



# DATA TALK: EFFECTS OF PARENTAL HOMEOWNERSHIP ON MILLENNIAL HOMEBUYING

#LiveAtUrban

# Homeownership And “Mortgage Ready” Perspectives In The Post-Crisis Period

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- Black/African Americans are 30 percentage points less likely than white households to own a home, and the white to Hispanic homeownership gap is 26 percentage points, even in 2016.
- The existing literature points at several contributing factors:
  - » Household characteristics (Wachter and Megbolugbe, 1992; Gabriel and Rosenthal, 2005; Painter, Gabriel and Myers, 2001).
  - » Immigration (Coulson, 1999; Borjas, 2002; DeSilva and Elmelech, 2012)
  - » Geographic location (Wachter and Megbolugbe, 1992; Coulson, 1999).
  - » Paternal wealth (Hilber and Liu, 2008).
- Very few studies have considered the role of credit attributes in tenure-choice decision.

- “Role of Credit Attributes in Explaining Homeownership Gap in the Post-Crisis Period, 2012 – 2016” (L. Brown and J. Dey, 2018)
  - » Investigates the more recent trends for consumers acquiring new mortgages, including the role of credit constraints.
  - » Sheds light on racial patterns in transition for consumers acquiring new mortgages.
- Sizes millennial homeownership potential
  - » “Mortgage Ready” millennials by race and ethnicity.
  - » Affordability for “Mortgage Ready” millennials.

- Age, income, housing demand, house prices are big drivers for determining transition to new mortgage ownership.
  - » Student loan debt, auto debt, and education level play lesser important roles.
- Black/African Americans and Hispanics are one-half and two-third as likely to transition into mortgage ownership, respectively, compared to Non-Hispanic whites.
  - » Racial differences in credit attributes explain a large part of the racial gap.
  - » While household composition contribute substantially to white-black gap, geographic location matters more in explaining the white-Hispanic gap.
- Roughly, one-third of millennials are “Mortgage Ready”.
  - » Most “Mortgage Ready” millennials can afford a typical house in their area.

- Data
  - » Mortgage transition rates
  - » Descriptive statistics
- Analysis
  - » Identify factors determining transition to mortgage ownership rate
  - » Explain racial gaps in transition rates
  - » Size “Mortgage Ready” millennials
- Conclusion

# Data



- Household Panel data:
  - » 5.8 million consumer records: 2% random, anonymized sample of consumers with Credit Bureau records in September 2016
  - » An additional 8.8 million consumers: In the same household in 2016 and in Credit Bureau's database
- Credit data from 2012 and 2016:
  - » Number, type, and amount of debt held (includes mortgages, student loans, bankcards, and installment loans), foreclosures, delinquencies, charge-offs, bankruptcies, and inquiries
  - » VantageScore<sup>®</sup> 3.0 credit score, FICO 9.0 credit score
  - » Income Insight<sup>SM</sup> and Debt-to-Income Insight<sup>SM</sup>
  - » Individual demographics
- Matched with Credit Bureau's marketing database
  - » Ethnic Insight<sup>SM</sup>
  - » Household-level demographics



