Causes and Consequences of Central Neighborhood Change: 1970-2010

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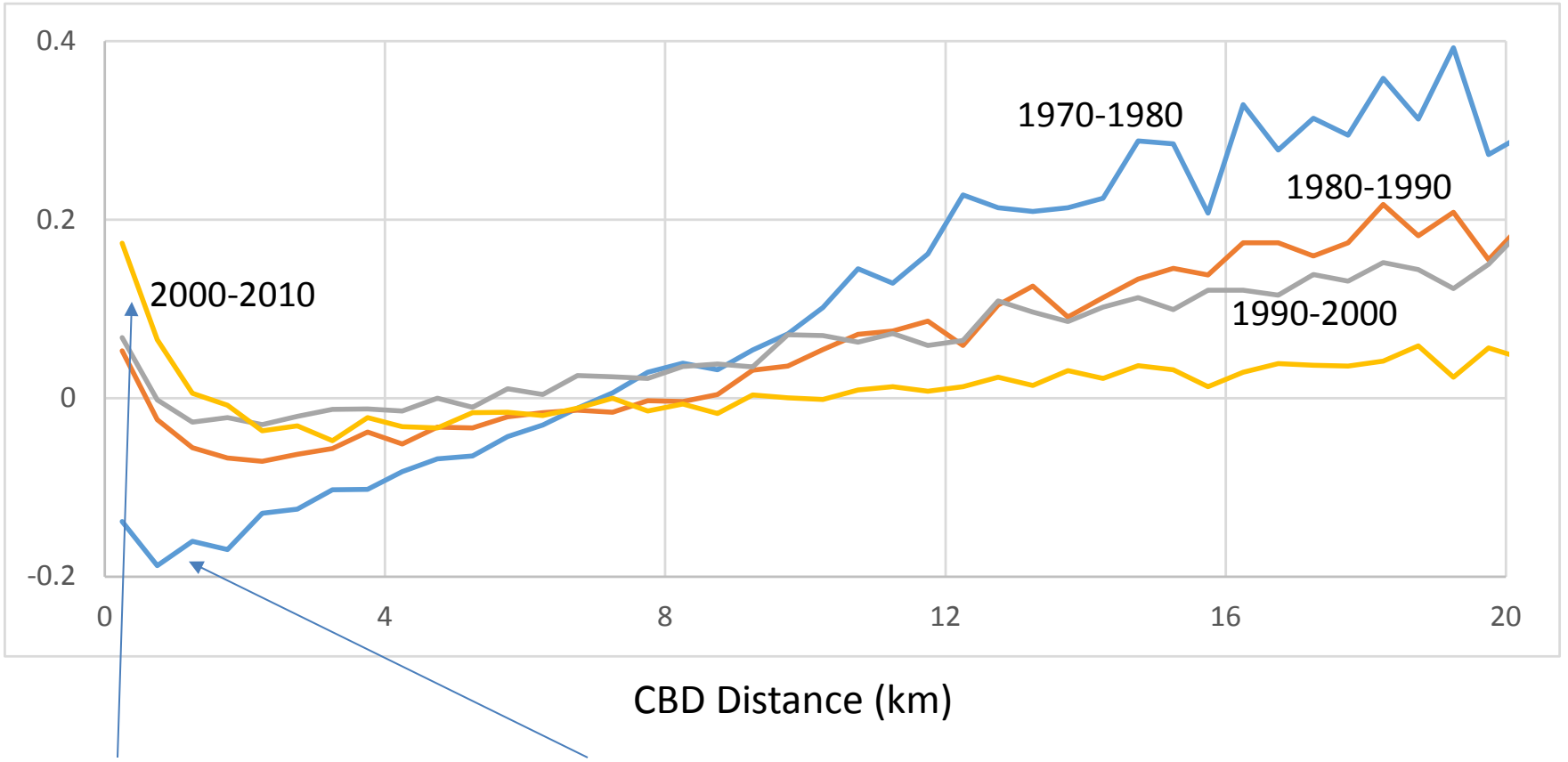
Outline for the Talk

- Present facts about demographic change in neighborhoods near Central Business Districts (CBDs) since 1970
    - Declines during the 1970s
    - Stabilization in the 1980s-1990s
    - Rebounds 2000-2010
- Show that these rebounds are more pronounced in low SES neighborhoods near CBDs in metropolitan areas with stronger downtown employment growth
- Provide a systematic accounting for these changes by examining shifts in demographic shares and neighborhood choices of different demographic groups for the 1980-2000 and 2000-2010 periods
- Lay out potential mechanisms driving these changes
    - Edlund, Handbury and Ellen's talks will delve into these mechanisms further

