

# THE TRANSITION IN HOMEOWNERSHIP RATES SINCE THE FINANCIAL CRISIS

---

KEVIN AMRELLE



# RESEARCH QUESTION

---

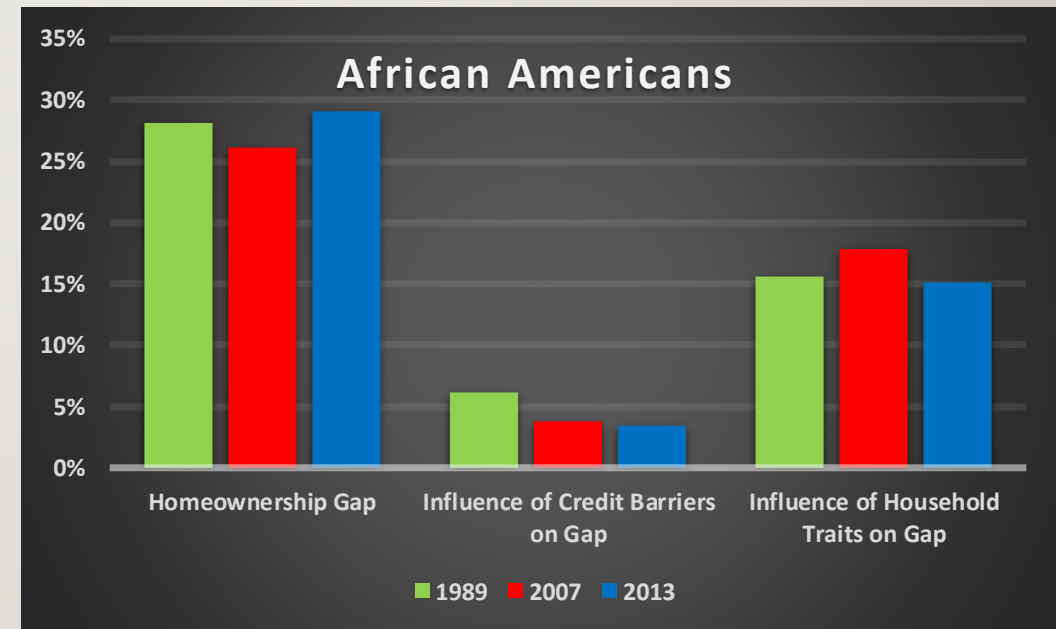
- How have homeownership rates transitioned since the financial crisis?
- Have credit constraints and household attributes impacted homeownership rates and the white/minority gap?



# RESULTS OVERVIEW

---

- Homeownership rates increased from 64% in 1989 to 69% in 2004 through 2007.
- Homeownership rates declined to 65% in 2013.
- The credit barriers contributing to the gap in homeownership for African Americans and Hispanics has been declining.

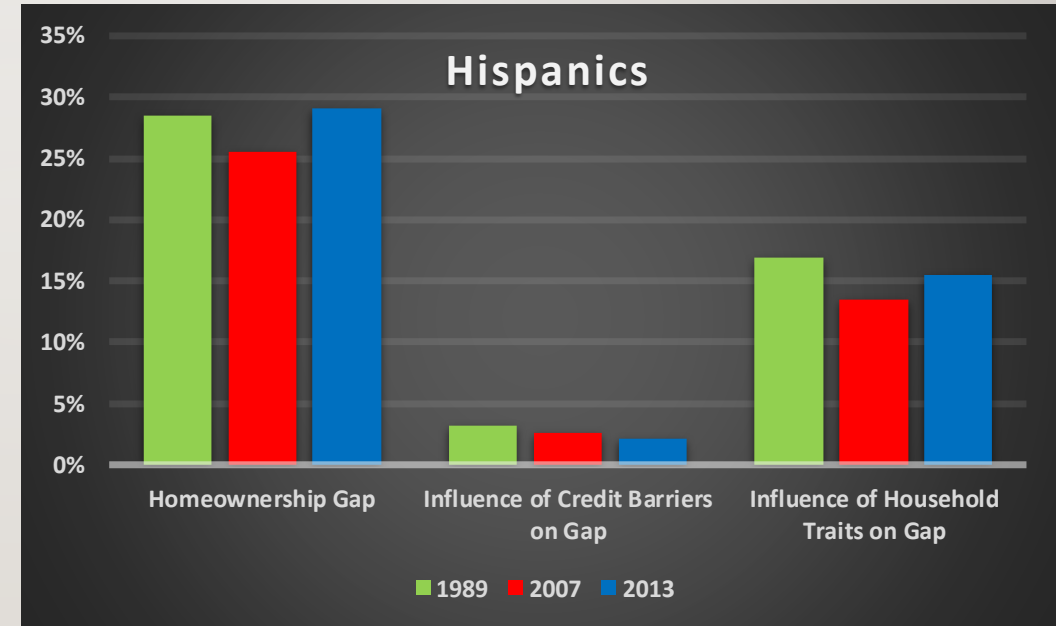




# RESULTS OVERVIEW

---

- Homeownership rates increased from 64% in 1989 to 69% in 2004 through 2007.
- Homeownership rates declined to 65% in 2013.
- The credit barriers contributing to the gap in homeownership for African Americans and Hispanics has been declining.



# LITERATURE REVIEW

---

- Gabriel and Rosenthal(2005), Journal of Urban Economics
  - How household attributes and credit constraints contribute to homeownership rates.
  - Socioeconomics were the drivers of the rise in homeownership in 1989-2001 not macroeconomic factors.
- Gabriel and Rosenthal(2015), Real Estate Economics
  - The homeownership boom and bust cycle was caused by macroeconomic factors not population socioeconomics.
- Haurin and Rosenthal(2004), U.S. Department of Housing and Urban Development
  - African American homeownership rates would increase by several percent if they formed households in the same manner as white families, but Hispanic homeownership rates would decrease.