# Racial Mortgage Ownership Patterns



## 2016 Mortgage Ownership Status

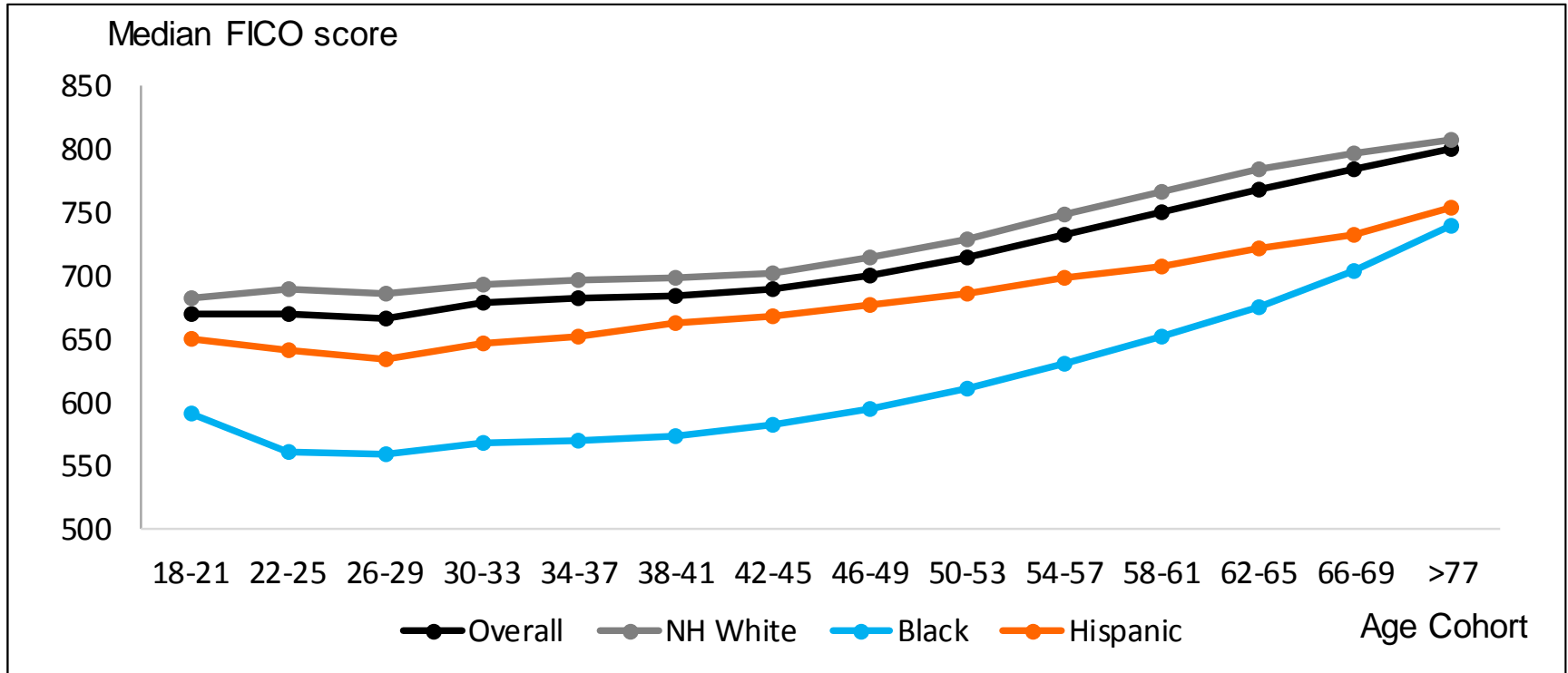
	Overall N=4,539,574		Non-Hispanic White N=3,040,641		Black/African American N=513,212		Hispanic N=671,957	
	No Mortgage	Has a mortgage	No Mortgage	Has a mortgage	No Mortgage	Has a mortgage	No Mortgage	Has a mortgage
No mortgage in 2012	63.55%	6.19%	58.79%	6.72%	77.98%	3.66%	73.30%	5.21%
Had a mortgage in 2012	6.21%	24.05%	7.01%	27.48%	4.21%	14.15%	4.51%	16.99%

## Transition Into Mortgage Ownership

	Overall	Non-Hispanic White	Black/African American	Hispanic
New Mortgage Holders as a percent of 2012 Non-Mortgage Holders	9%	10%	4%	7%

Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2012, Sep 2016. Standard errors and sample sizes are reported below estimates. The sample is restricted to consumers observable in both 2012 and 2016.

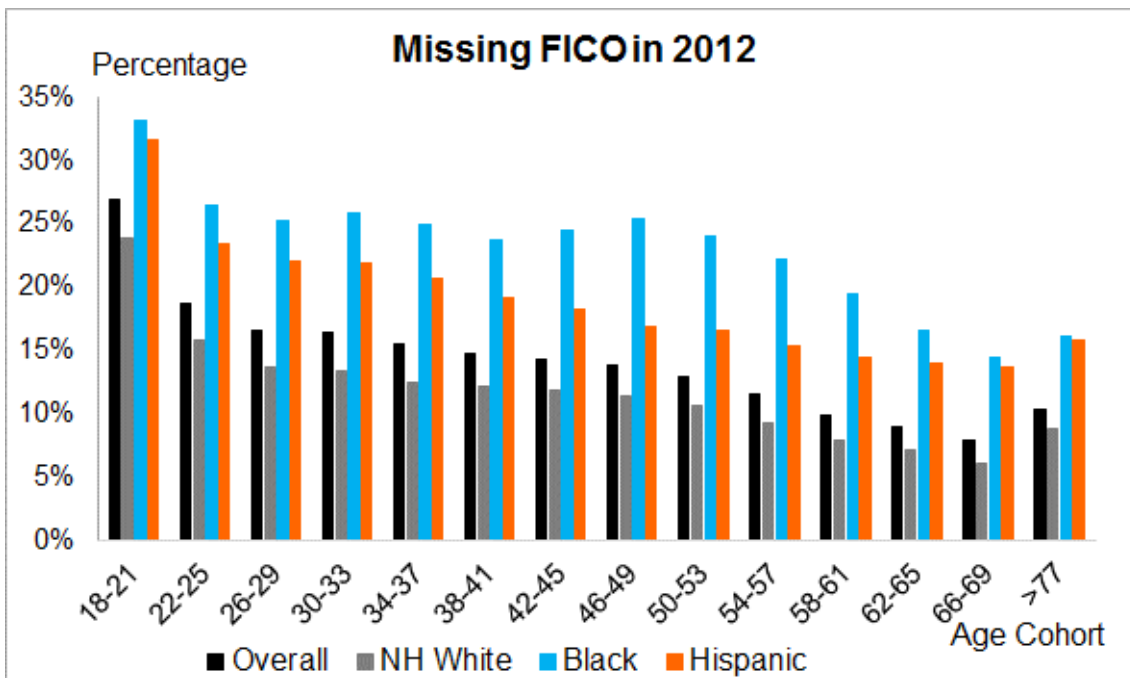
- » Black/African Americans and Hispanics are roughly one-half and two-third as likely to enter mortgage ownership as whites respectively.



