes made)
(296 real changes made)
(257 real changes made)
(192 real changes made)
(112 real changes made)
(54 real changes made)
(423 real changes made)
(423 real changes made)
(173 real changes made)
(182 real changes made)
(206 real changes made)
(168 real changes made)
(168 real changes made)
(236 real changes made)
(195 real changes made)
(188 real changes made)
(237 real changes made)
(247 real changes made)
(235 real changes made)
(186 real changes made)
(147 real changes made)
(85 real changes made)
(399 real changes made)
(399 real changes made)
(199 real changes made)
(199 real changes made)
(214 real changes made)
(182 real changes made)
(155 real changes made)
(208 real changes made)
(191 real changes made)
(221 real changes made)
(282 real changes made)
(290 real changes made)
(259 real changes made)

(206 real changes made)
(127 real changes made)
(58 real changes made)
(442 real changes made)
(442 real changes made)
(201 real changes made)
(220 real changes made)
(249 real changes made)
(201 real changes made)
(154 real changes made)
(198 real changes made)
(222 real changes made)
(257 real changes made)
(324 real changes made)
(297 real changes made)
(272 real changes made)
(226 real changes made)
(149 real changes made)
(76 real changes made)
(191 real changes made)
(191 real changes made)
(24 real changes made)
(30 real changes made)
(25 real changes made)
(19 real changes made)
(18 real changes made)
(38 real changes made)
(28 real changes made)
(29 real changes made)
(50 real changes made)
(76 real changes made)
(58 real changes made)
(31 real changes made)
(13 real changes made)
(4 real changes made)
(209 real changes made)
(209 real changes made)
(21 real changes made)
(32 real changes made)
(35 real changes made)
(24 real changes made)
(23 real changes made)
(30 real changes made)
(31 real changes made)
(36 real changes made)
(47 real changes made)
(73 real changes made)
(58 real changes made)
(41 real changes made)
(16 real changes made)

```
(4 real changes made)
(40 real changes made)
(40 real changes made)
(2 real changes made)
(5 real changes made)
(2 real changes made)
(4 real changes made)
(3 real changes made)
(3 real changes made)
(1 real change made)
(3 real changes made)
(8 real changes made)
(10 real changes made)
(2 real changes made)
(7 real changes made)
(1 real change made)
(1 real change made)
(45 real changes made)
(45 real changes made)
(1 real change made)
(4 real changes made)
(3 real changes made)
(3 real changes made)
(4 real changes made)
(7 real changes made)
(9 real changes made)
(4 real changes made)
(6 real changes made)
(3 real changes made)
(4 real changes made)
(5 real changes made)
(2 real changes made)
(1 real change made)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2015.dta saved
(2 observations deleted)
variables created as string:
```

```
zipcode1  zipcode2
tot_white_male_2016: all characters numeric; replaced as int
num_under_5_white_male_2016: all characters numeric; replaced as int
num_5_to_9_white_male_2016: all characters numeric; replaced as int
num_10_to_14_white_male_2016: all characters numeric; replaced as int
num_15_to_17_white_male_2016: all characters numeric; replaced as int
num_18_to_19_white_male_2016: all characters numeric; replaced as int
num_20_to_24_white_male_2016: all characters numeric; replaced as int
num_25_to_29_white_male_2016: all characters numeric; replaced as int
num_30_to_34_white_male_2016: all characters numeric; replaced as int
num_35_to_44_white_male_2016: all characters numeric; replaced as int
num_45_to_54_white_male_2016: all characters numeric; replaced as int
num_55_to_64_white_male_2016: all characters numeric; replaced as int
num_65_to_74_white_male_2016: all characters numeric; replaced as int
num_75_to_84_white_male_2016: all characters numeric; replaced as int
num_over_85_white_male_2016: all characters numeric; replaced as int
tot_white_female_2016: all characters numeric; replaced as int
num_under_5_white_female_2016: all characters numeric; replaced as int
num_5_to_9_white_female_2016: all characters numeric; replaced as int
num_10_to_14_white_female_2016: all characters numeric; replaced as
int
num_15_to_17_white_female_2016: all characters numeric; replaced as
int
num_18_to_19_white_female_2016: all characters numeric; replaced as
int
num_20_to_24_white_female_2016: all characters numeric; replaced as
int
num_25_to_29_white_female_2016: all characters numeric; replaced as
int
num_30_to_34_white_female_2016: all characters numeric; replaced as
int
num_35_to_44_white_female_2016: all characters numeric; replaced as
int
num_45_to_54_white_female_2016: all characters numeric; replaced as
int
num_55_to_64_white_female_2016: all characters numeric; replaced as
int
num_65_to_74_white_female_2016: all characters numeric; replaced as
int
num_75_to_84_white_female_2016: all characters numeric; replaced as
int
num_over_85_white_female_2016: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2016.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
```

```
tot_black_male_2016: all characters numeric; replaced as int
num_under_5_black_male_2016: all characters numeric; replaced as int
num_5_to_9_black_male_2016: all characters numeric; replaced as int
num_10_to_14_black_male_2016: all characters numeric; replaced as int
num_15_to_17_black_male_2016: all characters numeric; replaced as int
num_18_to_19_black_male_2016: all characters numeric; replaced as int
num_20_to_24_black_male_2016: all characters numeric; replaced as int
num_25_to_29_black_male_2016: all characters numeric; replaced as int
num_30_to_34_black_male_2016: all characters numeric; replaced as int
num_35_to_44_black_male_2016: all characters numeric; replaced as int
num_45_to_54_black_male_2016: all characters numeric; replaced as int
num_55_to_64_black_male_2016: all characters numeric; replaced as int
num_65_to_74_black_male_2016: all characters numeric; replaced as int
num_75_to_84_black_male_2016: all characters numeric; replaced as int
num_over_85_black_male_2016: all characters numeric; replaced as int
tot_black_female_2016: all characters numeric; replaced as int
num_under_5_black_female_2016: all characters numeric; replaced as int
num_5_to_9_black_female_2016: all characters numeric; replaced as int
num_10_to_14_black_female_2016: all characters numeric; replaced as
int
num_15_to_17_black_female_2016: all characters numeric; replaced as
int
num_18_to_19_black_female_2016: all characters numeric; replaced as
int
num_20_to_24_black_female_2016: all characters numeric; replaced as
int
num_25_to_29_black_female_2016: all characters numeric; replaced as
int
num_30_to_34_black_female_2016: all characters numeric; replaced as
int
num_35_to_44_black_female_2016: all characters numeric; replaced as
int
num_45_to_54_black_female_2016: all characters numeric; replaced as
int
num_55_to_64_black_female_2016: all characters numeric; replaced as
int
num_65_to_74_black_female_2016: all characters numeric; replaced as
int
num_75_to_84_black_female_2016: all characters numeric; replaced as
int
num_over_85_black_female_2016: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2016.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2016: all characters numeric; replaced as int
```

```
num_under_5_asian_male_2016: all characters numeric; replaced as int
num_5_to_9_asian_male_2016: all characters numeric; replaced as int
num_10_to_14_asian_male_2016: all characters numeric; replaced as int
num_15_to_17_asian_male_2016: all characters numeric; replaced as int
num_18_to_19_asian_male_2016: all characters numeric; replaced as int
num_20_to_24_asian_male_2016: all characters numeric; replaced as int
num_25_to_29_asian_male_2016: all characters numeric; replaced as int
num_30_to_34_asian_male_2016: all characters numeric; replaced as int
num_35_to_44_asian_male_2016: all characters numeric; replaced as int
num_45_to_54_asian_male_2016: all characters numeric; replaced as int
num_55_to_64_asian_male_2016: all characters numeric; replaced as int
num_65_to_74_asian_male_2016: all characters numeric; replaced as int
num_75_to_84_asian_male_2016: all characters numeric; replaced as int
num_over_85_asian_male_2016: all characters numeric; replaced as int
tot_asian_female_2016: all characters numeric; replaced as int
num_under_5_asian_female_2016: all characters numeric; replaced as int
num_5_to_9_asian_female_2016: all characters numeric; replaced as int
num_10_to_14_asian_female_2016: all characters numeric; replaced as
int
num_15_to_17_asian_female_2016: all characters numeric; replaced as
int
num_18_to_19_asian_female_2016: all characters numeric; replaced as
int
num_20_to_24_asian_female_2016: all characters numeric; replaced as
int
num_25_to_29_asian_female_2016: all characters numeric; replaced as
int
num_30_to_34_asian_female_2016: all characters numeric; replaced as
int
num_35_to_44_asian_female_2016: all characters numeric; replaced as
int
num_45_to_54_asian_female_2016: all characters numeric; replaced as
int
num_55_to_64_asian_female_2016: all characters numeric; replaced as
int
num_65_to_74_asian_female_2016: all characters numeric; replaced as
int
num_75_to_84_asian_female_2016: all characters numeric; replaced as
int
num_over_85_asian_female_2016: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2016.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_amind_male_2016: all characters numeric; replaced as int
num_under_5_amind_male_2016: all characters numeric; replaced as byte
```

```
num_5_to_9_amind_male_2016: all characters numeric; replaced as byte
num_10_to_14_amind_male_2016: all characters numeric; replaced as byte
num_15_to_17_amind_male_2016: all characters numeric; replaced as byte
num_18_to_19_amind_male_2016: all characters numeric; replaced as byte
num_20_to_24_amind_male_2016: all characters numeric; replaced as byte
num_25_to_29_amind_male_2016: all characters numeric; replaced as byte
num_30_to_34_amind_male_2016: all characters numeric; replaced as byte
num_35_to_44_amind_male_2016: all characters numeric; replaced as byte
num_45_to_54_amind_male_2016: all characters numeric; replaced as byte
num_55_to_64_amind_male_2016: all characters numeric; replaced as byte
num_65_to_74_amind_male_2016: all characters numeric; replaced as byte
num_75_to_84_amind_male_2016: all characters numeric; replaced as byte
num_over_85_amind_male_2016: all characters numeric; replaced as byte
tot_amind_female_2016: all characters numeric; replaced as int
num_under_5_amind_female_2016: all characters numeric; replaced as
byte
num_5_to_9_amind_female_2016: all characters numeric; replaced as byte
num_10_to_14_amind_female_2016: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2016: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2016: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2016: all characters numeric; replaced as
int
num_25_to_29_amind_female_2016: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2016: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2016: all characters numeric; replaced as
byte
num_45_to_54_amind_female_2016: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2016: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2016: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2016: all characters numeric; replaced as
byte
num_over_85_amind_female_2016: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2016.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2016: all characters numeric; replaced as byte
```

```
num_under_5_pacif_male_2016: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2016: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2016: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2016: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2016: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2016: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2016: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2016: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2016: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2016: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2016: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2016: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2016: all characters numeric; replaced as byte
num_over_85_pacif_male_2016: all characters numeric; replaced as byte
tot_pacif_female_2016: all characters numeric; replaced as int
num_under_5_pacif_female_2016: all characters numeric; replaced as
byte
num_5_to_9_pacif_female_2016: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2016: all characters numeric; replaced as
byte
num_15_to_17_pacif_female_2016: all characters numeric; replaced as
byte
num_18_to_19_pacif_female_2016: all characters numeric; replaced as
byte
num_20_to_24_pacif_female_2016: all characters numeric; replaced as
int
num_25_to_29_pacif_female_2016: all characters numeric; replaced as
byte
num_30_to_34_pacif_female_2016: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2016: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2016: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2016: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2016: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2016: all characters numeric; replaced as
byte
num_over_85_pacif_female_2016: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2016.dta saved

    Result                      Number of obs
    -----------------------------------------
```

```
    Not matched                                 0
    Matched                                   538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                                 0
    Matched                                   538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                                 0
    Matched                                   538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                                 0
    Matched                                   538  (_merge==3)
    -----------------------------------------
(534 real changes made)
(534 real changes made)
(481 real changes made)
(481 real changes made)
(482 real changes made)
(484 real changes made)
(475 real changes made)
(492 real changes made)
(492 real changes made)
(497 real changes made)
(518 real changes made)
(514 real changes made)
(521 real changes made)
(515 real changes made)
(508 real changes made)
(461 real changes made)
(534 real changes made)
(534 real changes made)
(479 real changes made)
(489 real changes made)
(485 real changes made)
(481 real changes made)
(463 real changes made)
(498 real changes made)
(491 real changes made)
(499 real changes made)
(513 real changes made)
(519 real changes made)
(511 real changes made)
```

(515 real changes made)
(504 real changes made)
(481 real changes made)
(436 real changes made)
(436 real changes made)
(175 real changes made)
(193 real changes made)
(202 real changes made)
(195 real changes made)
(181 real changes made)
(245 real changes made)
(199 real changes made)
(206 real changes made)
(288 real changes made)
(295 real changes made)
(262 real changes made)
(205 real changes made)
(120 real changes made)
(62 real changes made)
(427 real changes made)
(427 real changes made)
(175 real changes made)
(187 real changes made)
(210 real changes made)
(175 real changes made)
(157 real changes made)
(226 real changes made)
(198 real changes made)
(199 real changes made)
(245 real changes made)
(252 real changes made)
(234 real changes made)
(190 real changes made)
(149 real changes made)
(86 real changes made)
(400 real changes made)
(400 real changes made)
(205 real changes made)
(208 real changes made)
(203 real changes made)
(181 real changes made)
(152 real changes made)
(208 real changes made)
(199 real changes made)
(222 real changes made)
(284 real changes made)
(288 real changes made)
(258 real changes made)
(197 real changes made)
(132 real changes made)