Motivating Fact 1

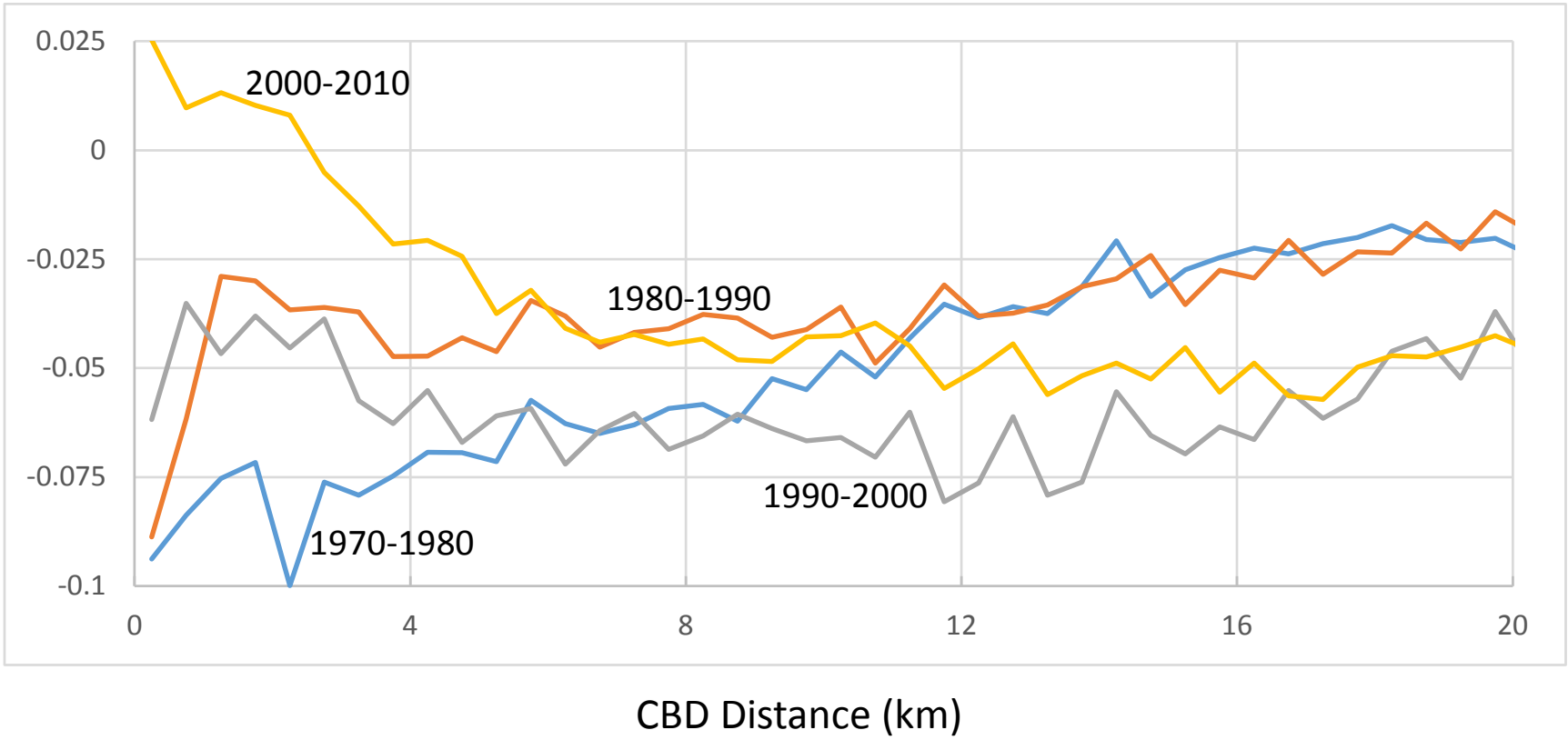
Percent Change in Population by CBD Distance
Medians Across 120 CBSAs



