

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

no food no drink

- absolutely no food and no drink in the lab!
- use the lounge in the back!!

wikipedia again

- let's see ps directions again and esp:
- how to create sections

today

- switching gears and relaxing: talking about art of mapping
- revisit merge at the end, flip the class, 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
 - in qgis can just take screenshot of histogram
when doing thematic map, there's histogram tab
can add mean and std dev

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/)
- can also google “thematic map”
- or “choropleth maps”

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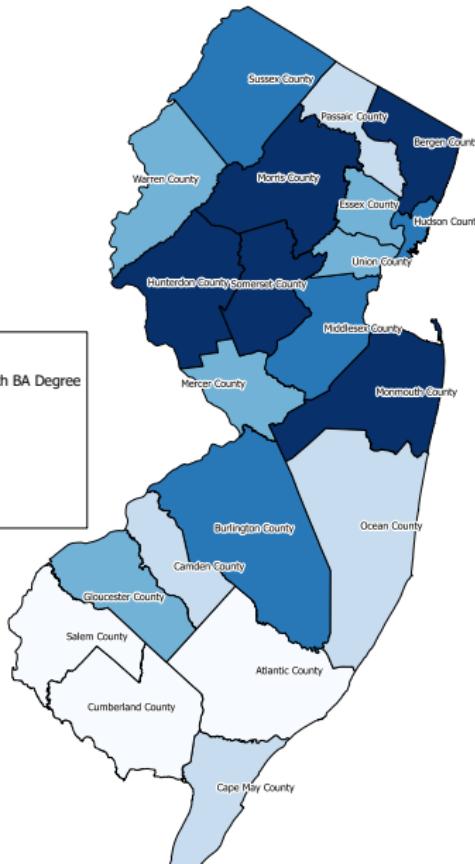
maps specifically

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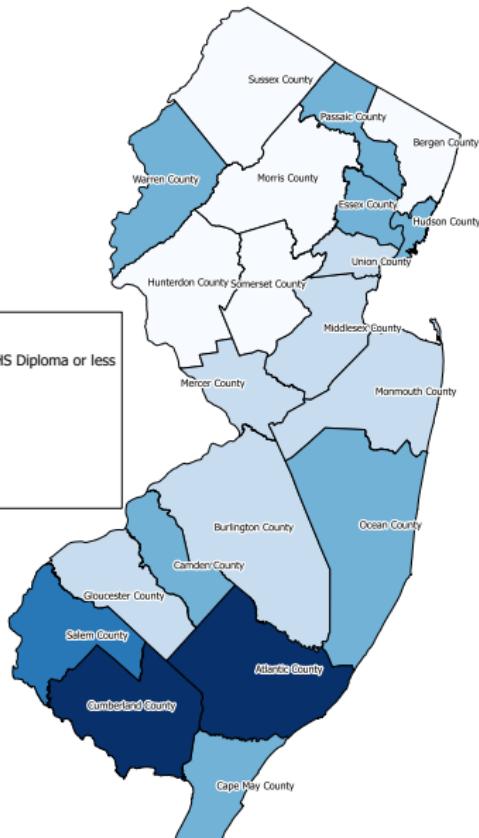
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New Jersey Residents with Bachelor Degree or Higher