# LITERATURE REVIEW(CONTINUED)

---

- Boehm and Schlottmann(2003), Journal of Urban Economics
  - Minority homeowners have a high likelihood to slip back into renter status and low probability of moving into a better second home later on.
- Grinstein-Weiss, Key & Carrillo(2015), Housing Policy Debate
  - The financial crisis disproportionately affected minorities. The natural floor value of a home cushions against severe losses during an economic downturn.
- Turner and Luea(2009), Journal of Housing Economics
  - Homeownership leads to an increase in wealth and financial stability for poor households.

# DATA

---

- Survey of Consumer Finances (SCF)
- Joint effort between the Department of Treasury and the Federal Reserve Board.
- Assembled to aid in decision making processes in the areas of:
  - Tax
  - Consumer Protection
  - Monetary Policy





# DATA

---

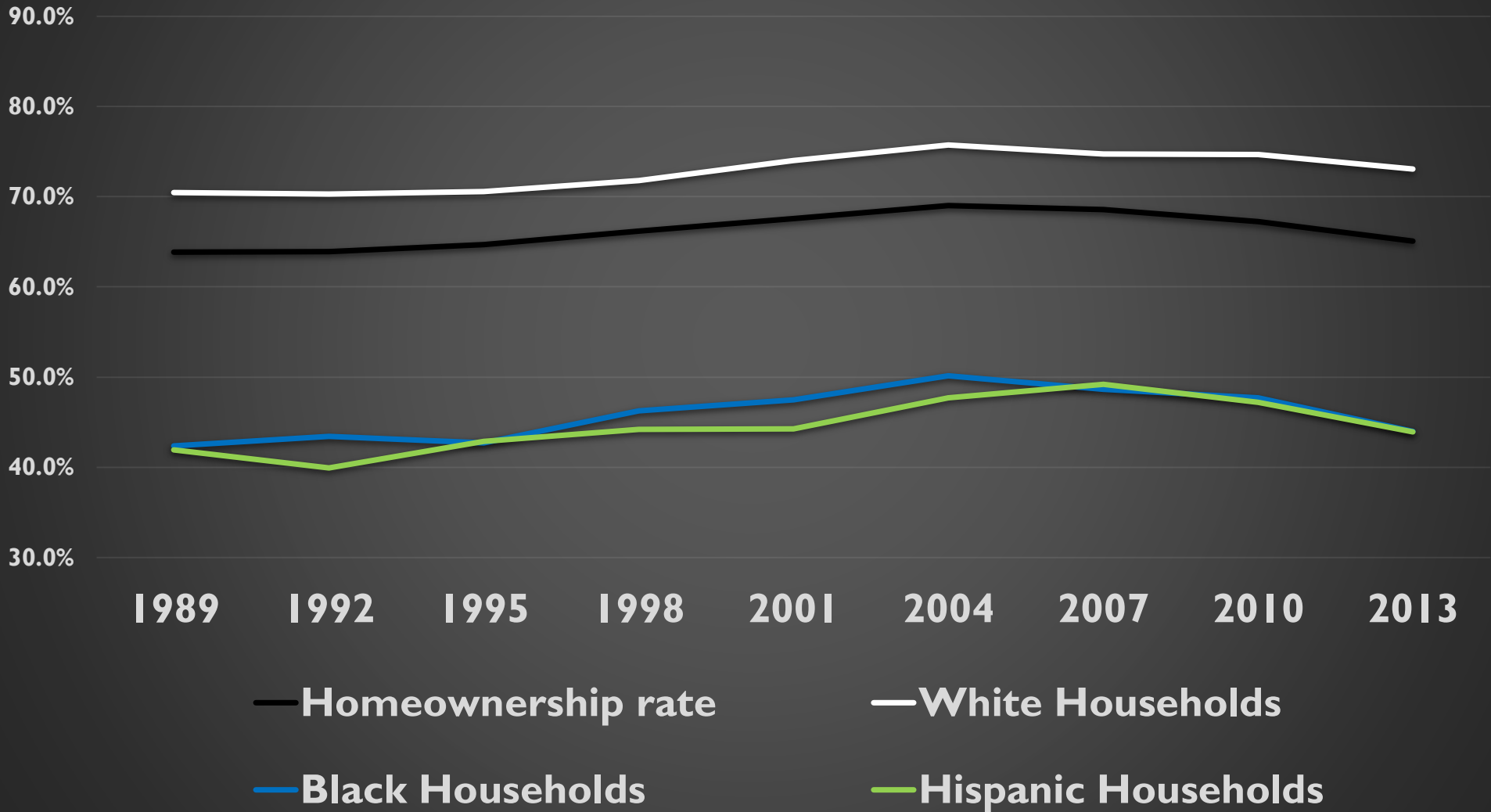
- Years: 1989-2013.
- Each survey has ~4,500 families.
- Provides sampling weights.
- Only public dataset which includes in-depth household characteristics with a credit eligibility variable.



