



Center for Indian Country Development

FEDERAL RESERVE BANK *of* MINNEAPOLIS

Measuring Economic Development in Indian Country

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The Reservation Business Sector Matters

- Income and employment remain too low on reservations
- Wage and salary income is often especially low
- Business development can boost both wage and salary income and self-employment opportunities

	Employment Rate	Labor Force Participation Rate	Official Unemployment Rate	Per Capita Income (single-race AIAN)	Per Capita Income (All)
United States	58%	64%	9%	\$16,340	\$27,599
Reservations	47%	55%	15%	\$10,543	\$17,300

Reservation figures are averages for federally recognized reservations with total population of 2500 or more. The underlying data are from the 2010-2014 American Community Survey, as summarized in the Reservation Profiles of the Center for Indian Country Development at the Federal Reserve Bank of Minneapolis. These profiles are available at

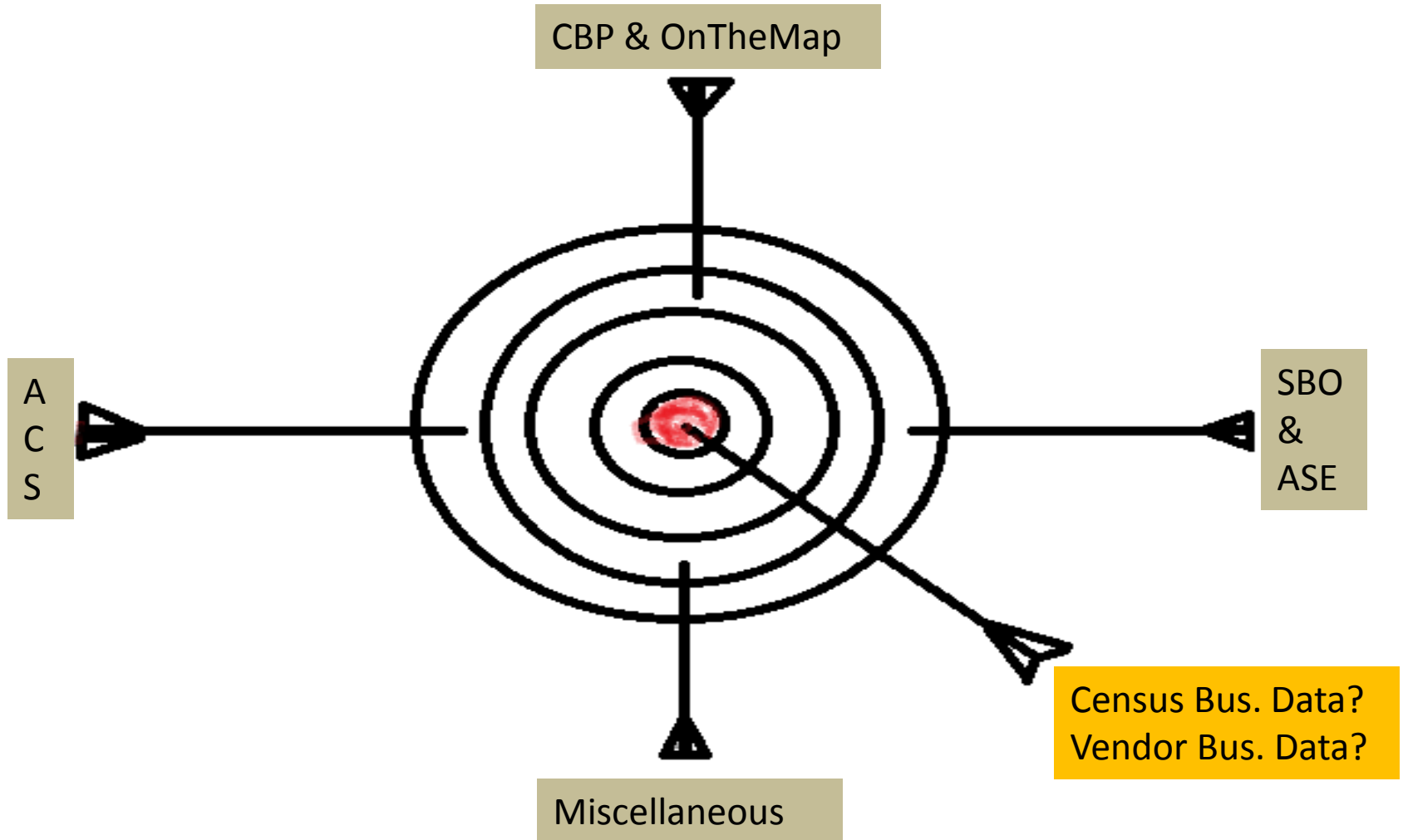
www.minneapolisfed.org/indiancountry/resources/reservation-profiles.

The Reservation Business Sector Is Poorly Measured

“Data on American Indian, Alaska Native, and Native Hawaiian businesses are sparse...and it is not possible to geocode the publicly available dataset to Native Community geographies. In the current data environment, unless a Native Community itself collects information about private sector activity, it is difficult to know much about Native business ownership on or near Native lands—and it is impossible to get an aggregate picture of the Native Community private sector.”

From Native Nations Institute (2016), *Access to Capital and Credit in Native Communities*, digital version (Tucson, AZ: Native Nations Institute). Available at nni.arizona.edu/application/files/8914/6386/8578/Accessing_Capital_and_Credit_in_Native_Communities.pdf.

Can We Hit the Bulls-Eye for Reservation Business Sector Measurement?



Two Efforts to Hit the Bulls-Eye

1. Census business data

- Geocode confidential Census business data
- Create and compare business data for reservations and nearby non-reservation areas
- Some initial results presented today; more to come
 - Don't fully hit the bulls-eye
 - But we get closer and add a useful new perspective

2. Vendor business data

- The Federal Reserve System is acquiring vendor data on U.S. businesses soon, and a parallel effort is anticipated using these data

Census Project Overview

- 2014-2018 project with multiple goals
 - Geocode Census business microdata 1990+
 - Assign establishments to reservations
 - Comparative analysis of the reservation business sector
 - Spatial and population density of establishments and jobs
 - Business dynamics (birth, growth, death rates)
 - Technology (capital, labor, other)
 - Finance
 - Identify and explain differences of reservations vs. counties
- First results here – basic description of establishment and employment density on reservations vs. nearby counties, for 18 sectors, based on 2010 data from the Longitudinal Business Database (LBD)

Our Census Data on Reservation Businesses

- Our data are for establishments, not business firms
 - One business may have multiple establishments
- The data are only for establishments with employees
 - Sole proprietors and self-employment to be analyzed later
- We assign a longitude (X) and latitude (Y) to each establishment in the Census 2010 business records
- We use X-Y to assign each establishment to a specific reservation, if relevant
- We add up establishments and employment by reservation and nearby county-complement areas for our analysis

(Here we analyze only federally recognized reservations in the contiguous 48-states, and we exclude the Navajo Reservation because its size makes it an outlier for present purposes. This yields 277 reservations and 514 comparison “county complements”, which are the non-reservation portions of counties near reservations.)

