

Temporal Analysis of Racial Segregation in San Francisco County, CA

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Cities such as Cleveland, Chicago and Detroit experienced “white flight” or suburbanization in the 1960s and 1970s which represented a form of decentralized racism, where the desires for whites to live in white neighborhoods exceeded the desire of blacks to live in those neighborhoods. This resulted in sustained segregation and the perpetuation of ghettos. I replicate the segregation research by Cutler et al. (1999) and the tipping models by Card et al. (2008) to analyze trends of segregation and racial variation for San Francisco, CA and compare it to Chicago, IL. We find similar patterns of white migration as with cities like Chicago but find the migration to be an artifact of a dramatic increases in the Asian population in San Francisco. I consider the three segregation theories (“Port of Entry”, “Collective Action Racism,” and “Decentralized Racism”) as it applies to minorities in San Francisco. We see that the San Francisco does not demonstrate a sustained “Decentralized Racism” or “Port of Entry” type segregation over the period 1970 – 2010. In fact Asians, blacks and Hispanics in San Francisco choose to live in non-Asian, non-black and non-Hispanic neighborhoods. Thus we find San Francisco to be a city well diversified with few concentrated pockets of segregated minorities.

Introduction

In the midcentury, greater levels of segregation resulted from collective actions on the part of whites to exclude blacks through legitimized forms of discrimination such as restrictive housing covenants. However 1970s onwards whites continued to move out of black neighborhoods through personal preference (Card, Mas, Rothstein 2008). We will look at San Francisco to analyze how these trends applied to a city more tolerant¹.

Comparing it to Chicago, Fig 1 and Fig 2 show that San Francisco too experienced similar migratory behavior with whites fleeing San Francisco county. In Chicago the white population fell from 77% to 55% a drop of 1.3M people from 1970 to 2010, in San Francisco this fell from 71% to 48% a drop of 0.12M over the same period. Detailed numbers can be found in Table 1 and Table 2. While this trend of white flight is common to both Chicago and San Francisco, and can be attributed to suburbanization, there are aspects of the San Francisco migration that make it unique.

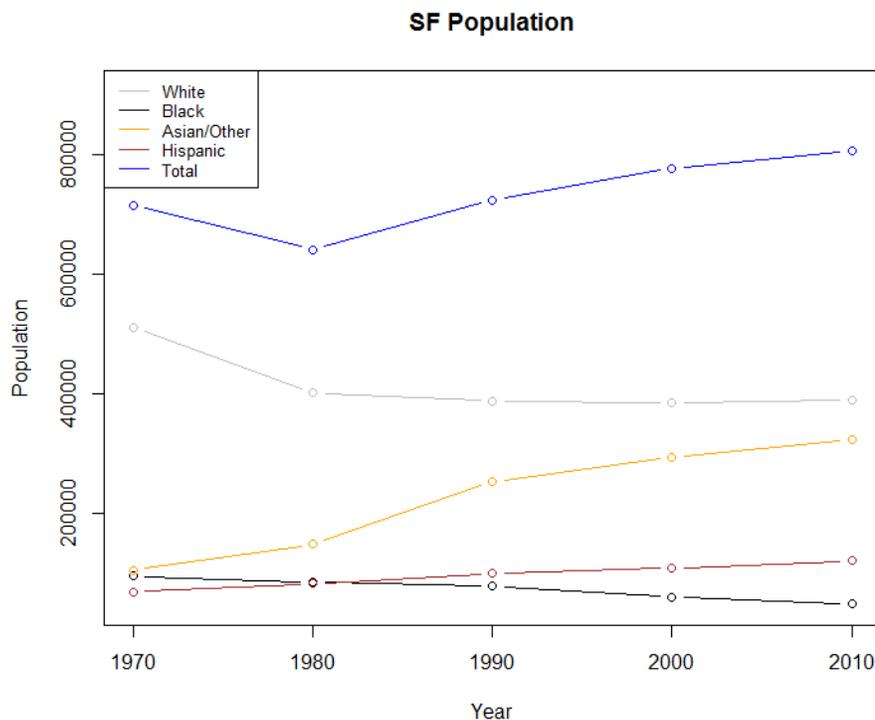


Fig 1: Change in demographics for San Francisco County over 1970 to 2010 showing steady population growth, white flight and a huge increase in Asians.