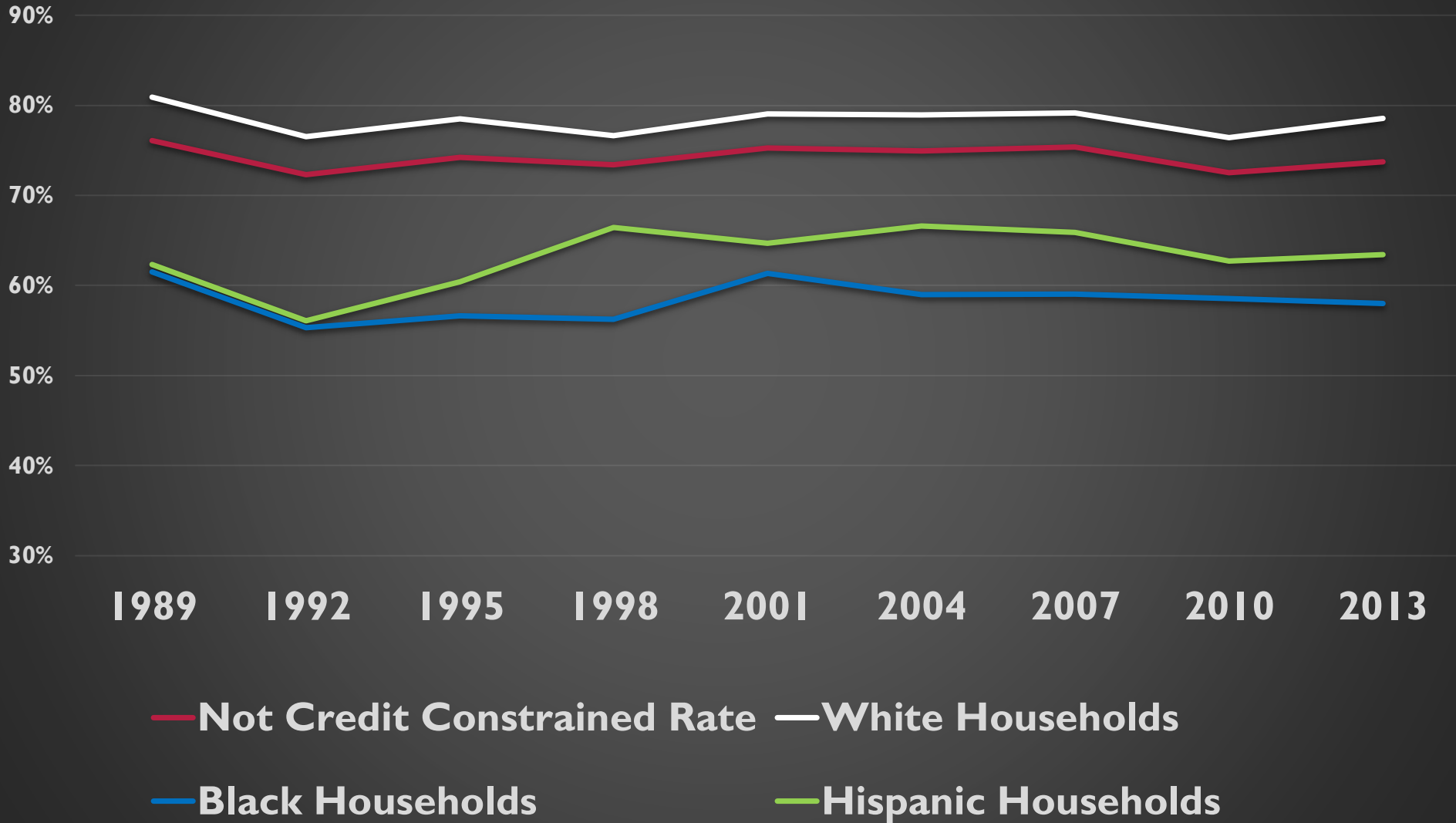


Table 1: Weighted Summary Statistics for 1989-2013						
	Type	Mean	Std. Dev.	Min	Max	
Homeownership rate	Indicator	0.66	0.47	0	1	
Percent not credit constrained	Indicator	0.75	0.43	0	1	
Less than college	Indicator	0.48	0.50	0	1	
Some college	Indicator	0.18	0.39	0	1	
College degree	Indicator	0.34	0.47	0	1	
Married	Indicator	0.52	0.50	0	1	
Single male	Indicator	0.21	0.41	0	1	
Divorced	Indicator	0.13	0.34	0	1	
Age x Dummy for under 35	Continuous	6.23	11.81	0	34	
Age x Dummy for between 35 and 55	Continuous	18.15	22.30	0	55	
Age x Dummy for over 55	Continuous	22.91	32.95	0	95	
Household size	Continuous	2.59	1.47	1	22	
African American	Indicator	0.13	0.34	0	1	
Hispanic	Indicator	0.09	0.28	0	1	
Other race (including Asian)	Indicator	0.04	0.20	0	1	
Head in bad health	Indicator	0.06	0.24	0	1	
Spouse in bad health	Indicator	0.02	0.15	0	1	
Household earned income (\$2013)	Continuous	53.62	74.34	1	997.75	
Household earned income, squared (\$2013)	Continuous	8401	37353	1	995,503	
Head works full-time	Indicator	0.61	0.49	0	1	
Spouse works full-time	Indicator	0.27	0.44	0	1	
Spouse works part-time	Indicator	0.08	0.28	0	1	
Jobs Lasting more then 1 Year	Continuous	2.24	2.85	0	54	