(62 real changes made)
(440 real changes made)
(440 real changes made)
(205 real changes made)
(215 real changes made)
(247 real changes made)
(199 real changes made)
(157 real changes made)
(205 real changes made)
(222 real changes made)
(262 real changes made)
(327 real changes made)
(294 real changes made)
(279 real changes made)
(230 real changes made)
(153 real changes made)
(76 real changes made)
(187 real changes made)
(187 real changes made)
(22 real changes made)
(27 real changes made)
(27 real changes made)
(19 real changes made)
(17 real changes made)
(38 real changes made)
(33 real changes made)
(24 real changes made)
(52 real changes made)
(74 real changes made)
(54 real changes made)
(32 real changes made)
(11 real changes made)
(5 real changes made)
(196 real changes made)
(196 real changes made)
(20 real changes made)
(27 real changes made)
(32 real changes made)
(17 real changes made)
(22 real changes made)
(31 real changes made)
(29 real changes made)
(29 real changes made)
(47 real changes made)
(67 real changes made)
(61 real changes made)
(37 real changes made)
(13 real changes made)
(7 real changes made)
(52 real changes made)

```
(52 real changes made)
(3 real changes made)
(6 real changes made)
(3 real changes made)
(4 real changes made)
(5 real changes made)
(7 real changes made)
(2 real changes made)
(6 real changes made)
(10 real changes made)
(11 real changes made)
(3 real changes made)
(6 real changes made)
(2 real changes made)
(1 real change made)
(57 real changes made)
(57 real changes made)
(1 real change made)
(6 real changes made)
(4 real changes made)
(3 real changes made)
(4 real changes made)
(11 real changes made)
(10 real changes made)
(5 real changes made)
(5 real changes made)
(6 real changes made)
(7 real changes made)
(4 real changes made)
(4 real changes made)
(1 real change made)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
(2 missing values generated)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2016.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2017: all characters numeric; replaced as int
```

```
num_under_5_white_male_2017: all characters numeric; replaced as int
num_5_to_9_white_male_2017: all characters numeric; replaced as int
num_10_to_14_white_male_2017: all characters numeric; replaced as int
num_15_to_17_white_male_2017: all characters numeric; replaced as int
num_18_to_19_white_male_2017: all characters numeric; replaced as int
num_20_to_24_white_male_2017: all characters numeric; replaced as int
num_25_to_29_white_male_2017: all characters numeric; replaced as int
num_30_to_34_white_male_2017: all characters numeric; replaced as int
num_35_to_44_white_male_2017: all characters numeric; replaced as int
num_45_to_54_white_male_2017: all characters numeric; replaced as int
num_55_to_64_white_male_2017: all characters numeric; replaced as int
num_65_to_74_white_male_2017: all characters numeric; replaced as int
num_75_to_84_white_male_2017: all characters numeric; replaced as int
num_over_85_white_male_2017: all characters numeric; replaced as int
tot_white_female_2017: all characters numeric; replaced as int
num_under_5_white_female_2017: all characters numeric; replaced as int
num_5_to_9_white_female_2017: all characters numeric; replaced as int
num_10_to_14_white_female_2017: all characters numeric; replaced as
int
num_15_to_17_white_female_2017: all characters numeric; replaced as
int
num_18_to_19_white_female_2017: all characters numeric; replaced as
int
num_20_to_24_white_female_2017: all characters numeric; replaced as
int
num_25_to_29_white_female_2017: all characters numeric; replaced as
int
num_30_to_34_white_female_2017: all characters numeric; replaced as
int
num_35_to_44_white_female_2017: all characters numeric; replaced as
int
num_45_to_54_white_female_2017: all characters numeric; replaced as
int
num_55_to_64_white_female_2017: all characters numeric; replaced as
int
num_65_to_74_white_female_2017: all characters numeric; replaced as
int
num_75_to_84_white_female_2017: all characters numeric; replaced as
int
num_over_85_white_female_2017: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2017.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2017.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_black_male_2017: all characters numeric; replaced as int
num_under_5_black_male_2017: all characters numeric; replaced as int
```

```
num_5_to_9_black_male_2017: all characters numeric; replaced as int
num_10_to_14_black_male_2017: all characters numeric; replaced as int
num_15_to_17_black_male_2017: all characters numeric; replaced as int
num_18_to_19_black_male_2017: all characters numeric; replaced as int
num_20_to_24_black_male_2017: all characters numeric; replaced as int
num_25_to_29_black_male_2017: all characters numeric; replaced as int
num_30_to_34_black_male_2017: all characters numeric; replaced as int
num_35_to_44_black_male_2017: all characters numeric; replaced as int
num_45_to_54_black_male_2017: all characters numeric; replaced as int
num_55_to_64_black_male_2017: all characters numeric; replaced as int
num_65_to_74_black_male_2017: all characters numeric; replaced as int
num_75_to_84_black_male_2017: all characters numeric; replaced as int
num_over_85_black_male_2017: all characters numeric; replaced as int
tot_black_female_2017: all characters numeric; replaced as int
num_under_5_black_female_2017: all characters numeric; replaced as int
num_5_to_9_black_female_2017: all characters numeric; replaced as int
num_10_to_14_black_female_2017: all characters numeric; replaced as
int
num_15_to_17_black_female_2017: all characters numeric; replaced as
int
num_18_to_19_black_female_2017: all characters numeric; replaced as
int
num_20_to_24_black_female_2017: all characters numeric; replaced as
int
num_25_to_29_black_female_2017: all characters numeric; replaced as
int
num_30_to_34_black_female_2017: all characters numeric; replaced as
int
num_35_to_44_black_female_2017: all characters numeric; replaced as
int
num_45_to_54_black_female_2017: all characters numeric; replaced as
int
num_55_to_64_black_female_2017: all characters numeric; replaced as
int
num_65_to_74_black_female_2017: all characters numeric; replaced as
int
num_75_to_84_black_female_2017: all characters numeric; replaced as
int
num_over_85_black_female_2017: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2017.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2017.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2017: all characters numeric; replaced as int
num_under_5_asian_male_2017: all characters numeric; replaced as int
num_5_to_9_asian_male_2017: all characters numeric; replaced as int
```

```
num_10_to_14_asian_male_2017: all characters numeric; replaced as int
num_15_to_17_asian_male_2017: all characters numeric; replaced as int
num_18_to_19_asian_male_2017: all characters numeric; replaced as int
num_20_to_24_asian_male_2017: all characters numeric; replaced as int
num_25_to_29_asian_male_2017: all characters numeric; replaced as int
num_30_to_34_asian_male_2017: all characters numeric; replaced as int
num_35_to_44_asian_male_2017: all characters numeric; replaced as int
num_45_to_54_asian_male_2017: all characters numeric; replaced as int
num_55_to_64_asian_male_2017: all characters numeric; replaced as int
num_65_to_74_asian_male_2017: all characters numeric; replaced as int
num_75_to_84_asian_male_2017: all characters numeric; replaced as int
num_over_85_asian_male_2017: all characters numeric; replaced as int
tot_asian_female_2017: all characters numeric; replaced as int
num_under_5_asian_female_2017: all characters numeric; replaced as int
num_5_to_9_asian_female_2017: all characters numeric; replaced as int
num_10_to_14_asian_female_2017: all characters numeric; replaced as
int
num_15_to_17_asian_female_2017: all characters numeric; replaced as
int
num_18_to_19_asian_female_2017: all characters numeric; replaced as
int
num_20_to_24_asian_female_2017: all characters numeric; replaced as
int
num_25_to_29_asian_female_2017: all characters numeric; replaced as
int
num_30_to_34_asian_female_2017: all characters numeric; replaced as
int
num_35_to_44_asian_female_2017: all characters numeric; replaced as
int
num_45_to_54_asian_female_2017: all characters numeric; replaced as
int
num_55_to_64_asian_female_2017: all characters numeric; replaced as
int
num_65_to_74_asian_female_2017: all characters numeric; replaced as
int
num_75_to_84_asian_female_2017: all characters numeric; replaced as
int
num_over_85_asian_female_2017: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2017.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2017.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_amind_male_2017: all characters numeric; replaced as int
num_under_5_amind_male_2017: all characters numeric; replaced as byte
num_5_to_9_amind_male_2017: all characters numeric; replaced as byte
num_10_to_14_amind_male_2017: all characters numeric; replaced as byte
```

```
num_15_to_17_amind_male_2017: all characters numeric; replaced as int
num_18_to_19_amind_male_2017: all characters numeric; replaced as byte
num_20_to_24_amind_male_2017: all characters numeric; replaced as byte
num_25_to_29_amind_male_2017: all characters numeric; replaced as byte
num_30_to_34_amind_male_2017: all characters numeric; replaced as byte
num_35_to_44_amind_male_2017: all characters numeric; replaced as byte
num_45_to_54_amind_male_2017: all characters numeric; replaced as byte
num_55_to_64_amind_male_2017: all characters numeric; replaced as byte
num_65_to_74_amind_male_2017: all characters numeric; replaced as byte
num_75_to_84_amind_male_2017: all characters numeric; replaced as byte
num_over_85_amind_male_2017: all characters numeric; replaced as byte
tot_amind_female_2017: all characters numeric; replaced as int
num_under_5_amind_female_2017: all characters numeric; replaced as
byte
num_5_to_9_amind_female_2017: all characters numeric; replaced as byte
num_10_to_14_amind_female_2017: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2017: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2017: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2017: all characters numeric; replaced as
int
num_25_to_29_amind_female_2017: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2017: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2017: all characters numeric; replaced as
byte
num_45_to_54_amind_female_2017: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2017: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2017: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2017: all characters numeric; replaced as
byte
num_over_85_amind_female_2017: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2017.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2017.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2017: all characters numeric; replaced as int
num_under_5_pacif_male_2017: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2017: all characters numeric; replaced as byte
```

```
num_10_to_14_pacif_male_2017: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2017: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2017: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2017: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2017: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2017: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2017: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2017: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2017: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2017: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2017: all characters numeric; replaced as byte
num_over_85_pacif_male_2017: all characters numeric; replaced as byte
tot_pacif_female_2017: all characters numeric; replaced as int
num_under_5_pacif_female_2017: all characters numeric; replaced as
byte
num_5_to_9_pacif_female_2017: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2017: all characters numeric; replaced as
byte
num_15_to_17_pacif_female_2017: all characters numeric; replaced as
byte
num_18_to_19_pacif_female_2017: all characters numeric; replaced as
byte
num_20_to_24_pacif_female_2017: all characters numeric; replaced as
int
num_25_to_29_pacif_female_2017: all characters numeric; replaced as
byte
num_30_to_34_pacif_female_2017: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2017: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2017: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2017: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2017: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2017: all characters numeric; replaced as
byte
num_over_85_pacif_female_2017: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2017.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2017.dta saved

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
```

```
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
(534 real changes made)
(534 real changes made)
(483 real changes made)
(487 real changes made)
(485 real changes made)
(481 real changes made)
(467 real changes made)
(492 real changes made)
(494 real changes made)
(493 real changes made)
(516 real changes made)
(514 real changes made)
(520 real changes made)
(517 real changes made)
(505 real changes made)
(459 real changes made)
(532 real changes made)
(532 real changes made)
(483 real changes made)
(484 real changes made)
(482 real changes made)
(476 real changes made)
(465 real changes made)
(497 real changes made)
(488 real changes made)
(497 real changes made)
(512 real changes made)
(516 real changes made)
(513 real changes made)
(511 real changes made)
(504 real changes made)
```

(486 real changes made)
(439 real changes made)
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file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2017.dta saved
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variables created as string:
zipcode1  zipcode2
tot_white_male_2018: all characters numeric; replaced as int
num_under_5_white_male_2018: all characters numeric; replaced as int
num_5_to_9_white_male_2018: all characters numeric; replaced as int
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num_10_to_14_white_male_2018: all characters numeric; replaced as int
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num_55_to_64_white_male_2018: all characters numeric; replaced as int
num_65_to_74_white_male_2018: all characters numeric; replaced as int
num_75_to_84_white_male_2018: all characters numeric; replaced as int
num_over_85_white_male_2018: all characters numeric; replaced as int
tot_white_female_2018: all characters numeric; replaced as int
num_under_5_white_female_2018: all characters numeric; replaced as int
num_5_to_9_white_female_2018: all characters numeric; replaced as int
num_10_to_14_white_female_2018: all characters numeric; replaced as
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num_15_to_17_white_female_2018: all characters numeric; replaced as
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num_18_to_19_white_female_2018: all characters numeric; replaced as
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num_20_to_24_white_female_2018: all characters numeric; replaced as
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num_25_to_29_white_female_2018: all characters numeric; replaced as
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num_35_to_44_white_female_2018: all characters numeric; replaced as
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num_45_to_54_white_female_2018: all characters numeric; replaced as
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num_55_to_64_white_female_2018: all characters numeric; replaced as
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num_65_to_74_white_female_2018: all characters numeric; replaced as
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num_75_to_84_white_female_2018: all characters numeric; replaced as
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num_over_85_white_female_2018: all characters numeric; replaced as int
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num_under_5_black_male_2018: all characters numeric; replaced as int
num_5_to_9_black_male_2018: all characters numeric; replaced as int
num_10_to_14_black_male_2018: all characters numeric; replaced as int
```

```
num_15_to_17_black_male_2018: all characters numeric; replaced as int
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num_65_to_74_black_male_2018: all characters numeric; replaced as int
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tot_black_female_2018: all characters numeric; replaced as int
num_under_5_black_female_2018: all characters numeric; replaced as int
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num_18_to_19_black_female_2018: all characters numeric; replaced as
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num_20_to_24_black_female_2018: all characters numeric; replaced as
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num_25_to_29_black_female_2018: all characters numeric; replaced as
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num_30_to_34_black_female_2018: all characters numeric; replaced as
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num_35_to_44_black_female_2018: all characters numeric; replaced as
int
num_45_to_54_black_female_2018: all characters numeric; replaced as
int
num_55_to_64_black_female_2018: all characters numeric; replaced as
int
num_65_to_74_black_female_2018: all characters numeric; replaced as
int
num_75_to_84_black_female_2018: all characters numeric; replaced as
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num_over_85_black_female_2018: all characters numeric; replaced as int
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num_15_to_17_asian_male_2018: all characters numeric; replaced as int
```

```
num_18_to_19_asian_male_2018: all characters numeric; replaced as int
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num_30_to_34_asian_male_2018: all characters numeric; replaced as int
num_35_to_44_asian_male_2018: all characters numeric; replaced as int
num_45_to_54_asian_male_2018: all characters numeric; replaced as int
num_55_to_64_asian_male_2018: all characters numeric; replaced as int
num_65_to_74_asian_male_2018: all characters numeric; replaced as int
num_75_to_84_asian_male_2018: all characters numeric; replaced as int
num_over_85_asian_male_2018: all characters numeric; replaced as int
tot_asian_female_2018: all characters numeric; replaced as int
num_under_5_asian_female_2018: all characters numeric; replaced as int
num_5_to_9_asian_female_2018: all characters numeric; replaced as int
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num_35_to_44_asian_female_2018: all characters numeric; replaced as
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num_45_to_54_asian_female_2018: all characters numeric; replaced as
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num_55_to_64_asian_female_2018: all characters numeric; replaced as
int
num_65_to_74_asian_female_2018: all characters numeric; replaced as
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num_75_to_84_asian_female_2018: all characters numeric; replaced as
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num_over_85_asian_female_2018: all characters numeric; replaced as int
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num_10_to_14_amind_male_2018: all characters numeric; replaced as int
num_15_to_17_amind_male_2018: all characters numeric; replaced as int
num_18_to_19_amind_male_2018: all characters numeric; replaced as byte
```

