Cities, New Growth Theory and the Arts

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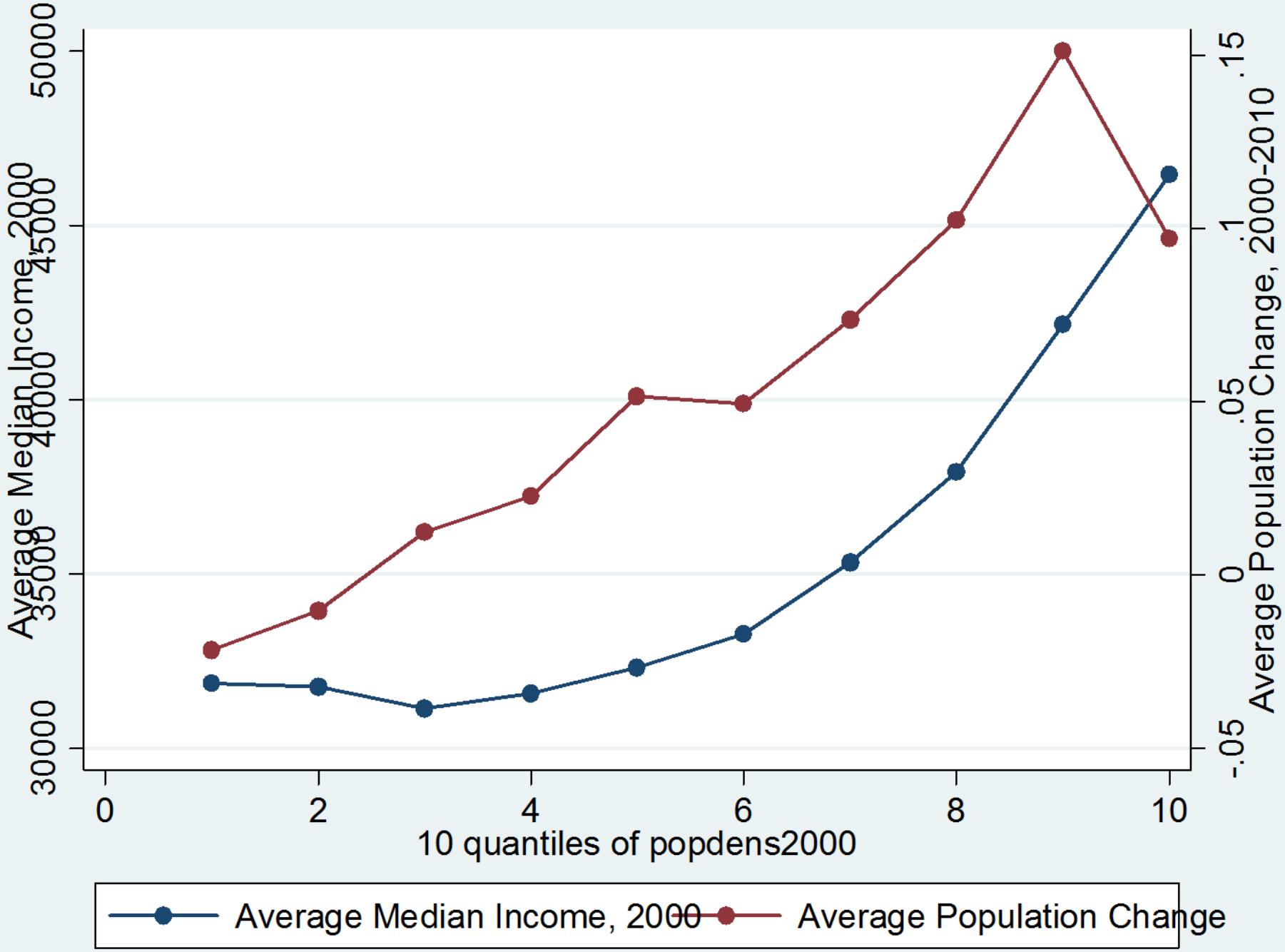
Harvard University


Average Median Income, 2000
30000
35000
40000
45000
50000
Average Population Change, 2000-2010
-.05
0
.05
.1
.15
0
2
4
6
8
10
10 quantiles of popdens2000
Average Median Income, 2000
Average Population Change

Price Growth by Distance to City Centers
2001-2008
Percent Growth, 2001-2008
0
.1
.2
.3
0-2 miles
2-5 miles
5-10 miles
over 10 miles

The Central Paradox

- Why is it that in an era in which transportation and communication costs have virtually vanished, cities have become more important than ever?
- Urban resurgence is visible in high income levels, robust housing prices, and a concentration of innovation in urban areas.
- This is even clearer in the developing world.

