

pretty (and smart)

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## outline

looks matter

general: displaying data (in a map)

maps specifically

but wait, smart is important too! see final\_project.pdf [later]

examples from past

finish early; i will walk around and ans 1:1 q&a



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## “looks vs brains”

- of course, good idea for a map is the key
- and the right variables (eg measurement, standardization)
- and good/quality data
- and at the right level (resolution, aggregation)
- but if your map is ugly, people won't bother to try to understand its “internal beauty”
- mapping is about the “visual appearance”
- it has to be pretty; yes, “looks” comes first !

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## understand your data

- ok, so you've got some data—what next?
- understand your data !
- usually the best way to understand it is to graph it
- you can have scatterplots, histograms, bar charts, etc
- this is GIS class, so we will be making maps
- but by all means do other statistics as well

## graphics and data management

- i was emphasizing importance of understanding your data
- graphics is a great way to visualize/understand data
- data are numbers, usually many and in a matrix
  - graphics is a great tool to allow humans to comprehend those many numbers
  - if you look at numbers you will be slower in understanding them than when looking at a picture
- pictures are not less “scientific” than numbers
- again, ask questions / tell me to go slower if needed (i have an impression that i go too fast sometimes)

## references/links

- Tufte (multiple) <http://www.edwardtufte.com/tufte/>
- Kosslyn “Clear and to The Point”  
[http://www.amazon.com/  
Clear-Point-Psychological-Principles-Presentati  
dp/0195320697](http://www.amazon.com/Clear-Point-Psychological-Principles-Presentati/dp/0195320697)

## be simple

- everything should be made as simple as possible, but not one bit simpler
- avoid data padding – present only data needed for a specific purpose
- (in general, avoid stats padding; use appendix if necessary)
- avoid clutter – put in a single graph only the data that are highly related and must be compared
- put data into appendix if it is not very relevant but may be useful
  - people looking for extra information will find it
  - people interested in main story will not get distracted

## avoid visual clutter

- all parts of graph should be meaningful
- good practices:
  - do not use shades
  - do not use fancy colors
  - do not use any decoration

## use space efficiently

- get rid of white space, blow up your map
  - it should be as big as possible, use all space
- put legend in an efficient way
  - eg in Ocean or in forest, etc

## balance

- keep balance in:
- colors (say either use toned down colors for everything or use stark contrasts, etc)
- fonts: titles, notes, labels etc should be proportional
- thickness of lines
- and everything else
- in general: rather use less ink than more

## one v several graphs/maps

- usually to convey an idea, you may need several graphs/maps
- say if you want to show deprivation in SJ:
  - eg low educ, poverty, crime, etc etc
  - but can also show a summary, eg an index
- sometimes better in one graph/map
  - eg showing change: better one than 2; just calc chng var

## think about it/meaning

- ok, you've got the map
- now think about it...
- what does it mean?
  - (beyond technical correctness; lack of mistakes)
  - eg is it interesting or informative or helpful... etc?
  - if not, drop it and produce a better map
- in this class i will be grading substantive meaning, too

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## let's load our favorite counties data

- <https://docs.google.com/uc?id=1xJDhcRCkgv7k4tNCa720og5bohV6dTb2&export=download>
- and let's look more at the style tab
- see colors, transparencies, symbols, etc

## some examples

- we can have a look at some examples and discuss if they are pretty
- [http://twistedsifter.com/2013/08/  
maps-that-will-help-you-make-sense-of-the-world/](http://twistedsifter.com/2013/08/maps-that-will-help-you-make-sense-of-the-world/)