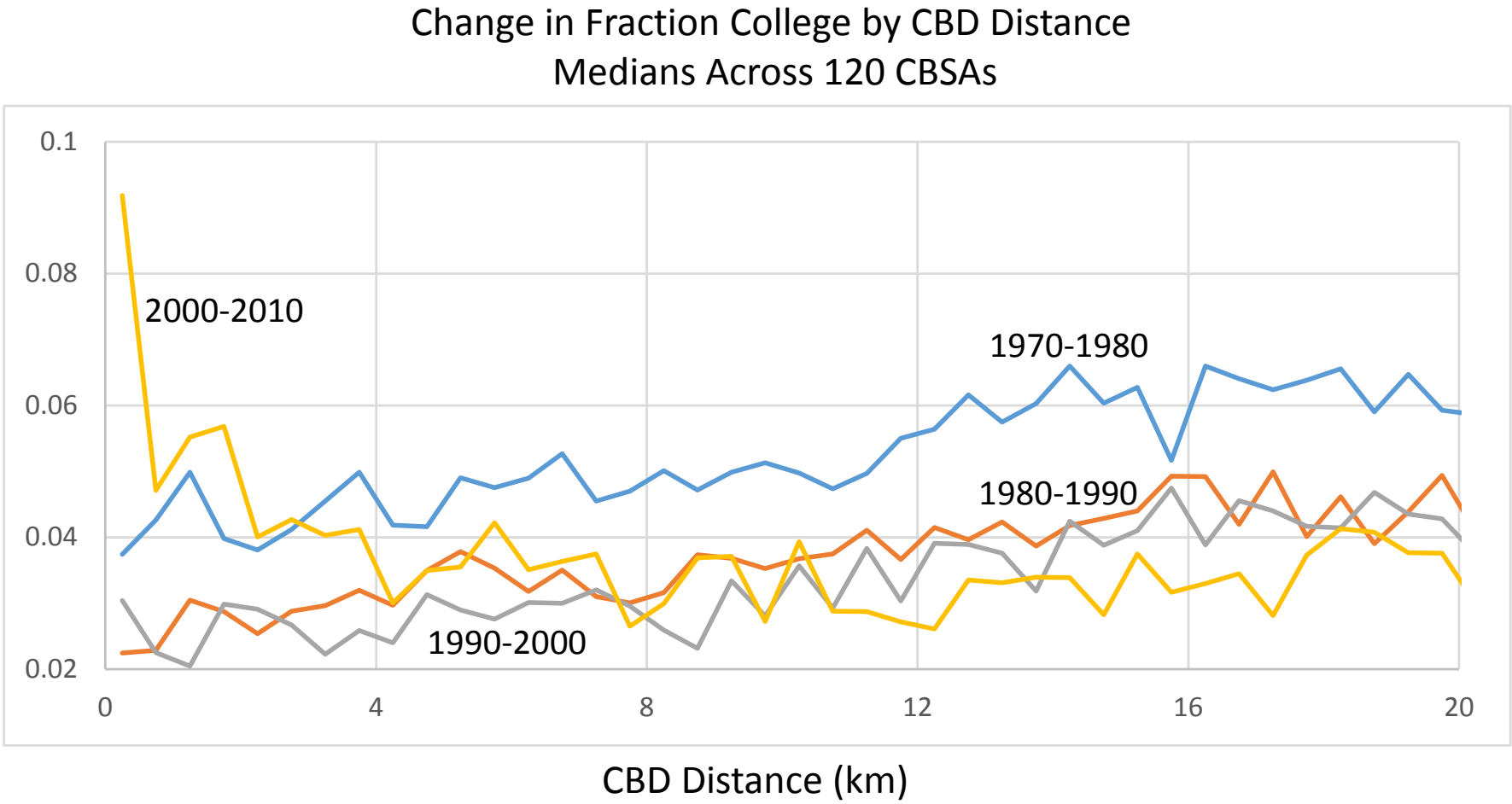
most rapidly growing areas 2000-2010

most rapidly declining areas 1970-1980

Motivating Fact 2



Motivating Fact 3



Measuring Gentrification

- Conceptually, we think of “gentrification” as outward shifts in housing demand in low SES neighborhoods

- Depending on neighborhood-specific housing supply elasticity, this results in some combination of

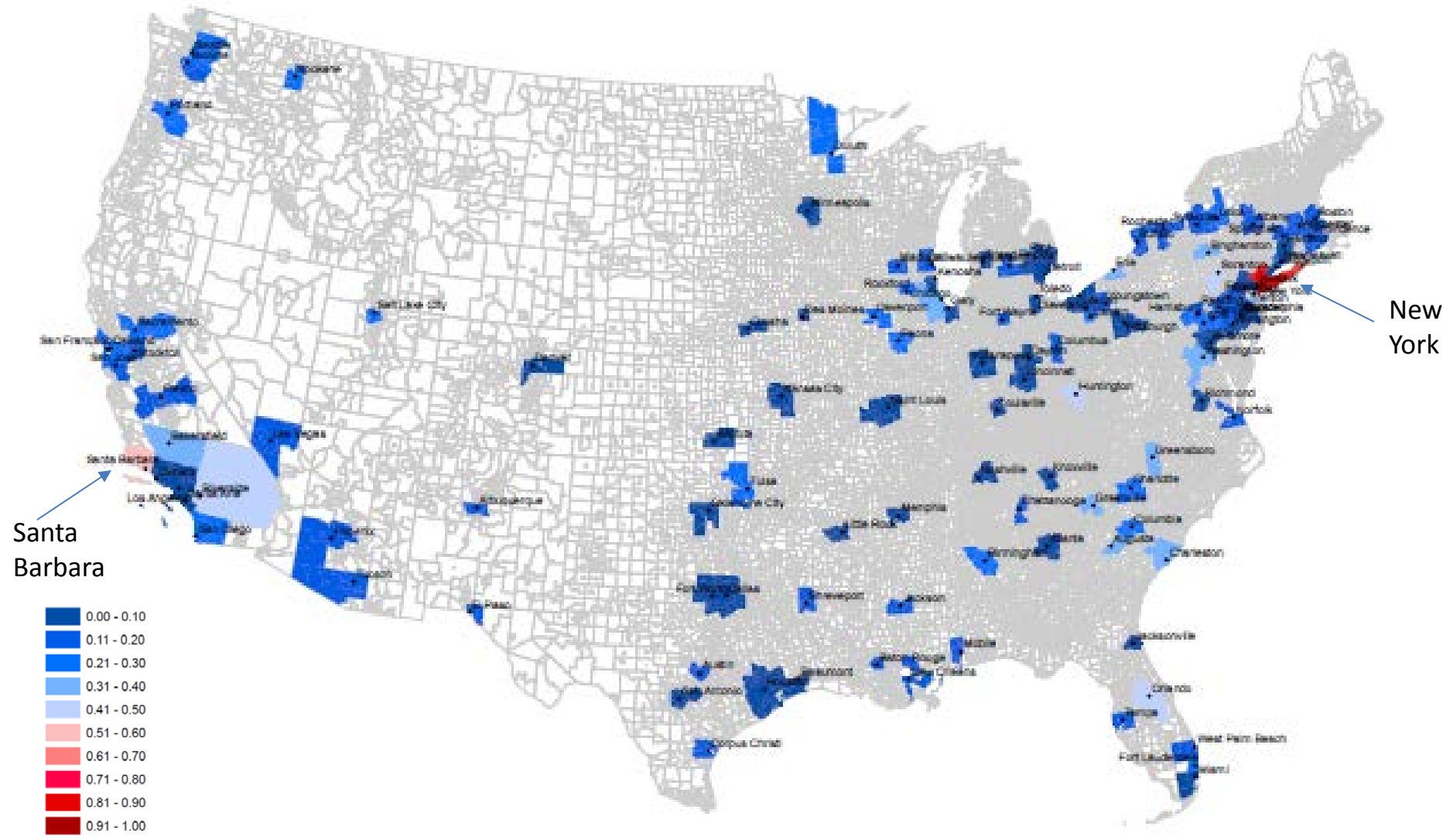
    - Increases in housing costs
    - Increases in population
    - Shifts in the composition of the population toward higher SES residents