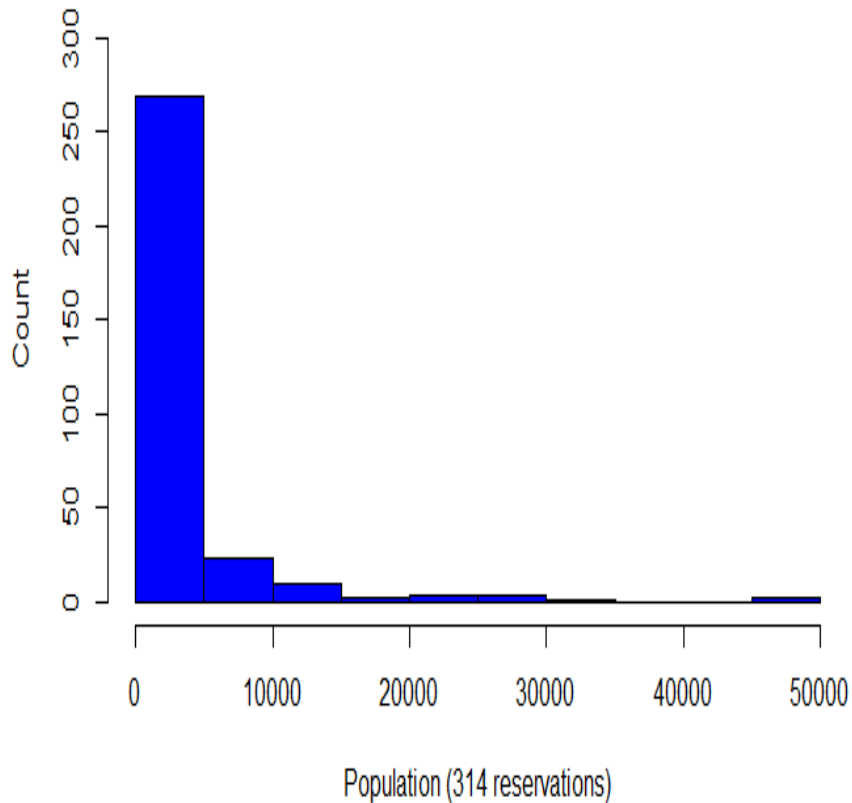
Main Findings

Compared to the non-reservation portion of nearby counties, reservations have:

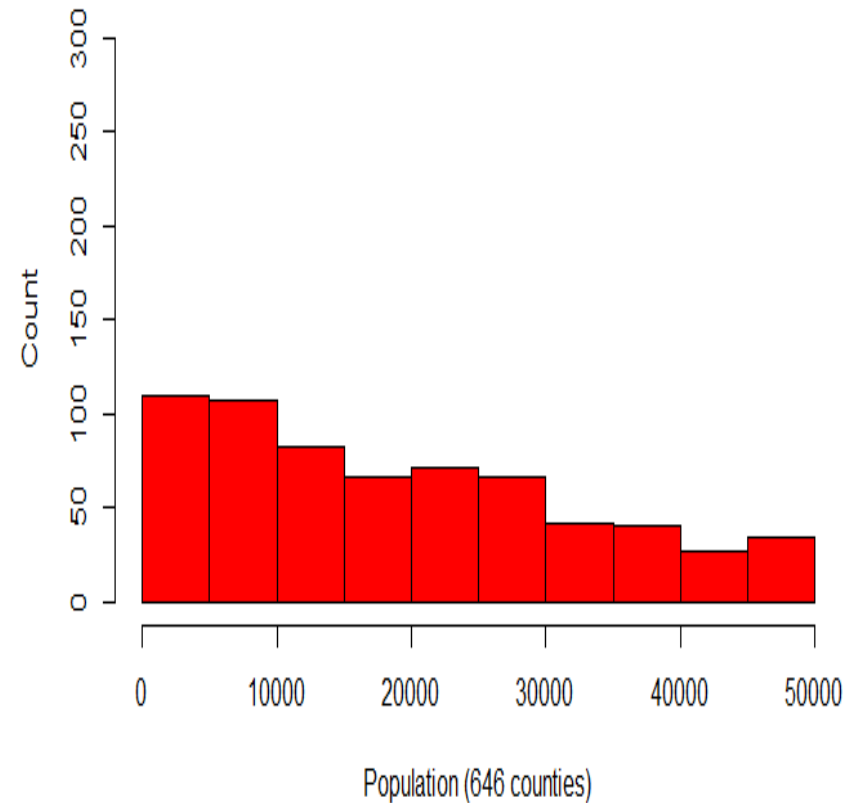
- Significantly fewer establishments in nearly all sectors when area population is low (below 15,000, which represents the majority of the reservation population)
- A similar but less pronounced deficit of employment in many but not all sectors
- Apparently fewer significant deficits, and some significant surpluses (especially of jobs), when population is larger, but we have relatively few cases to confirm this
- Differences in employment per establishment
- These gaps are partly related to familiar factors such as remoteness and lower income and education, but we can't claim to have a full explanation at this time

Most Reservations Have Smaller Populations than Nearby County Areas

Reservation Population Distribution

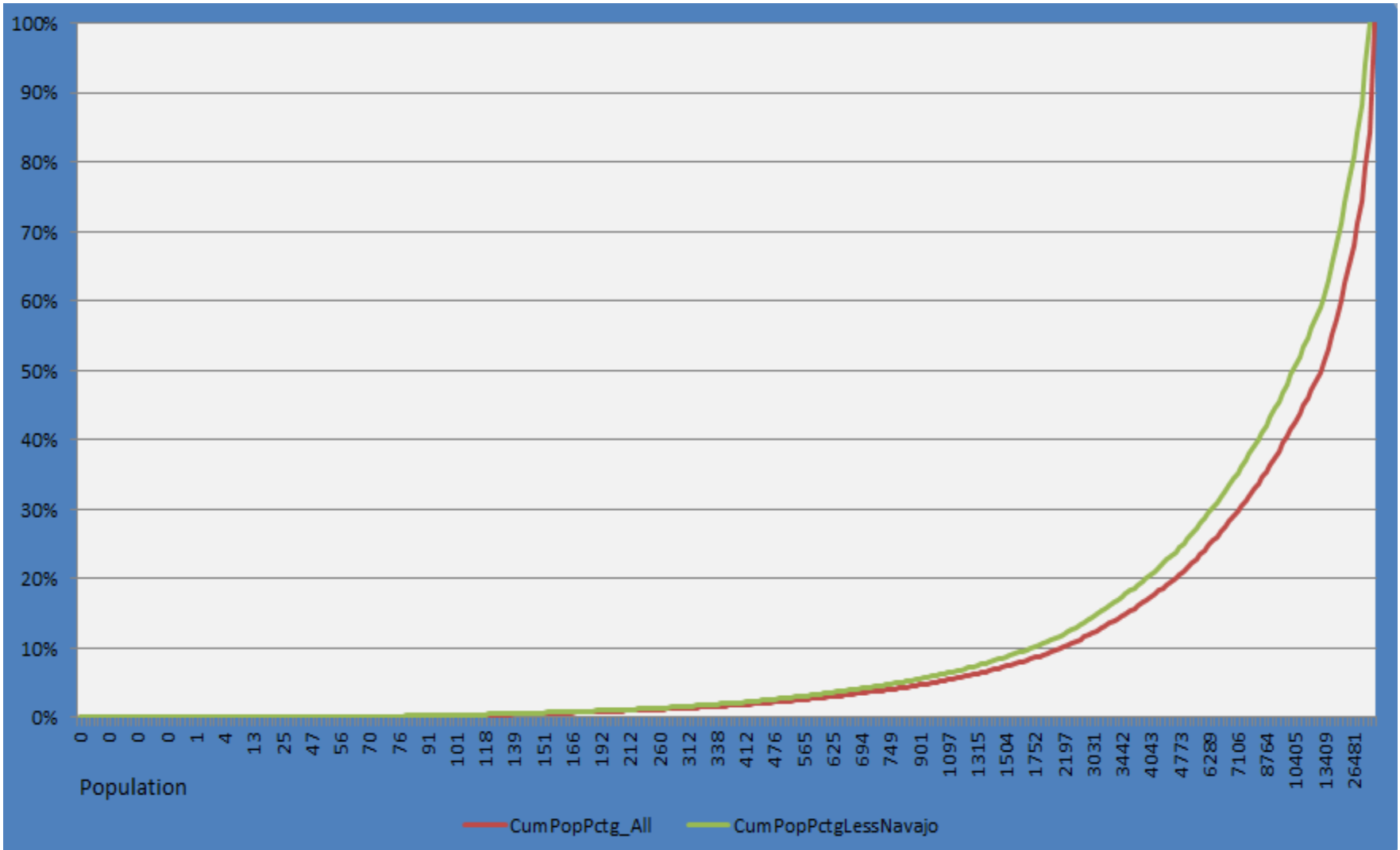


Nearby County-Complement Population Distribution



From 2010 publicly available Gazetteer files for reservations and 2008-2012 ACS for county complements; not equivalent to somewhat smaller sample used within the RDC, which omits certain areas with missing values for other variables.