Source: Freddie Mac calculations using anonymized credit bureau data

- » Black/African Americans and Hispanics tend to have lower credit scores compared to NH whites.

# Missing FICO

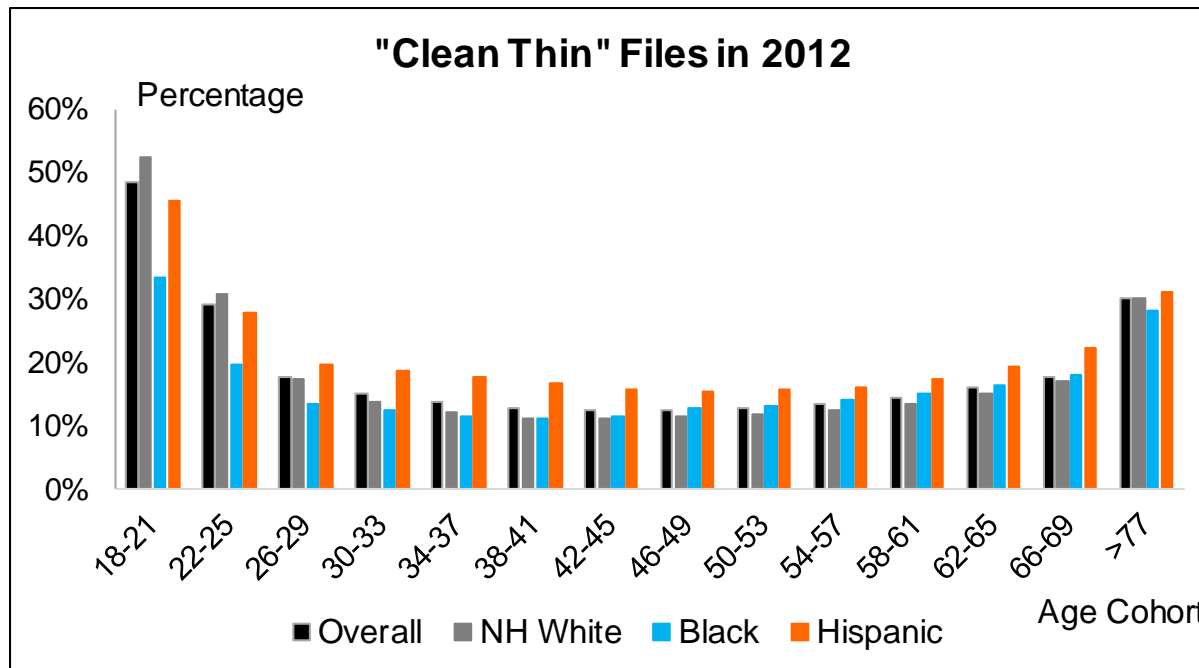


Source: Freddie Mac calculations using anonymized credit bureau data

Overall Sample		Missing FICO in 2012	
		Not missing in 2016	Missing in 2016
Median Age	50	39	48
NH White	67.0%	53.7%	55.3%
Black/African American	14.8%	17.7%	17.3%
Hispanic	11.3%	22.4%	20.9%

- More minorities had missing FICO in 2012 compared to NH whites.
  - » 33% transitioned to a FICO score in 2016.
  - » Younger minorities with missing FICO more likely to have a FICO score by 2016.

- “Clean Thin” files → Thin files (tradelines  $\leq 2$ ) with no delinquencies/bankruptcies/foreclosures, no missing FICO, and DTI  $\leq 45$ .



» More Hispanics had “Clean Thin” files compared to NH whites.