¹ "The Geography of Tolerance - CityLab." 2014. 6 Jan. 2015
<<http://www.citylab.com/housing/2012/07/geography-tolerance/2241/>>

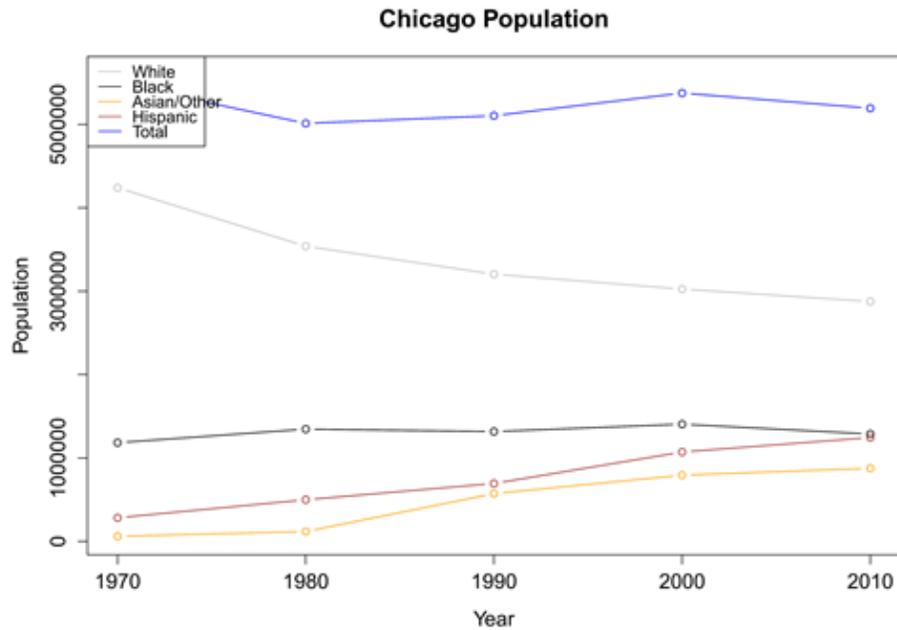


Fig 2: Change in demographics for Cook County over 1970 to 2010 showing white flight accompanied by an overall population decline.

Segregation

The first thing we notice is that Cook County population has fallen over the period from 5.5M to 5.2M whereas San Francisco population increased from 700K to 800K over 1970 – 2010. While both cities experienced a small rise in Hispanic population, San Francisco county white loss was replaced by a mass immigration of an Asian population with the share Asians growing from 15% to 40%. To determine if either the white exodus or Asian/Hispanic growth led to segregation, I analyze 2 criteria – the index of dissimilarity, and a tipping model.

Index of dissimilarity

$$\text{index of dissimilarity} = \frac{1}{2} \sum_{i=1}^N \left| \frac{\text{black}_i}{\text{black}_{\text{total}}} - \frac{\text{nonblack}_i}{\text{nonblack}_{\text{total}}} \right|$$

Typically, a dissimilarity index of less than .3 is considered low, an index between .3 and .6 is considered moderate, and an index above .6 is considered high (Massey and Denton 1993). We look at dissimilarity to analyze residential and housing trends for changing demographics, this does not measure ethnic isolation. We know that dissimilarity is an important metric to look at because Cutler and Glaeser (1997) “find strong, consistent evidence that black outcomes are substantially worse (both in absolute terms and relative to whites) in racially segregated cities than they are in more integrated cities. As segregation increases, blacks have lower high school graduation rates, are more likely to be idle (neither in school nor working), earn less income, and are more likely to become single mothers. ”

In fact a quick linear regression estimate of median income by tract wise population of different demographics shows that San Francisco tracts with higher black populations have statistically significant and lower average median household incomes.

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	41003.9301	2473.5188	16.577	2E-16 ***
white	0.467	0.7827	0.597	0.551
black	-6.569	1.2884	-5.099	0.000000498 ***
asian	0.5545	0.9023	0.615	0.539
hispanic	-2.1265	1.3348	-1.593	0.112

Residual standard error: 23360 on 468 degrees of freedom

Adjusted R-squared: 0.0564

F-statistic: 8.053 on 4 and 468 DF, p-value: 2.762e-06

Table 1: Median income regressed on ethnicity for San Francisco County over 1970 - 2010

Looking at Fig 3, we see that in Chicago, white flight resulted in an improvement for white only neighborhoods with the index of dissimilarity falling from a very segregated 0.88 to a moderate 0.51. However the same cannot be said for black only neighborhoods where the index of dissimilarity fell from 0.92 to 0.77 – this indicates ghettos still exist in Chicago as of 2010. Detailed numbers can be found in Table 2.

The effects for San Francisco are markedly different, white flight resulted in a similar reduction in dissimilarity for both white and blacks, with neither whites or blacks demonstrating a segregation of over 0.6. However one may suspect that with the massive influx of an Asian population this would result in a rise of highly segregated Asian neighborhoods (Chinatowns).

Fig 4 shows that this is not the case, Asian immigration in San Francisco is not relegated to highly Asian tracts. The Index of Dissimilarity remains moderate for Asians through this period never increasing beyond 0.6. Though the increase in Asian population has been gradual over 40 years in San Francisco, it is worth noting that the Index of Dissimilarity never rose above 0.6 implying that the influx has been relatively well distributed through San Francisco tracts. We will examine this in more detail in the tipping section.

