

Gentrification Comparison Tool: Description and Technical Appendix

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The concept of gentrification – generally understood as the change that accompanies the rapid in-migration of higher-income households into formerly low-income communities – has recently gained new relevance in many parts of the U.S. Despite strong employment growth, wages for many Americans have not kept pace with soaring housing costs, making it harder to find affordable homes in desirable locations. Inner-city neighborhoods previously disregarded by both developers and households are now getting a second look as potentially attractive sources of new housing and amenities. The possible transformation of older neighborhoods brings with it concerns about the fates of existing residents, who may be displaced as housing costs and community conditions change.

Yet within all the recent discussion about gentrification, very little attention has been given to the methods used to identify changing neighborhoods. Our 2018 paper, [Gentrification: Framing Our Perceptions](#), sought to remedy this oversight by examining how recent studies had defined and measured gentrification. The report found that, rather than coalesce around a standard set of metrics, researchers routinely develop their own conditions for classifying places as gentrified. This lack of consensus leads to inconsistent conclusions about where and how this type of neighborhood change occurs, as well as its consequences for low-income communities.

The **Gentrification Comparison Tool (GCT)** complements the report by visually demonstrating how different definitions can produce wide variation in which neighborhoods are branded as gentrified. Specifically, the tool operationalized three definitions of gentrification derived from studies by Freeman (2005), Ellen & O’Regan (2008), and McKinnish et al. (2010). These definitions were applied to a common set of tract-level data collected in each Decennial Census from 1970 to 2010.¹ The results were then mapped for each decade in 93 U.S. cities, to observe the extent – or lack – of overlap among the definitions and evaluate which neighborhoods rise to the level of “gentrified” under which sets of conditions.

Table 1 summarizes the definitions used in this analysis. All three employed a two-step strategy, first identifying a set of candidate neighborhoods deemed sufficiently low-income at the beginning of a decade to be eligible for gentrification, and then isolating a subset of those areas that changed enough over a ten-year period to meet the established criteria for a gentrified community.

¹ Data is from the Neighborhood Change Data Base (NCDB) from Geolytics, Inc., which normalizes characteristics for all Census years to 2010 tract boundaries. For the 1970 and 1980 Censuses, not all areas of the United States were in designated tracts, with mostly rural and low-density areas excluded until the 1990 Census. Analyses in these years are thus limited to available Census tracts only.

Table 1: Variables and Criteria Used to Identify Eligible and Gentrified Tracts

Source of definition	Freeman	Ellen & O'Regan	McKinnish et al.
Types of tracts evaluated	Central city tracts in metropolitan areas at beginning of decade	Central city tracts with at least 200 people and primarily non-institutionalized populations	Tracts in metro areas with population over 500,000 and within 5km of a city with population at least 100,000 in 1990
Metro area definitions used	SMA/MSA/PMSA/CBSA at beginning of decade	SMA in 1970	MSA/CMSA in 2000
Income measure and criteria used to identify areas eligible to gentrify at the start of the decade	Median ² household income below metro area median	Average household income below 70 percent of metro area median	Average family income in bottom 20 percent among all evaluated tracts nationally
Other neighborhood conditions required in first year of decade for eligible tracts	Share of housing in tract built in prior 20 years below metro-area median share	None	None
Change in income measure between start and end of decade in eligible areas that indicates gentrification	None	At least a 10-percentage-point increase in the tract-to-metro ratio of average household income	Real increase of at least \$10,000 over decade
Other conditions required for gentrification	Change in share of college graduates living in tract greater than metro-area median change, and any increase in real housing costs	None	None