- To be concise, some of this analysis uses an equally weighted z-score within CBSA of tract level fraction college, median income and fraction white

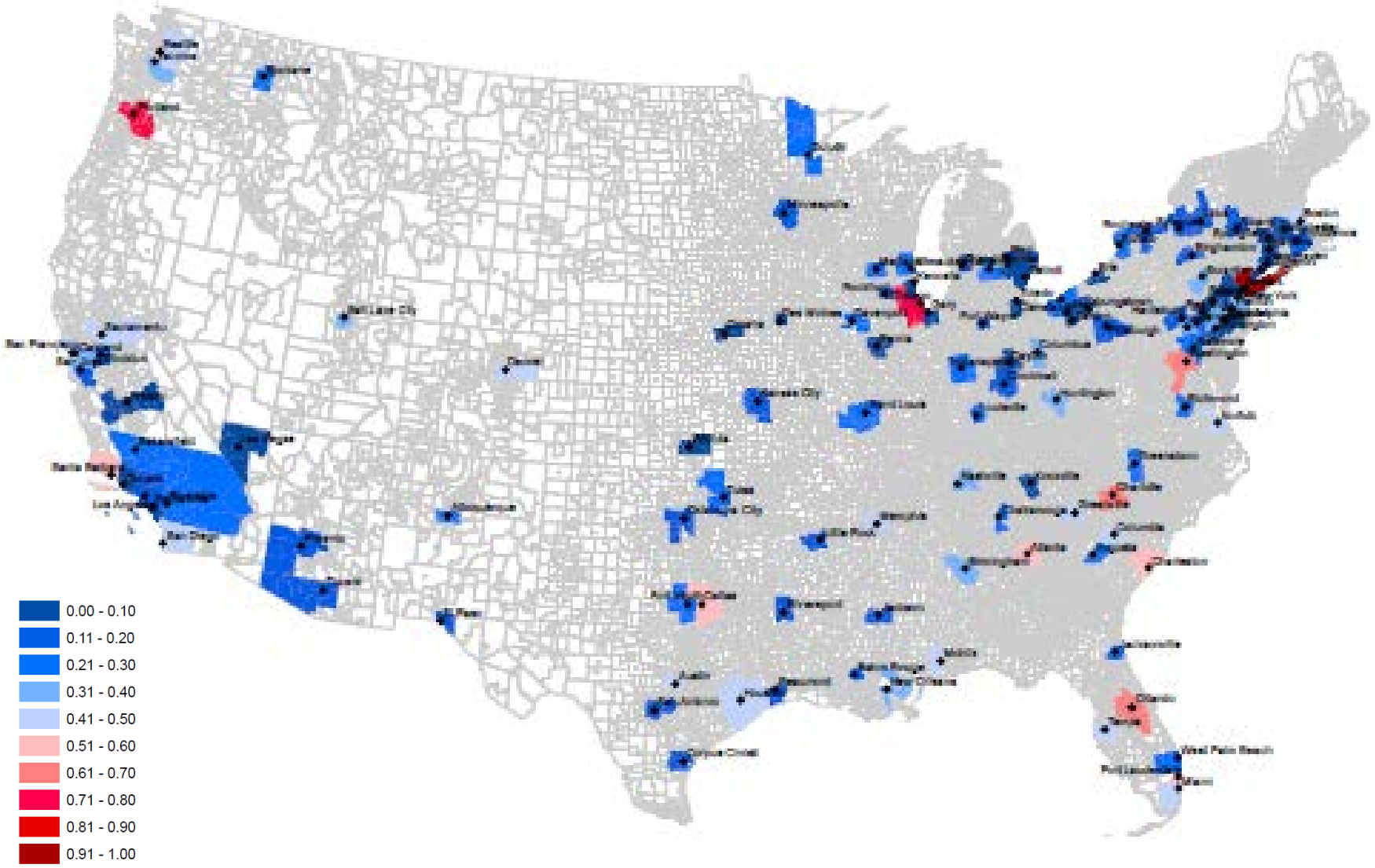
    - This is our “SES Index”

- We focus on neighborhoods within 2 km or 4 km of CBDs of the 120 largest metropolitan areas