		Changes in Racial Composition of Census Tracts Cook County				
		1970	1980	1990	2000	2010
White	Index of dissimilarity	0.88	0.82	0.68	0.57	0.51
	Population	4,240,893	3,539,702	3,204,947	3,025,760	2,877,212
	Share of population	77%	71%	63%	56%	55%
Black	Index of dissimilarity	0.92	0.89	0.83	0.80	0.77
	Population	1,183,476	1,346,186	1,317,147	1,405,361	1,287,767
	Share of population	22%	27%	26%	26%	25%
Asian/Other	Index of dissimilarity	0.51	0.54	0.56	0.50	0.43
	Population	60,305	118,040	572,684	793,901	876,367
	Share of population	1%	2%	11%	15%	17%
Hispanic	Index of dissimilarity	0.61	0.69	0.63	0.62	0.59
	Population	282,882	499,322	694,194	1,071,740	1,244,762
	Share of population	5%	10%	14%	20%	24%

Table 2: Racial trends Cook County, IL

		Changes in Racial Composition of Census Tracts SF County				
		1970	1980	1990	2000	2010
White	Index of dissimilarity	0.46	0.34	0.33	0.34	0.35
	Population	511,186	402,131	387,783	385,728	390,387
	Share of population	71%	59%	54%	50%	48%
Black	Index of dissimilarity	0.68	0.62	0.56	0.54	0.48
	Population	96,078	86,190	79,039	60,515	48,870
	Share of population	13%	13%	11%	8%	6%
Asian/Other	Index of dissimilarity	0.39	0.36	0.33	0.34	0.35
	Population	105,510	149,269	253,681	293,777	324,295
	Share of population	15%	22%	35%	38%	40%
Hispanic	Index of dissimilarity	0.47	0.45	0.45	0.44	0.37
	Population	69,608	83,373	100,717	109,504	121,774
	Share of population	10%	12%	14%	14%	15%