Most Reservation Residents Live on Small Reservations



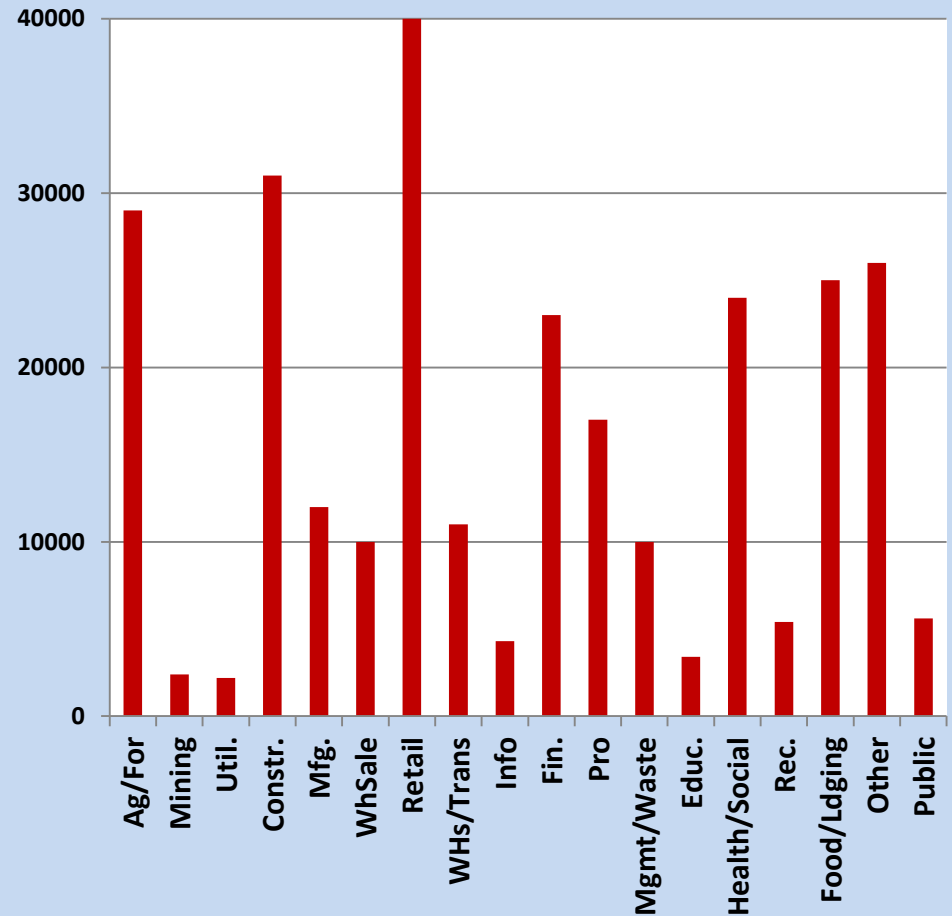
The 11 Largest Reservations in Our Data

Reservation	Population 2010
Nez Perce Reservation	18,437
Pine Ridge Reservation	18,834
Oneida (WI) Reservation	22,775
Uintah and Ouray Reservation	24,369
Agua Caliente Indian Reservation	24,545
Isabella Reservation	26,274
Wind River Reservation	26,481
Flathead Reservation	28,359
Yakama Nation Reservation	31,219
Puyallup Reservation	46,813
Osage Reservation	47,472

18 Two-Digit NAICS Sectors

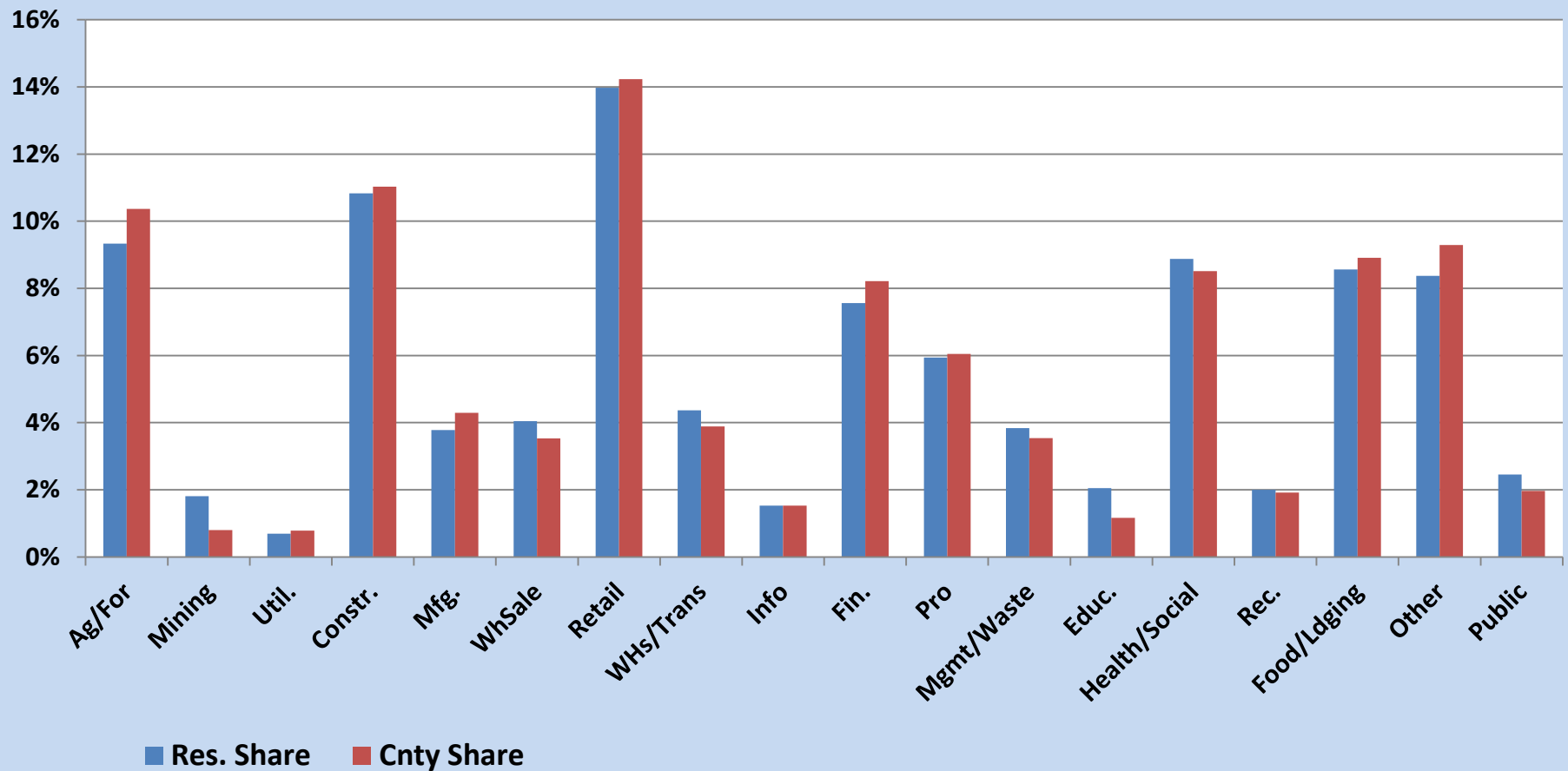
Name	Sector
Agriculture, Forestry, Fishing and Hunting	11
Mining, Quarrying, and Oil and Gas Extraction	21
Utilities	22
Construction	23
Manufacturing	31_32_33
Wholesale Trade	42
Retail Trade	44_45
Transportation and Warehousing	48_49
Information	51
Finance and Insurance AND Real Estate and Rental and Leasing	52_53
Professional, Scientific, and Technical Services	54
Management of Companies and Enterprises AND Administrative and Support and Waste Management and Remediation Services	55_56
Educational Services	61
Health Care and Social Assistance	62
Arts, Entertainment, and Recreation	71
Accommodation and Food Services	72
Other Services (except Public Administration)	81
Public Administration	92

Number of Establishments by Sector
(Reservations and County Areas Combined)