```
num_20_to_24_amind_male_2018: all characters numeric; replaced as byte
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num_35_to_44_amind_male_2018: all characters numeric; replaced as byte
num_45_to_54_amind_male_2018: all characters numeric; replaced as byte
num_55_to_64_amind_male_2018: all characters numeric; replaced as byte
num_65_to_74_amind_male_2018: all characters numeric; replaced as byte
num_75_to_84_amind_male_2018: all characters numeric; replaced as byte
num_over_85_amind_male_2018: all characters numeric; replaced as byte
tot_amind_female_2018: all characters numeric; replaced as int
num_under_5_amind_female_2018: all characters numeric; replaced as int
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num_15_to_17_amind_female_2018: all characters numeric; replaced as
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num_18_to_19_amind_female_2018: all characters numeric; replaced as
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num_25_to_29_amind_female_2018: all characters numeric; replaced as
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num_55_to_64_amind_female_2018: all characters numeric; replaced as
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num_65_to_74_amind_female_2018: all characters numeric; replaced as
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num_75_to_84_amind_female_2018: all characters numeric; replaced as
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```

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processed/intermediate/census_age_sex_pacif_2018.dta saved

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    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
```

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    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
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file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2018.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2019: all characters numeric; replaced as int
num_under_5_white_male_2019: all characters numeric; replaced as int
num_5_to_9_white_male_2019: all characters numeric; replaced as int
num_10_to_14_white_male_2019: all characters numeric; replaced as int
num_15_to_17_white_male_2019: all characters numeric; replaced as int
num_18_to_19_white_male_2019: all characters numeric; replaced as int
```

```
num_20_to_24_white_male_2019: all characters numeric; replaced as int
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num_75_to_84_white_male_2019: all characters numeric; replaced as int
num_over_85_white_male_2019: all characters numeric; replaced as int
tot_white_female_2019: all characters numeric; replaced as int
num_under_5_white_female_2019: all characters numeric; replaced as int
num_5_to_9_white_female_2019: all characters numeric; replaced as int
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num_over_85_white_female_2019: all characters numeric; replaced as int
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variables created as string:
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```

```
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num_55_to_64_black_male_2019: all characters numeric; replaced as int
num_65_to_74_black_male_2019: all characters numeric; replaced as int
num_75_to_84_black_male_2019: all characters numeric; replaced as int
num_over_85_black_male_2019: all characters numeric; replaced as int
tot_black_female_2019: all characters numeric; replaced as int
num_under_5_black_female_2019: all characters numeric; replaced as int
num_5_to_9_black_female_2019: all characters numeric; replaced as int
num_10_to_14_black_female_2019: all characters numeric; replaced as
int
num_15_to_17_black_female_2019: all characters numeric; replaced as
int
num_18_to_19_black_female_2019: all characters numeric; replaced as
int
num_20_to_24_black_female_2019: all characters numeric; replaced as
int
num_25_to_29_black_female_2019: all characters numeric; replaced as
int
num_30_to_34_black_female_2019: all characters numeric; replaced as
int
num_35_to_44_black_female_2019: all characters numeric; replaced as
int
num_45_to_54_black_female_2019: all characters numeric; replaced as
int
num_55_to_64_black_female_2019: all characters numeric; replaced as
int
num_65_to_74_black_female_2019: all characters numeric; replaced as
int
num_75_to_84_black_female_2019: all characters numeric; replaced as
int
num_over_85_black_female_2019: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2019.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2019.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2019: all characters numeric; replaced as int
num_under_5_asian_male_2019: all characters numeric; replaced as int
num_5_to_9_asian_male_2019: all characters numeric; replaced as int
num_10_to_14_asian_male_2019: all characters numeric; replaced as int
num_15_to_17_asian_male_2019: all characters numeric; replaced as int
num_18_to_19_asian_male_2019: all characters numeric; replaced as int
num_20_to_24_asian_male_2019: all characters numeric; replaced as int
num_25_to_29_asian_male_2019: all characters numeric; replaced as int
```

```
num_30_to_34_asian_male_2019: all characters numeric; replaced as int
num_35_to_44_asian_male_2019: all characters numeric; replaced as int
num_45_to_54_asian_male_2019: all characters numeric; replaced as int
num_55_to_64_asian_male_2019: all characters numeric; replaced as int
num_65_to_74_asian_male_2019: all characters numeric; replaced as int
num_75_to_84_asian_male_2019: all characters numeric; replaced as int
num_over_85_asian_male_2019: all characters numeric; replaced as int
tot_asian_female_2019: all characters numeric; replaced as int
num_under_5_asian_female_2019: all characters numeric; replaced as int
num_5_to_9_asian_female_2019: all characters numeric; replaced as int
num_10_to_14_asian_female_2019: all characters numeric; replaced as
int
num_15_to_17_asian_female_2019: all characters numeric; replaced as
int
num_18_to_19_asian_female_2019: all characters numeric; replaced as
int
num_20_to_24_asian_female_2019: all characters numeric; replaced as
int
num_25_to_29_asian_female_2019: all characters numeric; replaced as
int
num_30_to_34_asian_female_2019: all characters numeric; replaced as
int
num_35_to_44_asian_female_2019: all characters numeric; replaced as
int
num_45_to_54_asian_female_2019: all characters numeric; replaced as
int
num_55_to_64_asian_female_2019: all characters numeric; replaced as
int
num_65_to_74_asian_female_2019: all characters numeric; replaced as
int
num_75_to_84_asian_female_2019: all characters numeric; replaced as
int
num_over_85_asian_female_2019: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2019.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2019.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_amind_male_2019: all characters numeric; replaced as int
num_under_5_amind_male_2019: all characters numeric; replaced as byte
num_5_to_9_amind_male_2019: all characters numeric; replaced as byte
num_10_to_14_amind_male_2019: all characters numeric; replaced as byte
num_15_to_17_amind_male_2019: all characters numeric; replaced as int
num_18_to_19_amind_male_2019: all characters numeric; replaced as byte
num_20_to_24_amind_male_2019: all characters numeric; replaced as int
num_25_to_29_amind_male_2019: all characters numeric; replaced as int
num_30_to_34_amind_male_2019: all characters numeric; replaced as byte
```

```
num_35_to_44_amind_male_2019: all characters numeric; replaced as byte
num_45_to_54_amind_male_2019: all characters numeric; replaced as int
num_55_to_64_amind_male_2019: all characters numeric; replaced as byte
num_65_to_74_amind_male_2019: all characters numeric; replaced as byte
num_75_to_84_amind_male_2019: all characters numeric; replaced as byte
num_over_85_amind_male_2019: all characters numeric; replaced as byte
tot_amind_female_2019: all characters numeric; replaced as int
num_under_5_amind_female_2019: all characters numeric; replaced as int
num_5_to_9_amind_female_2019: all characters numeric; replaced as byte
num_10_to_14_amind_female_2019: all characters numeric; replaced as
byte
num_15_to_17_amind_female_2019: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2019: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2019: all characters numeric; replaced as
byte
num_25_to_29_amind_female_2019: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2019: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2019: all characters numeric; replaced as
int
num_45_to_54_amind_female_2019: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2019: all characters numeric; replaced as
int
num_65_to_74_amind_female_2019: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2019: all characters numeric; replaced as
byte
num_over_85_amind_female_2019: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2019.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2019.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2019: all characters numeric; replaced as byte
num_under_5_pacif_male_2019: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2019: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2019: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2019: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2019: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2019: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2019: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2019: all characters numeric; replaced as byte
```

```
num_35_to_44_pacif_male_2019: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2019: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2019: all characters numeric; replaced as byte
num_65_to_74_pacif_male_2019: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2019: all characters numeric; replaced as byte
num_over_85_pacif_male_2019: all characters numeric; replaced as byte
tot_pacif_female_2019: all characters numeric; replaced as int
num_under_5_pacif_female_2019: all characters numeric; replaced as
byte
num_5_to_9_pacif_female_2019: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2019: all characters numeric; replaced as
byte
num_15_to_17_pacif_female_2019: all characters numeric; replaced as
byte
num_18_to_19_pacif_female_2019: all characters numeric; replaced as
byte
num_20_to_24_pacif_female_2019: all characters numeric; replaced as
int
num_25_to_29_pacif_female_2019: all characters numeric; replaced as
byte
num_30_to_34_pacif_female_2019: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2019: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2019: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2019: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2019: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2019: all characters numeric; replaced as
byte
num_over_85_pacif_female_2019: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2019.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2019.dta saved

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
```

```
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
(534 real changes made)
(534 real changes made)
(477 real changes made)
(485 real changes made)
(484 real changes made)
(481 real changes made)
(464 real changes made)
(493 real changes made)
(497 real changes made)
(497 real changes made)
(511 real changes made)
(512 real changes made)
(520 real changes made)
(516 real changes made)
(504 real changes made)
(463 real changes made)
(533 real changes made)
(533 real changes made)
(477 real changes made)
(479 real changes made)
(484 real changes made)
(471 real changes made)
(456 real changes made)
(493 real changes made)
(487 real changes made)
(500 real changes made)
(513 real changes made)
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(516 real changes made)
(510 real changes made)
(500 real changes made)
(487 real changes made)
(432 real changes made)
(432 real changes made)
(168 real changes made)
(175 real changes made)
(210 real changes made)
```

(193 real changes made)
(190 real changes made)
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(244 real changes made)
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(148 real changes made)
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(409 real changes made)
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(206 real changes made)
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(201 real changes made)
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(283 real changes made)
(257 real changes made)
(210 real changes made)
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(428 real changes made)
(194 real changes made)
(195 real changes made)
(214 real changes made)
(202 real changes made)
(163 real changes made)

(207 real changes made)
(228 real changes made)
(243 real changes made)
(323 real changes made)
(305 real changes made)
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(191 real changes made)
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(23 real changes made)
(15 real changes made)
(19 real changes made)
(33 real changes made)
(27 real changes made)
(20 real changes made)
(47 real changes made)
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(21 real changes made)
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(15 real changes made)
(17 real changes made)
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(13 real changes made)
(13 real changes made)
(56 real changes made)
(56 real changes made)
(5 real changes made)
(5 real changes made)
(5 real changes made)
(2 real changes made)
(4 real changes made)
(8 real changes made)
(6 real changes made)

```
(6 real changes made)
(9 real changes made)
(11 real changes made)
(8 real changes made)
(2 real changes made)
(2 real changes made)
(0 real changes made)
(69 real changes made)
(69 real changes made)
(6 real changes made)
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(3 real changes made)
(2 real changes made)
(9 real changes made)
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(10 real changes made)
(10 real changes made)
(4 real changes made)
(11 real changes made)
(8 real changes made)
(6 real changes made)
(3 real changes made)
(1 real change made)
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(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2019.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2019.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_white_male_2020: all characters numeric; replaced as int
num_under_5_white_male_2020: all characters numeric; replaced as int
num_5_to_9_white_male_2020: all characters numeric; replaced as int
num_10_to_14_white_male_2020: all characters numeric; replaced as int
num_15_to_17_white_male_2020: all characters numeric; replaced as int
num_18_to_19_white_male_2020: all characters numeric; replaced as int
num_20_to_24_white_male_2020: all characters numeric; replaced as int
num_25_to_29_white_male_2020: all characters numeric; replaced as int
num_30_to_34_white_male_2020: all characters numeric; replaced as int
```

```
num_35_to_44_white_male_2020: all characters numeric; replaced as int
num_45_to_54_white_male_2020: all characters numeric; replaced as int
num_55_to_64_white_male_2020: all characters numeric; replaced as int
num_65_to_74_white_male_2020: all characters numeric; replaced as int
num_75_to_84_white_male_2020: all characters numeric; replaced as int
num_over_85_white_male_2020: all characters numeric; replaced as int
tot_white_female_2020: all characters numeric; replaced as int
num_under_5_white_female_2020: all characters numeric; replaced as int
num_5_to_9_white_female_2020: all characters numeric; replaced as int
num_10_to_14_white_female_2020: all characters numeric; replaced as
int
num_15_to_17_white_female_2020: all characters numeric; replaced as
int
num_18_to_19_white_female_2020: all characters numeric; replaced as
int
num_20_to_24_white_female_2020: all characters numeric; replaced as
int
num_25_to_29_white_female_2020: all characters numeric; replaced as
int
num_30_to_34_white_female_2020: all characters numeric; replaced as
int
num_35_to_44_white_female_2020: all characters numeric; replaced as
int
num_45_to_54_white_female_2020: all characters numeric; replaced as
int
num_55_to_64_white_female_2020: all characters numeric; replaced as
int
num_65_to_74_white_female_2020: all characters numeric; replaced as
int
num_75_to_84_white_female_2020: all characters numeric; replaced as
int
num_over_85_white_female_2020: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2020.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_white_2020.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_black_male_2020: all characters numeric; replaced as int
num_under_5_black_male_2020: all characters numeric; replaced as int
num_5_to_9_black_male_2020: all characters numeric; replaced as int
num_10_to_14_black_male_2020: all characters numeric; replaced as int
num_15_to_17_black_male_2020: all characters numeric; replaced as int
num_18_to_19_black_male_2020: all characters numeric; replaced as int
num_20_to_24_black_male_2020: all characters numeric; replaced as int
num_25_to_29_black_male_2020: all characters numeric; replaced as int
num_30_to_34_black_male_2020: all characters numeric; replaced as int
num_35_to_44_black_male_2020: all characters numeric; replaced as int
```

```
num_45_to_54_black_male_2020: all characters numeric; replaced as int
num_55_to_64_black_male_2020: all characters numeric; replaced as int
num_65_to_74_black_male_2020: all characters numeric; replaced as int
num_75_to_84_black_male_2020: all characters numeric; replaced as int
num_over_85_black_male_2020: all characters numeric; replaced as int
tot_black_female_2020: all characters numeric; replaced as int
num_under_5_black_female_2020: all characters numeric; replaced as int
num_5_to_9_black_female_2020: all characters numeric; replaced as int
num_10_to_14_black_female_2020: all characters numeric; replaced as
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num_15_to_17_black_female_2020: all characters numeric; replaced as
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num_18_to_19_black_female_2020: all characters numeric; replaced as
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num_20_to_24_black_female_2020: all characters numeric; replaced as
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num_25_to_29_black_female_2020: all characters numeric; replaced as
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num_30_to_34_black_female_2020: all characters numeric; replaced as
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num_35_to_44_black_female_2020: all characters numeric; replaced as
int
num_45_to_54_black_female_2020: all characters numeric; replaced as
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num_55_to_64_black_female_2020: all characters numeric; replaced as
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num_65_to_74_black_female_2020: all characters numeric; replaced as
int
num_75_to_84_black_female_2020: all characters numeric; replaced as
int
num_over_85_black_female_2020: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2020.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_black_2020.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_asian_male_2020: all characters numeric; replaced as int
num_under_5_asian_male_2020: all characters numeric; replaced as int
num_5_to_9_asian_male_2020: all characters numeric; replaced as int
num_10_to_14_asian_male_2020: all characters numeric; replaced as int
num_15_to_17_asian_male_2020: all characters numeric; replaced as int
num_18_to_19_asian_male_2020: all characters numeric; replaced as int
num_20_to_24_asian_male_2020: all characters numeric; replaced as int
num_25_to_29_asian_male_2020: all characters numeric; replaced as int
num_30_to_34_asian_male_2020: all characters numeric; replaced as int
num_35_to_44_asian_male_2020: all characters numeric; replaced as int
num_45_to_54_asian_male_2020: all characters numeric; replaced as int
```