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

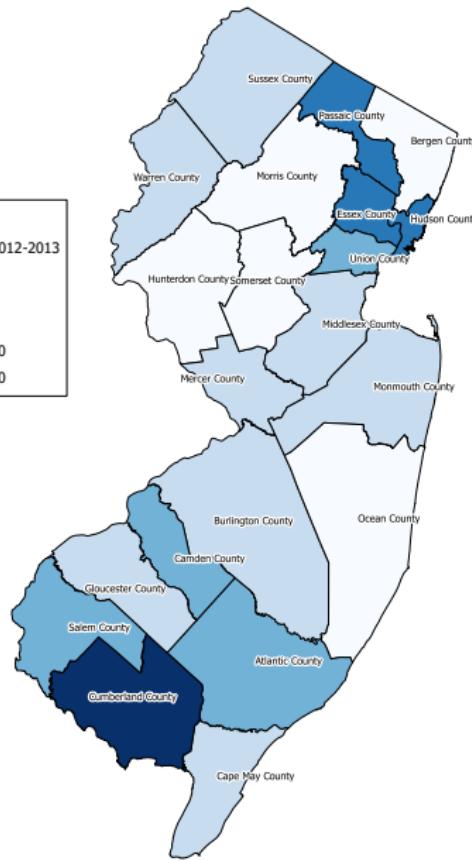


2012-2013 NJ K-12 Education Aid per resident

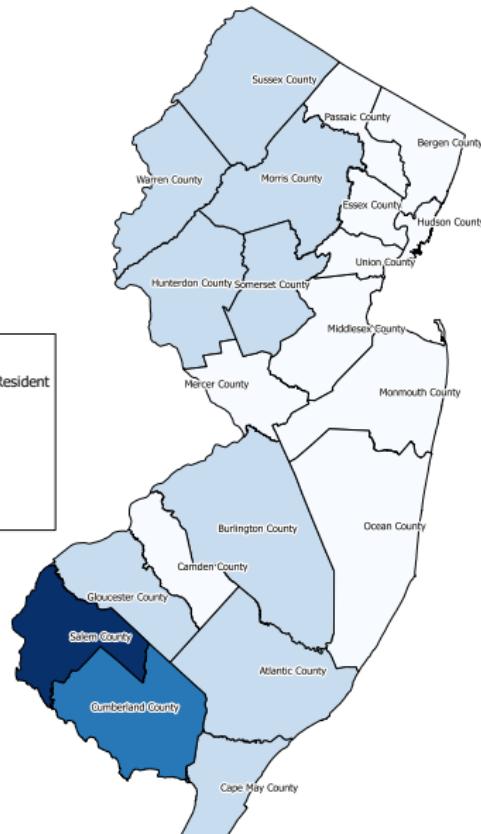
Legend

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

- 5.0000 - 9.6000
- 9.6000 - 14.2000
- 14.2000 - 18.8000
- 18.8000 - 23.4000
- 23.4000 - 28.0000

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)

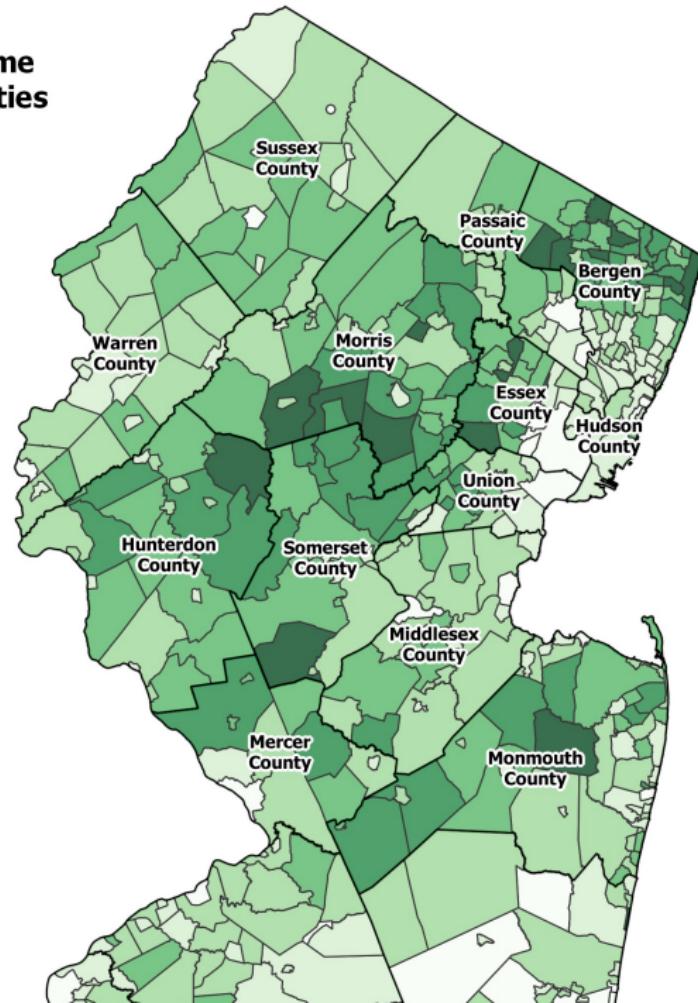
Median Household Income in New Jersey Municipalities