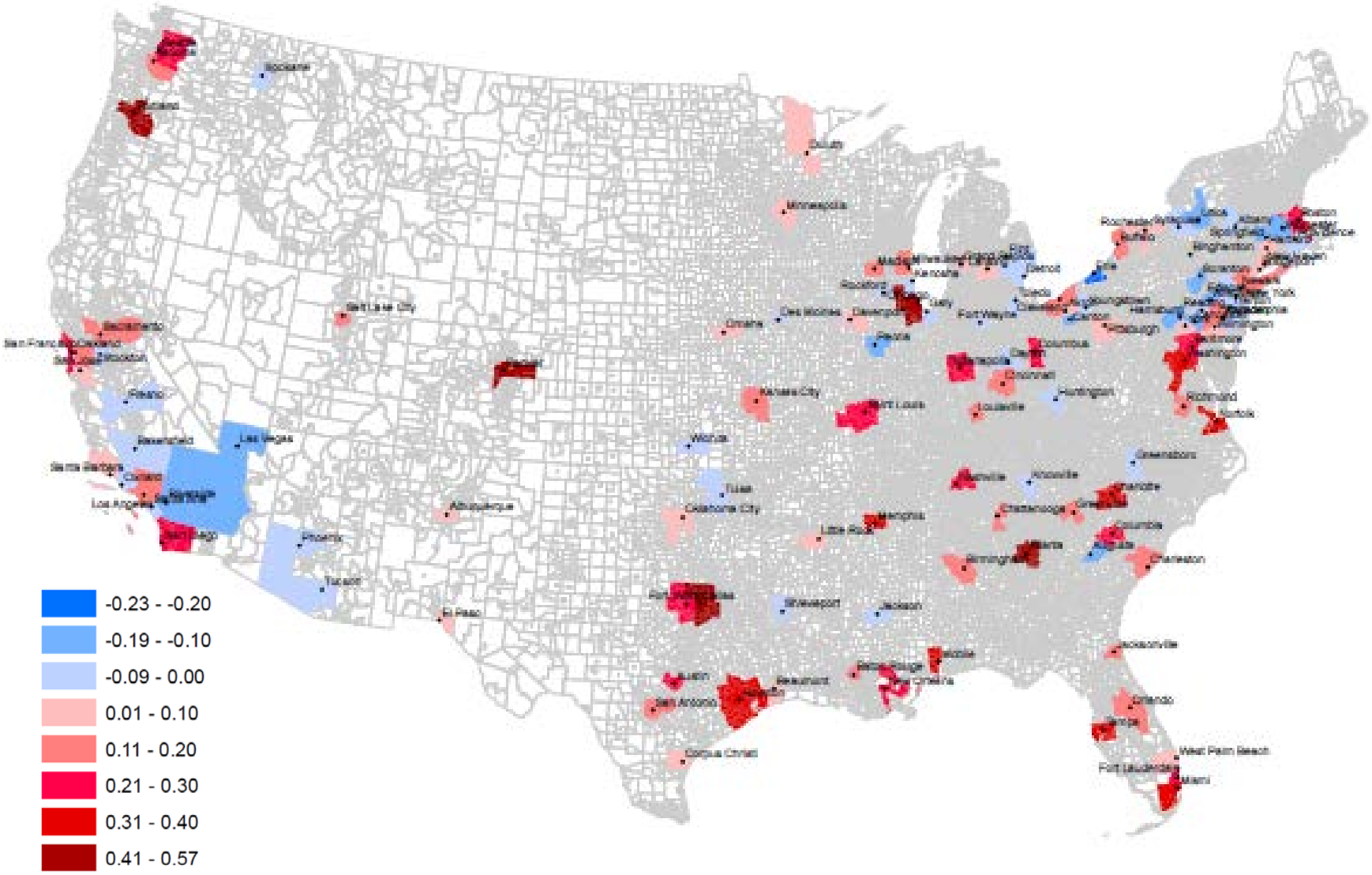
Share of Population Within 4 km of CBDs Living in a Top Half CBSA SES Distribution Census Tract: 1980



Share of Population Within 4 km of CBDs Living in a Top Half CBSA SES Distribution Census Tract: 2010