Reservation and County Distributions of Establishments by Sector Are Similar

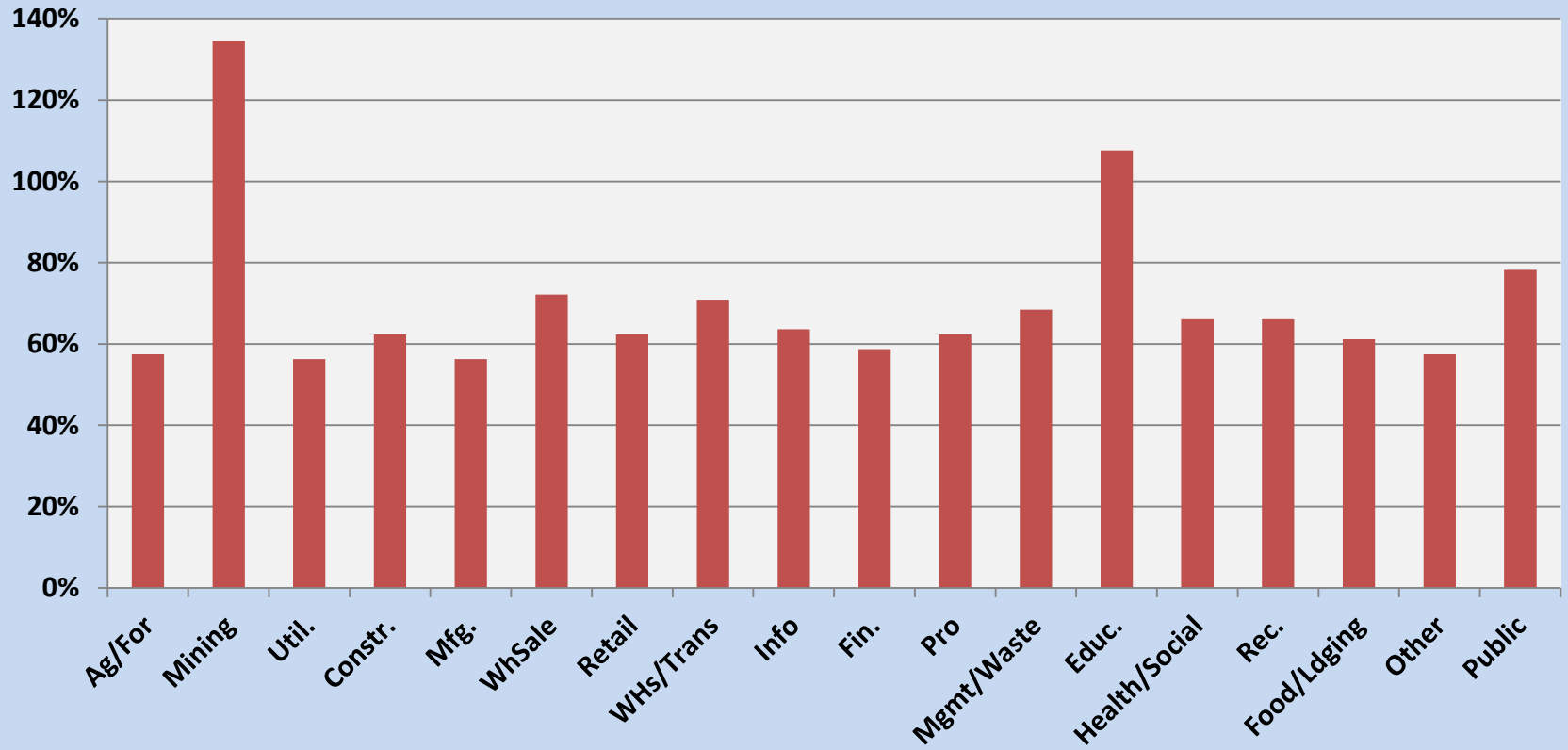
Distribution of Establishments by Sector (Reservations and County Complements)



But the Presence of Establishments Per Person Lags on Reservations in Most Sectors

Business vs. Population Parity by Sector

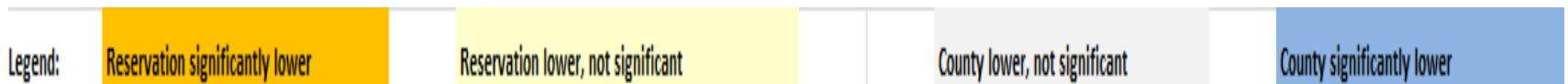
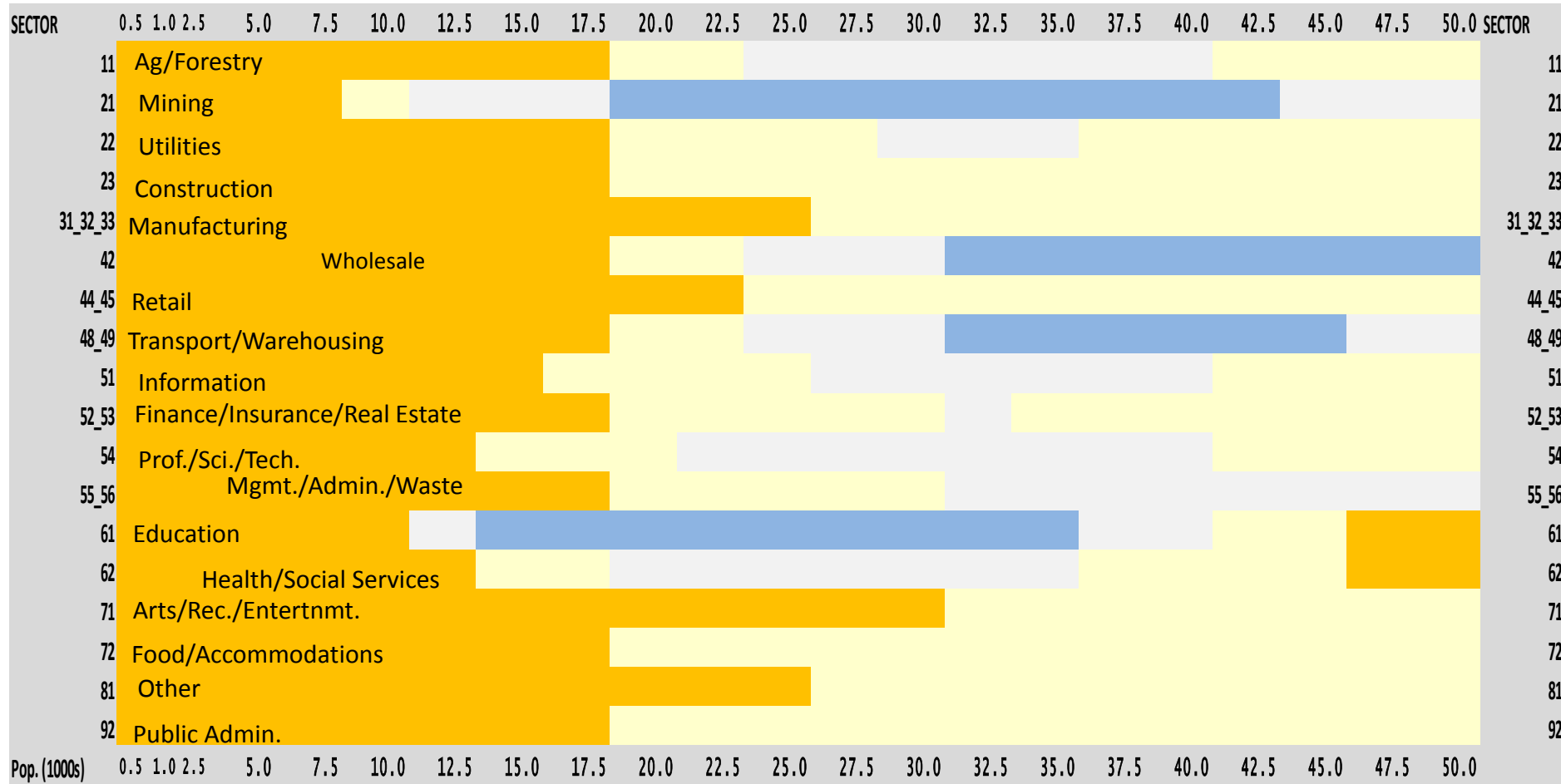
Reservations' (Share of Establishments/Share of Pop.)