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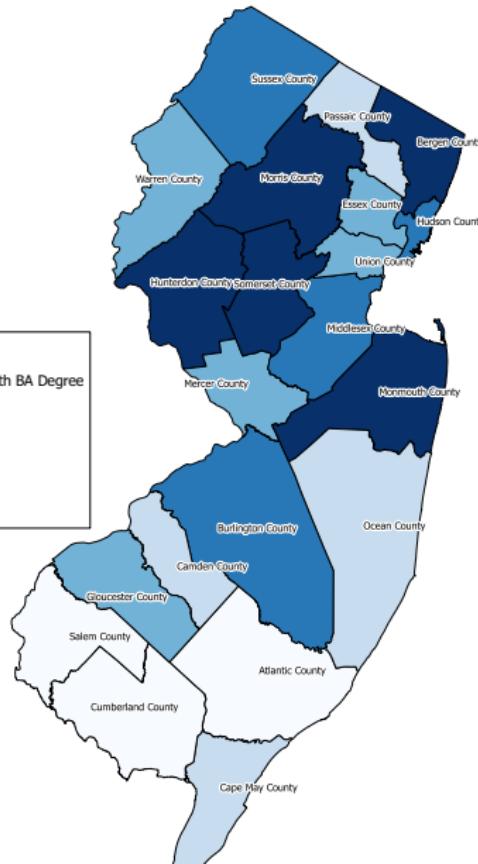
examples from past

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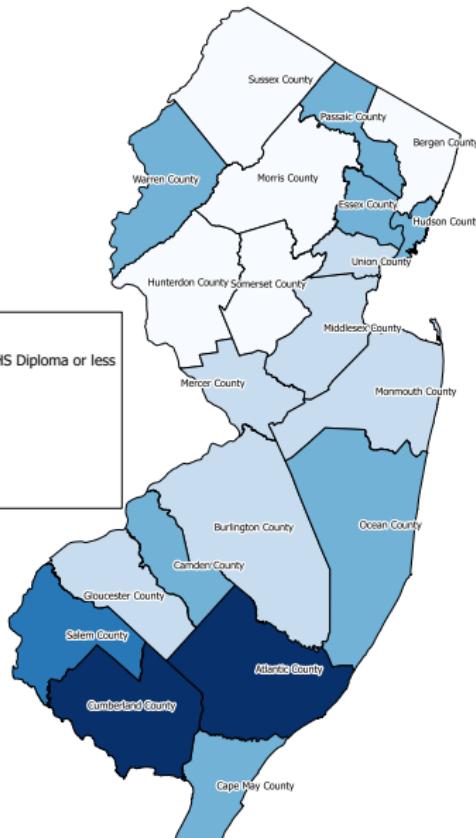
## NJ counties

- many variables about similar topic: education
  - great: triangulation
- good use of space, could be little better
- nice color ramp
- good fonts, maybe title little smaller
- fewer decimal points !
- could list data source (but may do it elsewhere, say in paper)