```
num_55_to_64_asian_male_2020: all characters numeric; replaced as int
num_65_to_74_asian_male_2020: all characters numeric; replaced as int
num_75_to_84_asian_male_2020: all characters numeric; replaced as int
num_over_85_asian_male_2020: all characters numeric; replaced as int
tot_asian_female_2020: all characters numeric; replaced as int
num_under_5_asian_female_2020: all characters numeric; replaced as int
num_5_to_9_asian_female_2020: all characters numeric; replaced as int
num_10_to_14_asian_female_2020: all characters numeric; replaced as
int
num_15_to_17_asian_female_2020: all characters numeric; replaced as
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num_18_to_19_asian_female_2020: all characters numeric; replaced as
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num_20_to_24_asian_female_2020: all characters numeric; replaced as
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num_25_to_29_asian_female_2020: all characters numeric; replaced as
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num_30_to_34_asian_female_2020: all characters numeric; replaced as
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num_35_to_44_asian_female_2020: all characters numeric; replaced as
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num_45_to_54_asian_female_2020: all characters numeric; replaced as
int
num_55_to_64_asian_female_2020: all characters numeric; replaced as
int
num_65_to_74_asian_female_2020: all characters numeric; replaced as
int
num_75_to_84_asian_female_2020: all characters numeric; replaced as
int
num_over_85_asian_female_2020: all characters numeric; replaced as int
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2020.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_asian_2020.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_amind_male_2020: all characters numeric; replaced as int
num_under_5_amind_male_2020: all characters numeric; replaced as byte
num_5_to_9_amind_male_2020: all characters numeric; replaced as byte
num_10_to_14_amind_male_2020: all characters numeric; replaced as byte
num_15_to_17_amind_male_2020: all characters numeric; replaced as int
num_18_to_19_amind_male_2020: all characters numeric; replaced as byte
num_20_to_24_amind_male_2020: all characters numeric; replaced as int
num_25_to_29_amind_male_2020: all characters numeric; replaced as int
num_30_to_34_amind_male_2020: all characters numeric; replaced as byte
num_35_to_44_amind_male_2020: all characters numeric; replaced as byte
num_45_to_54_amind_male_2020: all characters numeric; replaced as byte
num_55_to_64_amind_male_2020: all characters numeric; replaced as byte
```

```
num_65_to_74_amind_male_2020: all characters numeric; replaced as byte
num_75_to_84_amind_male_2020: all characters numeric; replaced as byte
num_over_85_amind_male_2020: all characters numeric; replaced as byte
tot_amind_female_2020: all characters numeric; replaced as int
num_under_5_amind_female_2020: all characters numeric; replaced as int
num_5_to_9_amind_female_2020: all characters numeric; replaced as byte
num_10_to_14_amind_female_2020: all characters numeric; replaced as
int
num_15_to_17_amind_female_2020: all characters numeric; replaced as
byte
num_18_to_19_amind_female_2020: all characters numeric; replaced as
byte
num_20_to_24_amind_female_2020: all characters numeric; replaced as
byte
num_25_to_29_amind_female_2020: all characters numeric; replaced as
byte
num_30_to_34_amind_female_2020: all characters numeric; replaced as
byte
num_35_to_44_amind_female_2020: all characters numeric; replaced as
byte
num_45_to_54_amind_female_2020: all characters numeric; replaced as
byte
num_55_to_64_amind_female_2020: all characters numeric; replaced as
byte
num_65_to_74_amind_female_2020: all characters numeric; replaced as
byte
num_75_to_84_amind_female_2020: all characters numeric; replaced as
byte
num_over_85_amind_female_2020: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
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file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_amind_2020.dta saved
(2 observations deleted)
variables created as string:
zipcode1  zipcode2
tot_pacif_male_2020: all characters numeric; replaced as int
num_under_5_pacif_male_2020: all characters numeric; replaced as byte
num_5_to_9_pacif_male_2020: all characters numeric; replaced as byte
num_10_to_14_pacif_male_2020: all characters numeric; replaced as byte
num_15_to_17_pacif_male_2020: all characters numeric; replaced as byte
num_18_to_19_pacif_male_2020: all characters numeric; replaced as byte
num_20_to_24_pacif_male_2020: all characters numeric; replaced as byte
num_25_to_29_pacif_male_2020: all characters numeric; replaced as byte
num_30_to_34_pacif_male_2020: all characters numeric; replaced as byte
num_35_to_44_pacif_male_2020: all characters numeric; replaced as byte
num_45_to_54_pacif_male_2020: all characters numeric; replaced as byte
num_55_to_64_pacif_male_2020: all characters numeric; replaced as byte
```

```
num_65_to_74_pacif_male_2020: all characters numeric; replaced as byte
num_75_to_84_pacif_male_2020: all characters numeric; replaced as byte
num_over_85_pacif_male_2020: all characters numeric; replaced as byte
tot_pacif_female_2020: all characters numeric; replaced as int
num_under_5_pacif_female_2020: all characters numeric; replaced as
byte
num_5_to_9_pacif_female_2020: all characters numeric; replaced as byte
num_10_to_14_pacif_female_2020: all characters numeric; replaced as
byte
num_15_to_17_pacif_female_2020: all characters numeric; replaced as
byte
num_18_to_19_pacif_female_2020: all characters numeric; replaced as
byte
num_20_to_24_pacif_female_2020: all characters numeric; replaced as
byte
num_25_to_29_pacif_female_2020: all characters numeric; replaced as
byte
num_30_to_34_pacif_female_2020: all characters numeric; replaced as
byte
num_35_to_44_pacif_female_2020: all characters numeric; replaced as
byte
num_45_to_54_pacif_female_2020: all characters numeric; replaced as
byte
num_55_to_64_pacif_female_2020: all characters numeric; replaced as
byte
num_65_to_74_pacif_female_2020: all characters numeric; replaced as
byte
num_75_to_84_pacif_female_2020: all characters numeric; replaced as
byte
num_over_85_pacif_female_2020: all characters numeric; replaced as
byte
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2020.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_pacif_2020.dta saved

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
```

```
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                               538  (_merge==3)
    -----------------------------------------
(533 real changes made)
(533 real changes made)
(477 real changes made)
(480 real changes made)
(479 real changes made)
(481 real changes made)
(463 real changes made)
(495 real changes made)
(493 real changes made)
(491 real changes made)
(509 real changes made)
(512 real changes made)
(519 real changes made)
(513 real changes made)
(502 real changes made)
(462 real changes made)
(533 real changes made)
(533 real changes made)
(473 real changes made)
(480 real changes made)
(482 real changes made)
(468 real changes made)
(445 real changes made)
(494 real changes made)
(489 real changes made)
(500 real changes made)
(513 real changes made)
(511 real changes made)
(517 real changes made)
(509 real changes made)
(501 real changes made)
(482 real changes made)
(425 real changes made)
(425 real changes made)
(161 real changes made)
(170 real changes made)
(191 real changes made)
(173 real changes made)
(181 real changes made)
(231 real changes made)
```

(209 real changes made)
(207 real changes made)
(266 real changes made)
(271 real changes made)
(259 real changes made)
(211 real changes made)
(130 real changes made)
(78 real changes made)
(411 real changes made)
(411 real changes made)
(156 real changes made)
(182 real changes made)
(193 real changes made)
(162 real changes made)
(146 real changes made)
(205 real changes made)
(189 real changes made)
(204 real changes made)
(258 real changes made)
(251 real changes made)
(236 real changes made)
(203 real changes made)
(143 real changes made)
(104 real changes made)
(408 real changes made)
(408 real changes made)
(190 real changes made)
(201 real changes made)
(204 real changes made)
(180 real changes made)
(143 real changes made)
(201 real changes made)
(199 real changes made)
(214 real changes made)
(289 real changes made)
(280 real changes made)
(257 real changes made)
(214 real changes made)
(136 real changes made)
(74 real changes made)
(424 real changes made)
(424 real changes made)
(186 real changes made)
(191 real changes made)
(202 real changes made)
(201 real changes made)
(158 real changes made)
(212 real changes made)
(216 real changes made)
(234 real changes made)

(313 real changes made)
(304 real changes made)
(283 real changes made)
(225 real changes made)
(158 real changes made)
(82 real changes made)
(186 real changes made)
(186 real changes made)
(17 real changes made)
(20 real changes made)
(25 real changes made)
(15 real changes made)
(17 real changes made)
(35 real changes made)
(25 real changes made)
(22 real changes made)
(41 real changes made)
(52 real changes made)
(40 real changes made)
(34 real changes made)
(15 real changes made)
(5 real changes made)
(174 real changes made)
(174 real changes made)
(13 real changes made)
(19 real changes made)
(23 real changes made)
(13 real changes made)
(15 real changes made)
(24 real changes made)
(24 real changes made)
(21 real changes made)
(44 real changes made)
(54 real changes made)
(53 real changes made)
(25 real changes made)
(15 real changes made)
(13 real changes made)
(54 real changes made)
(54 real changes made)
(4 real changes made)
(3 real changes made)
(3 real changes made)
(1 real change made)
(5 real changes made)
(8 real changes made)
(6 real changes made)
(6 real changes made)
(8 real changes made)
(10 real changes made)

```
(8 real changes made)
(2 real changes made)
(2 real changes made)
(0 real changes made)
(67 real changes made)
(67 real changes made)
(6 real changes made)
(3 real changes made)
(2 real changes made)
(1 real change made)
(11 real changes made)
(15 real changes made)
(9 real changes made)
(10 real changes made)
(4 real changes made)
(12 real changes made)
(8 real changes made)
(4 real changes made)
(2 real changes made)
(1 real change made)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
(3 missing values generated)
  (0 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2020.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/census_age_sex_2020.dta saved

.
. * Merge datasets from 2011-2020 into one dataset containing all
years
. use "$MyProject/processed/intermediate/census_age_sex_2011.dta",
clear

. forvalues y = 2012/2020 {
  2.         merge 1:1 zipcode using "$MyProject/processed/
intermediate/census_age_sex_`y'.dta"
  3.         drop _merge
  4. }

    Result                      Number of obs
    -----------------------------------------
```

```
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
-----------------------------------------

Result                      Number of obs
-----------------------------------------
Not matched                                 0
Matched                                   538  (_merge==3)
```

```
    ----------------------------------------

.
. * Save dataset containing all years
. compress
  (0 bytes saved)

. save "$MyProject/processed/census_age_sex.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/census_age_sex.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/census_age_sex.dta saved

.
. ** EOF
.
end of do-file

. do "$MyProject/scripts/2e_clean_prop_assessments_data.do"

. ************
. * SCRIPT: 2e_clean_prop_assessments_data.do
. * PURPOSE: processes the massachusetts property assessments datasets
in preparation for analysis
. ************
.
. * Clean dataset for each year, one at a time
. forvalues y = 2014/2021 {
  2.         use "$MyProject/processed/intermediate/
property_assessments_ma_`y'_uncleaned.dta", clear
  3.
.         * Rename 2021 variables to have the same name as other years
.         if `y' == 2021 {
  4.                 rename bldg_value av_bldg
  5.                 rename yr_remodel yr_remod
  6.                 rename res_floor num_floors
  7.                 rename bed_rms r_bdrms
  8.                 rename full_bth r_full_bth
  9.                 rename hlf_bth r_half_bth
 10.                 rename kitchen r_kitch
 11.                 rename heat_type r_heat_typ
 12.         }
 13.
.         * Select only desired columns
.         keep zipcode lu av_bldg living_area yr_built yr_remod
num_floors r_bdrms r_full_bth r_half_bth r_kitch r_heat_typ
 14.
.         * Create variable for the year the building was assessed
.         gen year_assessed = `y'
 15.
```

```
.         * Change zipcode column to be of uniform format across years
.         if `y' == 2018 | `y' == 2019 | `y' == 2020 | `y' == 2021 {
 16.                 tostring zipcode, replace
 17.                 replace zipcode = "0" + zipcode
 18.            }
 19.            else {
 20.                 replace zipcode = substr(zipcode, 1, 5)
 21.            }
 22.
.         * Convert dollar amount av_bldg to int (2021 only)
.         if `y' == 2021 {
 23.                 split av_bldg, parse(".00") gen(dollars)
 24.                 destring dollars1, replace ignore("$,")
 25.                 drop av_bldg
 26.                 rename dollars1 av_bldg
 27.            }
 28.
.         * Drop entries with missing, 0-valued, or unreasonable data
.         drop if av_bldg == 0 | missing(av_bldg)
 29.            drop if living_area < 250 | missing(living_area)
 30.            drop if yr_built == 0 | missing(yr_built)
 31.            drop if num_floors == 0 | missing(num_floors)
 32.            drop if r_bdrms == 0 | missing(r_bdrms)
 33.
.         * Create variable for price per square foot
.         gen ppsqft = av_bldg / living_area
 34.            drop if ppsqft < 20
 35.
.         * Create variable for years since built
.         gen yrs_since_built = `y' - yr_built
 36.
.         * Create variable for years since remodel
.         replace yr_remod = 0 if missing(yr_remod)
 37.            replace yr_remod = yr_built if yr_remod==0
 38.            gen yrs_since_remodel = `y' - yr_remod
 39.            drop yr_built yr_remod
 40.
.         * Replace missing values with 0
.         replace living_area = 0 if missing(living_area)
 41.            replace r_full_bth = 0 if missing(r_full_bth)
 42.            replace r_half_bth = 0 if missing(r_half_bth)
 43.
.         * Replace string kitchen values with ints
.         if `y' == 2020 {
 44.                 replace r_kitch = "0" if missing(r_kitch)
 45.                 replace r_kitch = substr(r_kitch, 1, 1)
 46.                 replace r_kitch = "0" if real(r_kitch)==. &
r_kitch=="N"
 47.                 replace r_kitch = "1" if real(r_kitch)==. &
r_kitch!="N"
```

```
 48.                 destring r_kitch, replace
 49.         }
 50.         else {
 51.                 replace r_kitch = 0 if missing(r_kitch)
 52.         }
 53.
.         * Create dummy variables for heat type
.         gen heat_electric = r_heat_typ==`"E"' | r_heat_typ==`"E -
Electric"'
 54.         gen heat_forced_hot_air = r_heat_typ==`"F"' |
r_heat_typ==`"F - Forced Hot Air"'
 55.         gen heat_pump = r_heat_typ==`"P"' | r_heat_typ==`"P -
Heat Pump"'
 56.         gen heat_space = r_heat_typ==`"S"' | r_heat_typ==`"S -
Space Heat"'
 57.         gen heat_steam = r_heat_typ==`"W"' | r_heat_typ==`"W - Ht
Water/Steam"'
 58.         gen heat_other = r_heat_typ==`"O"' | r_heat_typ==`"O -
Other"'
 59.         drop r_heat_typ
 60.
.         * Save dataset for year `y'
.         compress
 61.         save "$MyProject/processed/intermediate/
property_assessments_ma_`y'.dta", replace
 62. }
(164,091 real changes made)
(21,893 observations deleted)
(6,913 observations deleted)
(42 observations deleted)
(205 observations deleted)
(72,419 observations deleted)
(128 observations deleted)
(0 real changes made)
(43,034 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
  variable living_area was long now int
  variable year_assessed was float now int
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  variable zipcode was str6 now str5
```