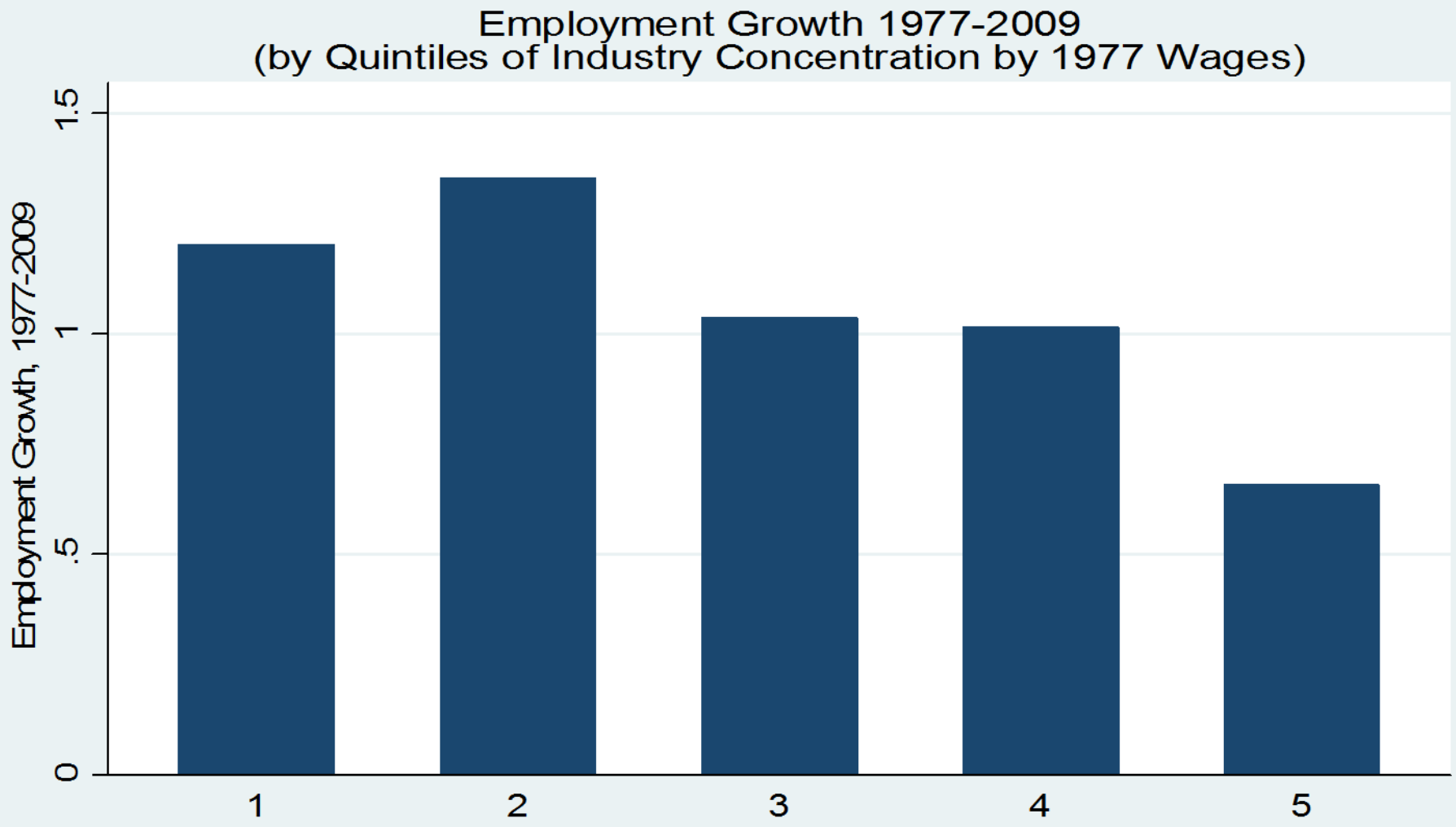
Cities and the New Growth Theory

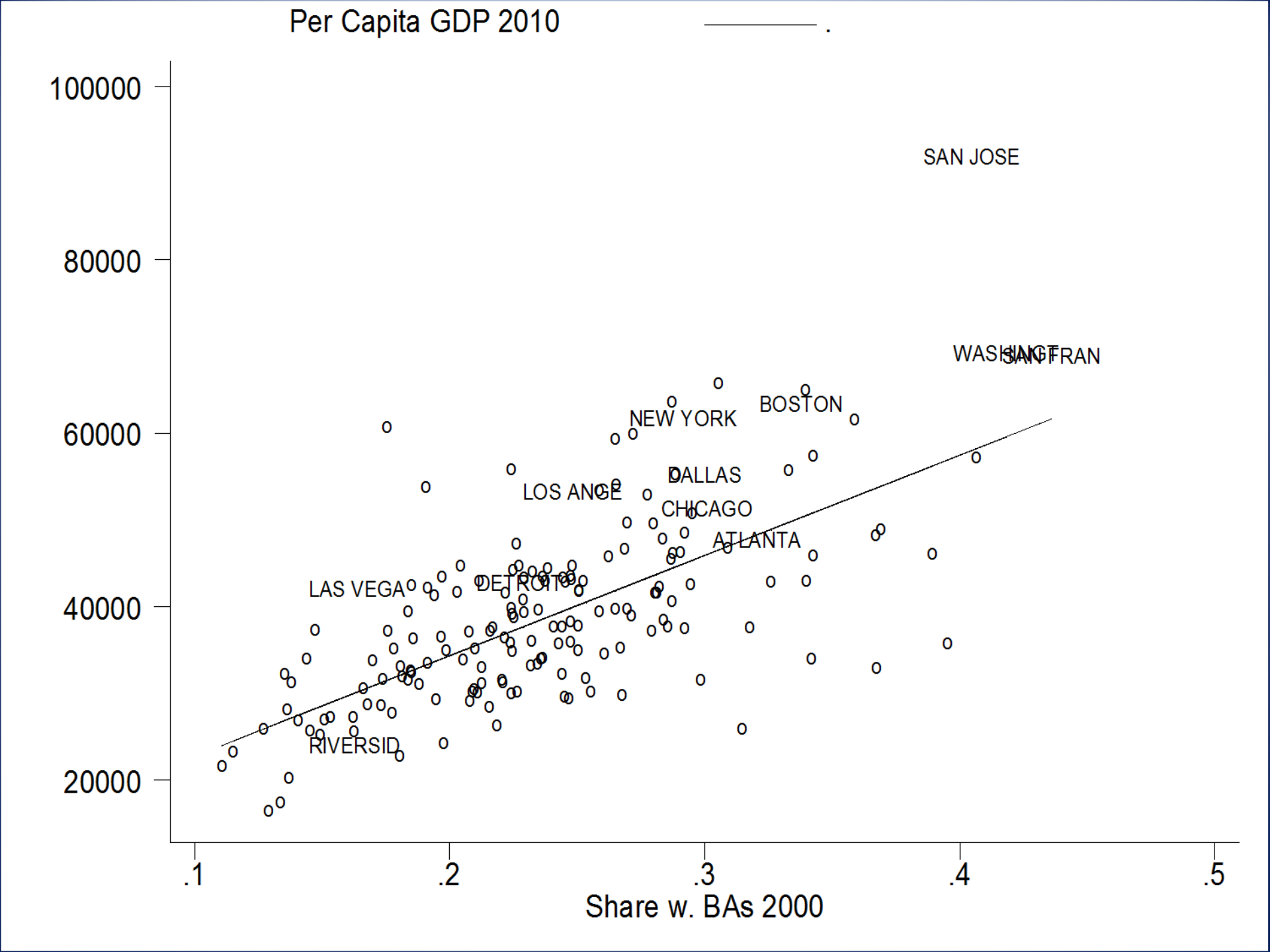
- In the early 1980s, Paul Romer solved the conundrum of generating permanent growth with competitive markets by assuming that production had increasing returns through an externality that he called knowledge.
- In 1988, Lucas argued that knowledge was embodied and better thought of as increasing returns to human capital.
- Sub-national data was seen as a means of testing these ideas.
- We focused on the question of whether firm size or industrial concentration would increase local growth.

Economic Growth and Firm Size

Chinitz: Contrasts in Agglomeration: New York and Pittsburgh

Industrial Concentration and Growth




Per Capita GDP 2010
100000
80000
60000
40000
20000
SAN JOSE
WASHINGT
SAN FRAN
BOSTON
NEW YORK
DALLAS
LOS ANGE
CHICAGO
ATLANTA
LAS VEGA
DETROIT
RIVERSID
.1
.2
.3
.4
.5
Share w. BAs 2000

Knowledge / Human Capital Spillovers

- If knowledge spillovers are global, then local human capital may not matter.
- If these spillovers are local, then they will show up in two linked tests of w(h,H), where h is individual and H is aggregate.
- Test # 1 (Rauch) dw/dH, holding H constant
- Test # 2 (Acemoglue/Angrist): compare dw/dh