# Homeownership by Race



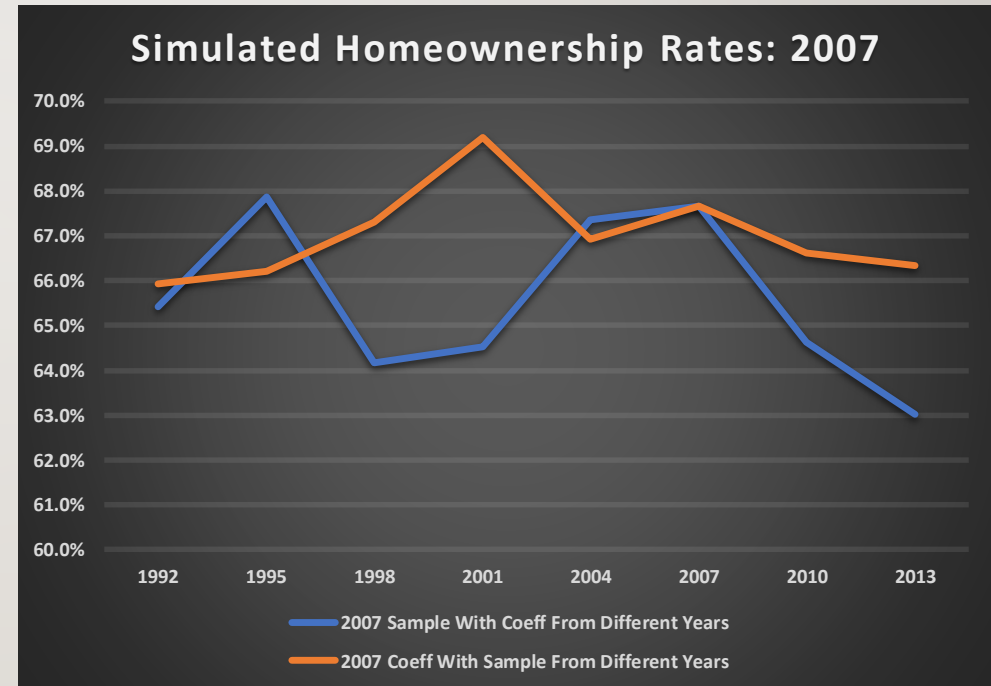
# Not Credit Constrained by Race





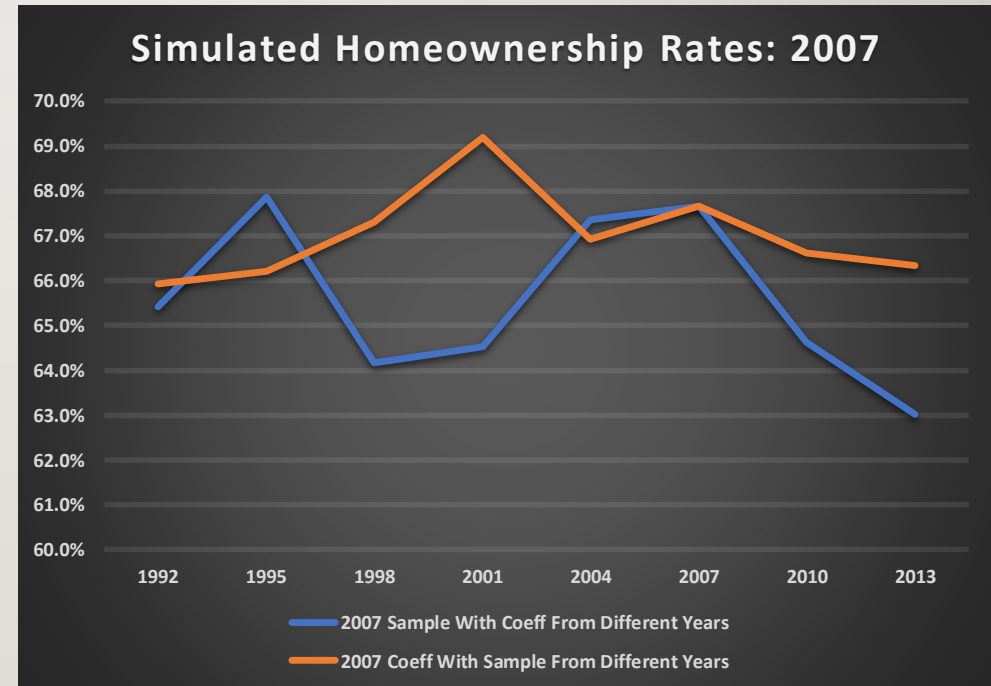
# SHIFT SHARE ANALYSIS

- 2-Part Test
- Blue Line Procedure:
  - Hold fixed data for specific years.
  - Household Behavior/Characteristics.
- Why?
  - Reveals the impact of macroeconomic factors and finance innovation on homeownership rates.



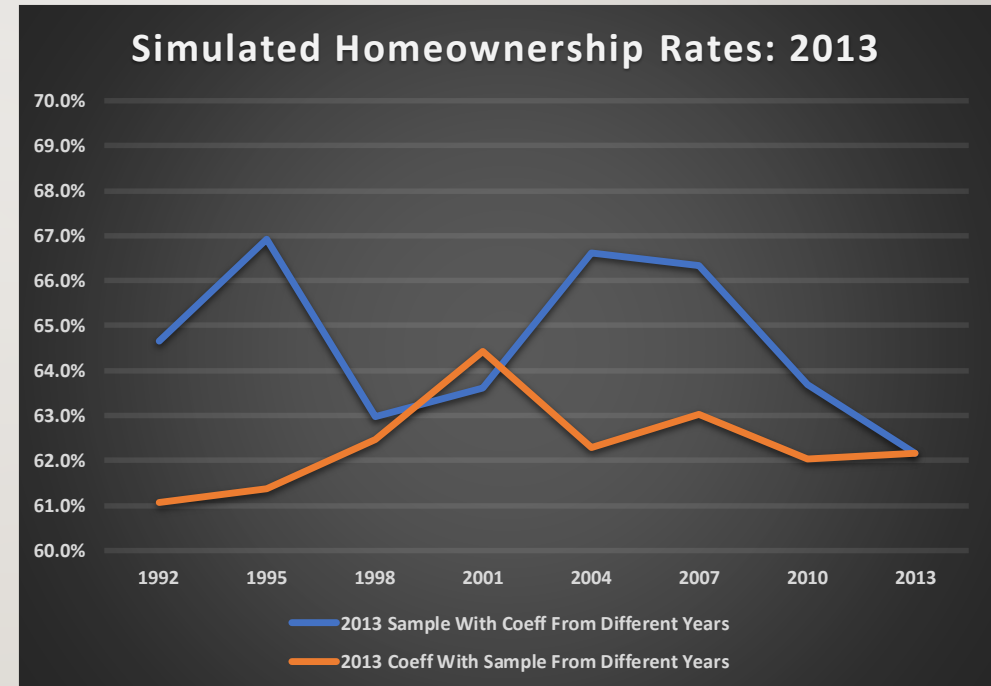
# SHIFT SHARE ANALYSIS

- 2-Part Test
- Orange Line Procedure:
  - Hold fixed coefficients for specific years.
  - Macroeconomic Factors/Finance Innovation.
- Why?
  - Reveals the magnitude in which change in household characteristics impact homeownership rates.