Table 3: Racial trends San Francisco County, CA

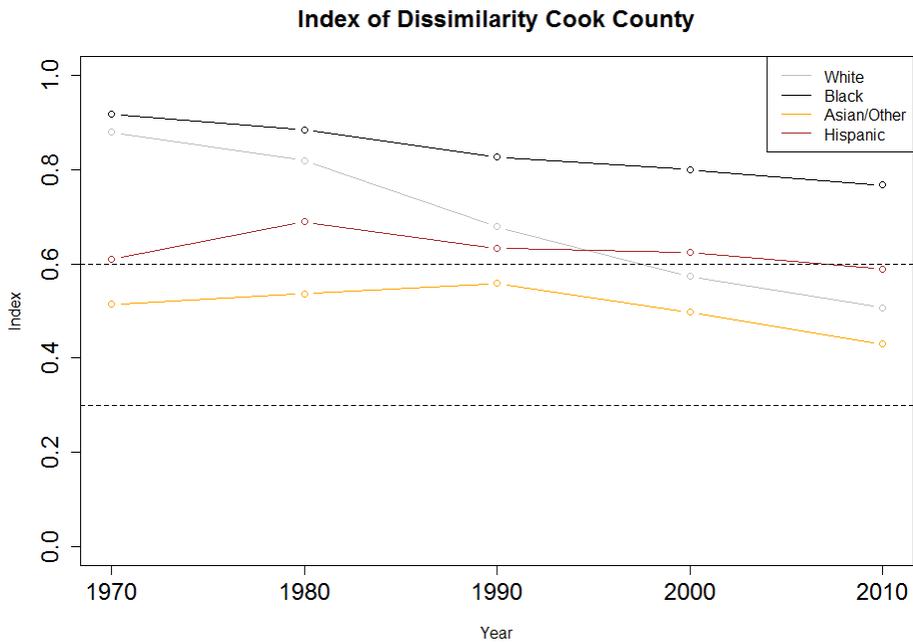


Fig 3: Index of Dissimilarity for Cook County over 1970 to 2010

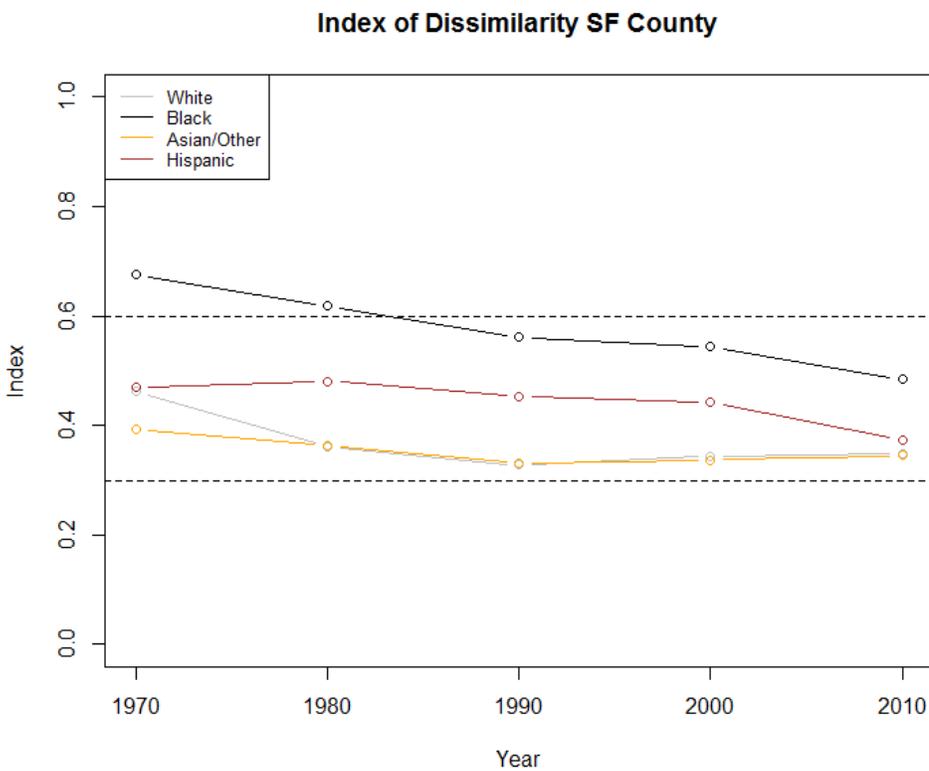


Fig 4: Index of Dissimilarity for San Francisco County over 1970 to 2010

The trends seen in Fig 3 and 4 are similar to those seen across America. Glaeser and Vigdor (2012) state that the most standard segregation measure shows that American cities are now more integrated than they've been since 1910, with the 1960s being the heyday of segregation. They also state that ghettos still exist but are in decline, while all-white neighborhoods are virtually extent. All of this is applicable to San Francisco and is shown in the data above.

Tipping

Using regression discontinuity analysis Card et al. showed (Fig 5) that cities like Chicago experienced racial tipping - tracts experience white population gains when the minority share of the tract is less than the tipping point (5% in the case of Chicago). I replicate this tipping analysis for all racial groups in San Francisco to – one, compare the difference between racial groups, two, to compare it to similar changes in demographics in Chicago, and three, to analyze the nature of segregation in San Francisco.

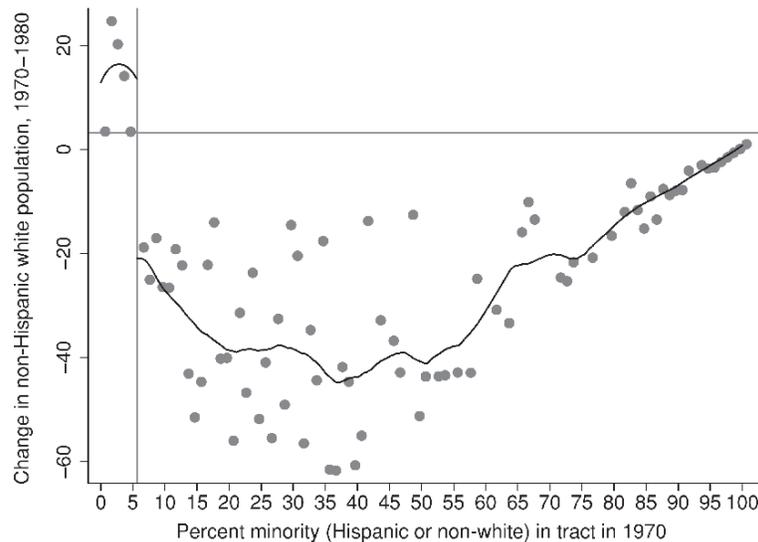


Fig 5: Neighborhood change in Chicago MSA 1970 to 1980 (Card et al. 2008)