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

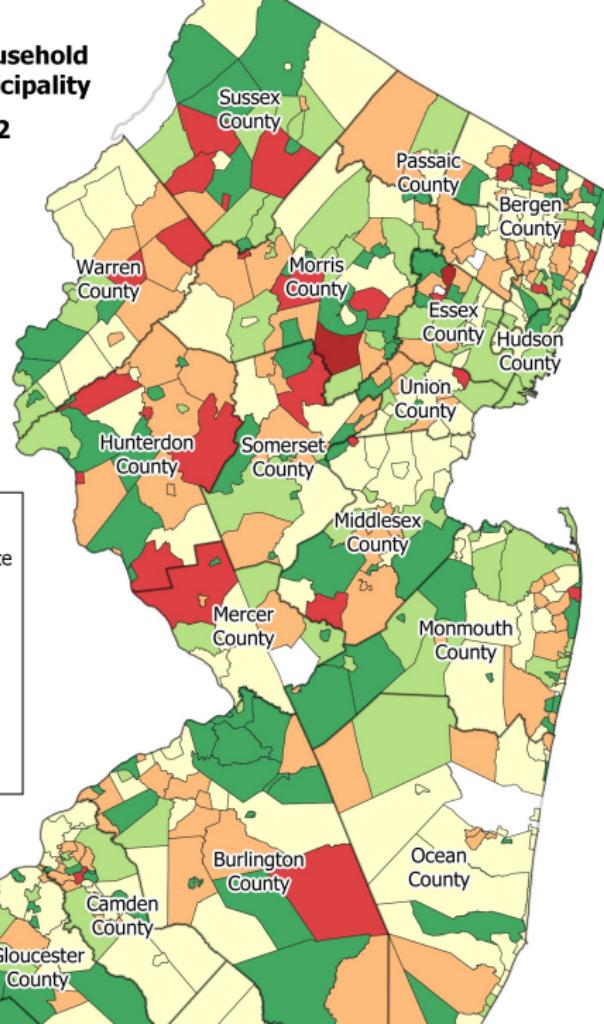


income in NJ

- 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

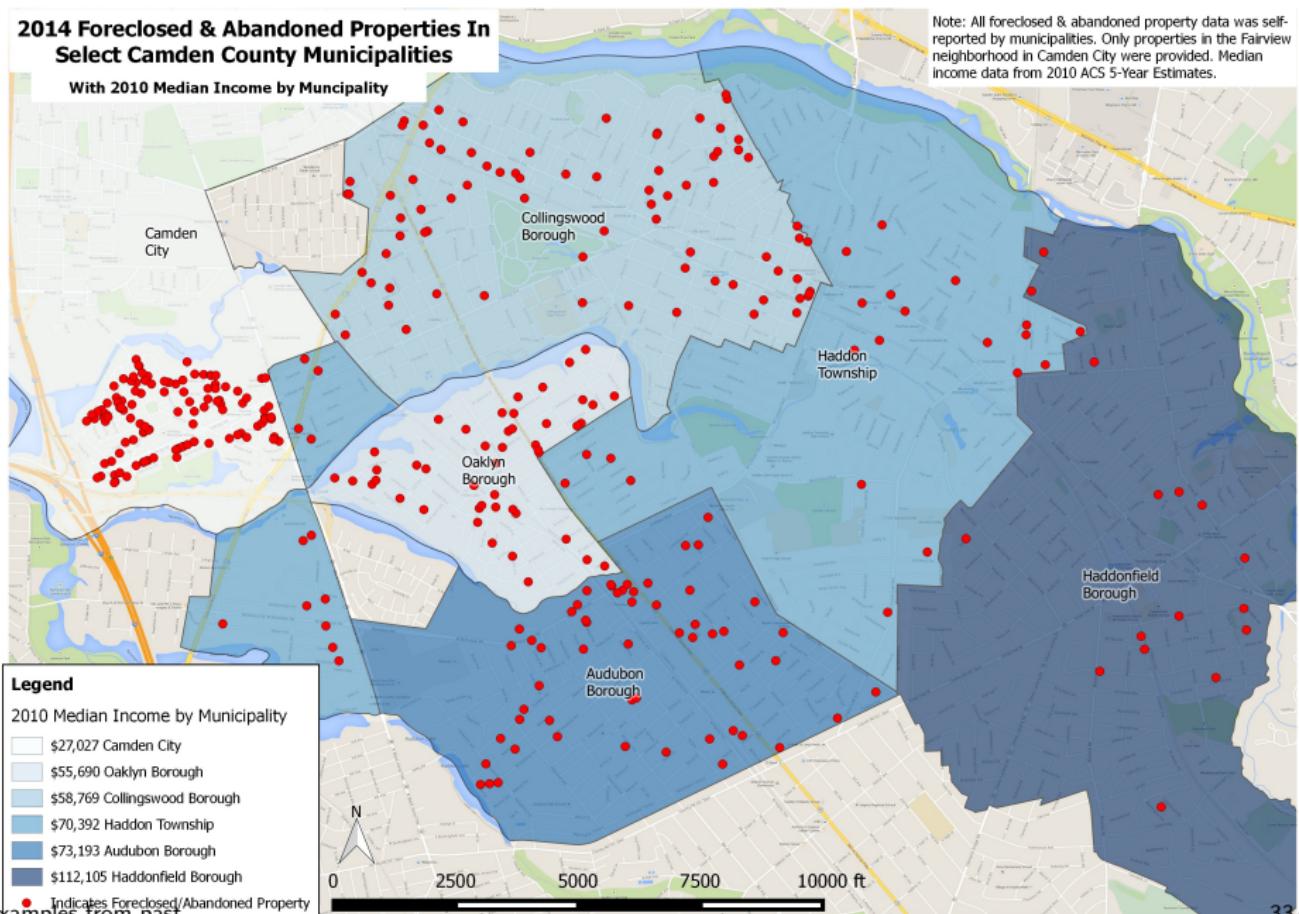
poverty change

- 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



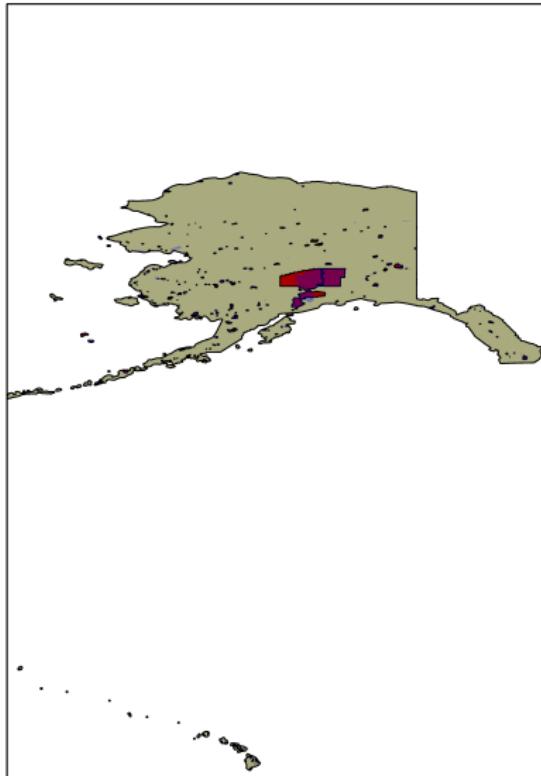
properties

- 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

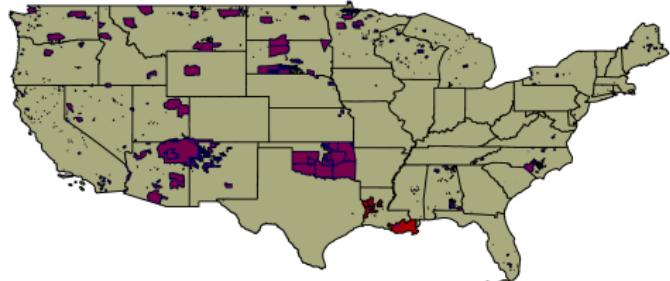