```
  variable lu was str21 now str2
  (2,874,586 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2014.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2014.dta saved
(168,104 real changes made)
(22,311 observations deleted)
(8,173 observations deleted)
(40 observations deleted)
(252 observations deleted)
(74,564 observations deleted)
(79 observations deleted)
(2,842 real changes made)
(42,311 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
  variable living_area was long now int
  variable year_assessed was float now int
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  variable zipcode was str6 now str5
  (1,692,792 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2015.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2015.dta saved
(169,193 real changes made)
(22,306 observations deleted)
(8,706 observations deleted)
(45 observations deleted)
(253 observations deleted)
(75,322 observations deleted)
(97 observations deleted)
(2,903 real changes made)
(41,499 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
  variable living_area was long now int
  variable year_assessed was float now int
```

```
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  variable zipcode was str6 now str5
  (1,686,690 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2016.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2016.dta saved
(170,903 real changes made)
(22,308 observations deleted)
(9,556 observations deleted)
(55 observations deleted)
(284 observations deleted)
(76,244 observations deleted)
(72 observations deleted)
(3,002 real changes made)
(40,502 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
  variable living_area was long now int
  variable year_assessed was float now int
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  variable zipcode was str6 now str5
  (1,684,557 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2017.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2017.dta saved
zipcode was int now str4
variable zipcode was str4 now str5
(172,841 real changes made)
(22,307 observations deleted)
(10,267 observations deleted)
(48 observations deleted)
(269 observations deleted)
```

```
(77,606 observations deleted)
(75 observations deleted)
(3,047 real changes made)
(39,426 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
  variable living_area was long now int
  variable year_assessed was float now int
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  (1,618,994 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2018.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2018.dta saved
zipcode was int now str4
variable zipcode was str4 now str5
(174,668 real changes made)
(22,445 observations deleted)
(10,831 observations deleted)
(59 observations deleted)
(232 observations deleted)
(78,902 observations deleted)
(42 observations deleted)
(3,168 real changes made)
(38,482 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
  variable living_area was long now int
  variable year_assessed was float now int
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  (1,616,082 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
```

```
processed/intermediate/property_assessments_ma_2019.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2019.dta saved
zipcode was int now str4
variable zipcode was str4 now str5
(175,052 real changes made)
(17,692 observations deleted)
(16,503 observations deleted)
(39 observations deleted)
(36 observations deleted)
(79,454 observations deleted)
(27 observations deleted)
(37,056 real changes made)
(37,057 real changes made)
(0 real changes made)
(0 real changes made)
(2 real changes made)
(9 real changes made)
(61,292 real changes made)
(3 real changes made)
(3 real changes made)
r_kitch: all characters numeric; replaced as byte
  variable living_area was long now int
  variable year_assessed was float now int
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  (1,593,826 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2020.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2020.dta saved
zipcode was int now str4
variable zipcode was str4 now str5
(177,091 real changes made)
variable created as string:
dollars1
dollars1: characters $ , removed; replaced as long
(18079 missing values generated)
(18,079 observations deleted)
(16,654 observations deleted)
(59 observations deleted)
(28 observations deleted)
(16,068 observations deleted)
(42 observations deleted)
```

```
(59,928 real changes made)
(59,928 real changes made)
(0 real changes made)
(5 real changes made)
(92,580 real changes made)
(9 real changes made)
  variable year_assessed was float now int
  variable yrs_since_built was float now int
  variable yrs_since_remodel was float now int
  variable heat_electric was float now byte
  variable heat_forced_hot_air was float now byte
  variable heat_pump was float now byte
  variable heat_space was float now byte
  variable heat_steam was float now byte
  variable heat_other was float now byte
  (3,027,864 bytes saved)
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2021.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/intermediate/property_assessments_ma_2021.dta saved

.
. * Merge datasets from 2014-2021 into one dataset containing all
years
. use "$MyProject/processed/intermediate/
property_assessments_ma_2014.dta", clear

. forvalues y = 2015/2021 {
  2.         append using "$MyProject/processed/intermediate/
property_assessments_ma_`y'.dta"
  3. }
(variable living_area was int, now long to accommodate using data's
values)

.
. * Only keep common building types
. replace lu = "A" if lu == "R4"
(13 real changes made)

. replace lu = "CD" if lu == "CC"
(1 real change made)

. replace lu = "E" if lu == "C"
(2 real changes made)

. replace lu = "R" if lu == "R1" | lu == "R2" | lu == "R3" | lu ==
"RC"
(494,676 real changes made)

. drop if lu == "EA" | lu == "XX"
```

```
(382 observations deleted)


. 
. * Save dataset containing all years
. compress
  (0 bytes saved)

. save "$MyProject/processed/property_assessments_ma.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/property_assessments_ma.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/property_assessments_ma.dta saved


. 
. ** EOF
. 
end of do-file

. do "$MyProject/scripts/2f_clean_home_values_data.do"

. ************
. * SCRIPT: 2f_clean_home_values_data.do
. * PURPOSE: processes the zillow home value dataset in preparation
for analysis
. ************
. 
. use "$MyProject/processed/intermediate/
zillow_home_values_uncleaned.dta", clear


. 
. * Select only desired columns
. drop regionid sizerank regiontype statename city metro countyname


. 
. * Rename zipcode
. rename regionname zipcode


. 
. * Rename v10-v274 to their label (month/year)
. foreach v of varlist v* {
  2.         local x: variable label `v'
  3.         local year = substr("`x'", 1, 4)
  4.         local month = substr("`x'", 6, 2)
  5.         rename `v' hv_`month'_`year'
  6. }


. 
. * Make zipcode type string
. tostring zipcode, replace
zipcode was long now str5
```

```
. replace zipcode = "0" + zipcode if strlen(zipcode)==4
(2,351 real changes made)

. replace zipcode = "00" + zipcode if strlen(zipcode)==3
(7 real changes made)


.
. * Add state legality
. rename state abbreviation

. merge m:1 abbreviation using "$MyProject/processed/
us_states_legality.dta"

    Result                      Number of obs
    -----------------------------------------
    Not matched                             0
    Matched                            30,468  (_merge==3)
    -----------------------------------------

. drop _merge


.
. * Save dataset
. compress
  (0 bytes saved)

. save "$MyProject/processed/zillow_home_values.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zillow_home_values.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zillow_home_values.dta saved


.
. ** EOF
.
end of do-file


.
. do "$MyProject/scripts/3a_summarize_us_states_legality_data.do"

. ************
. * SCRIPT: 3a_summarize_us_states_legality_data.do
. * PURPOSE: summarizes the us states legality dataset
. ************
.
. use "$MyProject/processed/us_states_legality.dta", clear


.
. * Generate .csv to use in Tableau
```

```
. gen status = cond(recreational==1, 2, medical)

. keep state status

. outsheet using "$MyProject/processed/us_states_legality.csv", comma
replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/us_states_legality.csv not found)

.
. expand 2
(51 observations created)

. sort state

. gen type_legal = mod(_n, 2)

. gen legal = (status == 1 | status == 2) if type_legal == 0 //
medical
(51 missing values generated)

. replace legal = status == 2 if type_legal == 1 // recreational
(51 real changes made)

. gen illegal = 1 - legal

. gen t = 1

.
. * Summarize legal status by state
. est clear

. estpost tabstat legal illegal t, by(type_legal) stat(sum)

Summary statistics: sum
     for variables: legal illegal t
  by categories of: type_legal

  type_legal |  e(legal)  e(illeg~)       e(t)
-------------+------------------------------
           0 |        39         12         51
           1 |        19         32         51
-------------+------------------------------
       Total |        58         44        102

. esttab using "$MyProject/results/tables/us-states-legality.tex",
replace ///
>         cells("legal illegal t") ///
>         collabels("Legal" "Illegal" "Total") ///
>         coeflabel(0 "Medical" 1 "Recreational") ///
```

```
>         nonumber nomtitle nonote noobs label ///
>         drop("Total")
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/tables/us-states-legality.tex not found)
(output written to /Users/anniebryan/Documents/College/2021-22/14.33/
Project/results/tables/us-states-legality.tex)

.
. ** EOF
.
end of do-file

. do "$MyProject/scripts/3b_summarize_dispensaries_data.do"

. ************
. * SCRIPT: 3b_summarize_dispensaries_data.do
. * PURPOSE: summarizes the dispensaries dataset
. ************
.
. use "$MyProject/processed/dispensaries.dta", clear

.
. * Generate month/year variable
. gen month_str = cond(commence_month <= 4, "Jan-Apr",
cond(commence_month <= 8, "May-Aug", "Sep-Dec"))

. egen month_year_str = concat(month_str commence_year), punct(" ")

.
. * Generate .csv to use in Tableau
. outsheet using "$MyProject/processed/dispensaries_ma.csv", comma
replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries_ma.csv not found)

.
. ** EOF
.
end of do-file

. do "$MyProject/scripts/3c_summarize_prop_assessments_data.do"

. ************
. * SCRIPT: 3e_summarize_prop_assessments_data.do
. * PURPOSE: summarizes the property assessments dataset
. ************
.
. use "$MyProject/processed/property_assessments_ma.dta", clear

.
```

```
. * Assign labels describing types of properties
. gen lu_int = 0

. replace lu_int = 1 if lu == "CD"
(64,354 real changes made)

. replace lu_int = 2 if lu == "E"
(1,410 real changes made)

. replace lu_int = 3 if lu == "R"
(494,676 real changes made)


.
. label define origin 0 "Apartment/dorm" 1 "Condominium" 2 "Essential"
3 "Residential"

. label values lu_int origin

. label variable lu_int "Type"

.
. * Make a table summarizing by property type
. est clear

. eststo clear

.
. estpost tabstat av_bldg ppsqft living_area num_floors, by(lu_int)
stat(mean sd count) col(stat)

Summary statistics: mean sd count
     for variables: av_bldg ppsqft living_area num_floors
  by categories of: lu_int

      lu_int |   e(mean)      e(sd)   e(count)
-------------+--------------------------------
Apartment/~m |
     av_bldg |  202706.7   202225.1       1114
      ppsqft |  61.31684   51.80815       1114
 living_area |  3316.573   1142.826       1114
  num_floors |  2.688061   .4864297       1114
-------------+--------------------------------
Condominium  |
     av_bldg |    782549   851343.6      64354
      ppsqft |  699.5828   331.7674      64354
 living_area |  1084.426   581.9959      64354
  num_floors |  1.285499   .8187775      64354
-------------+--------------------------------
Essential    |
     av_bldg |  439434.7   287248.8       1410
```

```
      ppsqft |  175.7912   97.38514       1410
 living_area |  2808.606   1366.785       1410
  num_floors |   2.10922   .6744238       1410
-------------+------------------------------
Residential  |
     av_bldg |  401870.6     396935     494676
      ppsqft |  172.0178   100.4055     494676
 living_area |  2406.054    1035.18     494676
  num_floors |  2.180224   .6169918     494676
-------------+------------------------------
Total        |
     av_bldg |  445195.5   486778.2     561554
      ppsqft |  232.2666   223.1905     561554
 living_area |  2257.412   1081.757     561554
  num_floors |  2.078518   .7040595     561554

.
. esttab using "$MyProject/results/tables/property-types.tex",
replace ///
>         cells("mean(fmt(%9.1fc)) sd(fmt(%9.1fc))
count(fmt(%9.0fc))") ///
>         collabels("Mean" "SD" "Obs") ///
>         coeflabel(av_bldg "Assessed value" ppsqft "Price per square
foot" living_area "Living area" num_floors "Number of floors") ///
>         label nonumber noobs booktabs compress
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/tables/property-types.tex not found)
(output written to /Users/anniebryan/Documents/College/2021-22/14.33/
Project/results/tables/property-types.tex)

.
.
. * Add zipcode data
. merge m:1 zipcode using "$MyProject/processed/
zip_code_centroids.dta"

    Result                      Number of obs
    -----------------------------------------
    Not matched                           543
        from master                         0  (_merge==1)
        from using                        543  (_merge==2)

    Matched                           561,554  (_merge==3)
    -----------------------------------------

. drop if _merge!=3
(543 observations deleted)

. drop _merge
```

```
.
. * Only considering property values before any dispensaries
. drop if year_assessed >= 2019
(249,521 observations deleted)

.
. * Divide properties into "close" vs. "not close"
. gen close = min_dist_disp < 1

. sort close

.
. * Generate table of summary statistics
. est clear

. eststo clear

.
. estpost su av_bldg living_area ppsqft num_floors r_bdrms if close==1

             |  e(count)   e(sum_w)    e(mean)     e(Var)      e(sd)
e(min)     e(max)     e(sum)
-------------
+------------------------------------------------------------------------
-------------------
     av_bldg |    122789     122789   409057.2   2.50e+11   499836.7
19000   1.91e+07   5.02e+10
 living_area |    122789     122789   2761.979    1193977   1092.693
400      22159   3.39e+08
      ppsqft |    122789     122789   150.8658   12728.61   112.8212
20.03968   1517.647   1.85e+07
  num_floors |    122789     122789   2.454145   .3446246   .5870473
1          6     301342
     r_bdrms |    122789     122789   5.218733   4.598896   2.144504
1         18     640803

. est store a

. estpost su av_bldg living_area ppsqft num_floors r_bdrms if close==0

             |  e(count)   e(sum_w)    e(mean)     e(Var)      e(sd)
e(min)     e(max)     e(sum)
-------------
+------------------------------------------------------------------------
-------------------
     av_bldg |    189244     189244   306731.4   4.02e+10   200534.3
23700    4316000   5.80e+10
 living_area |    189244     189244   2172.998   850645.6   922.3045
300       9161   4.11e+08
      ppsqft |    189244     189244   148.4111   4760.035   68.99301
```

```
20.09764       1671   2.81e+07
  num_floors |    189244     189244   2.002719   .3235964   .5688553
1          5   379002.5
     r_bdrms |    189244     189244   4.257651   2.982441   1.726975
1         16     805735

. est store b

.
. esttab a b using "$MyProject/results/tables/property-
assessments.tex", replace ///
>         cells("mean(fmt(2)) sd(fmt(2)) count(fmt(0))") ///
>         mtitles("\textbf{\underline{Properties within 1 mi.}}"
"\textbf{\underline{Properties outside 1 mi.}}") ///
>         collabels("Mean" "SD" "Obs") ///
>         coeflabel(av_bldg "Assessed Value (\\$)" living_area "Living
Area (sq.ft.)" ppsqft "Price per Square Foot" num_floors "Number of
Floors" r_bdrms "Number of Bedrooms") //
> /
>         label nonumber noobs booktabs compress
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/tables/property-assessments.tex not found)
(output written to /Users/anniebryan/Documents/College/2021-22/14.33/
Project/results/tables/property-assessments.tex)