## New Jersey Residents with Bachelor Degree or Higher



## New Jersey rate of residents earning less than a High School Diploma



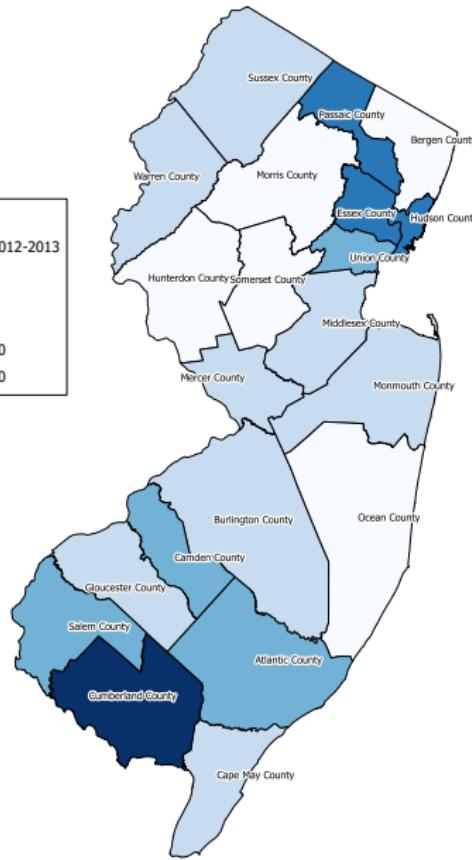
examples from past

## 2012-2013 NJ K-12 Education Aid per resident

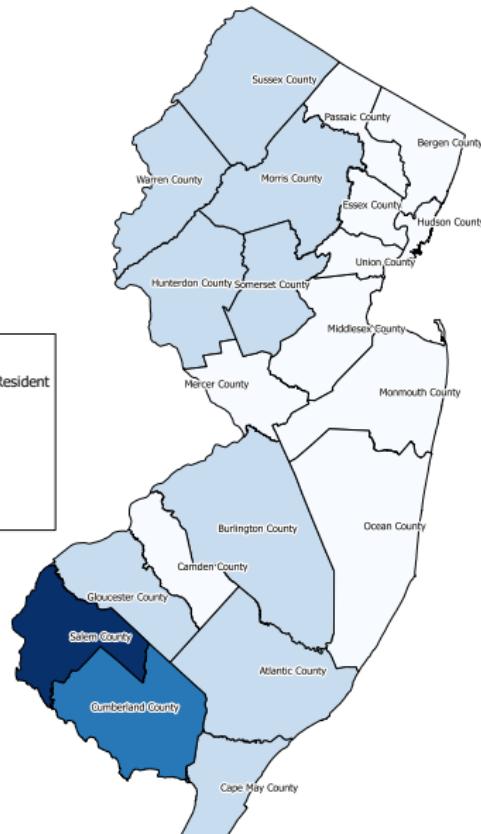
### Legend

NJ State Aid Per Resident 2012-2013

- 226.0000 - 609.6000
- 609.6000 - 993.2000
- 993.2000 - 1376.8000
- 1376.8000 - 1760.4000
- 1760.4000 - 2144.0000



## **NJ 2013 Transportation Aid Per Resident**



### Legend

NJ 2013 Transportation Aid Per Resident

- A vertical color bar legend consisting of five horizontal bars. The colors transition from white at the top to dark blue at the bottom. Each bar is labeled with its corresponding numerical range: 5.0000 - 9.6000, 9.6000 - 14.2000, 14.2000 - 18.8000, 18.8000 - 23.4000, and 23.4000 - 28.0000.

examples from past

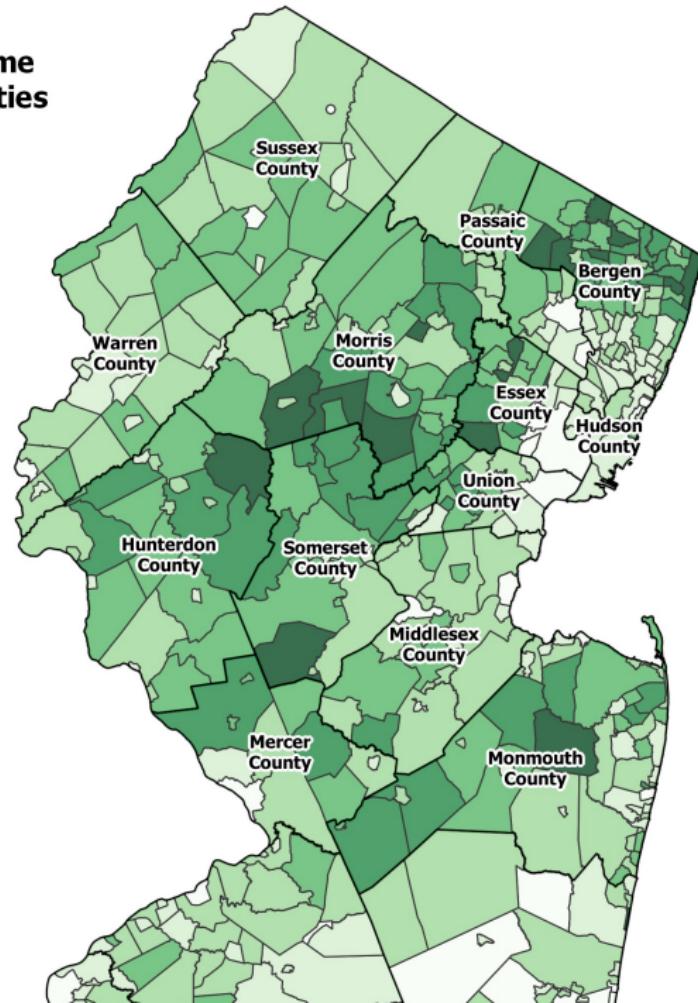
# Median Household Income in New Jersey Municipalities

For 2006-2010  
Median Income: \$67,681

## Legend

### Median Income Range

- \$25,682 - \$48,702
- \$48,703 - \$69,915
- \$69,916 - \$90,411
- \$90,412 - \$113,542
- \$113,542 - \$144,299
- \$144,300 - \$250,001
- No data available