2012 American Indian/Alaska Native/Native Hawaiian Reserved Area



2007 American Indian/Alaska Native/Native Hawaiian Reserved Area



State Boundaries

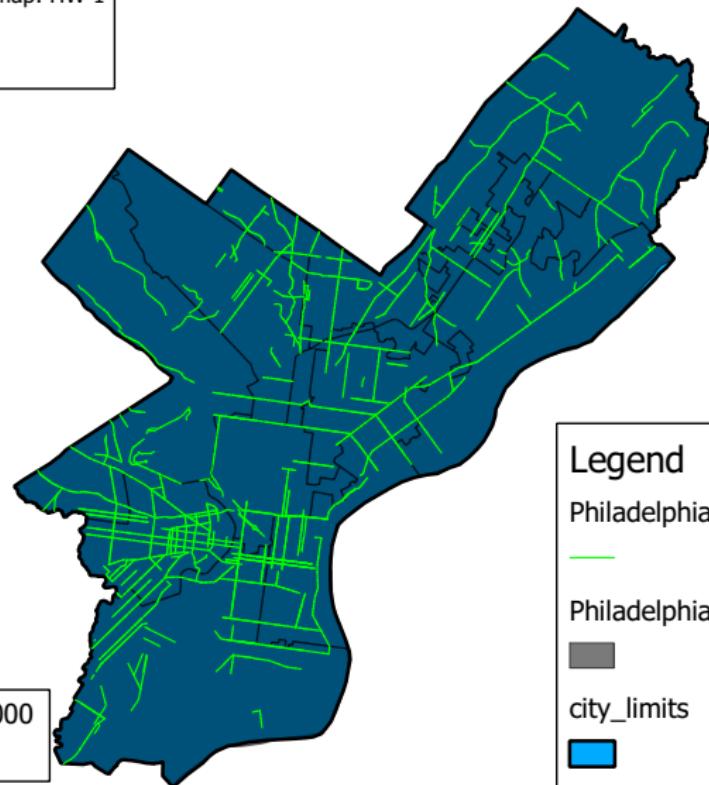


Indians

- 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



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

- we'll be doing thematic maps throughout the course
- and i will be much more picky

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