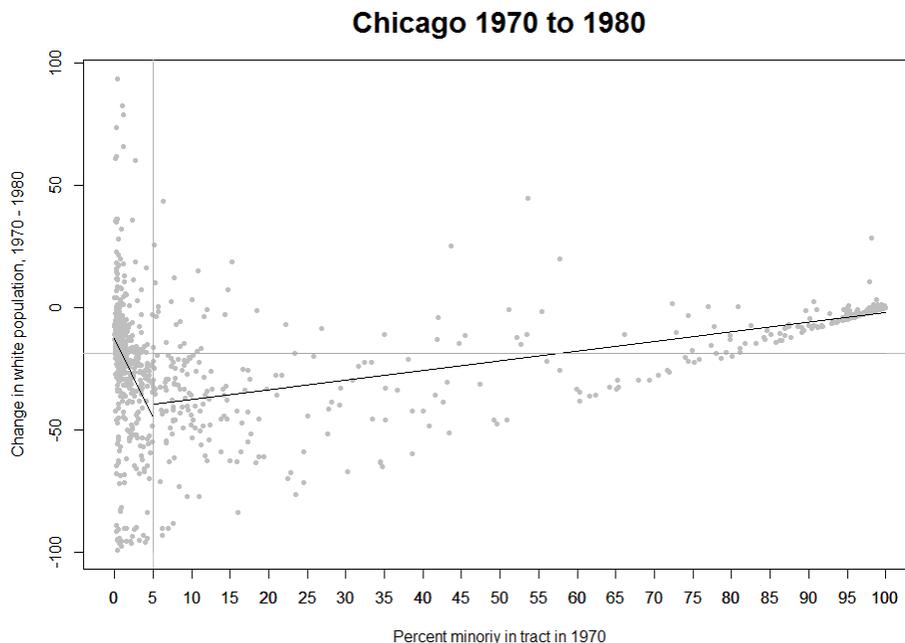


Fig 6: This graph replicates the tipping phenomenon shown above by Card et al, not for the Chicago MSA but for Cook county alone. The data is unbinning and does not show the Epanichnikov kernel fit regression. Instead a linear regression fit shows a similar trend at the 5% tipping point demonstrated by the major switch in direction of least squares fit. The graphs illustrates the similarities and differences between Card and my approach to the tipping analysis.

SF 1970 to 1980

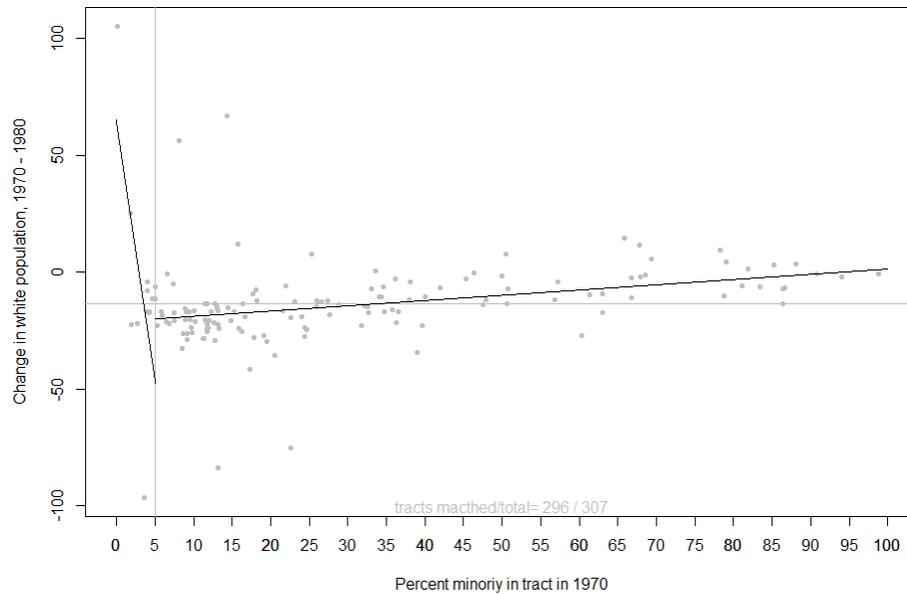


Fig 7: Neighborhood change and tipping for San Francisco county 1970-1980. The unconditional mean depicted by the horizontal line shows that on average whites were leaving the city. The vertical line represents an approximate 5% minority tipping point based on linear regression (least squares) discontinuity analysis.

Fig 7 above shows that San Francisco like Chicago also experienced racial tipping in the 1970s, whites moved in to tracts that had less than 5% minority share and moved out of tracts that had greater than 5% minority share. Glaeser et al. (1999) lay out 3 theories of segregation, the tipping model above supports the theory of decentralized racism that shows “ghettos are maintained by white racism but that segregation is enforced by individual whites’ decisions to live with other whites as opposed to collective actions excluding blacks.”

We see however that white flight (indicated by the negative unconditional mean) and the evidence of tipping declines over the years as it does in Chicago (see appendix). Glaeser posited that “white racism might also express itself more strongly in dense areas in which blacks are physically closer.” Even though San Francisco is one of the densest cities in America we find that it does not experience higher white racism as indicated by decentralized racism.

Asian Migration

This model of tipping is equally useful to explain other modes of racial segregation like the “Port of Entry” theory that suggests “that ghettos are a mechanism to help a group assimilate into a new environment. Recent migrants cluster with their own group in part to recreate the social milieu and to find the consumer goods of their homeland” (Glaeser, Cutler, Vigdor, 1999). If an ethnicity, say Asians, chooses to self-select then we should see a tipping point where if a tract is less than X% Asian then Asians would on average be leaving whereas there would be Asian population gains for tracts above the X% mark.

I hypothesized that when Asians moved to San Francisco they would be inclined to move to neighborhoods that were predominantly Asian to avoid jarring cultural dissimilarities. However when we perform a tipping analysis for Asians in San Francisco, we find that they are not more inclined to live in predominantly Asian neighborhoods. Fig 8 shows that in fact immigrating Asians were more likely to move in to less Asian neighborhoods then they were to move into more Asian neighborhoods as indicated by the left skew of the Asian population gains particularly in the 1970s and 1980s. This trend slowed in the 90s and 2000s where we see Asians moving in and out relatively evenly between lightly and heavily populated Asian tracts.