  dAggregate wage/dH=dw/dh+dw/dH

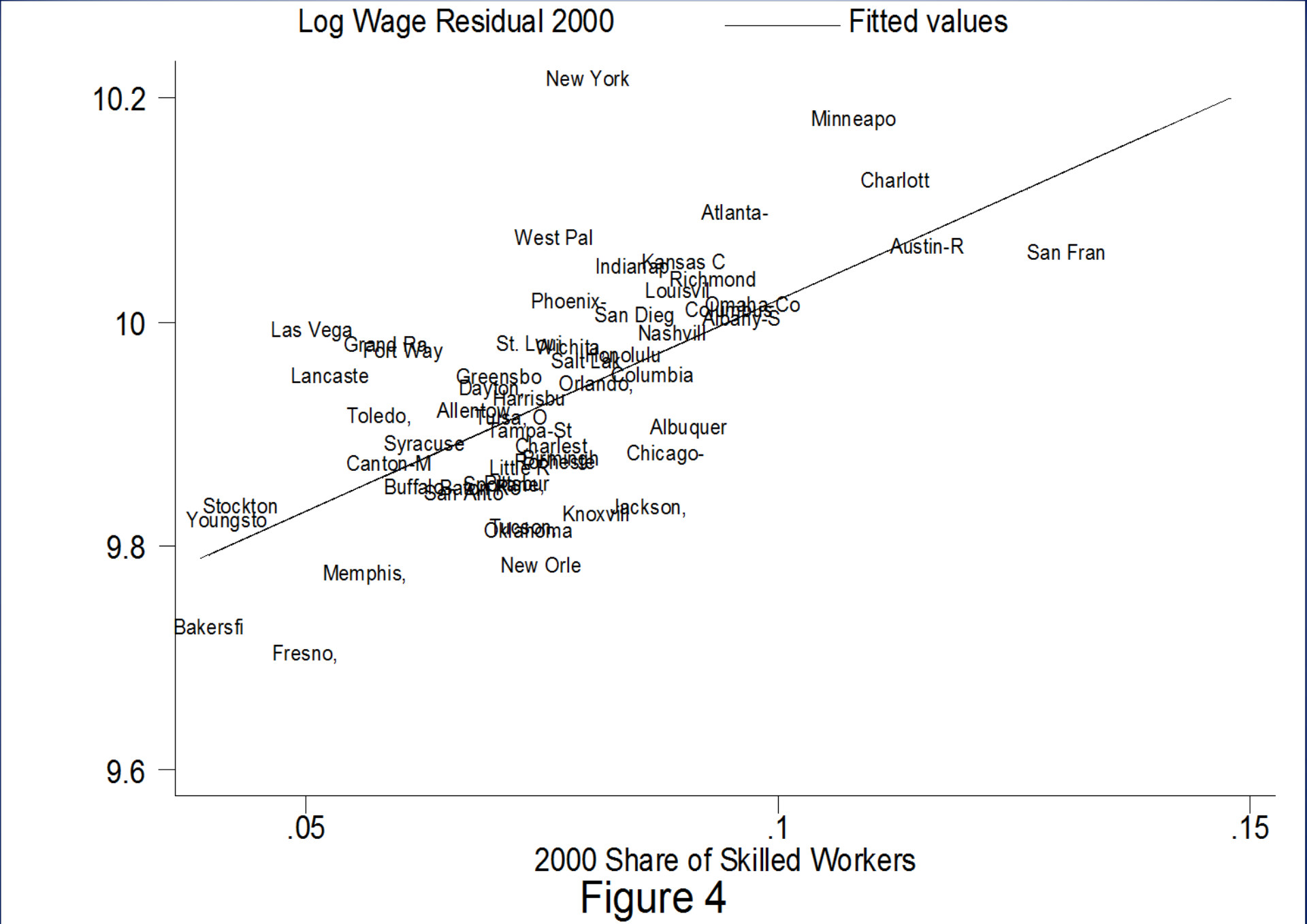
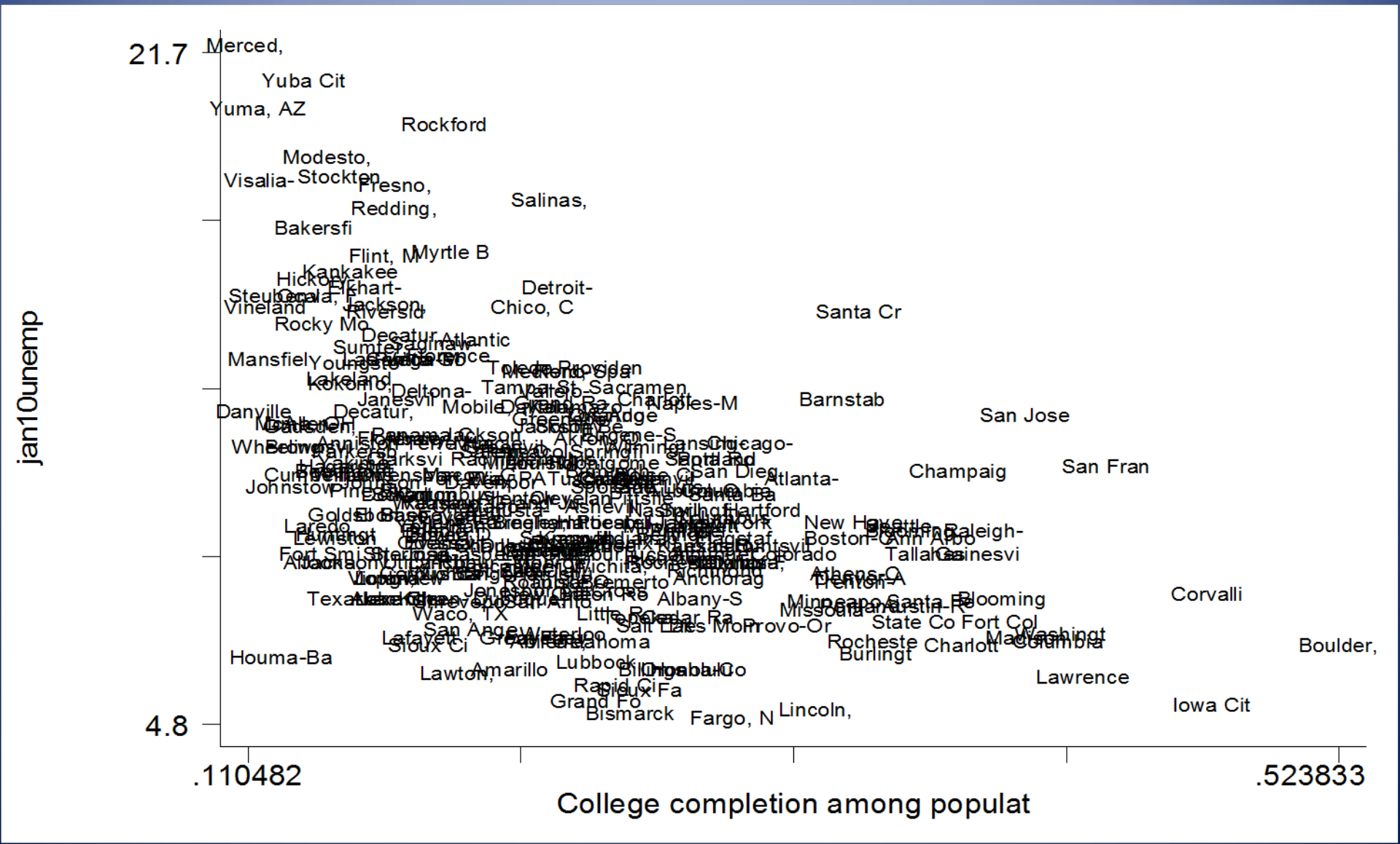

Log Wage Residual 2000
Fitted values
10.2
10
9.8
9.6
.05
.1
.15
2000 Share of Skilled Workers
New York
Minneapo
Charlott
Atlanta-
West Pal
Austin-R
San Fran
Indianap
Kansas C
Richmond
Louisvil
Phoenix-
San Dieg
Nashvill
Las Vega
Grand Ra
Fort Way
St. Loui
Wichita
Salt Lak
Honolulu
Lancaste
Greensbo
Dayton
Orlando,
Columbia
Harrisbu
Toledo,
Allentow
Tulsa, O
Tampa-St
Albuquer
Syracuse
Charlest
Chicago-
Canton-M
Little R
Buffalo
San Anto
Stockton
Youngsto
Knoxvill
Jackson,
Tucson
Oklahoma
New Orle
Memphis,
Bakersfi
Fresno,