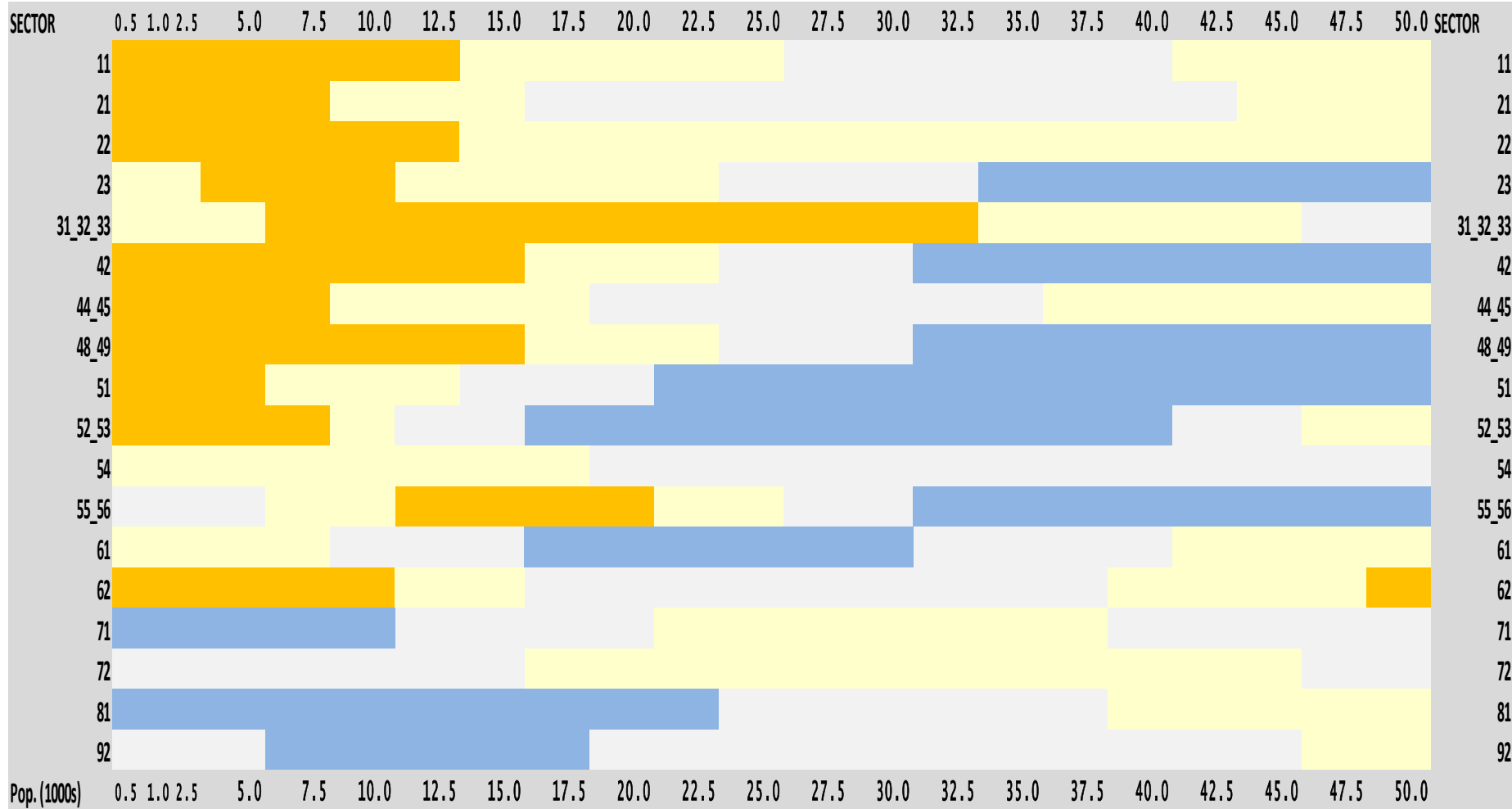
We Assess How the Establishment Gap Varies with Reservation Size

- For both reservations and county complements, we statistically related the number of establishments to population, allowing the relationship to change with as population increases (i.e., a nonlinear relationship)
- We do this both with and without additional geographic and demographic controls (population density, rurality, income, poverty, and educational attainment)

Establishments Per Person Are Low in All Sectors for Small-Population Reservations