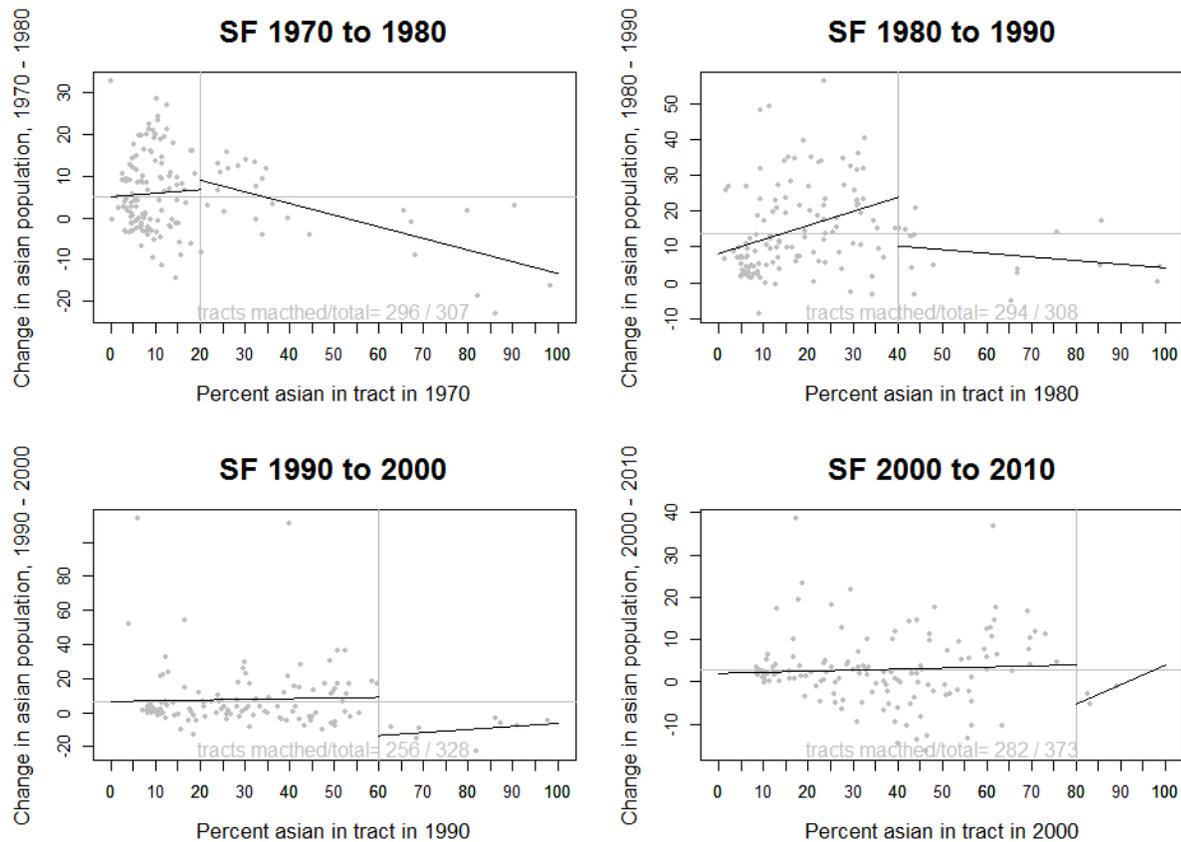


Fig 8: Tract wise migration for Asians in San Francisco by percent of Asian in tract potted over 4 decades. Horizontal lines indicate the unconditional mean of the data. Data shows that over the 70s and 80s Asian population gains were limited to tracts with few Asians.

These results corroborate the analysis from section 1. Were Asians to be moving in to Asian only tracts as per the Port of Entry theory of segregation then we would expect to see Asian ghettos, i.e. predominantly Asian neighborhoods indicated by an index of dissimilarity for Asian greater than 0.6. However Fig 4 shows that the Index of dissimilarity remains below this level over the four decade period 1970 – 2010 in question.

There are many reasons that this may be the case. For one, San Francisco is a smaller city than Chicago with limited housing supply, this means that housing prices are relatively homogenous making immigrants indifferent between tracts (they vote with their feet). Furthermore, given its small size, immigrants could get access to the same resources (social

milieu) in Asian only neighborhoods without much travel making the need for moving into Asian neighborhoods unnecessary. Finally, it is possible that San Francisco is a more tolerant city, Card shows that tipping points are higher in cities where whites have more tolerant racial attitudes.