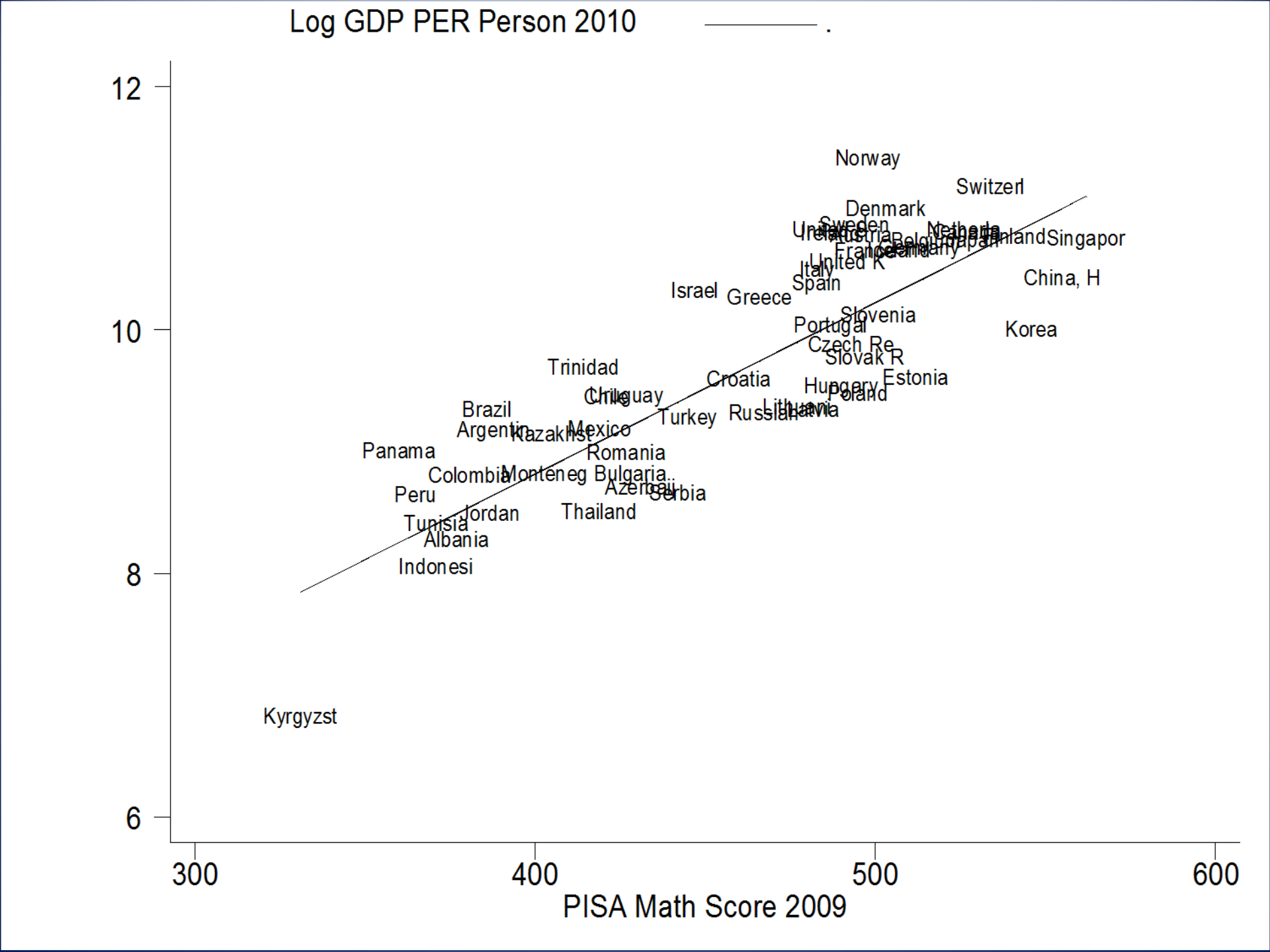
Figure 4

A Little Calculation

- The coefficient of log productivity on share with b.a.'s is 1.7 (holding share with h.s. constant) meaning that if you moved from 100% h.s. grad with no college to 100% b.a. productivity would increase fivefold, which is vastly higher than micro-level estimate.
- Significant issues with endogeneity, etc.
- Large social multipliers in unemployment and across countries as well.

Unemployment and Education

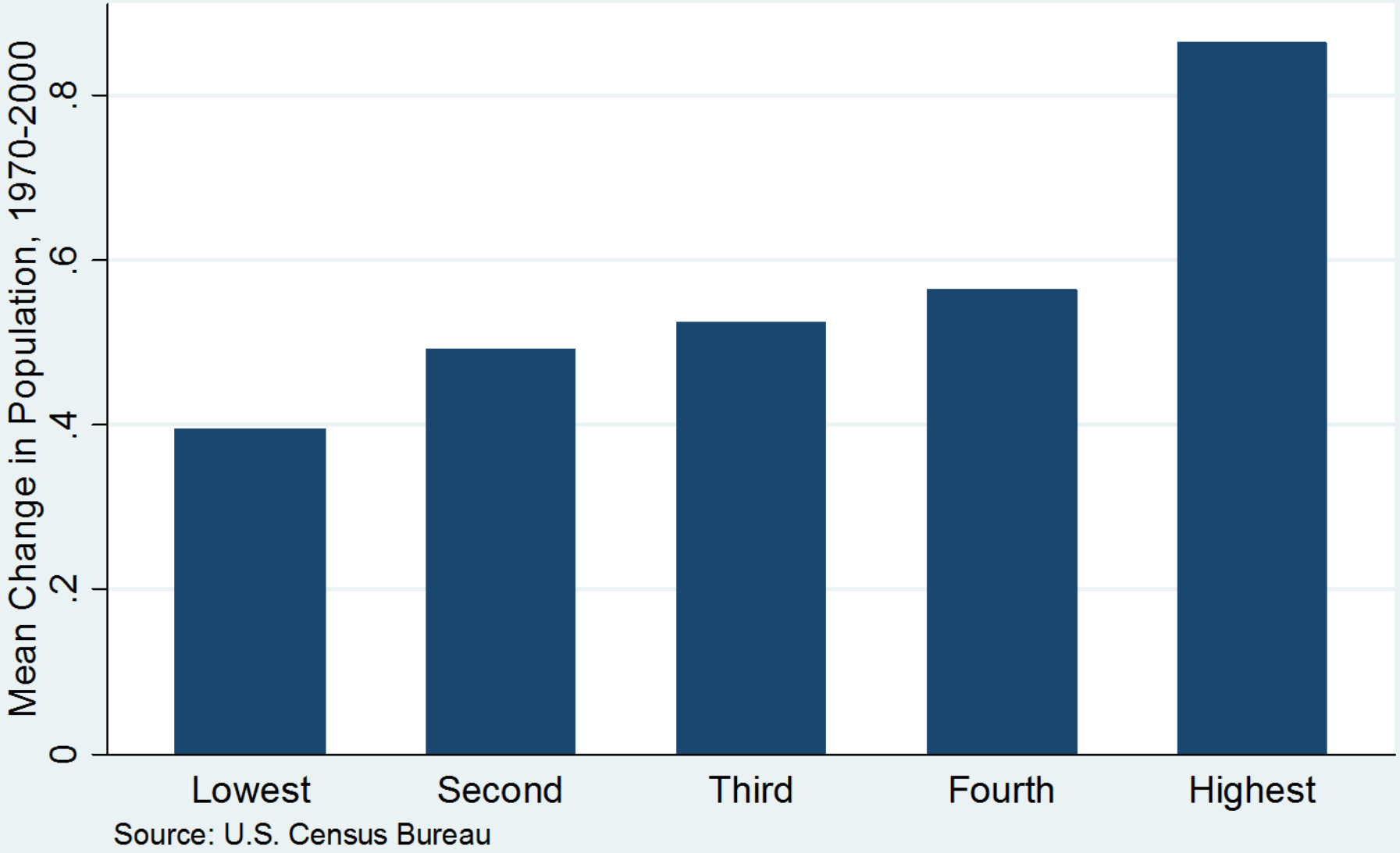




Log GDP PER Person 2010
12
10
8
6
300
400
500
600
PISA Math Score 2009
Norway
Switzerl
Denmark
Sweden
Netherla
Singapor
United K
Italy
Spain
China, H
Israel
Greece
Slovenia
Portugal
Korea
Czech Re
Slovak R
Trinidad
Croatia
Estonia
Hungary
Poland
Brazil
Turkey
Russian
Mexico
Panama
Romania
Colombia
Monteneg
Bulgaria
Peru
Serbia
Jordan
Thailand
Tunisia
Albania
Indonesi
Kyrgyzst