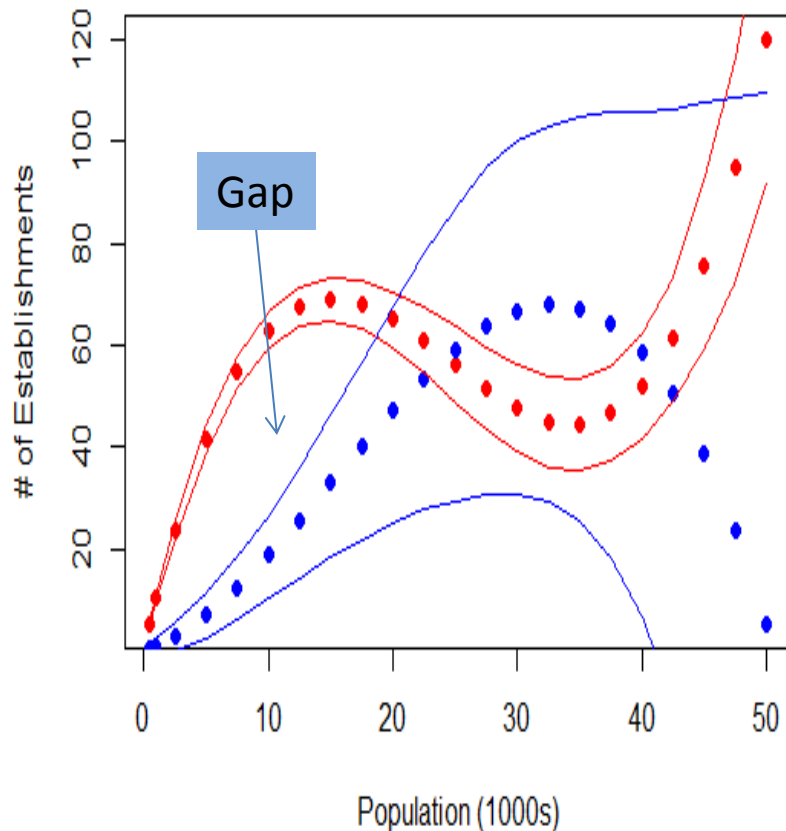


Employment Patterns Are Similar but Weaker and Less Pervasive across Sectors



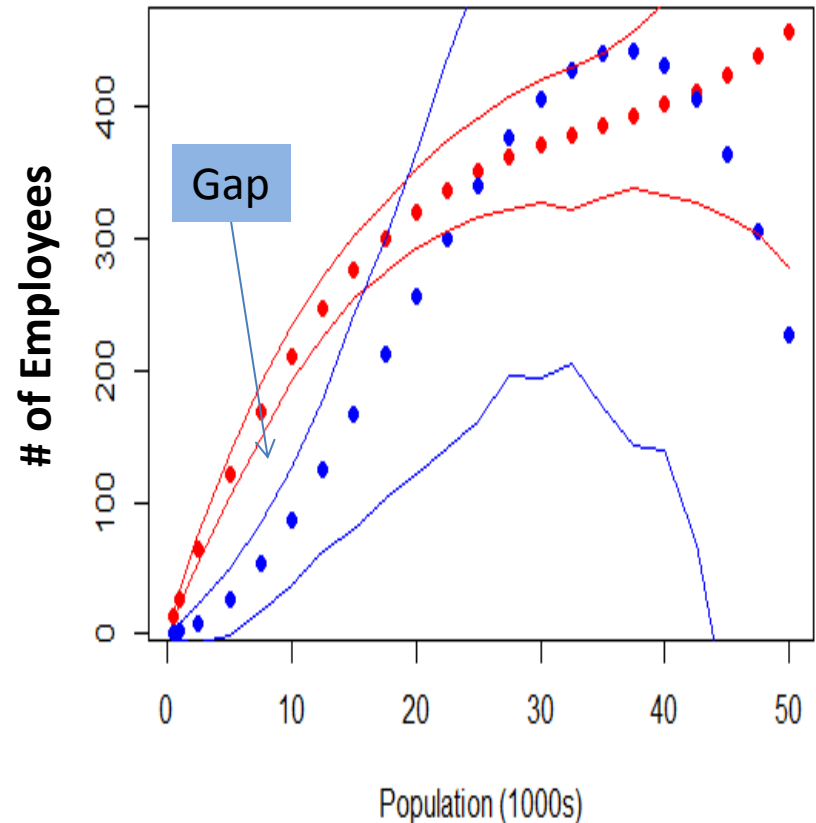
Double Gap: Ag/Forestry

Ag/Forestry Estbs. by Pop., Regr#2



Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

Ag/Forestry Emp. by Pop., Regr#2



Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

Other “Double Gap” Sectors

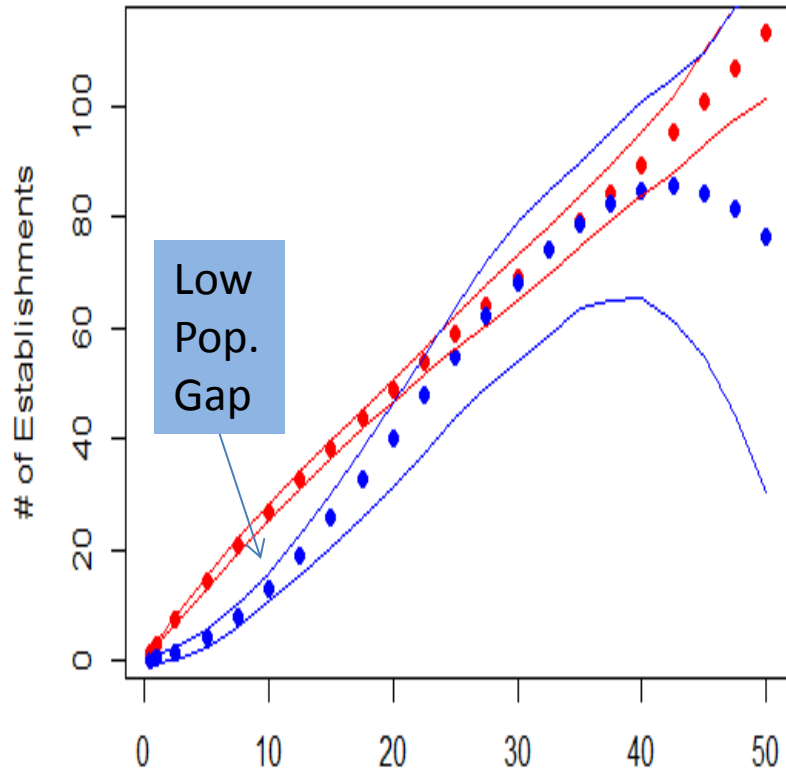
- Mining* (up to 7,500)
- Utilities^ (up to 12,500)
- Construction (from 2,500 to 10,000)
- Manufacturing (from 5,000 to 25,000)
- Wholesaling*^ (up to 15,000)
- Retailing (up to 7,500)
- Transportation/Warehousing* (up to 15,000)
- Information^ (up to 5,000)
- Finance/Insurance/Real Estate^ (up to 7,500)
- Mgmt./Admin./Waste (<20,000 for estb., 12,500-22,500 emp.)
- Health Care/Social Services (up to 10,000)

*Reverse establishment gap – reservations higher than counties – at high population levels

^Reverse employment gap – reservations higher than counties – at high population levels

Low Double Gap w. Emp. Reversal: FIRE

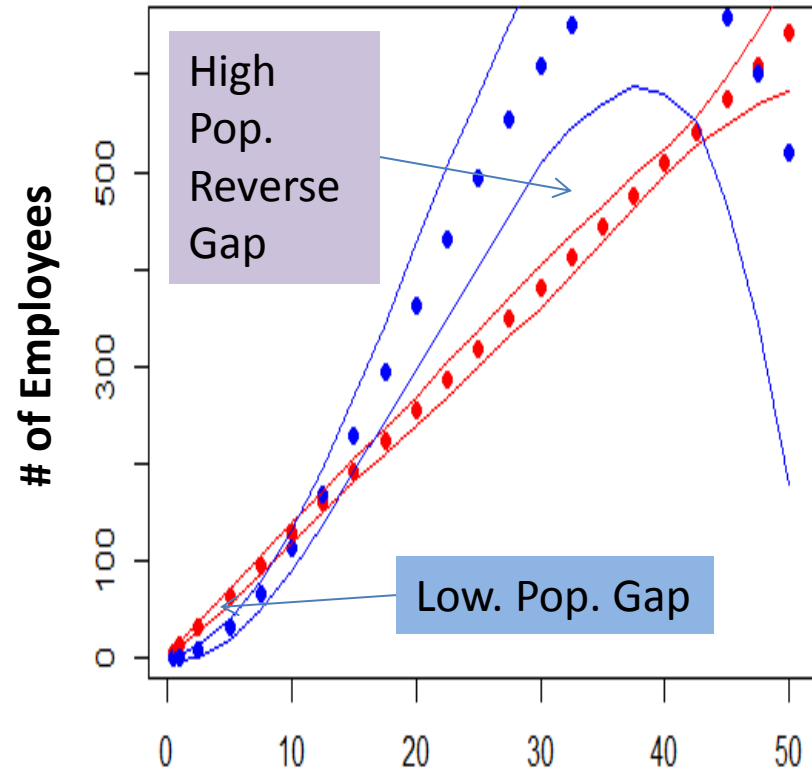
FIRE Estbs. by Pop., Regr#2



Population (1000s)

Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

FIRE Emp. by Pop., Regr#2

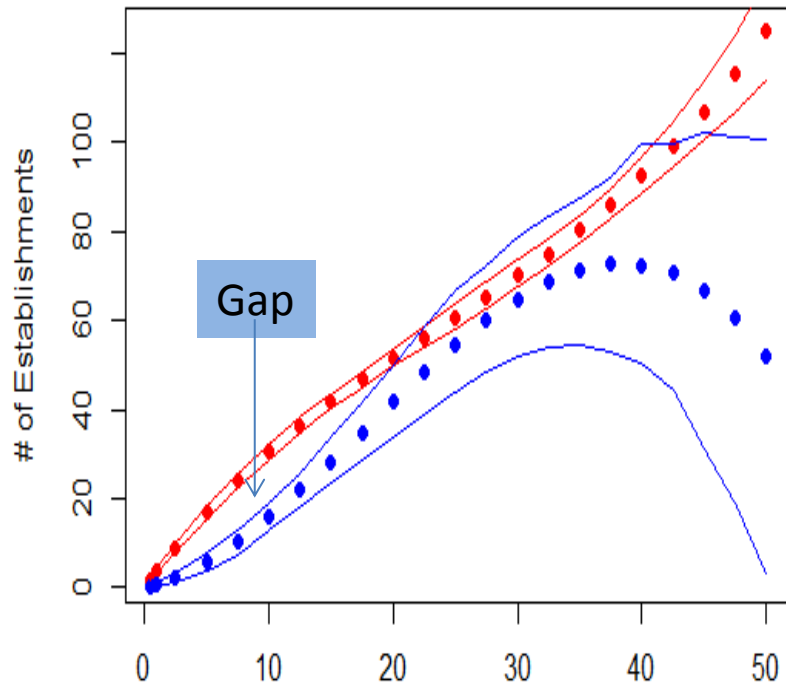


Population (1000s)

Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

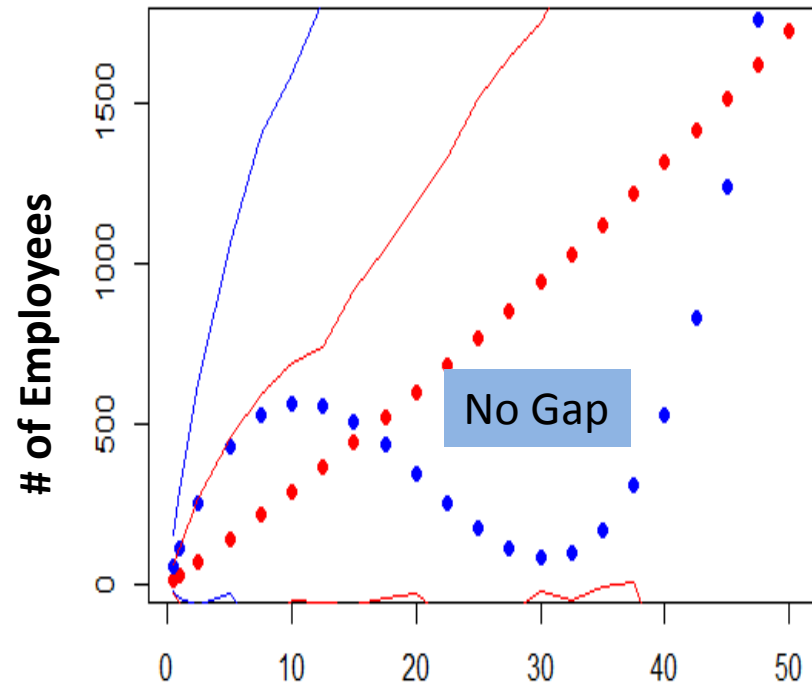
Estb. Gap Only: Food and Lodging

Accommodation/Food Estbs. by Pop., Regr#2



Population (1000s)
Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

Accommodation/Food Emp. by Pop., Regr#2

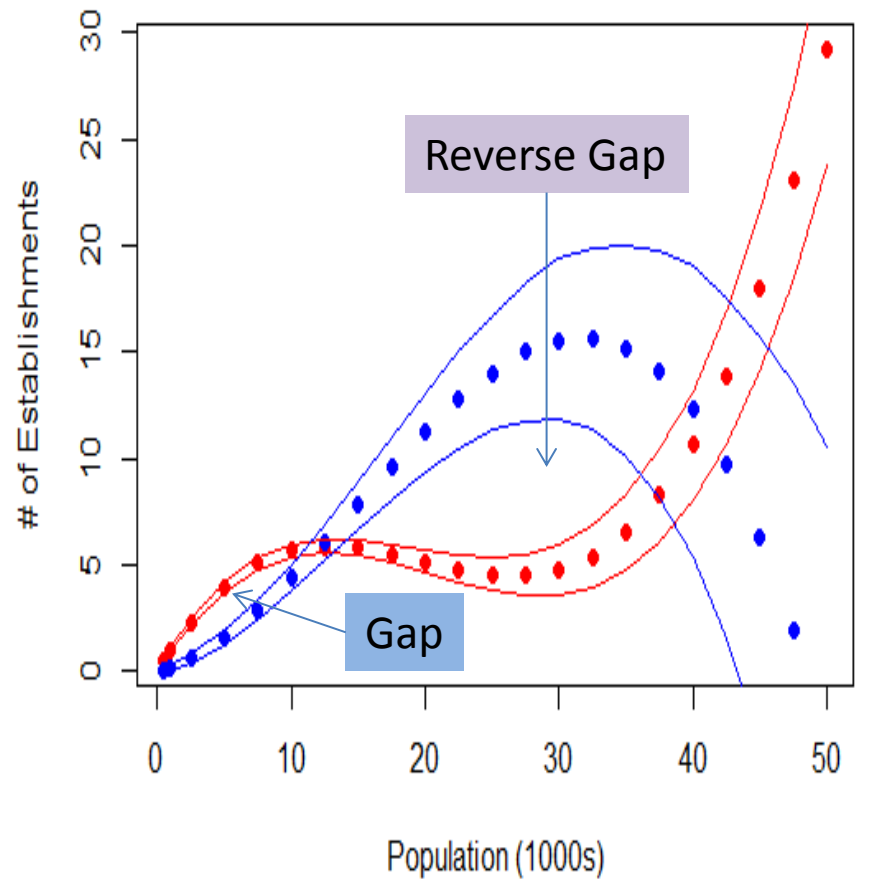


Population (1000s)
Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

The **Professional, Scientific, and Technical Services** sector also shows this pattern, with a reservation gap up to 12,500 for establishments only.

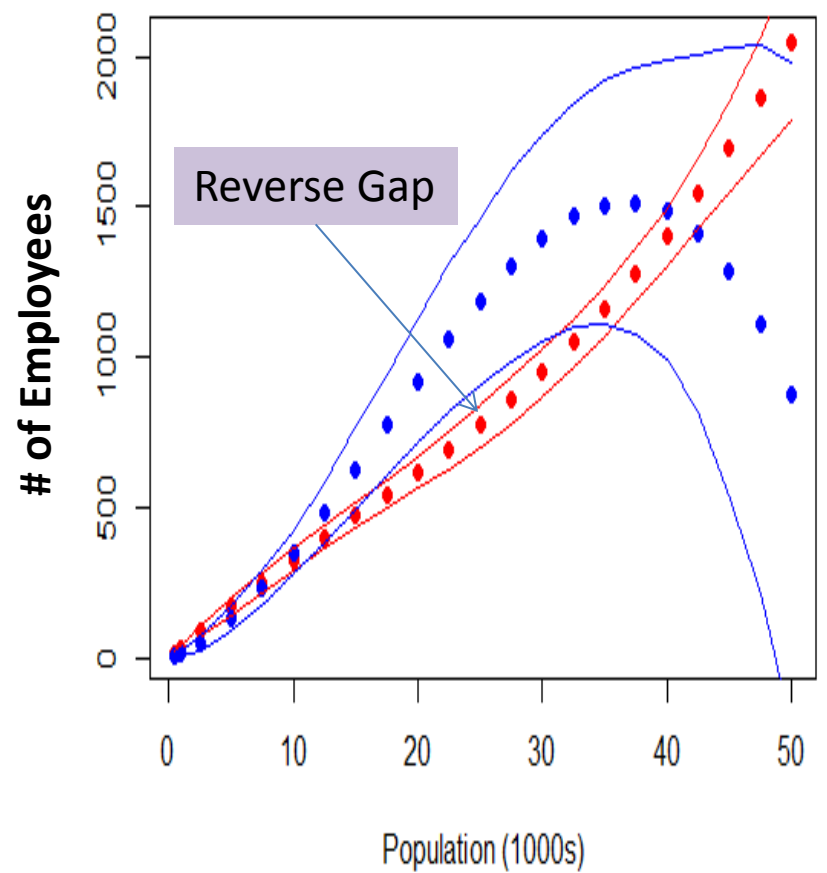
Low Estb. Gap w. Double Reversal: Education