# SHIFT SHARE ANALYSIS

- 2-Part Test
- Orange Line Procedure:
  - Hold fixed coefficients for specific years.
  - Macroeconomic Factors/Finance Innovation.
- Why?
  - Reveals the magnitude in which change in household characteristics impact homeownership rates.





# EMPIRICAL APPROACH: RACIAL GAPS

---

- An implicate is a substituted value for missing data.
- Estimated the unweighted regression using all of the implicates.
- Estimated the marginal effect for each implicate.
- Calculated the average marginal effect.
  - Average constructed using implicate weight ( $\text{aweight}=\text{wgt}$ ).



# EMPIRICAL APPROACH: RACIAL GAPS (CONTINUED)

---

- Plotted the white/minority homeownership summary statistics to get the gap in homeownership between the white, African American, and Hispanic subgroups.
- Plotted the difference between the impacts of household attributes in Table 2 from the impacts of credit barriers provided in Table 3.



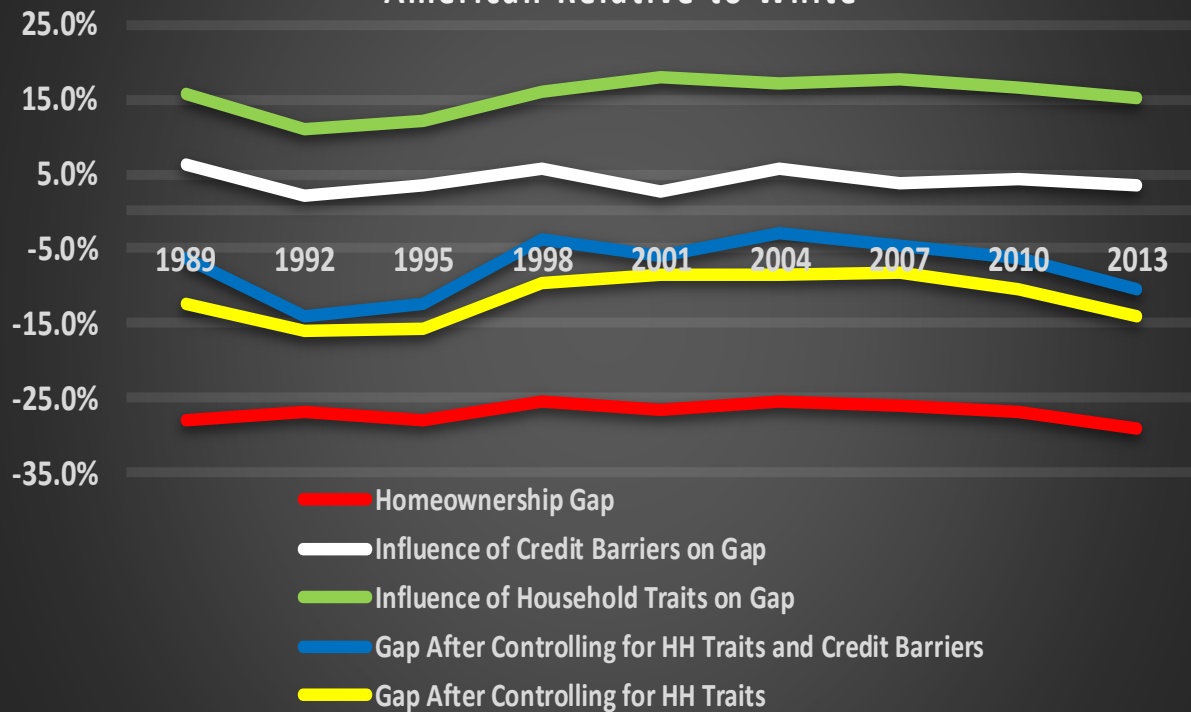
		Table 2: Homeownership propensity estimated over all households without controlling for borrowing constraints (partial derivatives are reported)								
		1989	1992	1995	1998	2001	2004	2007	2010	2013
Household Attributes	Some college	0.0128 (0.55)	0.0481 (2.50)	0.0247 (1.43)	0.0405 (2.31)	0.0114 (0.65)	0.0420 (2.51)	0.0316 (1.80)	0.0357 (2.57)	0.0010 (0.06)
	College degree	0.0590 (2.99)	0.0599 (3.67)	0.0598 (3.92)	0.0687 (4.54)	0.0636 (4.19)	0.1003 (6.76)	0.0799 (5.33)	0.0952 (7.89)	0.0851 (6.62)
	Married	0.1445 (2.70)	0.2042 (8.33)	0.1860 (8.03)	0.2514 (11.07)	0.1761 (7.94)	0.1956 (8.94)	0.2165 (9.59)	0.1627 (9.29)	0.1568 (8.57)
	Age x Dummy for under 35	-0.0026 (-1.57)	0.0054 (2.89)	0.0063 (3.50)	0.0029 (1.67)	0.0060 (3.44)	0.0115 (6.90)	0.0063 (3.72)	0.0077 (5.57)	0.0070 (4.74)
	Age x Dummy for between 35 and 55	0.0036 (3.22)	0.0091 (7.63)	0.0088 (7.83)	0.0072 (6.72)	0.0089 (8.25)	0.0117 (11.43)	0.0084 (8.09)	0.0095 (11.24)	0.0088 (9.84)
	Age x Dummy for over 55	0.0040 (5.06)	0.0089 (11.42)	0.0090 (12.14)	0.0073 (10.27)	0.0084 (11.41)	0.0110 (15.75)	0.0084 (11.74)	0.0096 (16.49)	0.0097 (15.80)
	Household earned income (\$2013)*	0.0013 (5.32)	0.0012 (6.05)	0.0015 (7.96)	0.0017 (8.62)	0.0011 (7.19)	0.0011 (6.41)	0.0016 (8.82)	0.0014 (9.17)	0.0014 (8.46)
	African American	-0.1559 (-5.60)	-0.1087 (-4.36)	-0.1214 (-5.07)	-0.1589 (-6.80)	-0.1792 (-8.03)	-0.1702 (-8.08)	-0.1780 (-7.71)	-0.1643 (-9.96)	-0.1515 (-8.77)
	Hispanic	-0.1691 (-4.71)	-0.1694 (-5.35)	-0.1701 (-5.04)	-0.1726 (-6.04)	-0.1505 (-5.59)	-0.1069 (-4.47)	-0.1343 (-5.32)	-0.1618 (-8.89)	-0.1544 (-7.93)
	Constant	0.0780 (1.00)	-1.8519 (-8.52)	-1.9107 (-8.90)	-1.7432 (0.21)	-1.9474 (-8.93)	-2.6402 (-12.08)	-1.9546 (-8.78)	-2.1254 (-12.36)	-2.0946 (-11.48)
	Number of obs	3070	3843	4217	4203	4268	4384	4296	6384	5913
	Log likelihood	-1341.2	-1664.3	-1763.5	-1713.5	-1834.5	-1766.4	-1684.0	-2829.3	-2615.5