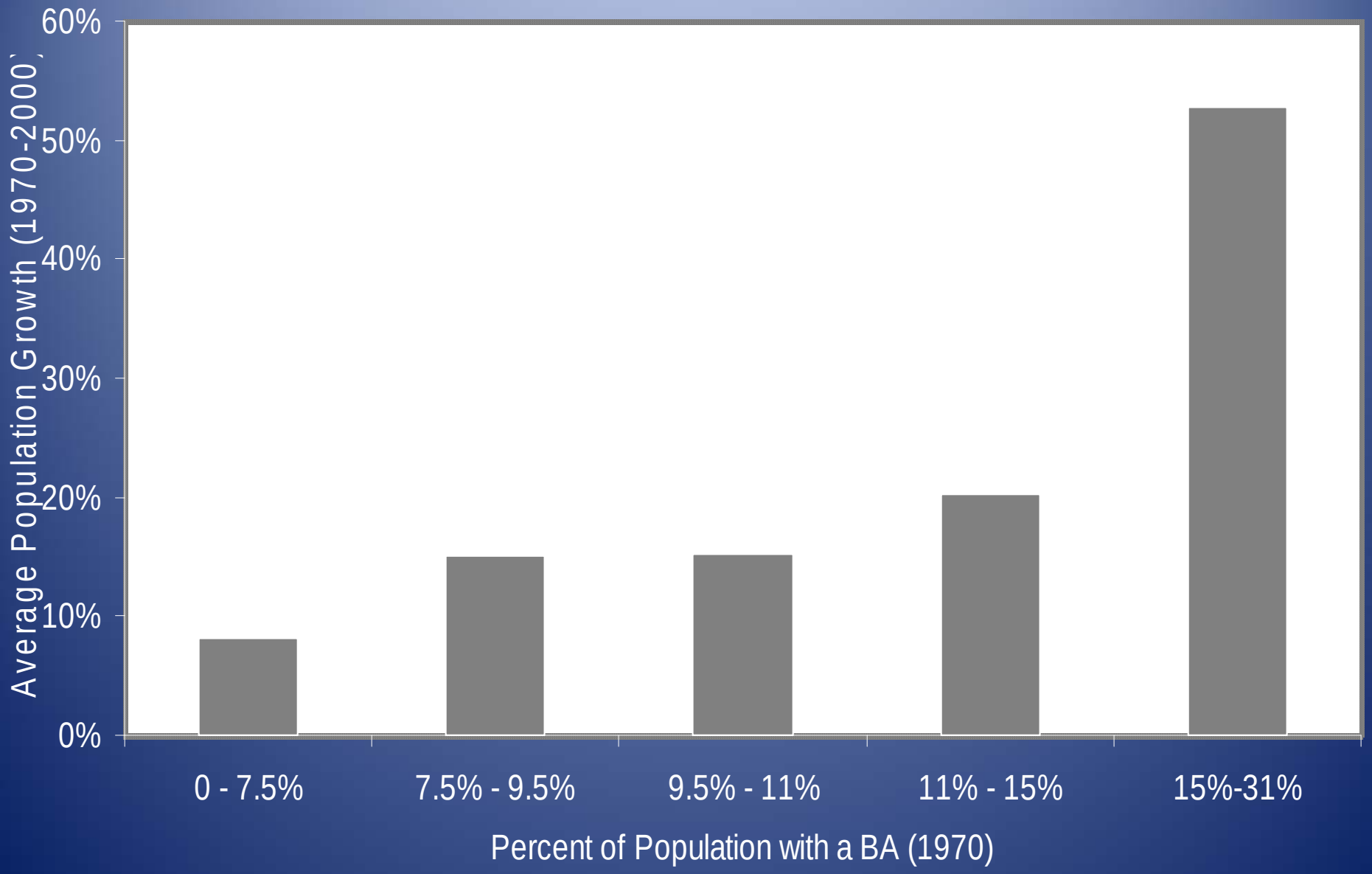
Figure 7:

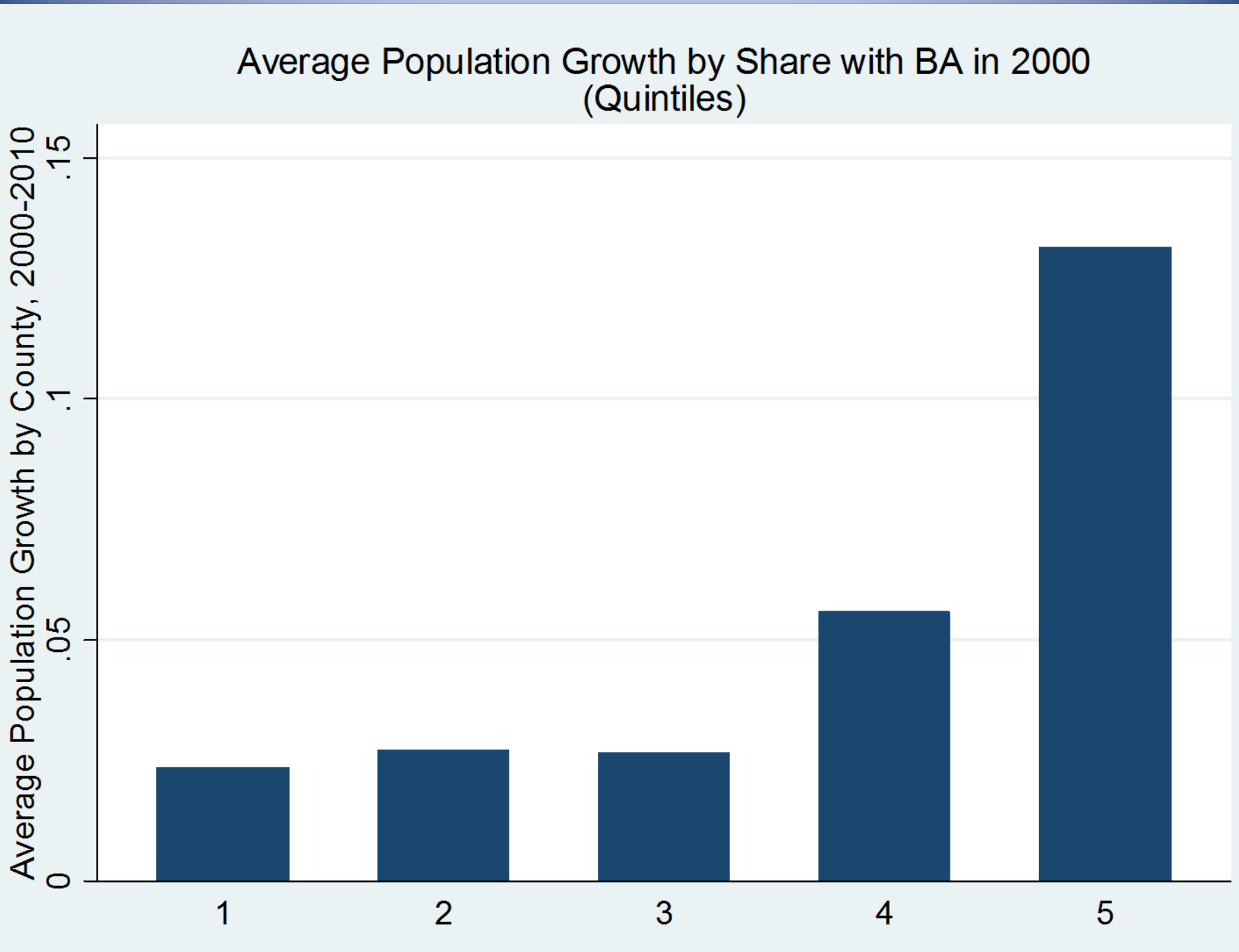
Change in Population, 1970-2000 by Quintile of Percent College Graduates, 1970