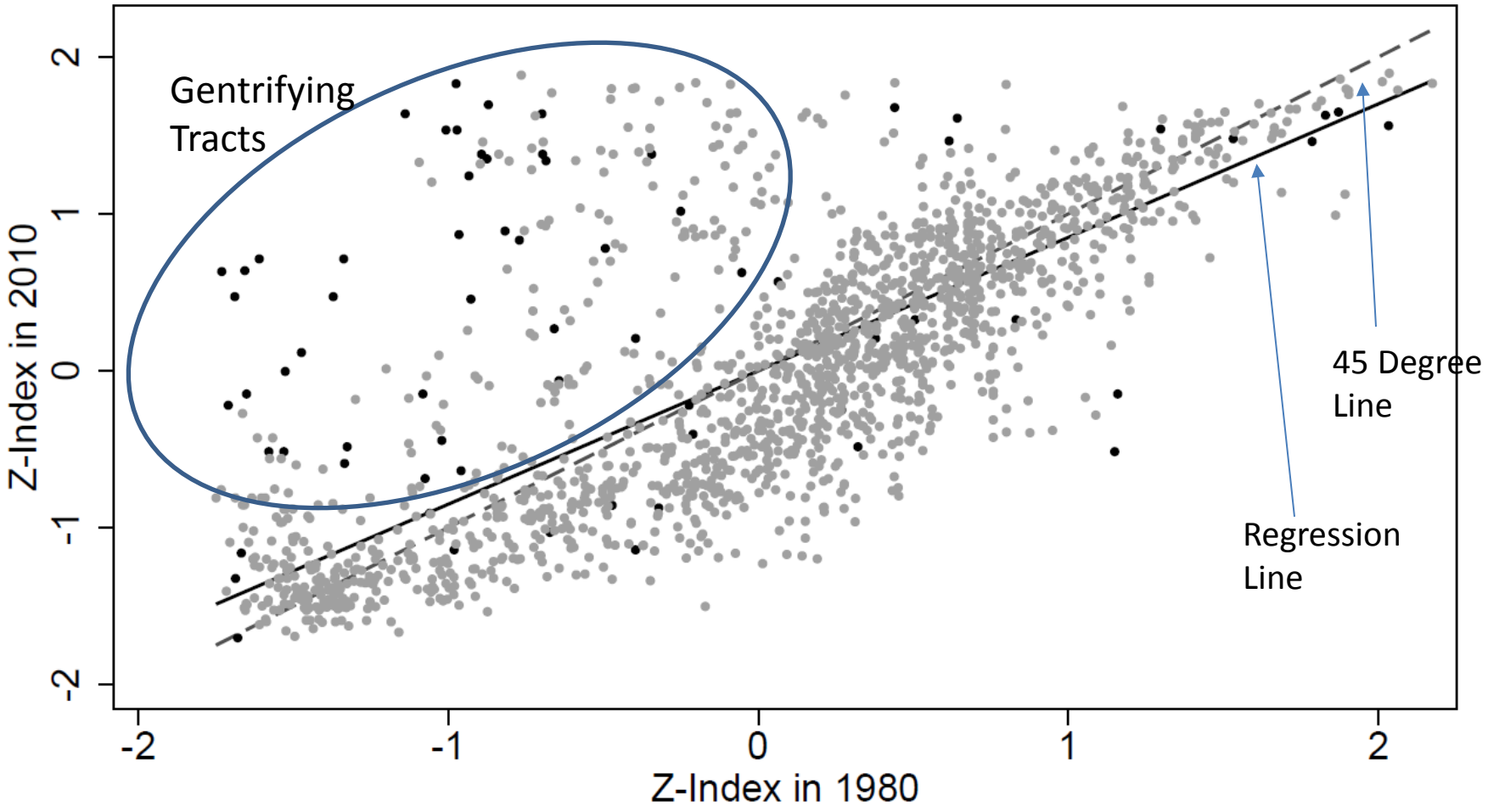
Change in Share of Population Within 4 km of CBDs in Top Half of CBSA SES Distribution