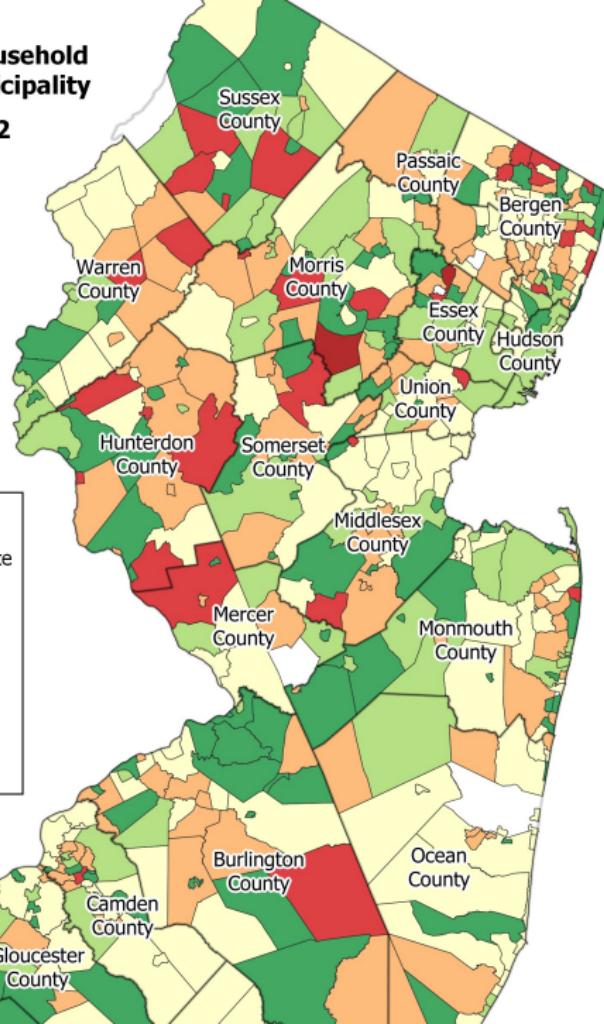


## income in NJ

- note, map cut to display detail
- nice title, we know timeframe
- legend: note decimal points; love yellow for missing data
- really nothing to fix; 2 things below \*personal\* preference:
  - use white borders for municipalities—little cleaner
  - use a 2 color ramp (say red-green) to signal poverty-affluence
- interesting: such big disparities so close to each other
- a note on level of analysis:
  - if county level data: N dark green; S: bright green
  - it would cover up deep poverty pockets in NYC metro!
- aggregation does matter! results are totally different

## Percent Change in Household Poverty Rates by Municipality

From 1999-2012



### Legend

Percent Change In Poverty Rate

- 100% - -9.1%
- 9.0% - 9.1%
- 9.2% - 46.2%
- 46.3% - 137.6%
- 137.6% - 499.9%
- Greater than 500%
- No data available