Black & Hispanic migration

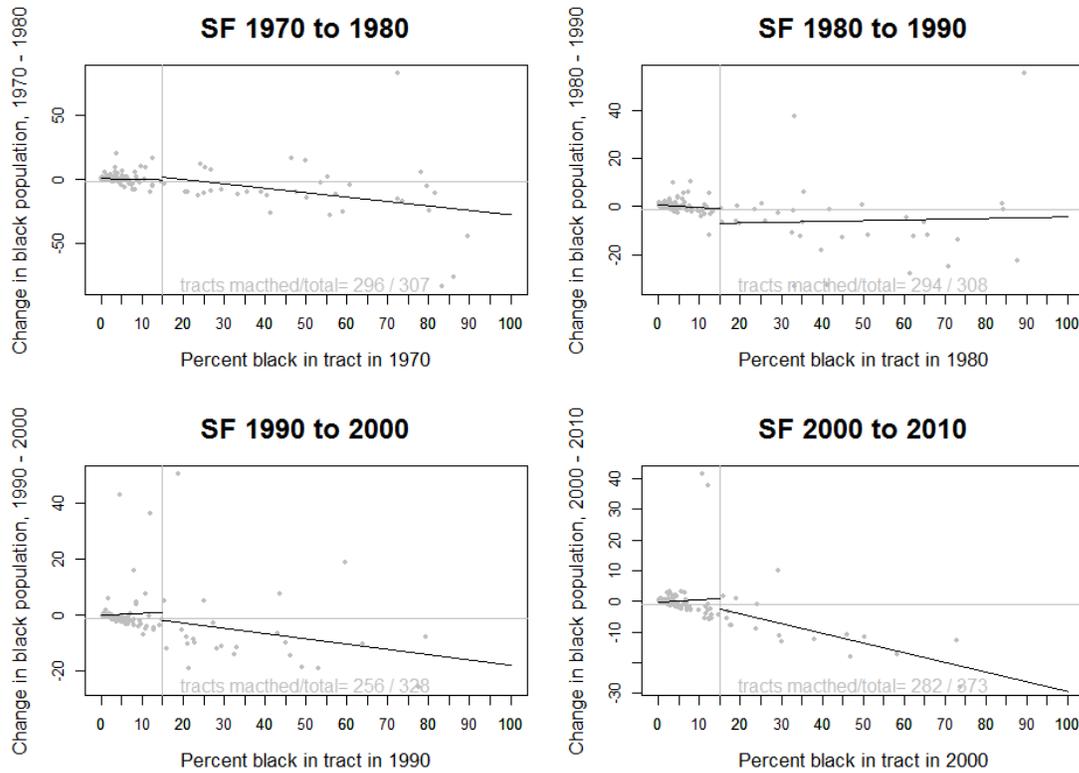


Fig 9: Tract wise migration for blacks in San Francisco by percent of blacks in tract potted over 4 decades. Horizontal lines indicate the unconditional mean of the data. Negative unconditional mean show that blacks are fleeing San Francisco over time. More importantly, regression fits show blacks fleeing tracts with high black populations.

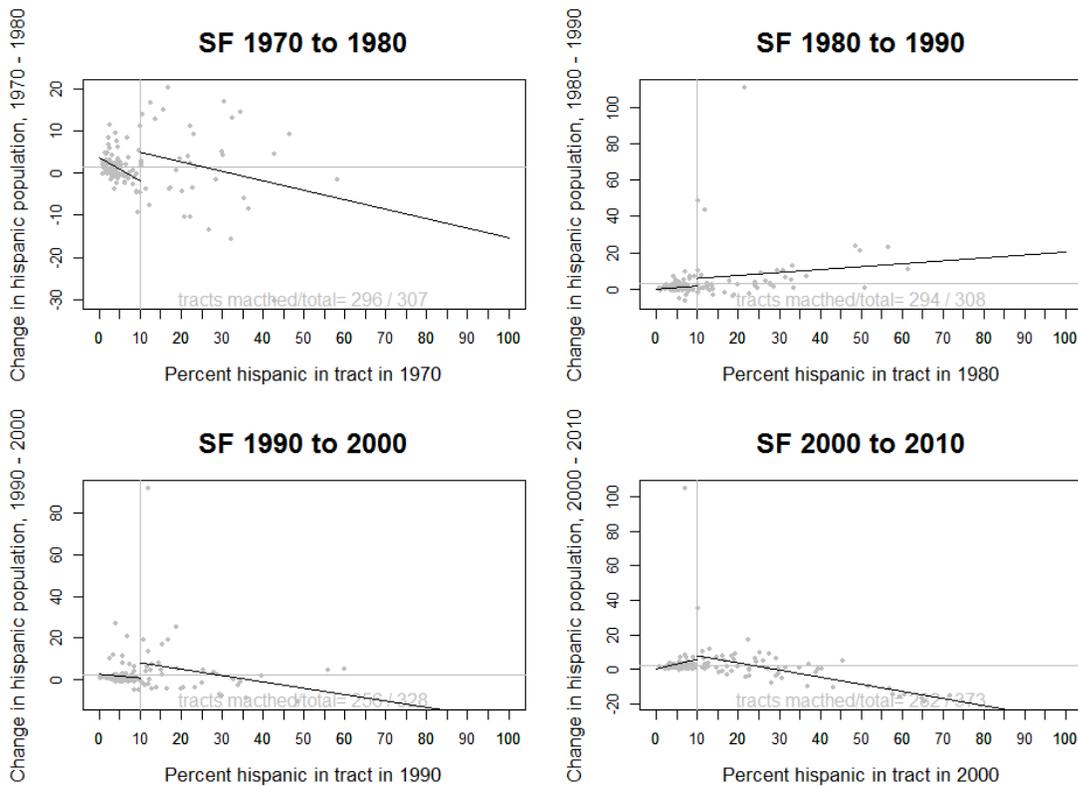


Fig 10: Tract wise migration for Hispanic in San Francisco by percent of Hispanic in tract. Horizontal lines indicate the unconditional mean. Immigrating Hispanics choose not to move into Hispanic neighborhoods.