1980-2010 Neighborhood Change in Chicago, SES Index

Dark Dots: Tracts within 4 km of the CBD

Light Dots: Other Tracts

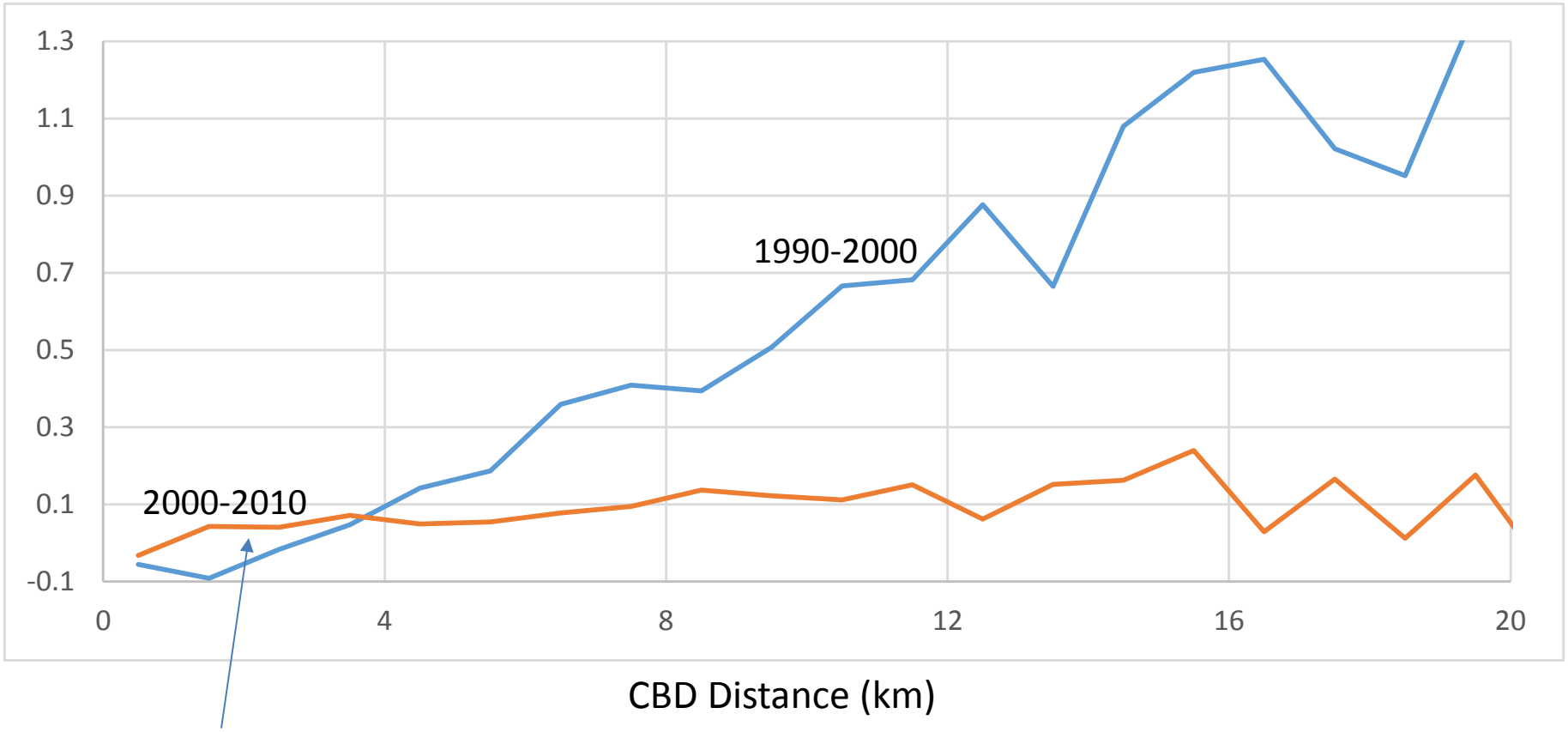


- Similar pattern exists for each components of the SES Index separately

Potential Drivers of Central Area Gentrification

- Demographic shifts
    - Greater fractions of groups who have always been more likely to live in downtown areas
- Shifts in demand by particular demographic groups
    - Shifts in the spatial structure of labor market opportunities
        - Rise in CBD-oriented high human capital industries
        - Continued decentralization of low skilled industries
        - Spatial separation of high and low skilled firm functions
    - Shifts in amenity values
        - Local private services (restaurants, shops, etc.)
        - Local public services (school quality, etc.)
        - Crime
        - “Tipping”

Percent Change in Employment
Medians Across 120 CBSAs



More stable employment near CBDs after 2000

"Bartik" and "Spatial Bartik" Labor Demand Shocks

- Goal is to pick out some random source of variation in labor market opportunities, separating out those near the CBD from those far from the CBD

$$Bartik_{jt} = \sum_k S_{jk} \ln(emp_{kt}^{-j} / emp_{kt-10}^{-j})$$

$$Spatbartik_{jt} = \sum_k f_{jk} \ln(emp_{kt}^{-j} / emp_{kt-10}^{-j})$$

- S_{jk} is the share of CBSA j employment in industry k in 1970
- f_{jk} is the share of CBSA j employment within 4 km of the CBD in industry k in 1990 (the earliest year for which we have data)
- For some time periods, we use reduced forms because we do not observe central area employment before 1990

Describing Central Area Gentrification

- Estimate tract level regressions like the following:

$$S_{ijt} = \rho_{jt} + \mu_{jt} S_{ijt-10} + \sum_{d=1}^{4} \alpha_{dt} cbddis_{ij}^{d} + \alpha_{1t}^{b} cbddis_{ij}^{1} \Delta \ln Emp_{jt} + \alpha_{1t}^{s} cbddis_{ij}^{1} \Delta \ln CBDEmp_{jt}$$
$$+ \sum_{d=1}^{4} \beta_{dt} topdis_{ij}^{d} + \sum_{m} \delta_{mt} \ln(amendis_{ij}^{m}) + \varepsilon_{ijt}$$

SES Index

CBSA Fixed Effects

Distance Intervals To Top Quartile SES Tracts in 1970

CBD 4 km Distance Interval Fixed Effects

Distances to Local Fixed Amenities (Coastlines, Lakes, etc.)

Standardized, instrumented with $Bartik_{jt}$

Standardized, instrumented with $Spatbartik_{jt}$

- Separate results for low, middle and high tercile tracts, measured as of 1970
- Weight each CBSA equally

Central Area Neighborhood Change: Bottom Tercile Neighborhoods

	1970-1980 RF	1980-1990 RF	1990-2000 IV	2000-2010 IV	1980-2010 RF
Bottom Tercile Neighborhoods					
1(< 4km to CBD)	-0.224	-0.056	-0.029	0.117	0.017
	(0.028)	(0.017)	(0.011)	(0.013)	(0.047)
Employment Bartik * 1(< 4km to CBD)	-0.060	0.015	-0.073	0.002	0.103
	(0.027)	(0.018)	(0.122)	(0.032)	(0.046)
Spatial Employment Bartik * 1(< 4km to CBD)	0.049	0.017	0.167	0.215	0.093
	(0.027)	(0.017)	(0.073)	(0.065)	(0.040)
N	12,592	12,581	12,576	12,571	12,576
R-Squared	0.771	0.879	0.890	0.858	0.632

- Shift from decline to growth around 2000

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- Shift from decline to growth around 1990s
- Overall demand shifts for CBSAs associated with central declines in the 1970s and central area growth 1980-2010
- Demand shifts for workers in CBD areas associated with greater than expected growth of SES status of CBD residents in all decades

	1990-2000	2000-2010
CBSA Employment Growth	0.10	0.08
	(0.09)	(0.09)
Near CBD Employment Growth	-0.07	-0.01
	(0.12)	(0.13)