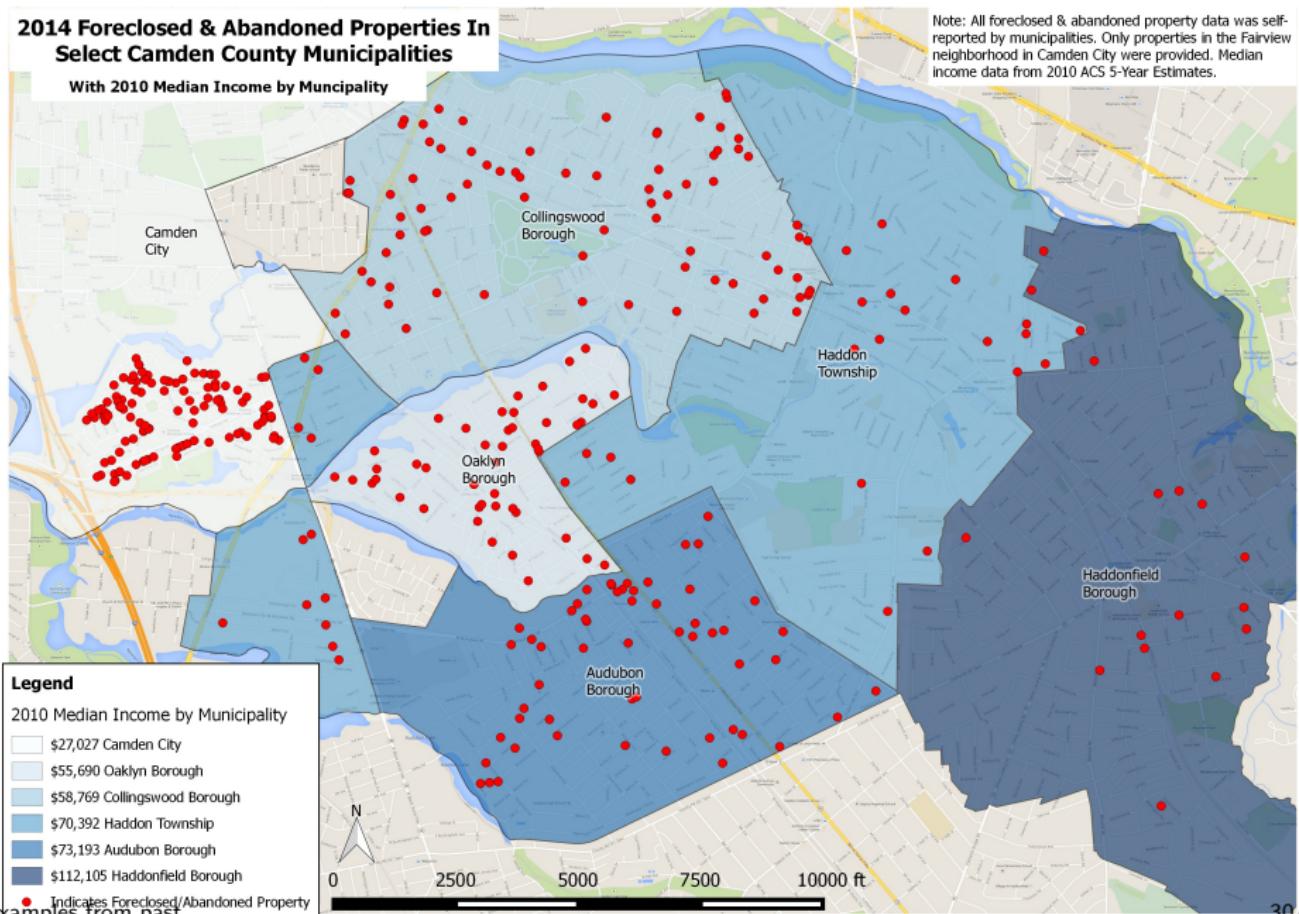
## poverty change

- readable, informative, great!
- great variation ! quite striking
- wonder why some places do quite well and some so bad...
- future: change from 1% to 5% and from 10% to 50% are both 500%
  - yet they mean different things
- can use it for policy analysis...
- say could thing why such great divergence...
- any policies that could have worked?

# properties

## 2014 Foreclosed & Abandoned Properties In Select Camden County Municipalities

With 2010 Median Income by Municipality



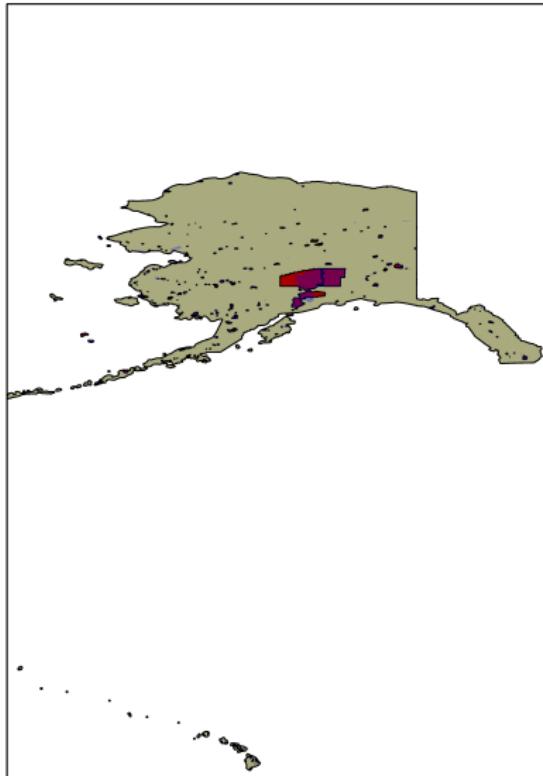
## properties

- superb use of space! labelling neatly in corners
- pretty map!
- interesting map—clearly foreclosures correlate negatively with income