Hispanics and blacks demonstrate similar migratory behavior choosing to move into non-black and non-Hispanic neighborhoods when they move to San Francisco. This shows that the Port of Entry theory of segregation does not apply to San Francisco, this is further corroborated by the low index of dissimilarity for blacks and Hispanics over the period in question seen earlier. A few key difference of note are that blacks on average can be seen to be moving out of predominantly black neighborhoods as indicated by the downward sloping trend lines.

Finally the trend of eventually moving in roughly equivalently across both highly and lowly populated black and Hispanic neighborhoods as seen with Asians in the 90s and 2000s does not occur. This may be partly due to the fact that the quick rise in Asian population led to predominantly Asian tracts but the decline of blacks and tepid increase of Hispanics did not lead to black/Hispanic - heavy neighborhoods. Moreover, black only neighborhoods even in San Francisco have generally poorer outcomes (lower median income) so avoiding plight-stricken neighborhoods may be another reason blacks eschew predominantly black neighborhoods.

Conclusion

Rather than seeing white racism in San Francisco we see that blacks, Hispanics and Asians have themselves been moving out of predominantly black, Hispanic and Asian neighborhoods preferring to live in non-black, non-Hispanic and non-Asian neighborhoods. This is similar to

the MCSUI study (Vigdor 2004) where the ideal level diversity for blacks in a 15 house neighborhood has 5 black neighbors and a neighborhood greater than 33% is then considered sub-ideal.

The main outcome of these migrations in and out of San Francisco is that the city is well diversified and lacking ghettos. The demographic distributions are market driven and there are a number of reasons to assume that this is a good thing – for one we know that ghetto neighborhoods generally have poorer outcomes (Cutler 1997) and secondly San Francisco on average has been growing as city with population and housing prices increasing steadily. While there may be other reasons such as a productivity technology boom and restricted housing stock that could explain these phenomenon, this analysis provides additional data in understanding the success and rise of San Francisco as a city.

References

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Cutler, David M., and Glaeser, Edward L. "Are Ghettos Good or Bad?" *Q.J.E.*112 (August 1997): 827-72.

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Vigdor, Jacob L. "Residential segregation and preference misalignment." *Journal of Urban Economics* 54.3 (2003): 587-609.

Appendix

Census data obtained from <https://www.nhgis.org/>

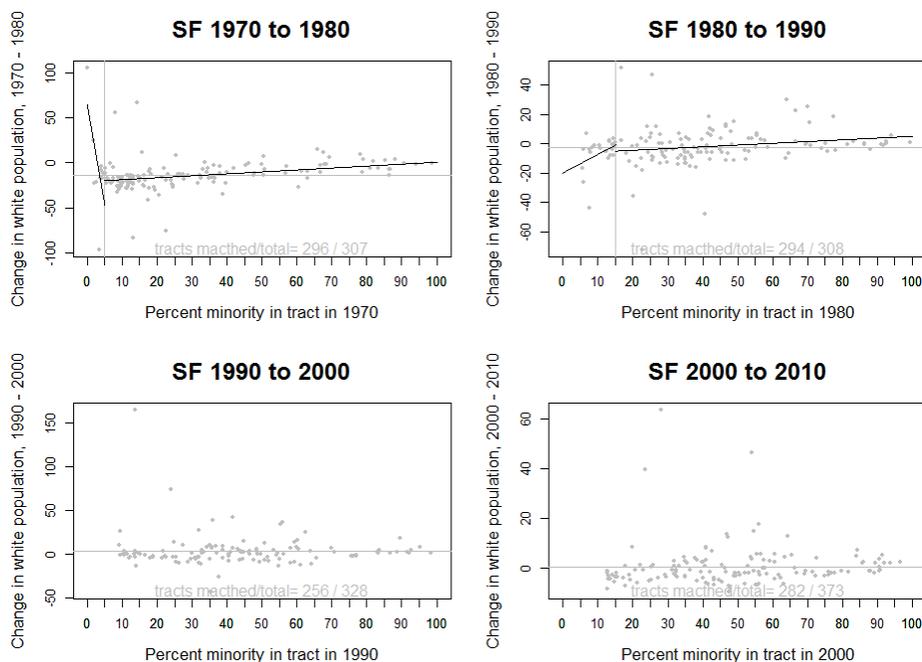


Fig: Tract wise migration for whites in San Francisco by percent of minority in tract. Horizontal lines indicate the unconditional mean. White tipping can be seen in the 70's but this phenomenon vanishes over the next 3 decades. This is consistent with the fact that the 60's and 70s were the heyday of racial segregation across America.