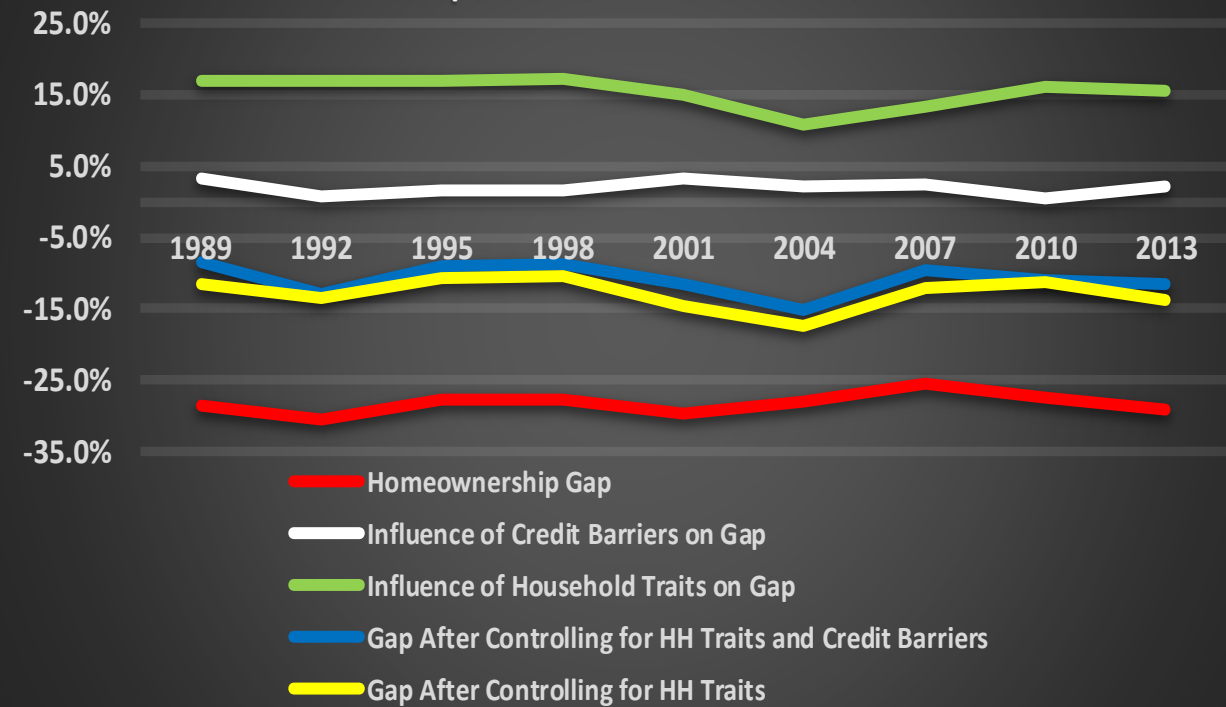
Table 3: Homeownership propensity estimated over Not Credit Constrained Households Controlling for Sample Selection (partial derivatives are reported)										
		1989	1992	1995	1998	2001	2004	2007	2010	2013
Household Attributes	Some college	-0.0026 (0.10)	0.0444 2.22	0.0462 2.51	0.0302 1.53	0.0126 0.67	0.0508 2.76	0.0336 1.78	0.0270 1.80	0.0145 0.83
	College degree	0.0488 2.26	0.0497 2.95	0.0502 3.15	0.0579 3.48	0.0459 2.92	0.0557 3.44	0.0529 3.30	0.0563 4.36	0.0623 3.67
	Married	0.1186 2.01	0.1824 6.95	0.1646 6.37	0.2163 7.91	0.1572 6.47	0.1421 5.84	0.1662 6.81	0.1262 6.52	0.1606 6.79
	Age x Dummy for under 35	-0.0033 (1.79)	0.0000 0.00	0.0014 0.74	-0.0006 (0.31)	0.0011 0.60	0.0073 3.94	0.0023 1.25	0.0031 2.07	0.0046 2.57
	Age x Dummy for between 35 and 55	0.0036 2.99	0.0043 3.21	0.0044 3.44	0.0034 2.69	0.0040 3.24	0.0082 6.75	0.0040 3.38	0.0054 5.59	0.0068 5.42
	Age x Dummy for over 55	0.0043 5.01	0.0048 5.25	0.0056 6.15	0.0039 4.25	0.0041 4.52	0.0077 8.52	0.0045 5.23	0.0056 7.95	0.0076 7.16
	Household earned income (\$2013)*	0.0014 5.60	0.0011 5.03	0.0012 5.91	0.0013 6.26	0.0007 4.38	0.0006 3.71	0.0011 6.25	0.0010 6.28	0.0010 5.24
	African American	-0.2170 (7.47)	-0.0884 (2.90)	-0.0878 (2.75)	-0.1006 (3.12)	-0.1532 (5.02)	-0.1134 (4.04)	-0.1401 (4.66)	-0.1208 (5.68)	-0.1170 (3.86)
	Hispanic	-0.2014 (5.38)	-0.1761 (4.69)	-0.1551 (3.45)	-0.1558 (4.51)	-0.1179 (3.69)	-0.1296 (4.37)	-0.1597 (5.16)	-0.1661 (7.17)	-0.1338 (4.85)
	Constant	1.6491 16.00	-0.1447 (0.70)	-0.1723 (0.84)	-0.3034 (1.54)	-0.5166 (2.47)	-0.4218 (2.08)	-0.9660 (4.46)	-0.4705 (3.00)	-0.2695 (1.57)
	Rho	0.8966 2.78	-0.6878 (3.93)	-0.6149 (3.48)	-0.6280 (3.22)	-0.6456 (3.52)	-0.6039 (3.78)	-0.6422 (3.98)	-0.7195 (5.67)	-0.4080 (1.57)
	Uncensored obs(not credit constrained)	2,610	3,048	3,304	3,233	3,355	3,418	3,435	4,700	4,442
	Censored obs (possibly credit constrained)	460	795	913	970	913	966	861	1,684	1,471
	Log pseudolikelihood	-2248.8	-2936.4	-3076.8	-3116.5	-3133.6	-3069.8	-2914.5	-5181.9	-4793.6