Source: Freddie Mac calculations using anonymized credit bureau data

# Analysis

# What Are The Biggest Drivers Of Obtaining New Mortgages?

- Logistic regression model to estimate the probability of acquiring a new mortgage. Controlled for:
  - » socioeconomic characteristics: race, gender, age cohort, marital status, number of children, income and education.
  - » credit characteristics: FICO score, missing FICO indicators, “Clean Thin” file indicator, household student loan DTI, household credit card DTI, household auto DTI, foreclosures in last 84 months, bankruptcies in last 7 years, 90 day delinquencies, thin file, mortgage inquiries.
  - » macroeconomic conditions: median house prices-to-median individual income ratio, state dummies.

# Marginal Effect: Socio-Economic Characteristics

Variable	Category	Marginal Effect
Race indicator	Black/African American	-0.0293
Race indicator	Hispanic	-0.0216
Gender	Female	-0.0181
Age cohort	Missing	-0.1100
Age cohort	$18 \leq \text{age} \leq 25$	-0.0512
Age cohort	$26 \leq \text{age} \leq 35$	0.0228
Age cohort	$36 \leq \text{age} \leq 45$	0.0243
Age cohort	$46 \leq \text{age} \leq 55$	0.0000
Age cohort	$56 \leq \text{age} \leq 65$	-0.0277
Age cohort	$66 \leq \text{age} \leq 70$	-0.0522
Marriage	Single	-0.0663
Household Income (growth rate)		0.0013
Median house price to median income ratio (in log)	Single Family	-0.0248
Average Predicted Probability of a typical consumer		0.1162

Note: The table gives marginal effect of select variables. Holding all other variables at their mean, marginal effect for categorical variables show how predicted probability changes when a given category holds, and marginal effect for continuous variable measures the instantaneous rate of change in predicted probability.

- » Consumers of age cohorts 26-35 and 36-45, with higher household income growth, married, with higher affordability, are more likely to transition to new mortgages.



# Marginal Effect: Credit Characteristics

Variable	Category	Marginal Effect
Household DTI growth	Student Debt	-0.0005
Household DTI growth	Auto Debt	0.0000
Household DTI growth	Credit Card	0.0011
"Clean Thin" file indicator		-0.0344
All 90D indicator		-0.0415
FICO score		0.0004
Missing FICO indicator	2012=missing, 2016=not missing	0.4905
Missing FICO indicator	2012=not missing, 2016=missing	-0.1161
Missing FICO indicator	2012=missing, 2016=missing	-0.1130
Mortgage inquiry in 2012 indicator		0.3039
Average Predicted Probability of a typical consumer		0.1162

Note: The table gives marginal effect of select variables. Holding all other variables at their mean, marginal effect for categorical variables show how predicted probability changes when a given category holds, and marginal effect for continuous variable measures the instantaneous rate of change in predicted probability.

- » Consumers with student loan debt, delinquencies, “Clean Thin” files are less likely to transition.

# Racial Differences In Socio-Economic Characteristics

Variable	Category	Mean Values		
		NH White	Black/African American	Hispanic
Age cohort	Missing	0.12	0.11	0.15
Age cohort	18 ≤ age ≤ 25	0.02	0.02	0.02
Age cohort	26 ≤ age ≤ 35	0.22	0.24	0.25
Age cohort	36 ≤ age ≤ 45	0.15	0.18	0.21
Age cohort	46 ≤ age ≤ 55	0.14	0.16	0.16
Age cohort	56 ≤ age ≤ 65	0.14	0.13	0.11
Age cohort	66 ≤ age ≤ 70	0.06	0.05	0.04
Number of Children		0.32	0.36	0.32
Marriage	Single	0.17	0.36	0.27
Household Income (growth rate)		0.16	0.16	0.25
Median house price to median income ratio (logged)	Single Family	0.77	0.73	0.98

Source: Freddie Mac calculations using anonymized credit bureau data

- Compared to NH Whites:
  - » Both minority groups are skewed younger, more likely to be singles.
  - » Hispanics have higher household income growth.
  - » House price affordability ratio is much higher for Hispanics.