.
. * Generate .csv to use in Tableau
. collapse close av_bldg ppsqft living_area num_floors r_bdrms,
by(zipcode)

. outsheet using "$MyProject/processed/zipcode_dists.csv", comma
replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/zipcode_dists.csv not found)

.
. ** EOF
.
end of do-file

.
. do "$MyProject/scripts/4a_test_demographic_balance_boston.do"

. ************
. * SCRIPT: 4a_test_demographic_balance_boston.do
. * PURPOSE: runs a 2-sample t-test to check that the demographics in
treatment/control groups are similar
. ************
.
. * Format property dataset
```

```
. use "$MyProject/processed/property_assessments_ma.dta", clear

.
. sort zipcode

. merge m:1 zipcode using "$MyProject/processed/
zip_code_centroids.dta"

    Result                      Number of obs
    -----------------------------------------
    Not matched                           543
        from master                         0  (_merge==1)
        from using                        543  (_merge==2)

    Matched                           561,554  (_merge==3)
    -----------------------------------------

. keep if _merge==3
(543 observations deleted)

. drop _merge

.
. * Divide properties into "close" vs. "not close"
. gen close = min_dist_disp < 1

. sort close

.
. * Run t-test
. global controls av_bldg ppsqft living_area num_floors r_bdrms

.
. est clear

. estpost ttest $controls , by(close)

             |      e(b)   e(count)      e(se)       e(t)    e(df_t)
e(p_l)       e(p)     e(p_u)     e(N_1)    e(mu_1)     e(N_2)
e(mu_2)
-------------
+------------------------------------------------------------------------
-------------------------------------------------------------
     av_bldg | -181231.4     561554   1294.088  -140.0457     561552
0          0          1     326176   369231.5     235378   550462.9
      ppsqft | -77.53012     561554   .5946863  -130.3714     561552
0          0          1     326176   199.7694     235378   277.2996
 living_area |  -391.328     561554    2.87863  -135.9425     561552
0          0          1     326176   2093.385     235378   2484.713
  num_floors | -.3005425     561554   .0018614  -161.4593     561552
```

```
0          0          1     326176   1.952544     235378   2.253087
     r_bdrms | -.5676981     561554    .005559  -102.1228     561552
0          0          1     326176   4.094271     235378   4.661969

.
. esttab using "$MyProject/results/tables/ttest-properties.tex",
replace ///
>         cells("mu_1 mu_2 b se count") ///
>         collabels("Treated" "Untreated" "Diff." "S.E." "Obs." ) ///
>         coeflabel(av_bldg "Building value" ppsqft "Price per square
foot" living_area "Living area" num_floors "Number of floors" r_bdrms
"Number of bedrooms") ///
>         label booktabs nonum compress
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/tables/ttest-properties.tex not found)
(output written to /Users/anniebryan/Documents/College/2021-22/14.33/
Project/results/tables/ttest-properties.tex)

.
. * EOF
.
end of do-file

. do "$MyProject/scripts/
4b_test_parallel_trends_property_assessments.do"

. ************
. * SCRIPT: 4c_test_parallel_trends_property_assessments.do
. * PURPOSE: plots assessed property values to test for parallel
trends
. ************
.
. * Format property dataset
. use "$MyProject/processed/property_assessments_ma.dta", clear

.
. sort zipcode

. merge m:1 zipcode using "$MyProject/processed/
zip_code_centroids.dta"

    Result                      Number of obs
    -----------------------------------------
    Not matched                           543
        from master                         0  (_merge==1)
        from using                        543  (_merge==2)

    Matched                           561,554  (_merge==3)
    -----------------------------------------
```

```
. keep if _merge==3
(543 observations deleted)

. drop _merge

.
. * Create set of treatment variables treat_j_d for j = -5 to 2, d = 1
to 5
. * treat_j_d = 1 if a dispensary opens between d-1 and d miles away
at time t-j
. * treat_d   = 1 if a dispensary opens between d-1 and d miles away
at any time
.
. forvalues d = 1/5 {
  2.         gen treat_d`d' = 0
  3.         forvalues j = -5/2 {
  4.                 local abs_j = cond(`j' < 0, -`j', `j')
  5.                 local j_str = cond(`j' == 0, "0", cond(`j' < 0,
"m`abs_j'", "p`j'"))
  6.                 gen treat_j`j_str'_d`d' = 0
  7.
.                 forvalues y = 2019/2022 {
  8.                         replace treat_j`j_str'_d`d' = 1 if
year_assessed - `j' == `y' & min_dist_`y' < `d' & min_dist_`y' >=
`d'-1
  9.                 }
 10.
.                 replace treat_d`d' = treat_d`d' +
treat_j`j_str'_d`d'
 11.         }
 12.         replace treat_d`d' = cond(treat_d`d' > 0, 1, 0)
 13. }
(13 real changes made)
(10,330 real changes made)
(17,912 real changes made)
(24,543 real changes made)
(52,798 real changes made)
(13 real changes made)
(10,319 real changes made)
(17,878 real changes made)
(24,476 real changes made)
(52,686 real changes made)
(13 real changes made)
(10,312 real changes made)
(17,837 real changes made)
(24,411 real changes made)
(52,573 real changes made)
(13 real changes made)
(10,294 real changes made)
(17,796 real changes made)
```

(23,948 real changes made)
(52,051 real changes made)
(12 real changes made)
(10,275 real changes made)
(17,432 real changes made)
(64,230 real changes made)
(91,949 real changes made)
(13 real changes made)
(10,035 real changes made)
(54,168 real changes made)
(0 real changes made)
(64,216 real changes made)
(13 real changes made)
(16,050 real changes made)
(0 real changes made)
(0 real changes made)
(16,063 real changes made)
(16 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(16 real changes made)
(135,443 real changes made)
(8,368 real changes made)
(24,315 real changes made)
(21,282 real changes made)
(14,580 real changes made)
(68,545 real changes made)
(8,405 real changes made)
(24,265 real changes made)
(21,245 real changes made)
(14,547 real changes made)
(68,462 real changes made)
(8,376 real changes made)
(24,229 real changes made)
(21,186 real changes made)
(14,520 real changes made)
(68,311 real changes made)
(8,346 real changes made)
(24,194 real changes made)
(21,135 real changes made)
(14,319 real changes made)
(67,994 real changes made)
(8,315 real changes made)
(24,159 real changes made)
(20,835 real changes made)
(33,715 real changes made)
(87,024 real changes made)
(8,314 real changes made)
(23,791 real changes made)

(43,777 real changes made)
(0 real changes made)
(75,882 real changes made)
(8,105 real changes made)
(56,431 real changes made)
(0 real changes made)
(0 real changes made)
(64,536 real changes made)
(21,780 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(21,780 real changes made)
(189,322 real changes made)
(7,125 real changes made)
(8,176 real changes made)
(9,100 real changes made)
(9,075 real changes made)
(33,476 real changes made)
(7,162 real changes made)
(8,143 real changes made)
(9,075 real changes made)
(9,056 real changes made)
(33,436 real changes made)
(7,165 real changes made)
(8,116 real changes made)
(9,056 real changes made)
(9,043 real changes made)
(33,380 real changes made)
(7,161 real changes made)
(8,073 real changes made)
(9,043 real changes made)
(8,971 real changes made)
(33,248 real changes made)
(7,163 real changes made)
(8,036 real changes made)
(8,971 real changes made)
(12,054 real changes made)
(36,224 real changes made)
(7,170 real changes made)
(7,964 real changes made)
(12,054 real changes made)
(0 real changes made)
(27,188 real changes made)
(7,020 real changes made)
(30,144 real changes made)
(0 real changes made)
(0 real changes made)
(37,164 real changes made)
(25,163 real changes made)

(0 real changes made)
(0 real changes made)
(0 real changes made)
(25,163 real changes made)
(69,182 real changes made)
(23,375 real changes made)
(5,594 real changes made)
(7,543 real changes made)
(7,549 real changes made)
(44,061 real changes made)
(23,435 real changes made)
(5,568 real changes made)
(7,549 real changes made)
(7,547 real changes made)
(44,099 real changes made)
(23,358 real changes made)
(5,542 real changes made)
(7,547 real changes made)
(7,542 real changes made)
(43,989 real changes made)
(23,301 real changes made)
(5,519 real changes made)
(7,542 real changes made)
(7,506 real changes made)
(43,868 real changes made)
(23,218 real changes made)
(5,505 real changes made)
(7,506 real changes made)
(8,783 real changes made)
(45,012 real changes made)
(23,165 real changes made)
(5,449 real changes made)
(8,783 real changes made)
(0 real changes made)
(37,397 real changes made)
(22,873 real changes made)
(7,374 real changes made)
(0 real changes made)
(0 real changes made)
(30,247 real changes made)
(47,632 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(47,632 real changes made)
(79,473 real changes made)
(12,629 real changes made)
(14,222 real changes made)
(6,575 real changes made)
(6,587 real changes made)

```
(40,013 real changes made)
(12,644 real changes made)
(14,117 real changes made)
(6,587 real changes made)
(6,593 real changes made)
(39,941 real changes made)
(12,553 real changes made)
(14,135 real changes made)
(6,593 real changes made)
(6,591 real changes made)
(39,872 real changes made)
(12,561 real changes made)
(14,139 real changes made)
(6,591 real changes made)
(6,550 real changes made)
(39,841 real changes made)
(12,562 real changes made)
(14,132 real changes made)
(6,550 real changes made)
(7,325 real changes made)
(40,569 real changes made)
(12,550 real changes made)
(14,055 real changes made)
(7,325 real changes made)
(0 real changes made)
(33,930 real changes made)
(12,487 real changes made)
(16,108 real changes made)
(0 real changes made)
(0 real changes made)
(28,595 real changes made)
(17,630 real changes made)
(0 real changes made)
(0 real changes made)
(0 real changes made)
(17,630 real changes made)
(94,317 real changes made)

.
. save "$MyProject/processed/
dispensaries_on_property_assessments.dta", replace
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries_on_property_assessments.dta not found)
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
processed/dispensaries_on_property_assessments.dta saved

.
. * EOF
.
end of do-file
```

```
.
. do "$MyProject/scripts/
5a_regression_dispensaries_on_property_assessments.do"

. ************
. * SCRIPT: 5a_regression_dispensaries_on_property_assessments.do
. * PURPOSE: runs a regression of dispensaries on property assessments
. ************
.
. use "$MyProject/processed/dispensaries_on_property_assessments.dta",
clear


.
. destring zipcode, replace
zipcode: all characters numeric; replaced as int

. format zipcode %05.0f


.
. * Define covariates
. local heat_type heat_electric heat_forced_hot_air heat_pump
heat_space heat_steam

. local covariates living_area num_floors r_bdrms r_full_bth
r_half_bth r_kitch yrs_since_built yrs_since_remodel `heat_type'


.
. * Run separate regression for each building type
. set graphics off

. est clear


.
. encode lu, gen(lu_enc)


.
. matrix rel_time = (-5, -4, -3, -2, -1, 0, 1, 2)'

. svmat rel_time


.
. forvalues d = 1/5 {
  2.         local treatment treat_d`d' treat_jm5_d`d' treat_jm4_d`d'
treat_jm3_d`d' treat_jm2_d`d' treat_j0_d`d' treat_jp1_d`d'
treat_jp2_d`d'
  3.
.         local dm1 = `d'-1
  4.         qui reg ppsqft `treatment' i.year_assessed i.zipcode
i.lu_enc `covariates', vce(cluster year_assessed zipcode)
```

```
  5.         eststo model_`d', title("`dm1'-`d' mi.")
  6.
.         * Plot coefficients from regression
.         matrix coefs_`d' = (_b[treat_jm5_d`d'], _b[treat_jm4_d`d'],
_b[treat_jm3_d`d'], _b[treat_jm2_d`d'], 0, _b[treat_j0_d`d'],
_b[treat_jp1_d`d'], _b[treat_jp2_d`d'])'
  7.         svmat coefs_`d'
  8.
.         matrix se_`d' = (_se[treat_jm5_d`d'], _se[treat_jm4_d`d'],
_se[treat_jm3_d`d'], _se[treat_jm2_d`d'], 0, _se[treat_j0_d`d'],
_se[treat_jp1_d`d'], _se[treat_jp2_d`d'])'
  9.
.         matrix high_`d' = coefs_`d' + invttail(e(df_r),0.025)*se_`d'
 10.         svmat high_`d'
 11.
.         matrix low_`d' = coefs_`d' - invttail(e(df_r),0.025)*se_`d'
 12.         svmat low_`d'
 13. }

.
. matrix d1_rel_time = rel_time - 0.2*(1, 1, 1, 1, 1, 1, 1, 1)'

. svmat d1_rel_time

.
. matrix d2_rel_time = rel_time - 0.1*(1, 1, 1, 1, 1, 1, 1, 1)'

. svmat d2_rel_time

.
. matrix d4_rel_time = rel_time + 0.1*(1, 1, 1, 1, 1, 1, 1, 1)'

. svmat d4_rel_time

.
. matrix d5_rel_time = rel_time + 0.2*(1, 1, 1, 1, 1, 1, 1, 1)'

. svmat d5_rel_time

.
. graph twoway (rcap high_1 low_1 d1_rel_time in 1/8, color("12 69
118")) ///
>         (rcap high_2 low_2 d2_rel_time in 1/8, color("7 90
152")) ///
>         (rcap high_3 low_3 rel_time in 1/8, color("1 111 185")) ///
>         (rcap high_4 low_4 d4_rel_time in 1/8, color("108 175
220")) ///
>         (rcap high_5 low_5 d5_rel_time in 1/8, color("161 207
238")) ///
>         (scatter coefs_1 d1_rel_time, color("12 69 118")) ///
```

```
>         (scatter coefs_2 d2_rel_time, color("7 90 152")) ///
>         (scatter coefs_3 rel_time, color("1 111 185")) ///
>         (scatter coefs_4 d4_rel_time, color("108 175 220")) ///
>         (scatter coefs_5 d5_rel_time, color("161 207 238")), ///
>         xtitle("Event year") ///
>         xlabel(-5(1)2) ///
>         ylabel(, angle(0)) ///
>         ytitle("Price ($) per square foot") ///
>         legend(order(6 "{&beta}{sub:j,1}" 7 "{&beta}{sub:j,2}" 8
"{&beta}{sub:j,3}" 9 "{&beta}{sub:j,4}" 10 "{&beta}{sub:j,5}")
rows(1)) ///
>