Education Estbs. by Pop., Regr#2



Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

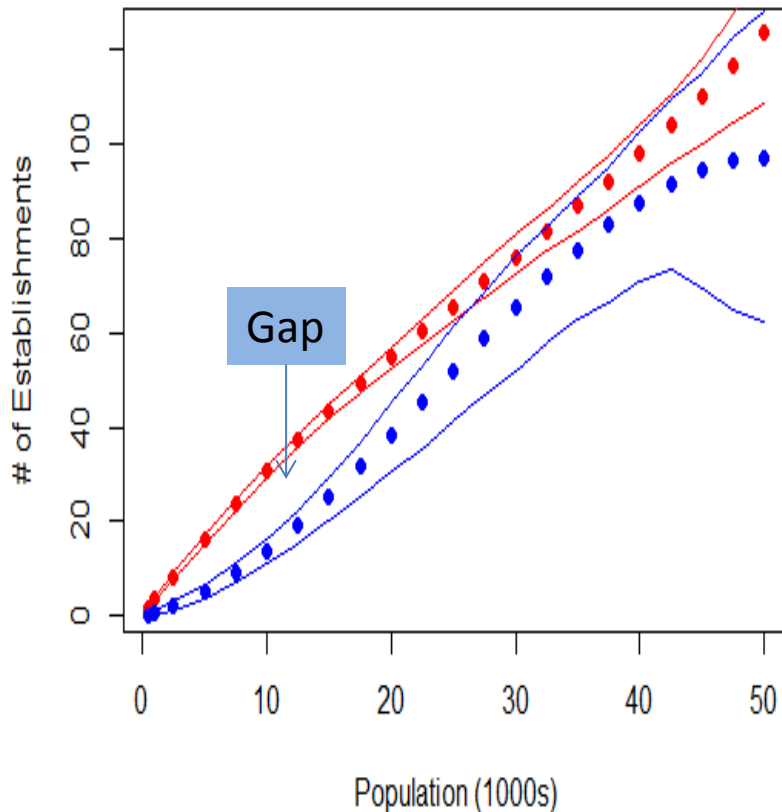
Education Emp. by Pop., Regr#2



Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

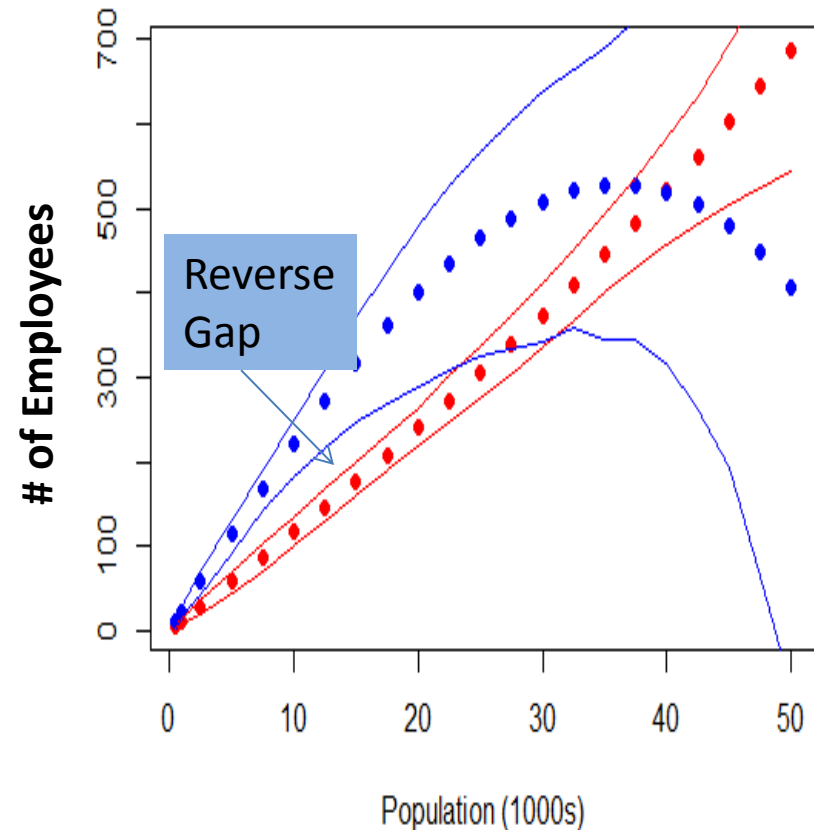
Opposing Low Pop. Gaps: Other

Other Estbs. by Pop., Regr#2



Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

Other Emp. by Pop., Regr#2

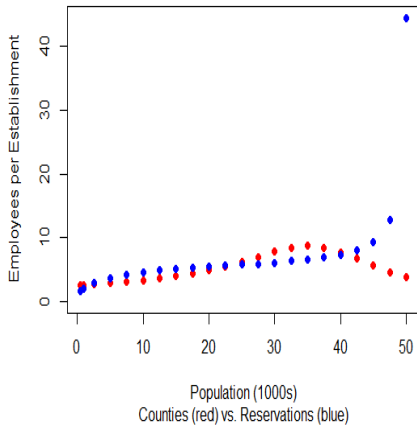


Counties (red) vs. Reservations (blue) with 5 and 95 pct conf bands

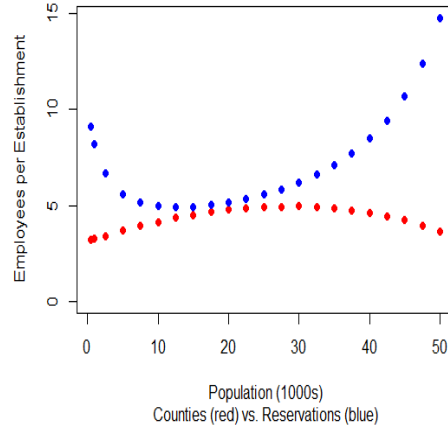
The **Arts, Entertainment, and Recreation** (up to 10,000 for emp.) and **Public Administration** (5,000 to 17,500 for emp.) sectors show variations of this pattern

Employment Per Establishment Is Higher on Reservations in Many Sectors

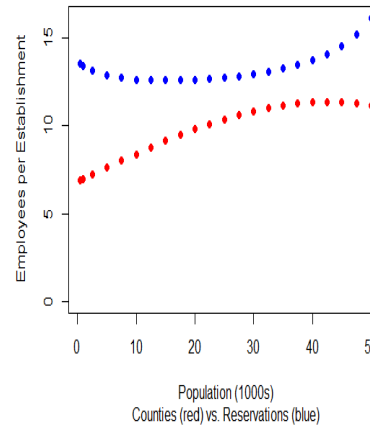
Ag/Forestry Emp. per Estb., Regr#2



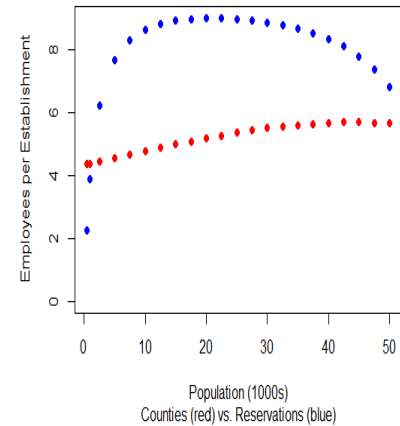
Construction Emp. per Estb., Regr#2



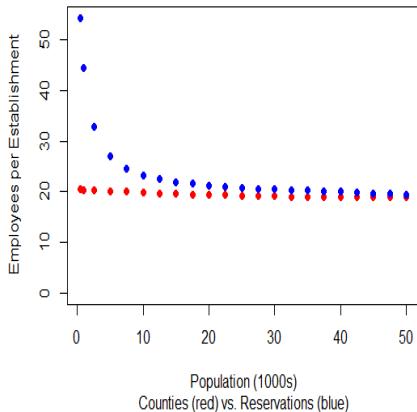
Retail Emp. per Estb., Regr#2



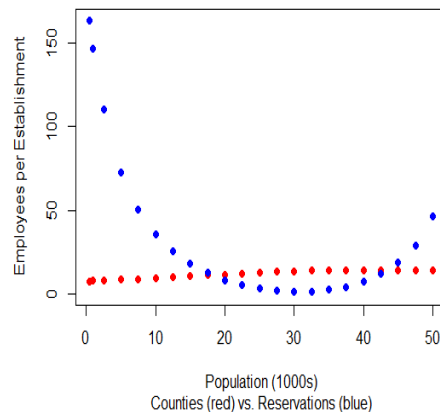
FIRE Emp. per Estb., Regr#2



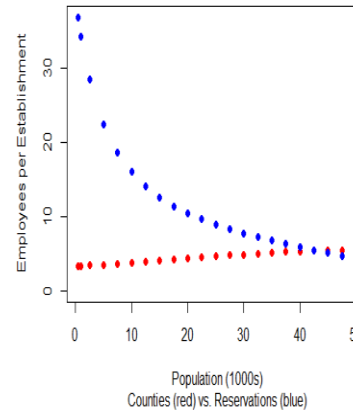
Health/SocialService Emp. per Estb., Regr#2



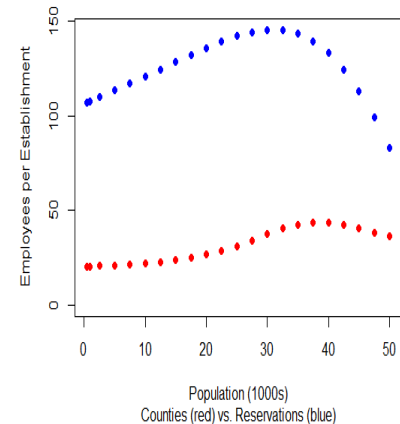
Accommodation/Food Emp. per Estb., Regr#2



Other Emp. per Estb., Regr#2



Public Admin Emp. per Estb., Regr#2



What Explains These Patterns?

- Bottom line: We don't know yet
- However, we can add variables that statistically account for most of the gaps
 - Population density
 - Rural vs. urban indicator (USDA)
 - Per capita income and poverty rate measures
 - Percent of 25+ population with bachelor's degree
- This suggests that the gaps may not be inherent in reservation status, but we plan more work to look at these and other geographic/demographic variables as well as policy variables that may shed light on how to close the gaps

Next Steps

- Census Project
 - Deeper analysis of these density results
 - Controls for relevant policy variables
 - Additional years (e.g., 2012, back to 1990s)
 - Add sole proprietor (non-employer) businesses
 - Comparative business dynamics
 - Analysis of technological differences
 - Comparative business finance (SBO)
- Vendor data projects
 - NETS data available to Fed. Res. Banks soon

QUESTIONS?

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