# Racial Differences In Credit Characteristics

Variable	Category	Mean Values		
		NH White	Black/African American	Hispanic
"Clean Thin" file indicator		0.30	0.22	0.31
Household DTI growth	Student Debt	0.01	0.02	0.01
Household DTI growth	Auto Debt	0.02	0.03	0.03
Household DTI growth	Credit Card	0.00	0.01	0.01
All 90D indicator		0.36	0.63	0.50
FICO score		548.46	413.30	440.51
Missing FICO indicator	2012=missing, 2016=not missing	0.06	0.11	0.10
Missing FICO indicator	2012=not missing, 2016=missing	0.08	0.09	0.09
Missing FICO indicator	2012=missing, 2016=missing	0.13	0.21	0.21
Mortgage inquiry in 2012 indicator		0.07	0.06	0.07

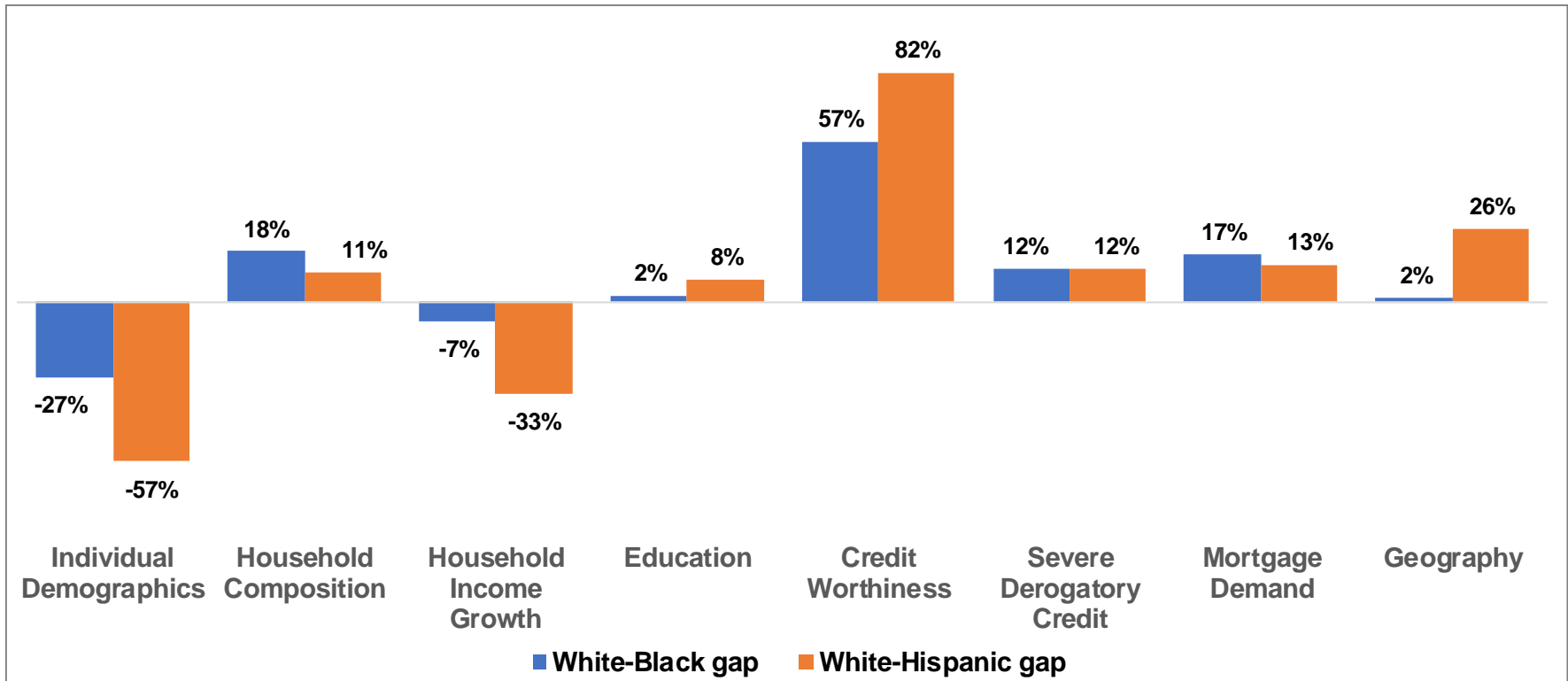
Source: Freddie Mac calculations using anonymized credit bureau data

- Compared to NH Whites:
  - » Both minority groups have lower scores, are more likely to have no scores and delinquencies.
  - » More Hispanics have “Clean Thin” files.

# To What Extent Racial Gap In Transition Rate Explained By Racial Differences In Characteristics?

- Blinder-Oaxaca decomposition technique for non-linear equation.
  - » Explains the part of racial gap in transition rates due to racial differences in distributions of set of independent variables.
  - » Variables grouped to eight subsets:
    - *Individual Demographics* (sex and age)
    - *Household Composition* (marital status and number of children)
    - *Household Income growth*
    - *Education*
    - *Credit Worthiness* (FICO score, missing FICOs, “Clean Thin” file, DTIs)
    - *Severe Derogatory Credit* (delinquency, foreclosure, bankruptcies)
    - *Mortgage Demand* (mortgage inquiry)
    - *Geography* (house price affordability measure, state dummies)