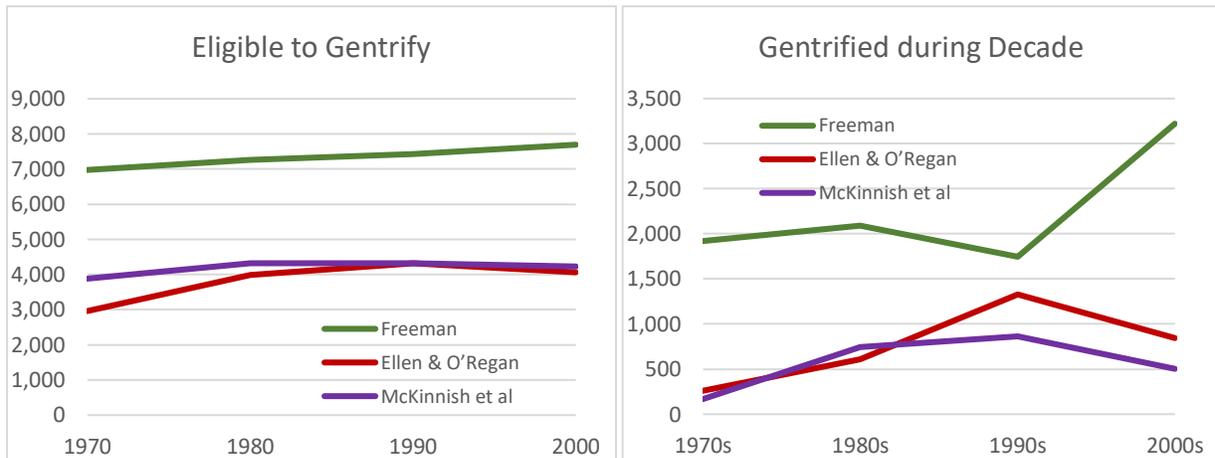
The three definitions clearly differ in many ways. Freeman (2005) eschews using income alone as an indicator of either eligibility for or actual gentrification, and instead employs proxies for disinvestment (using the share of housing built in prior 20 years), upgrading of residents (using change in share with college degrees), and affordability (using increase in real housing costs). Yet even the McKinnish et al (2010) and Ellen & O'Regan (2008) income-only approaches show stark differences in the type of income measure used (household vs. family), the relative cut-off for potential gentrification (bottom 20 percent nationally vs. below 70 percent of metro median), and the amount of income change required for observed gentrification (dollar value increase vs. percentage point change relative to metro area). The three definitions even start with slightly different classifications of metropolitan areas and parameters for including tracts in their analyses (e.g. central cities vs. proximity to large places).

² Median household income is not reported in the NCDDB for 1970 and 1980, so average household income is used in these years.

Unsurprisingly, with such different definitions, the three approaches find wide variation in the number of tracts identified as eligible to gentrify at the beginning of the decade, as well as those deemed to have gentrified during the decade. Those differences shown in **Table 2**, which is limited to the 93 cities with at least one eligible tract under all three definitions in each of the four decades. Together these cities have a combined 14,152 tracts, or approximately 20 percent of all tracts nationwide.

Table 2: Count of Eligible and Gentrified tracts by Decennial Census Year

		Freeman	Ellen & O'Regan	McKinnish et al.
Tracts Eligible to Gentrify at Start of Decade	1970	6,976	2,962	3,884
	1980	7,266	3,992	4,321
	1990	7,425	4,320	4,321
	2000	7,694	4,070	4,231
Gentrified Tracts by End of Decade	1970s	1,918	231	168
	1980s	2,092	528	743
	1990s	1,746	1,238	863
	2000s	3,221	782	501



Freeman’s definitions consistently identify many more eligible and gentrified tracts than either Ellen & O’Regan or McKinnish et al. This is expected, given the much higher income threshold used by Freeman to designate tracts as eligible for gentrification, relative to the other two approaches. The trend over time in Freeman’s definitions also diverges from the other two, most notably in the number of tracts that gentrified in the 2000s.

One area particularly worth examining is the degree of overlap between these different definitions – how many tracts qualify as gentrified under more than one definition in a given decade. If the overlap is considerable, then the difference in definitions may be less important to identifying gentrified areas. **Table 3** shows that many tracts classified as gentrified under two definitions – particularly those identified by McKinnish et al. and Ellen & O’Regan – though a smaller number meeting the criteria for gentrified tracts in all three definitions.

Table 3: Overlap between Gentrification Definitions

		Freeman only	Ellen & O'Regan only	McKinnish only	Freeman/ Ellen & O'Regan	Freeman/ McKinnish	Ellen & O'Regan/ McKinnish	All three	None
Number of Tracts Found Gentrified by Definition	1970s	1,764	94	89	106	19	31	29	12,020
	1980s	1,657	161	270	121	149	159	165	11,470
	1990s	1,355	530	165	155	55	462	181	11,249
	2000s	2,757	282	121	247	65	163	152	10,365

Of course, these national-level findings may not reflect differences between the definitions when viewed at the city-level. The Gentrification Comparison Tool provides this local perspective, by mapping results from the three definitions at the tract-level in 93 cities and four decades. Users can select the city and decade of their choice to reveal the extent of variation in which neighborhoods are deemed gentrified, including the amount of overlap among the definitions. The tool also shows the data points used to define tracts as gentrified, eligible but not gentrified (i.e. remained low-income and disinvested during the decade), and not eligible to gentrify (i.e. income too high at start of decade), to show just how each tract earned its classification.

This tool was developed to provide policy makers, urban planners, housing authorities, and other interested analysts with a glimpse of both how their city evolves over time, as well as how different views on what counts as gentrification can result in widely different findings about where and when it occurs. It is not intended to suggest that one of these definitions is more accurate or appropriate than the others, but rather to encourage more nuance in conversations and analyses of what gentrification means to low-income communities.

Bibliography

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