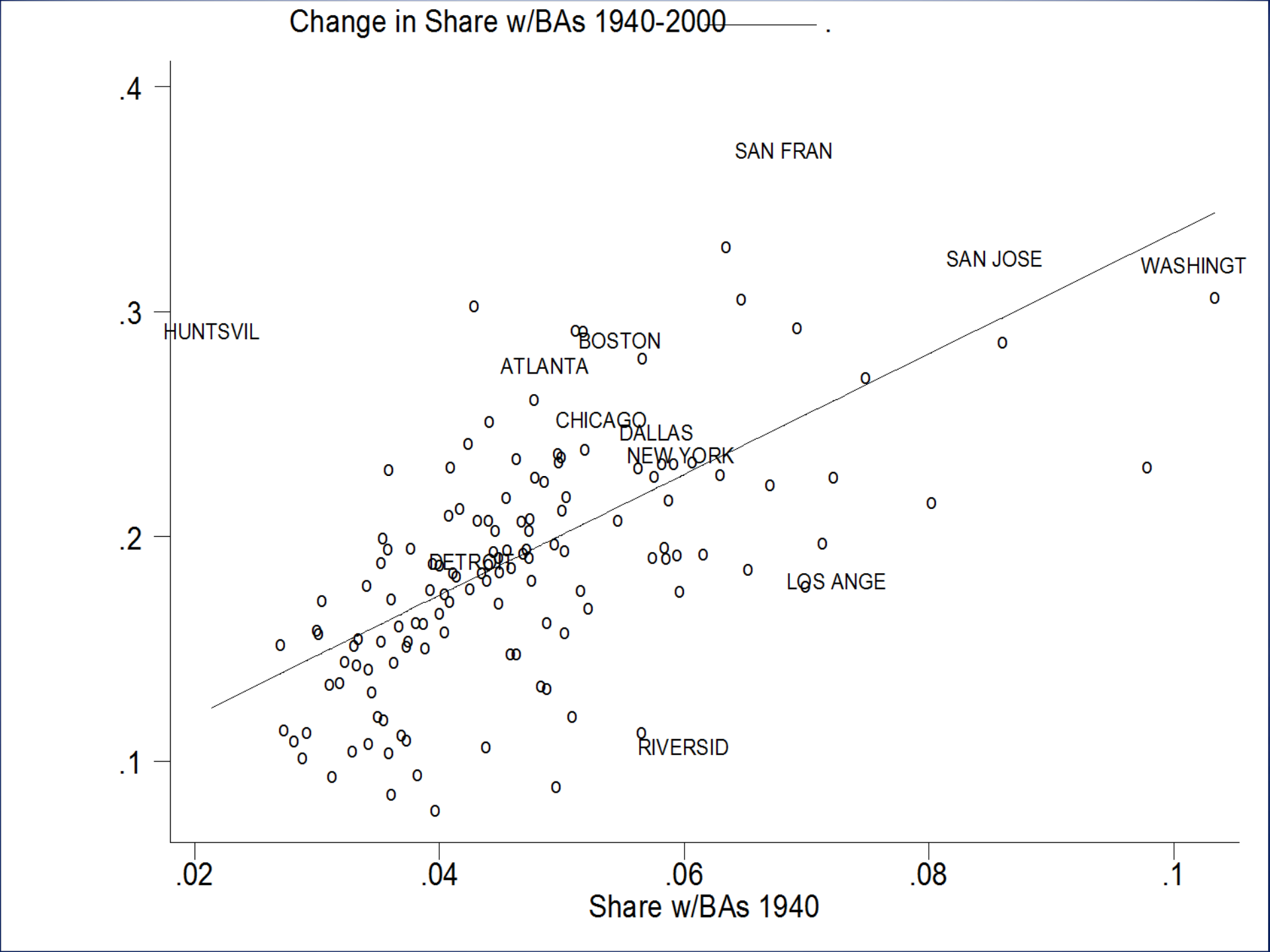


Source: U.S. Census Bureau

Figure 4:
Population Growth for MSAs in the Northeast and Midwest




Average Population Growth by Share with BA in 2000
(Quintiles)
Average Population Growth by County, 2000-2010
0
.05
.1
.15
1
2
3
4
5


Change in Share w/BAs 1940-2000
.4
.3
.2
.1
SAN FRAN
SAN JOSE
WASHINGT
HUNTSVIL
BOSTON
ATLANTA
CHICAGO
DALLAS
NEW YORK
DETROIT
LOS ANGE
RIVERSID
.02
.04
.06
.08
.1
Share w/BAs 1940

The Rise of the Consumer City

Picture by Mr. Bullitt

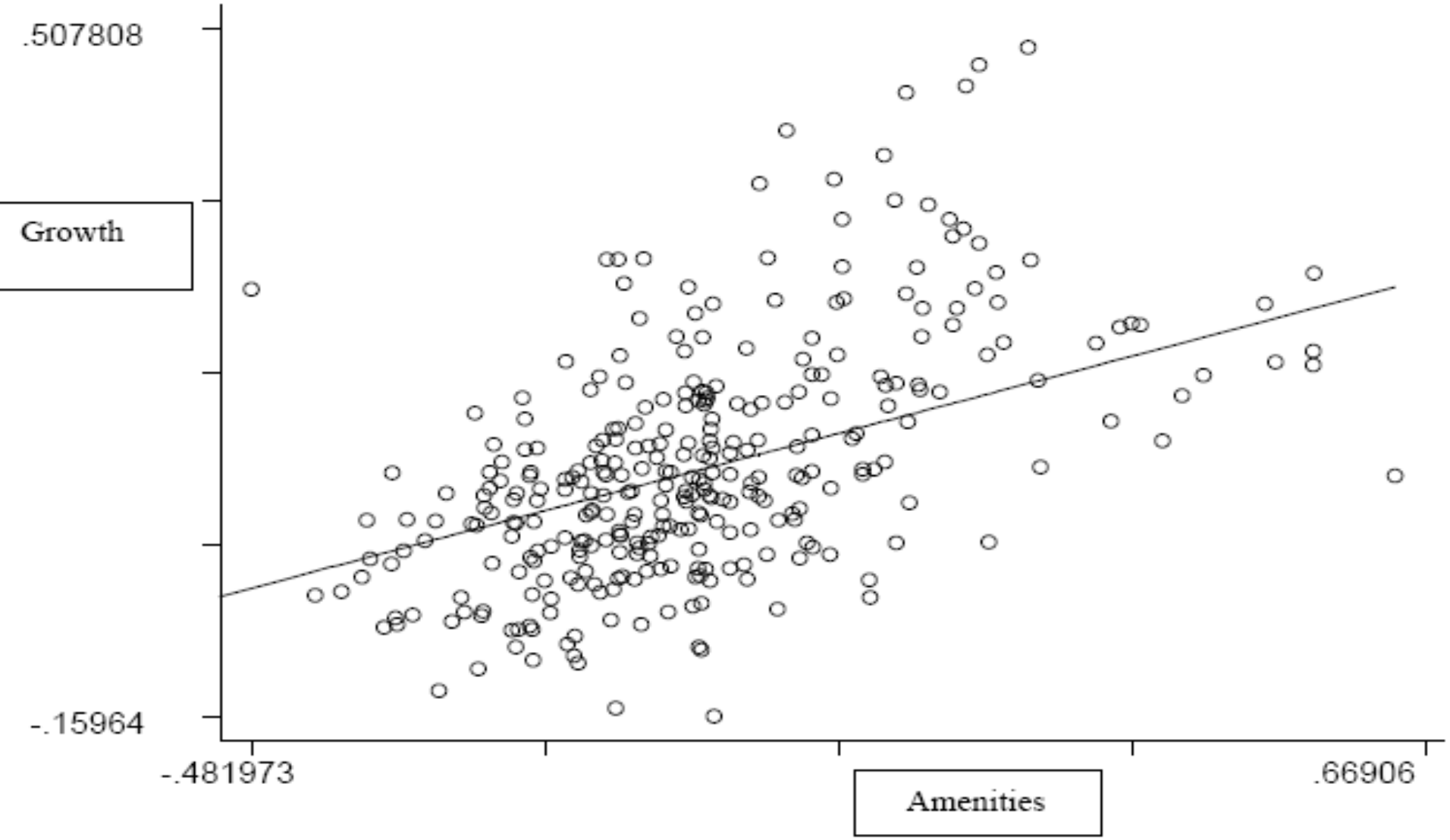
Ranking of Top and Bottom US MSA's, according to Estimated Amenity Value

Metropolitan Statistical Area (MSA)

Highest	Lowest
Honolulu, HI	Stamford, CT
Santa Cruz, CA	Norwalk, CT
Santa Barbara-Santa Maria-Lompoc, CA	Anchorage, AK
Salinas-Seaside-Monterey, CA	Rochester, MN
Los Angeles-Long Beach, CA	Detroit, MI
San Francisco, CA	Midland, TX
San Jose, CA	Trenton, NJ
Santa Rosa-Petaluma, CA	Minneapolis-St.Paul, MN
Oxnard-Ventura, CA	Nassau-Suffolk, NY
San Diego, CA	Bloomington-Normal, IL

Notes : Estimated Amenity Value measured as residual from an OLS regression of log median house value on log median income in 1990.

Growth and Amenities in the US



When are high real wages bad?