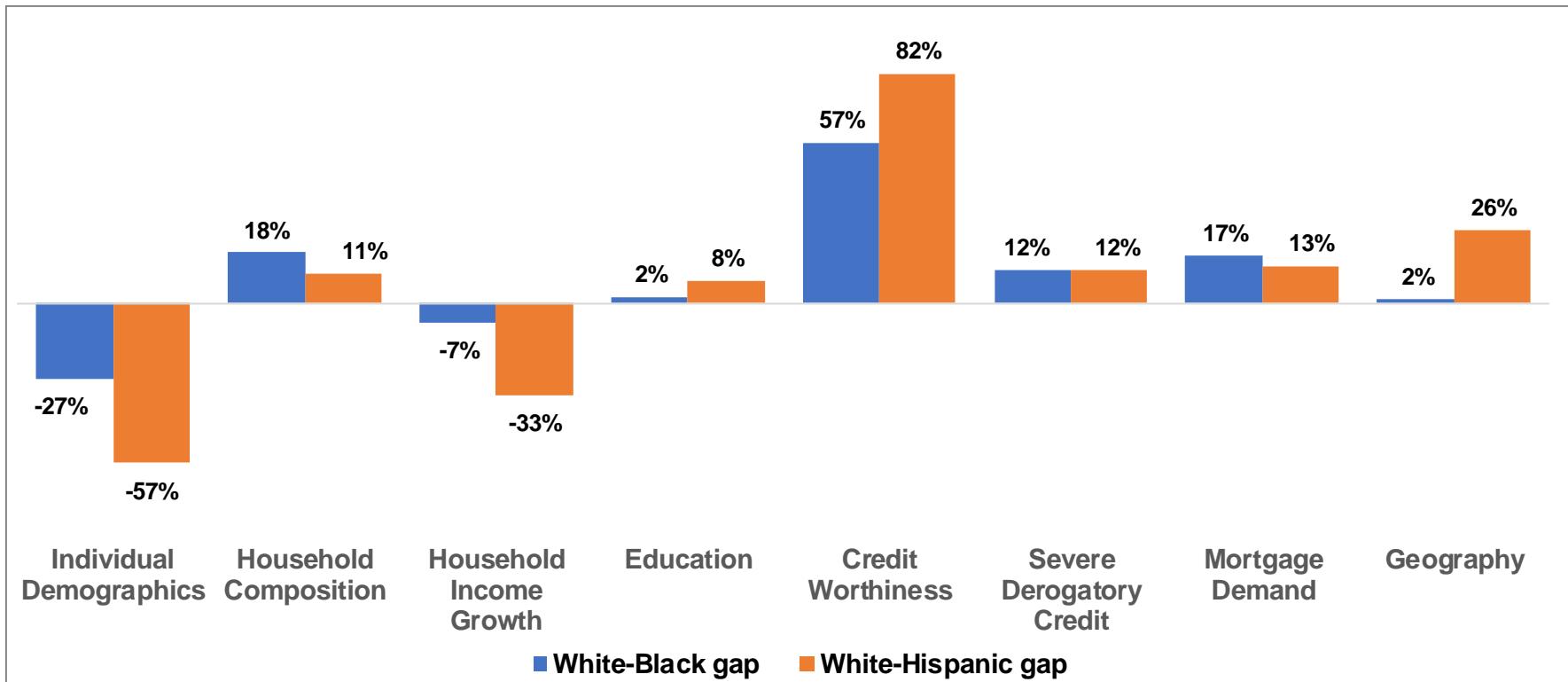
# Decomposing Racial Gap In Transition Rate



Source: Freddie Mac calculations using anonymized credit bureau data

- » *Credit Worthiness* explains most of the white-minority gap.
- » *Severe Derogatory Credit, Mortgage Demand* contribute substantially to the white-minority gap.

# Decomposing Racial Gap In Transition Rate



Source: Freddie Mac calculations using anonymized credit bureau data

- » *Individual Demographics, Household Income Growth* reduce the white-minorities gap in the transition rate.
- » *Geography* explains white-Hispanic gap substantially.
- » Overall, 75% of white-black gap and 62% of white-Hispanic gap is explained.

- We define “Mortgage Ready” as non-mortgage owners who have credit characteristics to qualify for a mortgage.