. graph export "$MyProject/results/figures/reg-property-vals.png",
replace
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/figures/reg-property-vals.png saved as PNG format

.
. esttab model* using "$MyProject/results/tables/reg-property-
vals.tex", replace ///
>         rename(treat_d1 treatment_d treat_d2 treatment_d treat_d3
treatment_d treat_d4 treatment_d treat_d5 treatment_d treat_jm5_d1
treatment_-5_d treat_jm5_d2 treatment_-5_d t
> reat_jm5_d3 treatment_-5_d treat_jm5_d4 treatment_-5_d treat_jm5_d5
treatment_-5_d treat_jm4_d1 treatment_-4_d treat_jm4_d2 treatment_-4_d
treat_jm4_d3 treatment_-4_d treat_jm4_
> d4 treatment_-4_d treat_jm4_d5 treatment_-4_d treat_jm3_d1
treatment_-3_d treat_jm3_d2 treatment_-3_d treat_jm3_d3 treatment_-3_d
treat_jm3_d4 treatment_-3_d treat_jm3_d5 treatm
> ent_-3_d treat_jm2_d1 treatment_-2_d treat_jm2_d2 treatment_-2_d
treat_jm2_d3 treatment_-2_d treat_jm2_d4 treatment_-2_d treat_jm2_d5
treatment_-2_d treat_j0_d1 treatment_0_d tr
> eat_j0_d2 treatment_0_d treat_j0_d3 treatment_0_d treat_j0_d4
treatment_0_d treat_j0_d5 treatment_0_d treat_jp1_d1 treatment_1_d
treat_jp1_d2 treatment_1_d treat_jp1_d3 treatmen
> t_1_d treat_jp1_d4 treatment_1_d treat_jp1_d5 treatment_1_d
treat_jp2_d1 treatment_2_d treat_jp2_d2 treatment_2_d treat_jp2_d3
treatment_2_d treat_jp2_d4 treatment_2_d treat_jp2
> _d5 treatment_2_d) ///
>         keep(treatment_*) ///
>         cells(b(star fmt(3)) se(par fmt(2))) ///
>         mtitles("0-1 mi." "1-2 mi." "2-3 mi." "3-4 mi.") ///
>         legend label ///
>
(file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/tables/reg-property-vals.tex not found)
(output written to /Users/anniebryan/Documents/College/2021-22/14.33/
Project/results/tables/reg-property-vals.tex)
```

```
. * EOF
.
end of do-file

. do "$MyProject/scripts/
5b_regression_state_legality_on_home_values.do"

. ************
. * SCRIPT: 5b_regression_state_legality_on_home_values.do
. * PURPOSE: runs a regression of state legality on home values
. ************
.
. use "$MyProject/processed/zillow_home_values.dta", clear

.
. destring zipcode, replace
zipcode: all characters numeric; replaced as long

. format zipcode %05.0f

.
. forvalues y = 2000/2021 {
  2.         gen avg_hv_`y' = (hv_01_`y' + hv_02_`y' + hv_03_`y' +
hv_04_`y' + hv_05_`y' + hv_06_`y' + hv_07_`y' + hv_08_`y' + hv_09_`y'
+ hv_10_`y' + hv_11_`y' + hv_12_`y')/12
  3. }
(14,754 missing values generated)
(14,197 missing values generated)
(13,762 missing values generated)
(13,017 missing values generated)
(12,368 missing values generated)
(11,896 missing values generated)
(11,396 missing values generated)
(11,009 missing values generated)
(10,544 missing values generated)
(9,206 missing values generated)
(5,851 missing values generated)
(5,373 missing values generated)
(3,366 missing values generated)
(2,941 missing values generated)
(2,563 missing values generated)
(2,183 missing values generated)
(1,857 missing values generated)
(1,526 missing values generated)
(1,159 missing values generated)
(601 missing values generated)
(347 missing values generated)
(998 missing values generated)

. drop hv_*
```

```
.
. * Create one row for each observation
. expand 22
(639,828 observations created)

. bysort zipcode: gen year = 1999 + _n

. gen avg_hv = .
(670,296 missing values generated)

. forvalues y = 2000/2021 {
  2.         replace avg_hv = avg_hv_`y' if year == `y'
  3. }
(15,714 real changes made)
(16,271 real changes made)
(16,706 real changes made)
(17,451 real changes made)
(18,100 real changes made)
(18,572 real changes made)
(19,072 real changes made)
(19,459 real changes made)
(19,924 real changes made)
(21,262 real changes made)
(24,617 real changes made)
(25,095 real changes made)
(27,102 real changes made)
(27,527 real changes made)
(27,905 real changes made)
(28,285 real changes made)
(28,611 real changes made)
(28,942 real changes made)
(29,309 real changes made)
(29,867 real changes made)
(30,121 real changes made)
(29,470 real changes made)

. drop avg_hv_*

. drop if missing(avg_hv)
(150,914 observations deleted)

.
. * Create enum variable for state
. encode abbreviation, gen(abbrev)

.
. * Create treatment variable
. gen legal_med = medical & real(year_legalized_med) <= year
```

```
.
. * Add lags/leads
. gen c_m8_med = medical & real(year_legalized_med) == year + 8

. gen c_m7_med = medical & real(year_legalized_med) == year + 7

. gen c_m6_med = medical & real(year_legalized_med) == year + 6

. gen c_m5_med = medical & real(year_legalized_med) == year + 5

. gen c_m4_med = medical & real(year_legalized_med) == year + 4

. gen c_m3_med = medical & real(year_legalized_med) == year + 3

. gen c_m2_med = medical & real(year_legalized_med) == year + 2

. gen c_0_med = medical & real(year_legalized_med) == year

. gen c_p1_med = medical & real(year_legalized_med) == year - 1

. gen c_p2_med = medical & real(year_legalized_med) == year - 2

. gen c_p3_med = medical & real(year_legalized_med) == year - 3

. gen c_p4_med = medical & real(year_legalized_med) == year - 4

. gen c_p5_med = medical & real(year_legalized_med) == year - 5

. gen c_p6_med = medical & real(year_legalized_med) == year - 6

. gen c_p7_med = medical & real(year_legalized_med) == year - 7

. gen c_p8_med = medical & real(year_legalized_med) == year - 8

.
. local treatment_med medical c_m8_med c_m7_med c_m6_med c_m5_med
c_m4_med c_m3_med c_m2_med c_0_med c_p1_med c_p2_med c_p3_med c_p4_med
c_p5_med c_p6_med c_p7_med c_p8_med

.
. * Run regression for medical
. reg avg_hv `treatment_med' i.year i.abbrev, vce(cluster abbrev)
note: 51.abbrev omitted because of collinearity.

Linear regression                               Number of obs     =
519,382
                                                F(36, 50)
=          .
                                                Prob > F
=          .
```

```
                                                      R-squared         =
0.2902
                                                      Root MSE          =
1.8e+05

                                (Std. err. adjusted for 51 clusters in
abbrev)
------------------------------------------------------------------------
--------
             |               Robust
      avg_hv | Coefficient  std. err.      t    P>|t|     [95% conf.
interval]
-------------
+----------------------------------------------------------------
     medical |  -6238.338   4664.402    -1.34   0.187    -15607.06
3130.39
    c_m8_med |   7887.147   6199.837     1.27   0.209    -4565.592
20339.89
    c_m7_med |   11194.26   5919.197     1.89   0.064     -694.794
23083.32
    c_m6_med |   11656.47   5760.114     2.02   0.048     86.93597
23226
    c_m5_med |   11637.41   5824.463     2.00   0.051    -61.36511
23336.19
    c_m4_med |   9941.167   5478.092     1.81   0.076    -1061.904
20944.24
    c_m3_med |     4486.6     4993.1     0.90   0.373    -5542.337
14515.54
    c_m2_med |  -735.6179   4754.129    -0.15   0.878    -10284.57
8813.33
     c_0_med |  -11349.23   6936.695    -1.64   0.108       -25282
2583.529
    c_p1_med |  -14150.71   7990.017    -1.77   0.083    -30199.13
1897.716
    c_p2_med |  -17669.17   9179.257    -1.92   0.060    -36106.25
767.906
    c_p3_med |  -20567.47   10846.52    -1.90   0.064    -42353.35
1218.409
    c_p4_med |  -32828.46   18641.78    -1.76   0.084    -70271.58
4614.67
    c_p5_med |   -30234.4   19574.64    -1.54   0.129    -69551.21
9082.415
    c_p6_med |   -28533.5   20766.62    -1.37   0.176    -70244.49
13177.49
    c_p7_med |  -24843.29   19845.99    -1.25   0.216    -64705.13
15018.55
    c_p8_med |  -21935.55   15433.54    -1.42   0.161    -52934.73
9063.624
             |
        year |
```

```
       2001  |   13325.68   2498.893     5.33   0.000     8306.508
18344.86
       2002  |   26511.69   4650.675     5.70   0.000     17170.53
35852.85
       2003  |   41389.13   7665.949     5.40   0.000     25991.61
56786.64
       2004  |   61051.67   11825.74     5.16   0.000     37298.98
84804.36
       2005  |   83870.02   15722.67     5.33   0.000     52290.11
115449.9
       2006  |   100608.3   18438.25     5.46   0.000     63573.98
137642.6
       2007  |   97913.62   16287.83     6.01   0.000     65198.56
130628.7
       2008  |   80138.05    11618.2     6.90   0.000      56802.2
103473.9
       2009  |   57967.92   9435.881     6.14   0.000     39015.39
76920.44
       2010  |   47828.42   9847.722     4.86   0.000     28048.69
67608.15
       2011  |   39983.84    9500.99     4.21   0.000     20900.53
59067.14
       2012  |   38358.27   9632.309     3.98   0.000     19011.21
57705.33
       2013  |   48487.94   11147.11     4.35   0.000      26098.3
70877.58
       2014  |   61194.56   13800.82     4.43   0.000      33474.8
88914.32
       2015  |   69603.34   15171.13     4.59   0.000     39131.23
100075.4
       2016  |   80115.67   16745.63     4.78   0.000     46481.09
113750.3
       2017  |    90815.3   18590.81     4.88   0.000     53474.55
128156
       2018  |   104811.1    21433.3     4.89   0.000     61761.01
147861.1
       2019  |   111577.7   21465.27     5.20   0.000     68463.39
154691.9
       2020  |   121919.1   23249.31     5.24   0.000     75221.46
168616.7
       2021  |     154596   27314.74     5.66   0.000     99732.74
209459.3
             |
      abbrev |
         AL  |  -113002.6   3450.251   -32.75   0.000    -119932.7
-106072.6
         AR  |  -139600.6   2482.121   -56.24   0.000    -144586.1
-134615.1
         AZ  |  -10814.88   4129.197    -2.62   0.012    -19108.61
-2521.141
```

```
         CA  |   282884.6   1816.458   155.73   0.000     279236.1
286533
         CO  |   61038.54   2705.115    22.56   0.000     55605.16
66471.92
         CT  |    74916.9   4438.164    16.88   0.000     66002.58
83831.21
         DC  |   287660.6   4071.045    70.66   0.000     279483.7
295837.5
         DE  |   55180.64    4300.95    12.83   0.000     46541.93
63819.35
         FL  |  -16520.99   2527.796    -6.54   0.000    -21598.22
-11443.77
         GA  |  -94913.51   3597.973   -26.38   0.000    -102140.2
-87686.76
         HI  |   287633.7   3138.948    91.63   0.000       281329
293938.5
         IA  |    -113687   2968.362   -38.30   0.000    -119649.2
-107724.9
         ID  |  -32043.75   1291.413   -24.81   0.000    -34637.63
-29449.87
         IL  |  -65279.66   4932.272   -13.24   0.000    -75186.42
-55372.9
         IN  |    -121785   1732.557   -70.29   0.000    -125264.9
-118305
         KS  |  -112649.9   703.9939  -160.02   0.000    -114063.9
-111235.9
         KY  |  -139650.6   2658.108   -52.54   0.000    -144989.6
-134311.6
         LA  |  -90629.26   2715.035   -33.38   0.000    -96082.57
-85175.96
         MA  |   163875.8   4081.503    40.15   0.000     155677.9
172073.8
         MD  |   78829.39   3774.827    20.88   0.000     71247.43
86411.36
         ME  |  -26659.41   2017.403   -13.21   0.000    -30711.49
-22607.34
         MI  |  -78865.05   3930.333   -20.07   0.000    -86759.36
-70970.74
         MN  |  -45688.74   4521.722   -10.10   0.000    -54770.88
-36606.59
         MO  |  -99675.11   3165.708   -31.49   0.000    -106033.6
-93316.6
         MS  |  -141154.9   6281.964   -22.47   0.000    -153772.6
-128537.2
         MT  |   16336.65   2518.631     6.49   0.000     11277.83
21395.47
         NC  |  -76060.94   3149.504   -24.15   0.000    -82386.91
-69734.98
         ND  |  -71893.62   4353.783   -16.51   0.000    -80638.45
-63148.79
```

```
          NE  |  -101100.7   1852.091   -54.59   0.000    -104820.7
-97380.68
          NH  |   27632.95   4158.232     6.65   0.000     19280.89
35985
          NJ  |   145644.5   4035.994    36.09   0.000     137537.9
153751
          NM  |  -48986.25   2357.637   -20.78   0.000    -53721.71
-44250.8
          NV  |   43611.77   2300.173    18.96   0.000     38991.74
48231.81
          NY  |   42424.96   3769.001    11.26   0.000      34854.7
49995.22
          OH  |  -102623.6   2532.823   -40.52   0.000    -107710.9
-97536.28
          OK  |    -141623   2204.116   -64.25   0.000    -146050.1
-137196
          OR  |    24799.1   2078.813    11.93   0.000     20623.69
28974.52
          PA  |  -65554.13   2585.688   -25.35   0.000    -70747.64
-60360.63
          RI  |   62337.12   3948.763    15.79   0.000      54405.8
70268.45
          SC  |  -86433.56   2794.106   -30.93   0.000    -92045.69
-80821.43
          SD  |  -80633.79   5455.895   -14.78   0.000    -91592.28
-69675.3
          TN  |  -107162.9   3861.441   -27.75   0.000    -114918.9
-99407.01
          TX  |  -73675.52   2323.783   -31.70   0.000    -78342.98
-69008.07
          UT  |   23010.29   2879.666     7.99   0.000     17226.32
28794.27
          VA  |    13127.6   3463.168     3.79   0.000     6171.623
20083.58
          VT  |  -19709.77   3526.613    -5.59   0.000    -26793.18
-12626.36
          WA  |   56216.47   1387.429    40.52   0.000     53429.73
59003.2
          WI  |  -78453.48   2070.503   -37.89   0.000     -82612.2
-74294.75
          WV  |  -147390.3   2403.335   -61.33   0.000    -152217.6
-142563.1
          WY  |           0  (omitted)
              |
       _cons  |   162838.6   16290.75    10.00   0.000     130117.7
195559.5
------------------------------------------------------------------------
--------