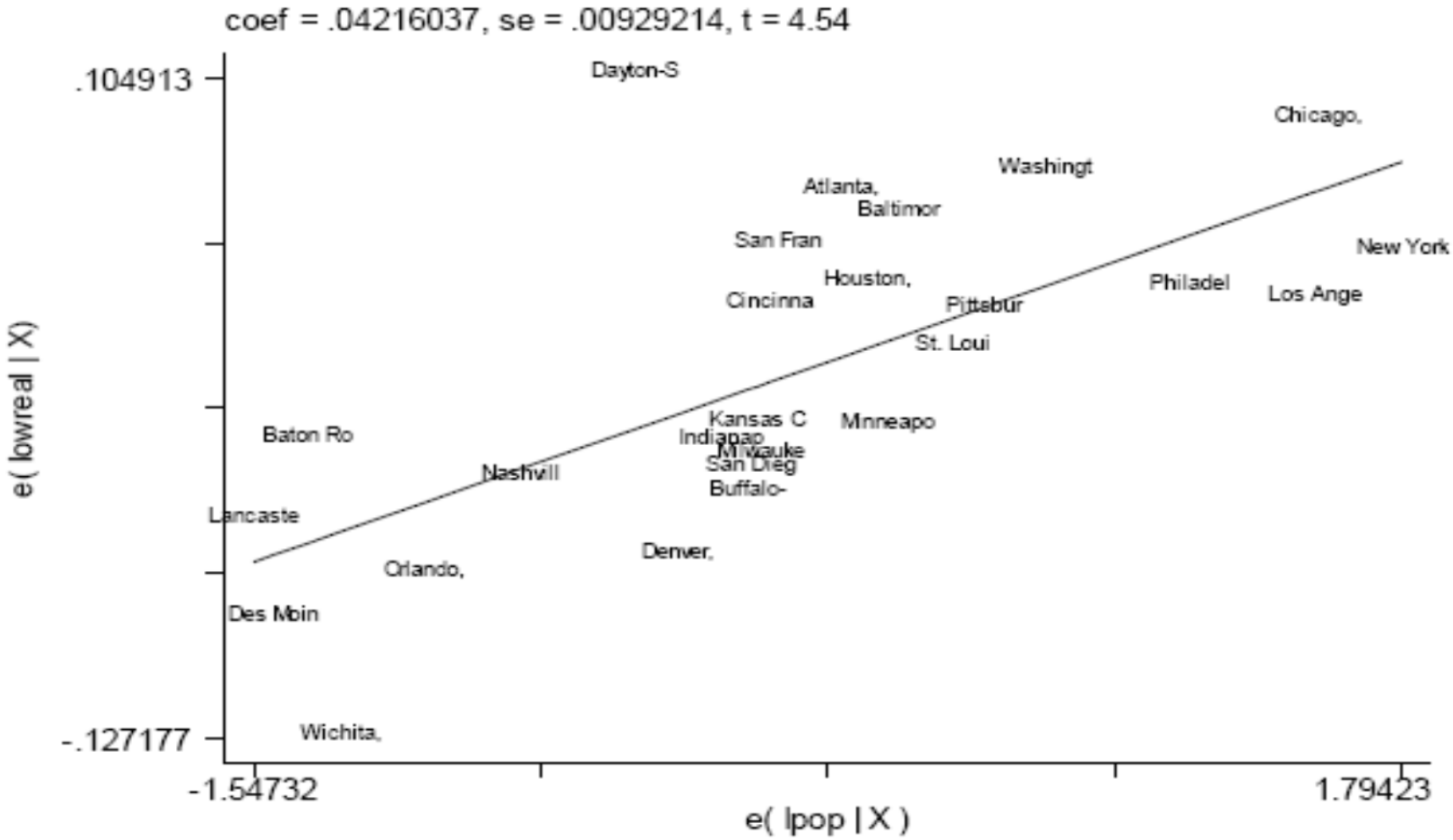


Figure 3: Log of Real Wages and City Size, 1970

Declining Real Wages and the Rise of the Consumer City

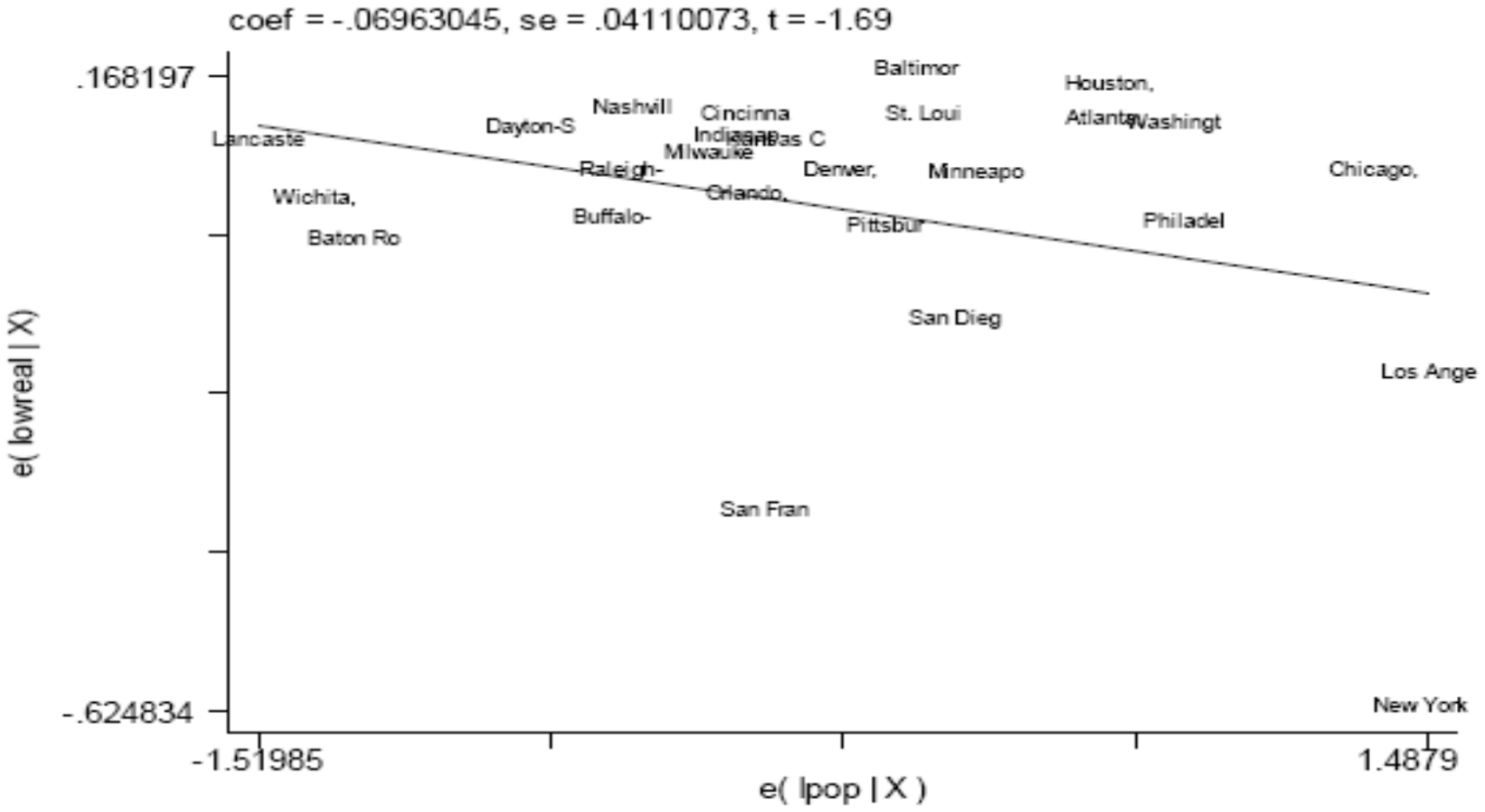


Figure 4: Log of Real Wages and City Size, 2000

Cities and the Arts

- Cities and the generation of artistic breakthroughs
- The arts as an amenity that produces value in and of itself.
- The arts as an attraction to higher human capital individuals.
- The arts as an input into the productive process for consumer industries.

The Chicago Home Insurance Building, built in 1885, is widely considered the world's first metal-framed skyscraper. This technology would come to dictate the shape of most cities in the twentieth century and beyond.

Chicago History Museum/Getty Images

Until nearby commercial structures began to dwarf it in 1890, Trinity Church had been New York's tallest building for forty years. The two buildings to the church's left held that honor for thirty years until they were destroyed in a terrible attack that ultimately illustrated the resilience of a great city.

Jeff Greenberg/ World of Stock

Brunelleschi Understands Perspective

Author: Sailko

Donatello and Low Relief Sculpture

Author: F. Tronchin

Masaccio and the Brancacci Chapel

Does this mean anything for arts policy?