# RESULTS

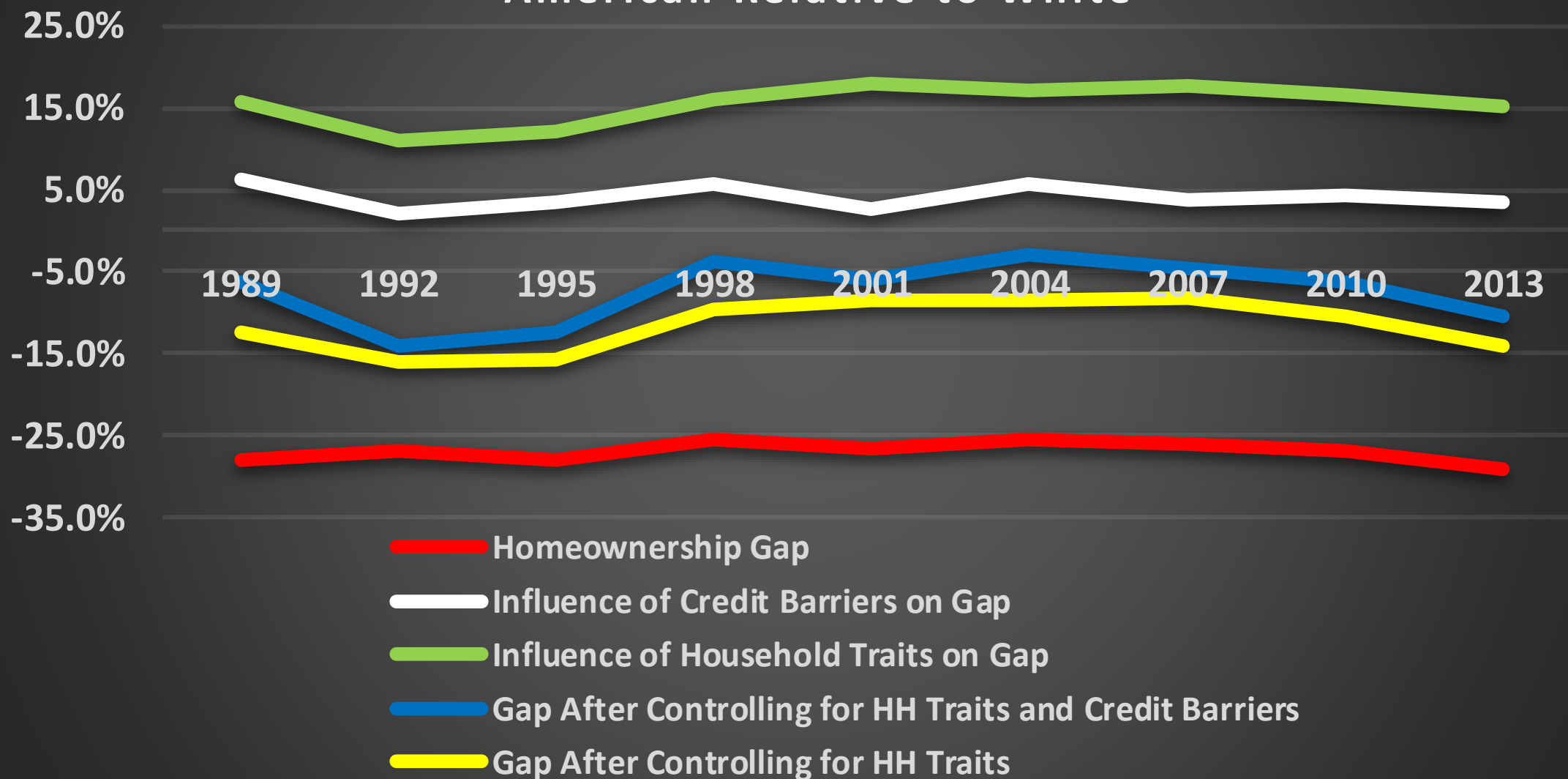
Decomposing Racial Gaps in Homeownership: African American Relative to White