Non-Mortgage Owner (Age  $\leq 40$ )



## “Mortgage Ready”

- » FICO  $\geq 620$
- » Back-end DTI  $\leq 25$
- » No foreclosures in 84 months
- » No bankruptcies in 84 months
- » No severe delinquencies in 12 months

## Not “Mortgage Ready”

- » FICO  $< 620$  **and/or**...
- » Back-end DTI  $> 25$
- » Foreclosures in 84 months
- » Bankruptcies in 84 months
- » Severe delinquencies in 12 months



# Sizing “Mortgage Ready” Millennials by Race/Ethnicity

Total Millennial Population		
	Percent	Count (in 1000s)
Mortgage Owners	18%	24,398
"Mortgage Ready"	33%	45,910
"Mortgage Weak"	49%	67,130

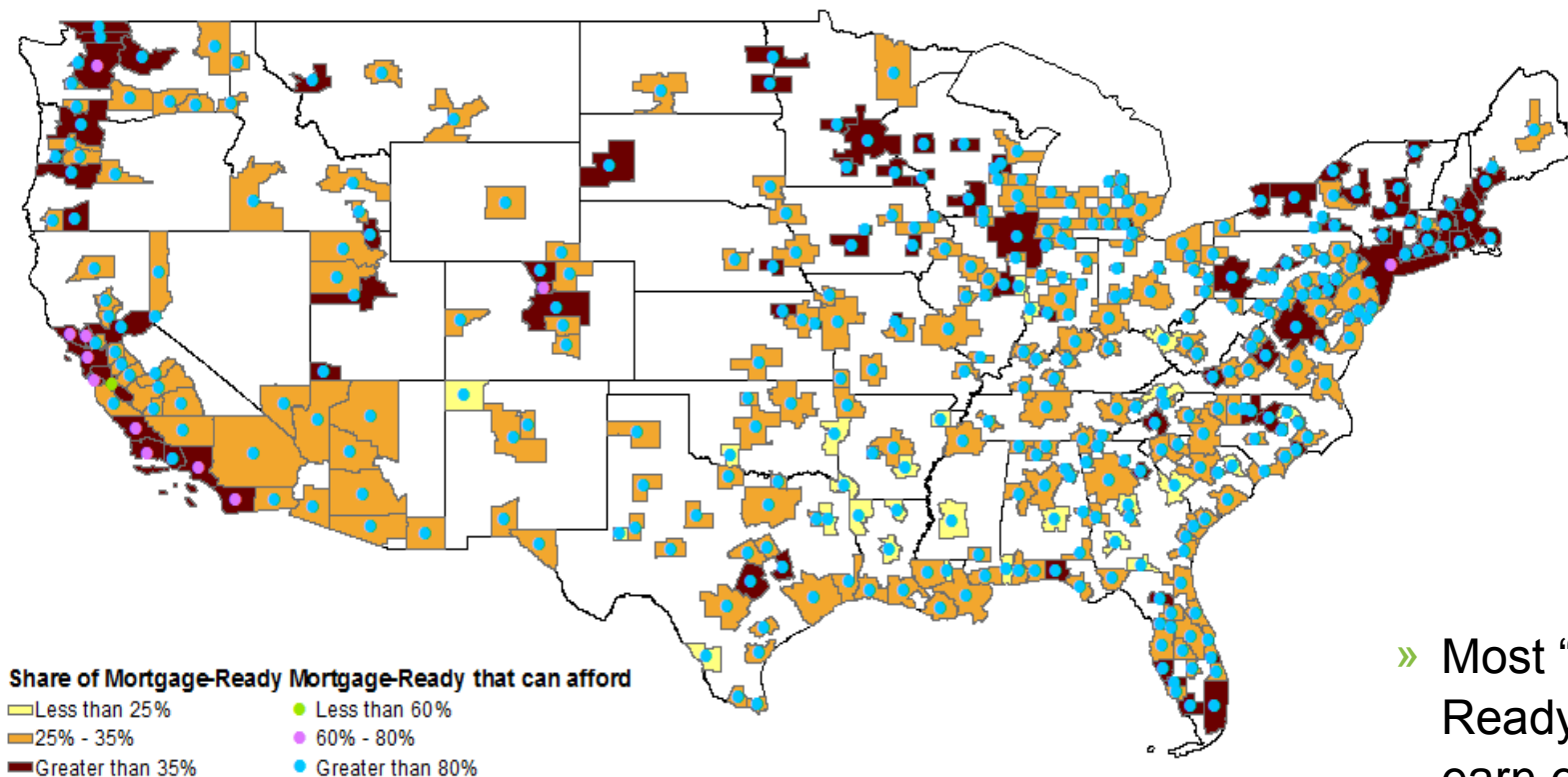
- » 33% of millennials are “Mortgage Ready”.

"Mortgage Ready" Millennials		
	Percent	Count (in 1000s)
Overall	33%	45,910
NH White	36%	29,070
Black/African American	19%	3,262
Hispanic	29%	7,719
Other	50%	4,435

- » Black and Hispanic millennials have lower “Mortgage Ready” share than NH Whites.