- Artistic clusters have long existed and often created great results (House of Wisdom).
- But does this mean that arts support should be targeted into clusters or not.
  - Can clusters possibly be managed?
- The presence of local externalities doesn't necessarily mean that we just encourage people to move from A->B because A's benefit is B's loss.

Intrinsic Value of the Arts

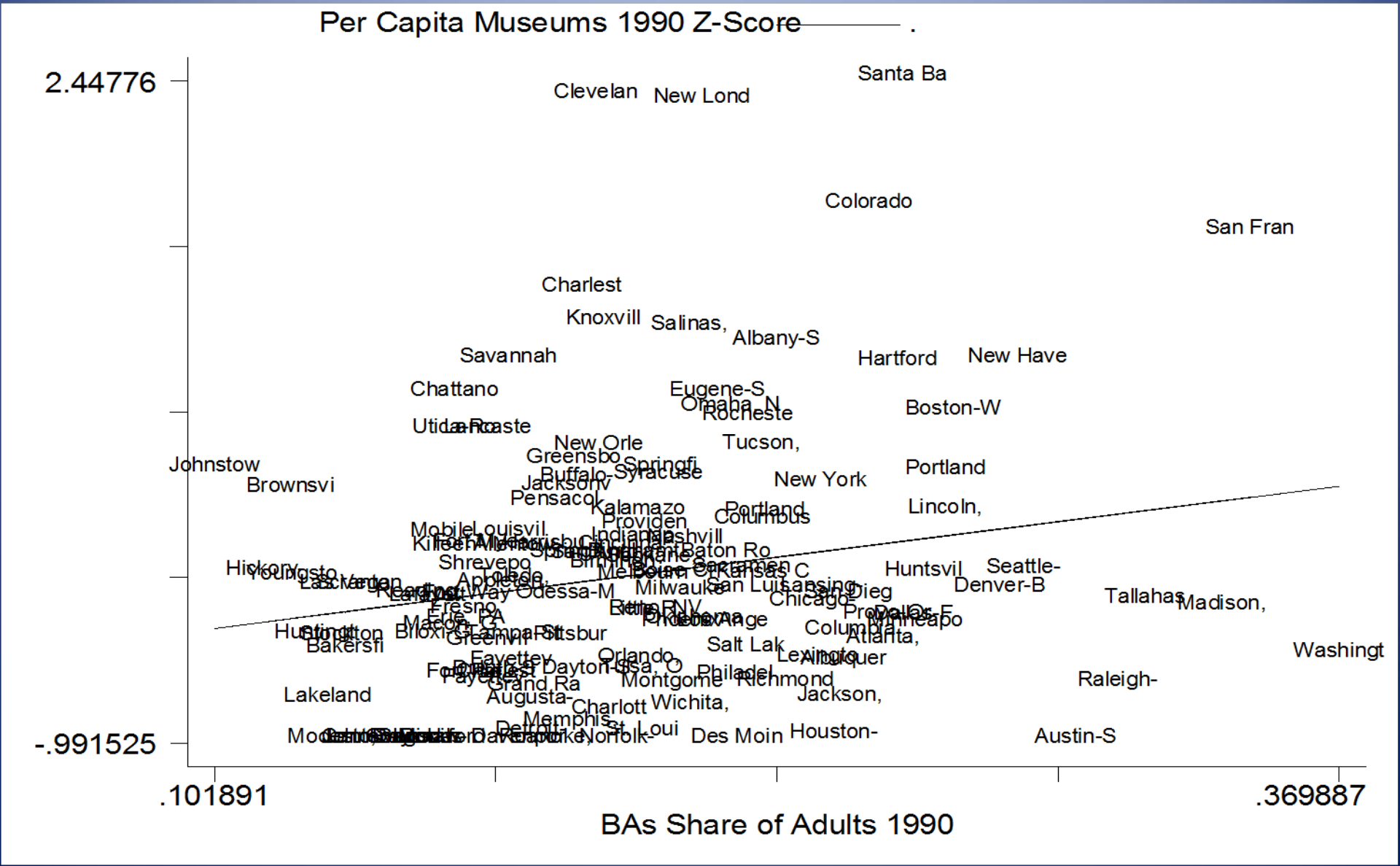
- Private valuation (e.g Galenson and Weinberg)
- Landmark buildings and architectural quality does sell at a premiam.
  - Vandell and Lane find a 22% gap from top to bottom
  - Doug Noonan's work) sell at 5-13% premiums (but landmark status doesn't seem to help).
  - Some work finds that architectural quality tends to be worth more in newer than in older buildings.
- External impact of public art is harder to assess

Arts and Human Capital

- There is some connection between arts establishments and human capital.
- I'm using a museum of museums per capita from 1990 described in "Consumer City"
- The causality isn't entirely obvious, but it does suggest more demand for arts among the more skilled.
- That complementarity is the basis for arts-oriented human capital strategies.

	(1) Visited an art gallery or museum	(2) Went to a bar or tavern	(3) Went out to dinner at a restaurant	(4) Went to the movies	(5) Went to a pop or rock concert	(6) Went to a classical concert	(7) Entertained people in my home
City resident	0.1891 [0.0112]**	0.051 [0.0125]**	0.1071 [0.0112]**	0.202 [0.0111]**	0.1379 [0.0113]**	0.1479 [0.0112]**	-0.0606 [0.0112]**
Suburb resident	0.0808 [0.0100]**	-0.0049 [0.0112]	0.0636 [0.0101]**	0.1149 [0.0099]**	0.0749 [0.0101]**	0.0531 [0.0101]**	-0.0062 [0.0100]
City x after 1990	-0.0064 [0.0164]	-0.0057 [0.0173]	-0.0726 [0.0167]**	0.0497 [0.0163]**	-0.0008 [0.0166]	0.0093 [0.0165]	0.076 [0.0164]**
Suburb x after 1990	-0.0041 [0.0144]	0.0366 [0.0153]*	-0.0132 [0.0147]	0.0577 [0.0143]**	0.0092 [0.0146]	0.0136 [0.0145]	0.0435 [0.0144]**
Survey year	-0.0055 [0.0008]**	0.0022 [0.0011]*	-0.0023 [0.0008]**	-0.0065 [0.0008]**	0.0023 [0.0008]**	-0.009 [0.0008]**	-0.0307 [0.0008]**
College Graduate	0.3581 [0.0086]**	-0.0589 [0.0091]**	0.1339 [0.0086]**	0.1579 [0.0085]**	0.0569 [0.0086]**	0.3434 [0.0086]**	0.0103 [0.0085]
High School Dropout	-0.1658 [0.0114]**	0.0104 [0.0125]	-0.1834 [0.0115]**	-0.1152 [0.0113]**	-0.0074 [0.0115]	-0.1217 [0.0114]**	-0.1125 [0.0114]**
Age	0.0101 [0.0014]**	-0.018 [0.0016]**	0.008 [0.0015]**	-0.0288 [0.0014]**	-0.0285 [0.0015]**	0.0066 [0.0014]**	-0.0164 [0.0014]**
Age squared	-0.0001 [0.0000]**	0.0001 [0.0000]**	-0.0001 [0.0000]**	0.0002 [0.0000]**	0.0002 [0.0000]**	0 [0.0000]	0.0002 [0.0000]**
Female	0.095 [0.0071]**	-0.3808 [0.0076]**	-0.0411 [0.0071]**	0.0119 [0.0070]	-0.0329 [0.0071]**	0.068 [0.0071]**	0.1103 [0.0070]**
Log income	0.0747 [0.0050]**	0.0593 [0.0059]**	0.225 [0.0051]**	0.114 [0.0050]**	0.0564 [0.0051]**	0.046 [0.0051]**	0.0725 [0.0050]**

Museums and Education 1990



Museums and Subsequent Changes

- A one standard deviation increase in the number of museums p.c. increase growth in share BAs from 1990-2000 by 2/10 of one percent (controlling initial size and pct ba).
- No visible impact on income or pop. Growth
- House price growth increases by 4 percent with one standard deviation more museums p.c.
- Same coefficient for 1980-2000 (but not significant) also no impact on income or pop growth (and none on housing).

Versace's Miami Mansion

Photo by Daniel di Palma