Central Area Neighborhood Change: Other Neighborhoods

	1970-1980 RF	1980-1990 RF	1990-2000 IV	2000-2010 IV	1980-2010 RF
Middle Tercile					
1(< 4km to CBD)	-0.203	-0.029	-0.085	0.056	-0.049
	(0.028)	(0.018)	(0.025)	(0.017)	(0.052)
Employment Bartik * 1(< 4km to CBD)	-0.049	-0.001	0.400	0.106	0.165
	(0.036)	(0.018)	(0.156)	(0.048)	(0.057)
Spatial Employment Bartik * 1(< 4km to CBD)	0.027	0.003	-0.280	-0.037	-0.013
	(0.026)	(0.022)	(0.146)	(0.137)	(0.048)
N	12,645	12,645	12,643	12,636	12,633
R-Squared	0.292	0.770	0.811	0.887	0.547
Top Tercile					
1(< 4km to CBD)	-0.078	0.021	0.003	0.080	0.081
	(0.044)	(0.022)	(0.021)	(0.025)	(0.053)
Employment Bartik * 1(< 4km to CBD)	-0.088	0.015	-0.097	-0.036	0.031
	(0.057)	(0.024)	(0.119)	(0.040)	(0.051)
Spatial Employment Bartik * 1(< 4km to CBD)	0.150	0.001	0.135	0.224	0.072
	(0.052)	(0.024)	(0.090)	(0.107)	(0.065)
N	12,674	12,667	12,662	12,660	12,661
R-Squared	0.528	0.856	0.886	0.905	0.649

- Descriptive evidence in favor of both amenities and localized labor demand shocks mattering
- Similar results when using tract home price index as the dependent variable

Decomposing Changes in Demand for Neighborhoods

- The reversal of fortunes in central area neighborhoods may reflect growing shares of demographic groups that tended to live near the CBD
- Or it may reflect changes in neighborhood choices of demographic groups
- Investigate this decompositions that use the following identity

$$f_{jt}(i,r,x) = f_{jt}(i \mid r,x) g_{jt}(x \mid r) h_{jt}(r)$$

$f_{jt}(i,r,x)$	$f_{jt}(i \mid r,x)$	$g_{jt}(x \mid r)$	$h_{jt}(r)$
fraction of CBSA *j* population at time *t* with race *r*, demographic *x* and living in tract *i*	fraction of population with race *r* and demographic *x* living in tract *i*	fraction of population with demographic *x* of race *r*	fraction of population of race *r*
	(neighborhood choices)	(conditional shares)	(racial shares)

- In x are: 5 education groups; 4 hh types; 10 hh income deciles

Decomposing Changes in Neighborhood Demand

- Start with base year choices and shares and CBSA population growth

- Exercises 5-8: Progressively impose year t choices by

    - Target (college ed, w/o children or top 30% of income dist) whites
    - … plus non-target whites
    - … plus target non-whites
    - … plus non-target non-whites

- Exercise 9-10: Additionally impose year t CBSA demographic shares

    - One demographic dimension conditional on race
    - … plus CBSA race shares

Changes in log Population Within 2 km of CBDs

Averages Weighting Each CBSA Equally

				Contribution to Difference Between (1) and (2) from Δchoices of				Δshares of	
Choices in year t	All	None		Target	Target	NonTarget	NonTarget	X|Race	Race
Shares in year t	All	None		White	NonWhite	White	NonWhite		
	(1)	(2)		(5)	(6)	(7)	(8)	(9)	(10)
Data Set									
				1980-2000					
Education	-0.07	0.21		-0.01	0.00	-0.14	-0.18	-0.04	0.10
Family Type	-0.07	0.21		-0.11	-0.06	-0.12	-0.19	0.10	0.10
Income	-0.11	0.27		0.00	-0.01	-0.24	-0.21	0.00	0.09
				2000-2010					
Education	0.06	0.07		0.04	0.00	0.02	-0.08	-0.01	0.03
Family Type	0.05	0.08		0.02	-0.03	-0.01	-0.08	0.03	0.03
Income	0.05	0.08		0.03	0.00	0.00	-0.08	0.00	0.02

- Big change in population growth of central areas relative to CBSAs

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- Big change in population growth of central areas relative to CBSAs
- 1980-2000 flight of all groups, but especially low SES whites and nonwhites

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- Big change in population growth of central areas relative to CBSAs
- 1980-2000 flight of all groups, but especially low SES whites and nonwhites
- 2000-2010 Return of high SES whites, stability of low SES whites and continued flight of low SES nonwhites
- Shifts toward less marriage and fewer kids may have mattered

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- Big change in population growth of central areas relative to CBSAs
- 1980-2000 flight of all groups, but especially low SES whites and nonwhites
- 2000-2010 Return of high SES whites, stability of low SES whites and continued flight of low SES nonwhites
- Growing minority share has mechanically boosted central area populations

Changes in Central Area Fraction White within 2 km of CBDs

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Education	0.03	0.00	0.02	-0.00	0.01	0.04	0.00	-0.04

- Shifts in choices competes with growing minority share seen in (10)

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- Choices of high SES whites changed a bit; choices of low SES whites changed more to influence racial composition
- Flight of low SES nonwhites continued unabated

- Similar narrative when looking at central area fraction college and median hh income

Overall Conclusions

- Big turnaround in SES of near CBD neighborhoods
  - Broad-based increases in cities across the country

- Positive CBD-focused labor demand shocks increase near-CBD SES Index in distressed neighborhoods

- Decompositions show that changes in in near CBD SES driven by changes in neighborhood choices of
  - High SES whites: stable 1980-2000 and growing 2000-2010
  - Lower SES whites: declining 1980-2000 and stable 2000-2010
  - High SES nonwhites: relative stability throughout
  - Lower SES nonwhites: continued decline through whole period

- Some combination of shifts in labor demand conditions and shifts in amenity values are the most important mechanisms driving the return of high SES whites and stabilization of central area neighborhood choices of low SES whites