.
```

```
. * Plot coefficients from regression
. matrix coefs_med = (_b[c_m8_med], _b[c_m7_med], _b[c_m6_med],
_b[c_m5_med], _b[c_m4_med], _b[c_m3_med], _b[c_m2_med], 0,
_b[c_0_med], _b[c_p1_med], _b[c_p2_med], _b[c_p3_med], _
> b[c_p4_med], _b[c_p5_med], _b[c_p6_med], _b[c_p7_med],
_b[c_p8_med])'

. svmat coefs_med

.
. matrix stderrs_med = (_se[c_m8_med], _se[c_m7_med], _se[c_m6_med],
_se[c_m5_med], _se[c_m4_med], _se[c_m3_med], _se[c_m2_med], 0,
_se[c_0_med], _se[c_p1_med], _se[c_p2_med], _se
> [c_p3_med], _se[c_p4_med], _se[c_p5_med], _se[c_p6_med],
_se[c_p7_med], _se[c_p8_med])'

. svmat stderrs_med

.
. matrix high_med = coefs_med + invttail(e(df_r),0.025)*stderrs_med

. svmat high_med

.
. matrix low_med = coefs_med - invttail(e(df_r),0.025)*stderrs_med

. svmat low_med

.
. matrix rel_time = (-8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5,
6, 7, 8)'

. svmat rel_time

.
. graph twoway (rcap high_med low_med rel_time in 1/17) (scatter
coefs_med rel_time), ///
>         xtitle("Event year") ///
>         xlabel(-8(1)8) ///
>         ylabel(-40000 "-40,000" -20000 "-20,000" 0 "0" 20000
"20,000", angle(0)) ///
>         legend(off) ///
>

. graph export "$MyProject/results/figures/reg-state-legality-home-
vals-med.png", replace
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/figures/reg-state-legality-home-vals-med.png saved as PNG
format
```

```
.
. * Repeat for recreational
. drop coefs_med1 stderrs_med1 high_med1 low_med1 rel_time1

.
. * Create treatment variable
. gen legal_rec = recreational & real(year_legalized_rec) <= year

.
. * Add lags/leads
. gen c_m8_rec = recreational & real(year_legalized_rec) == year + 8

. gen c_m7_rec = recreational & real(year_legalized_rec) == year + 7

. gen c_m6_rec = recreational & real(year_legalized_rec) == year + 6

. gen c_m5_rec = recreational & real(year_legalized_rec) == year + 5

. gen c_m4_rec = recreational & real(year_legalized_rec) == year + 4

. gen c_m3_rec = recreational & real(year_legalized_rec) == year + 3

. gen c_m2_rec = recreational & real(year_legalized_rec) == year + 2

. gen c_0_rec = recreational & real(year_legalized_rec) == year

. gen c_p1_rec = recreational & real(year_legalized_rec) == year - 1

. gen c_p2_rec = recreational & real(year_legalized_rec) == year - 2

. gen c_p3_rec = recreational & real(year_legalized_rec) == year - 3

. gen c_p4_rec = recreational & real(year_legalized_rec) == year - 4

. gen c_p5_rec = recreational & real(year_legalized_rec) == year - 5

. gen c_p6_rec = recreational & real(year_legalized_rec) == year - 6

. gen c_p7_rec = recreational & real(year_legalized_rec) == year - 7

. gen c_p8_rec = recreational & real(year_legalized_rec) == year - 8

.
. local treatment_rec recreational c_m8_rec c_m7_rec c_m6_rec c_m5_rec
c_m4_rec c_m3_rec c_m2_rec c_0_rec c_p1_rec c_p2_rec c_p3_rec c_p4_rec
c_p5_rec c_p6_rec c_p7_rec c_p8_rec

.
. * Run regression for medical
. reg avg_hv `treatment_rec' i.year i.abbrev, vce(cluster abbrev)
```

```
note: 51.abbrev omitted because of collinearity.

Linear regression                               Number of obs     =
519,382
                                                F(36, 50)
=          .
                                                Prob > F
=          .
                                                R-squared         =
0.2926
                                                Root MSE          =
1.8e+05

                               (Std. err. adjusted for 51 clusters in
abbrev)
------------------------------------------------------------------------------
             |               Robust
      avg_hv | Coefficient  std. err.      t    P>|t|     [95% conf.
interval]
-------------
+----------------------------------------------------------------
recreational |  -38799.59   9366.702    -4.14   0.000    -57613.17
-19986.02
    c_m8_rec |   -5295.27   6336.931    -0.84   0.407    -18023.37
7432.832
    c_m7_rec |  -15136.44   12516.41    -1.21   0.232    -40276.39
10003.51
    c_m6_rec |  -13261.56   13232.15    -1.00   0.321    -39839.11
13315.99
    c_m5_rec |  -16334.15   15502.68    -1.05   0.297    -47472.19
14803.9
    c_m4_rec |  -15379.57      14957    -1.03   0.309    -45421.59
14662.44
    c_m3_rec |  -7264.457   10154.25    -0.72   0.478    -27659.86
13130.94
    c_m2_rec |   555.4945   9449.924     0.06   0.953    -18425.24
19536.22
     c_0_rec |   12128.32   13682.91     0.89   0.380    -15354.62
39611.26
    c_p1_rec |   23476.05   20521.59     1.14   0.258    -17742.79
64694.88
    c_p2_rec |   29176.77   31488.79     0.93   0.359    -34070.32
92423.87
    c_p3_rec |    51855.6   28779.58     1.80   0.078    -5949.887
109661.1
    c_p4_rec |    81817.1   30447.47     2.69   0.010     20661.56
142972.6
    c_p5_rec |   119817.7   43658.52     2.74   0.008     32126.96
207508.4
```

```
    c_p6_rec |   73443.83   9430.365     7.79   0.000     54502.38
92385.27
    c_p7_rec |   88297.48    13858.7     6.37   0.000     60461.46
116133.5
    c_p8_rec |   97985.38   11754.59     8.34   0.000      74375.6
121595.2
             |
        year |
        2001 |   13245.81    2525.82     5.24   0.000     8172.553
18319.07
        2002 |   26229.16   4459.428     5.88   0.000     17272.14
35186.18
        2003 |   41404.63   7780.502     5.32   0.000     25777.03
57032.23
        2004 |   61275.42    12389.6     4.95   0.000     36390.18
86160.67
        2005 |   86562.87    18389.4     4.71   0.000     49626.67
123499.1
        2006 |   104342.1   21193.12     4.92   0.000     61774.44
146909.7
        2007 |   103265.7   19524.57     5.29   0.000     64049.44
142482
        2008 |   87063.46    14114.1     6.17   0.000     58714.47
115412.5
        2009 |      66560   11334.78     5.87   0.000     43793.42
89326.57
        2010 |   54710.43   11592.65     4.72   0.000     31425.92
77994.95
        2011 |   46676.41   11175.69     4.18   0.000     24229.38
69123.44
        2012 |   42875.89   11108.42     3.86   0.000     20563.97
65187.81
        2013 |   51662.58   13246.53     3.90   0.000     25056.14
78269.02
        2014 |   61329.16   15207.25     4.03   0.000     30784.49
91873.82
        2015 |    67165.9   16499.56     4.07   0.000     34025.56
100306.2
        2016 |   72322.91   16165.32     4.47   0.000     39853.91
104791.9
        2017 |   78245.54   15810.67     4.95   0.000     46488.87
110002.2
        2018 |   88622.74   16490.13     5.37   0.000     55501.35
121744.1
        2019 |   90309.29   14619.67     6.18   0.000     60944.81
119673.8
        2020 |    95330.2   14268.98     6.68   0.000     66670.12
123990.3
        2021 |   124861.6   16017.14     7.80   0.000     92690.22
157033
```

```
             |
      abbrev |
          AL  |  -120359.7   1086.135  -110.81   0.000    -122541.3
-118178.1
          AR  |  -154962.6   1655.988   -93.58   0.000    -158288.8
-151636.5
          AZ  |   10741.16   9149.237     1.17   0.246    -7635.627
29117.94
          CA  |   292263.9   2919.933   100.09   0.000     286399.1
298128.8
          CO  |   53659.41    1438.62    37.30   0.000     50769.86
56548.97
          CT  |   97348.63   10078.73     9.66   0.000     77104.91
117592.4
          DC  |   288573.5   2590.468   111.40   0.000     283370.4
293776.6
          DE  |   35802.49   1777.365    20.14   0.000     32232.54
39372.43
          FL  |  -31779.25   1918.778   -16.56   0.000    -35633.23
-27925.27
          GA  |  -100369.4   1857.775   -54.03   0.000    -104100.8
-96637.92
          HI  |   270803.2   1761.914   153.70   0.000     267264.3
274342.1
          IA  |  -126006.8   697.7978  -180.58   0.000    -127408.4
-124605.2
          ID  |  -34125.63   498.4303   -68.47   0.000    -35126.75
-33124.5
          IL  |  -46738.92   7058.218    -6.62   0.000    -60915.76
-32562.07
          IN  |  -125081.9   660.2648  -189.44   0.000    -126408.1
-123755.8
          KS  |  -113900.2   393.0105  -289.81   0.000    -114689.6
-113110.8
          KY  |  -143588.7   1451.177   -98.95   0.000    -146503.5
-140673.9
          LA  |  -103422.6   744.5582  -138.90   0.000    -104918.1
-101927.1
          MA  |   172210.8   3348.926    51.42   0.000     165484.2
178937.3
          MD  |    61090.5   2034.478    30.03   0.000     57004.13
65176.86
          ME  |  -20077.49    1912.62   -10.50   0.000     -23919.1
-16235.88
          MI  |   -61768.2   5899.421   -10.47   0.000    -73617.54
-49918.86
          MN  |   -64708.7   993.9551   -65.10   0.000    -66705.12
-62712.28
          MO  |  -109535.9   685.6768  -159.75   0.000    -110913.1
-108158.7
```

```
          MS  |  -143169.1   487.5305  -293.66   0.000    -144148.4
-142189.9
          MT  |   46347.27   8497.125     5.45   0.000     29280.29
63414.25
          NC  |  -81053.35   1535.978   -52.77   0.000    -84138.45
-77968.24
          ND  |  -87159.56   479.6225  -181.73   0.000    -88122.91
-86196.21
          NE  |  -104159.3   880.5143  -118.29   0.000    -105927.9
-102390.8
          NH  |   8776.261    1942.08     4.52   0.000     4875.479
12677.04
          NJ  |   167455.5   9239.945    18.12   0.000     148896.5
186014.5
          NM  |  -21641.16    9825.89    -2.20   0.032    -41377.04
-1905.279
          NV  |    50141.3   2153.559    23.28   0.000     45815.75
54466.85
          NY  |   66259.98   10127.99     6.54   0.000     45917.32
86602.65
          OH  |    -117878   1857.162   -63.47   0.000    -121608.2
-114147.7
          OK  |    -153757   1910.742   -80.47   0.000    -157594.9
-149919.2
          OR  |   23897.29   1496.069    15.97   0.000     20892.35
26902.23
          PA  |  -80788.13   1428.348   -56.56   0.000    -83657.05
-77919.21
          RI  |    42812.8   2056.291    20.82   0.000     38682.61
46942.98
          SC  |  -91179.94   1297.777   -70.26   0.000     -93786.6
-88573.28
          SD  |  -84164.77   349.5396  -240.79   0.000    -84866.84
-83462.7
          TN  |  -112952.1   2018.577   -55.96   0.000    -117006.5
-108897.7
          TX  |  -77155.76   1145.177   -67.37   0.000    -79455.92
-74855.61
          UT  |   12765.46   938.8598    13.60   0.000      10879.7
14651.21
          VA  |   38257.71   10033.33     3.81   0.000     18105.17
58410.24
          VT  |  -3616.243   6109.626    -0.59   0.557    -15887.79
8655.302
          WA  |    49025.6    1139.77    43.01   0.000      46736.3
51314.89
          WI  |  -81729.16   900.9462   -90.71   0.000    -83538.77
-79919.56
          WV  |  -160592.3   1145.619  -140.18   0.000    -162893.4
-158291.3
```

```
         WY  |          0  (omitted)
             |
      _cons |   171735.9   14250.56    12.05   0.000     143112.8
200358.9
------------------------------------------------------------------------
--------

.
. * Plot coefficients from regression
. matrix coefs_rec = (_b[c_m8_rec], _b[c_m7_rec], _b[c_m6_rec],
_b[c_m5_rec], _b[c_m4_rec], _b[c_m3_rec], _b[c_m2_rec], 0,
_b[c_0_rec], _b[c_p1_rec], _b[c_p2_rec], _b[c_p3_rec], _
> b[c_p4_rec], _b[c_p5_rec], _b[c_p6_rec], _b[c_p7_rec],
_b[c_p8_rec])'

. svmat coefs_rec

.
. matrix stderrs_rec = (_se[c_m8_rec], _se[c_m7_rec], _se[c_m6_rec],
_se[c_m5_rec], _se[c_m4_rec], _se[c_m3_rec], _se[c_m2_rec], 0,
_se[c_0_rec], _se[c_p1_rec], _se[c_p2_rec], _se
> [c_p3_rec], _se[c_p4_rec], _se[c_p5_rec], _se[c_p6_rec],
_se[c_p7_rec], _se[c_p8_rec])'

. svmat stderrs_rec

.
. matrix high_rec = coefs_rec + invttail(e(df_r),0.025)*stderrs_rec

. svmat high_rec

.
. matrix low_rec = coefs_rec - invttail(e(df_r),0.025)*stderrs_rec

. svmat low_rec

.
. matrix rel_time = (-8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5,
6, 7, 8)'

. svmat rel_time

.
. graph twoway (rcap high_rec low_rec rel_time in 1/17) (scatter
coefs_rec rel_time), ///
>         xtitle("Event year") ///
>         xlabel(-8(1)8) ///
>         ytitle("Average home value ($)") ///
>         ylabel(-50000 "-50,000" 0 "0" 50000 "50,000" 100000
"100,000" 150000 "150,000" 200000 "200,000", angle(0)) ///
```

```
>         legend(off) ///
>

. graph export "$MyProject/results/figures/reg-state-legality-home-
vals-rec.png", replace
file /Users/anniebryan/Documents/College/2021-22/14.33/Project/
results/figures/reg-state-legality-home-vals-rec.png saved as PNG
format

.
end of do-file

.
. * End log
. di "End date and time: $S_DATE $S_TIME"
End date and time:  9 May 2022 20:30:56

. log close
      name:  <unnamed>
       log:  /Users/anniebryan/Documents/College/2021-22/14.33/
Project/scripts/logs/2022.05.09-20.28.38.log.txt
  log type:  text
 closed on:   9 May 2022, 20:30:56
-------------------------------------------------------------------------
-------------------------------------------------------------------------
-------------------------------------
```