Decomposing Racial Gaps in Homeownership: Hispanic Relative to White

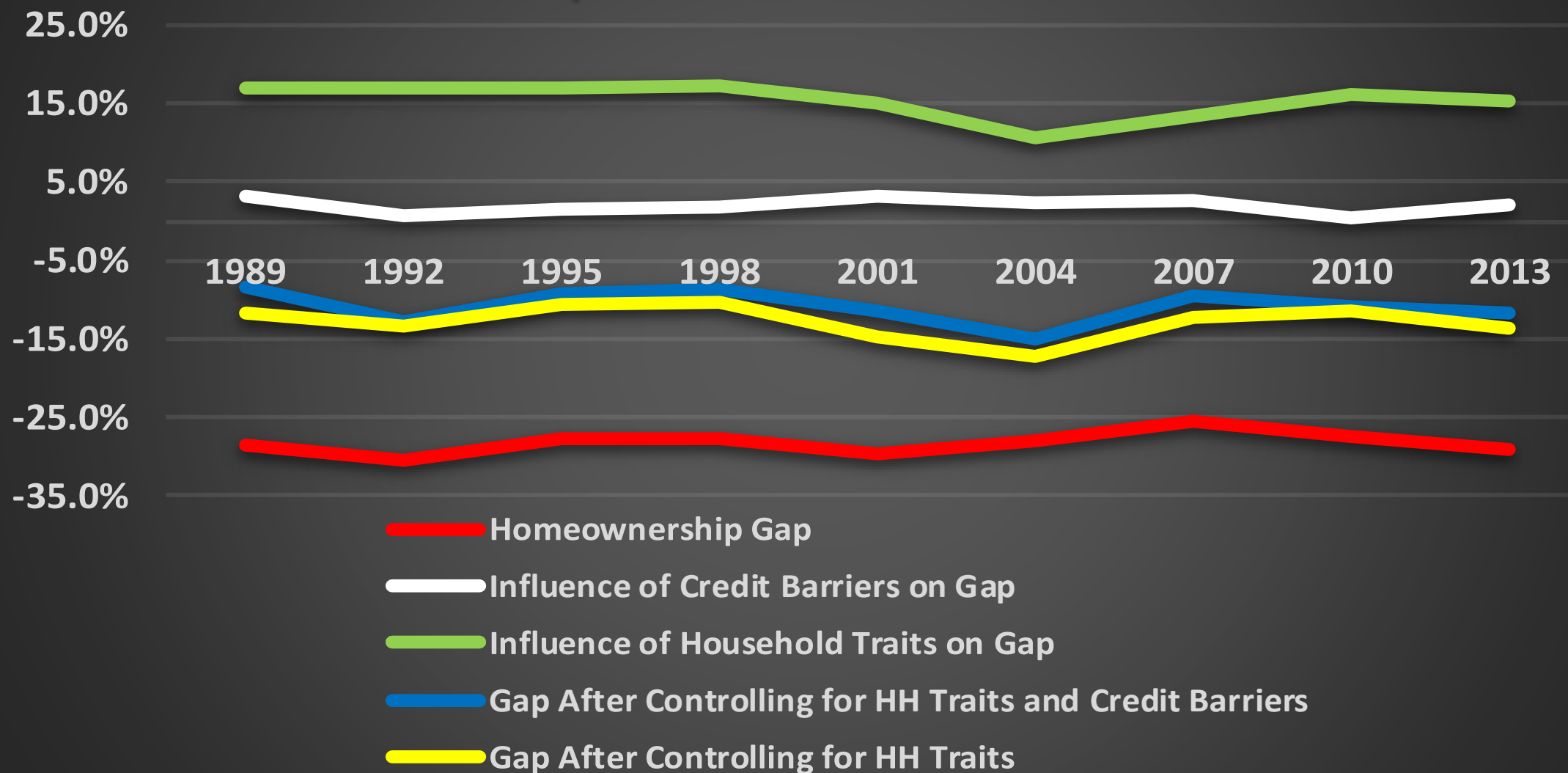


## Decomposing Racial Gaps in Homeownership: African American Relative to White





## Decomposing Racial Gaps in Homeownership: Hispanic Relative to White



# RESULTS SUMMARY

---

- Homeownership rates rose sharply during the late 1990's until 2004 when they peaked at 69%. It stagnated through the time of the 2007 dataset and plummeted to 65.1% in 2013.
- The gaps between white and minority households have persisted and grown.
  - African Americans: 28.1% in 1989 increased to 29.1% in 2013.
  - Hispanics: 28.5% in 1989 and increased to 29.1% in 2013.
- When controlling for household attributes in the gap:
  - African Americans: 15.6% was explained in 1989 and 15.2% in 2013.
  - Hispanics: 16.9% was explained in 1989 and 15.4% in 2013.

# RESULTS SUMMARY(CONTINUED)

---

- Credit barriers have shrunk substantially for African Americans over time.
  - Credit barriers accounted for 6.1% of the gap in 1989 and in 2013 it accounts for 3.5%.
- Credit barriers have declined by 1% for Hispanics during the period of 1989 through 2013.
- When controlling for household attributes and credit barriers in the gap:
  - African Americans: 6.4% was unexplained in 1989 and 10.5% in 2013.
  - Hispanics: 8.4% was unexplained in 1989 and 11.6% in 2013.

# FOR FUTURE RESEARCH

---

- Why have credit barriers remained for minorities?
- Which household attributes should government policy target in order to increase homeownership participation and close the gap?





# QUESTIONS?

---