## properties

- guess some data missing in top right corner? should be indicated more clearly...
  - perhaps make it reddish or cover with dashed or dotted pattern
  - so that we know clearly for which areas there are no data
- 2014 is still going—should mention months
- note how hi resolution google map is! can zoom in and see all road names
- is it median hh income? (it is explained in journal though)

# Indians



## Legend

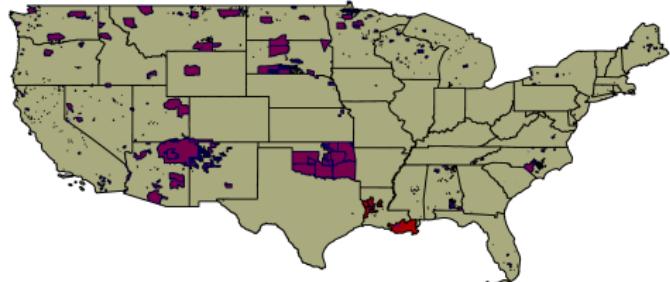
2012 American Indian/Alaska Native/Native Hawaiian Reserved Area



2007 American Indian/Alaska Native/Native Hawaiian Reserved Area



State Boundaries

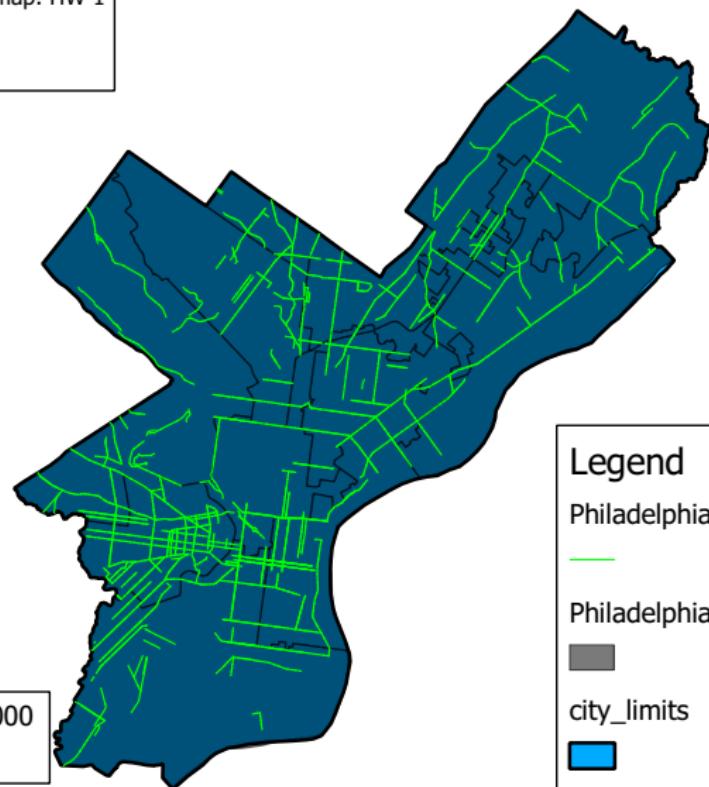


## Indians

- nice map ! can improve:
  - smaller font
  - transparent colors to see time difference
  - zoom in more
- future research:
  - longer time span, say hundreds of years
  - also show population
  - and other sociodemographics

# bike lanes

Philadelphia bike map: HW 1



## Legend

PhiladelphiaBikeNetwork201204



PhiladelphiaCouncilDistricts\_2000



city\_limits



## bike lanes

- very nice !
- can improve: beautify fonts, colors...
- future research:
  - add bike traffic (not sure if available, but can measure...)
  - add sociodemographics by tract
    - eg do young or rich or educated people bike ?
  - compare with other cities, eg Boston, Portland...

## future ps

- for ps1 the idea was just to load the data
- and display it on a map
- we'll be doing thematic maps throughout the course
- but i will be more picky

## ok, let's browse some online maps

- google “thematic map”
- or “choropleth maps”

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