Source: Freddie Mac calculations using anonymized credit bureau data

# Affordability of “Mortgage Ready” Millennials



Source: Freddie Mac calculations using anonymized credit bureau data and Freddie Mac Home Value Explorer data.

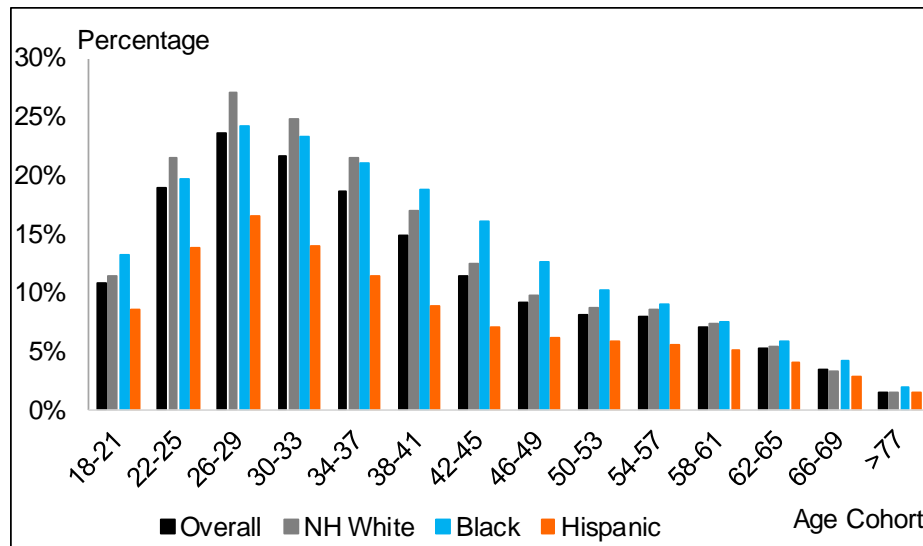
Note: According to NAR's methodology, if a consumer's quarterly household income is greater than or equal to annual mortgage payment on a median priced house (under the assumption of 10% down payment, 4% mortgage rate, 30 year contract), then that house is affordable for him. Based on Sep 2016 data.

» Most “Mortgage Ready” millennials earn enough to afford a typical house in their MSA.

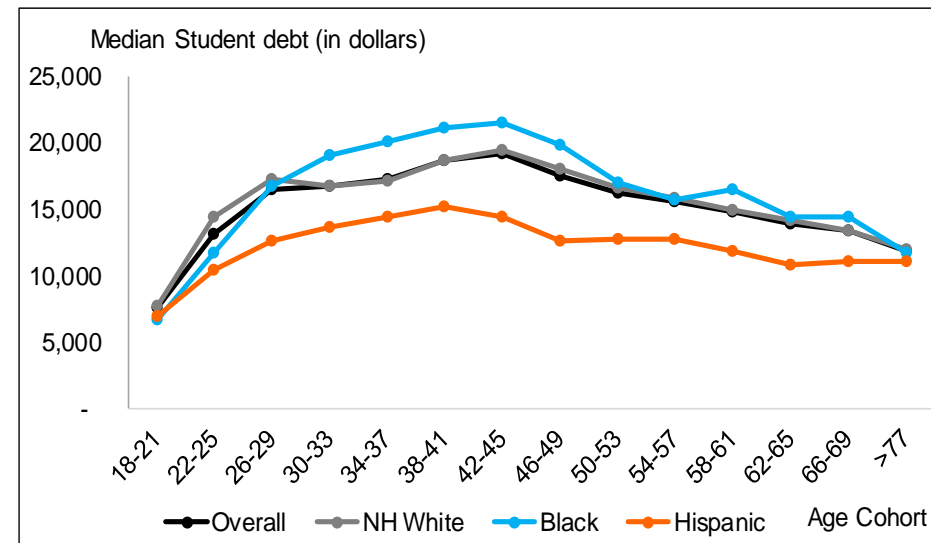
- Big determinants of decision to enter mortgage ownership are age, household income growth, marital status, house prices and individual's demand for mortgage.
- Racial differences in the distribution of credit attributes explains a large part of the racial gap in the transition rate into mortgage ownership.
  - » While racial differences in household composition contribute more in explaining white-black gap, geography matters more in explaining the white-Hispanic gap.
  - » Counselling, credit education opportunities, alternative credit scoring methods will be most effective in bridging the mortgage ownership gap over time.
- Around one-third of millennial population is “Mortgage Ready” and most can generally afford single-family homes in most MSAs.

# Appendix

# Student debt

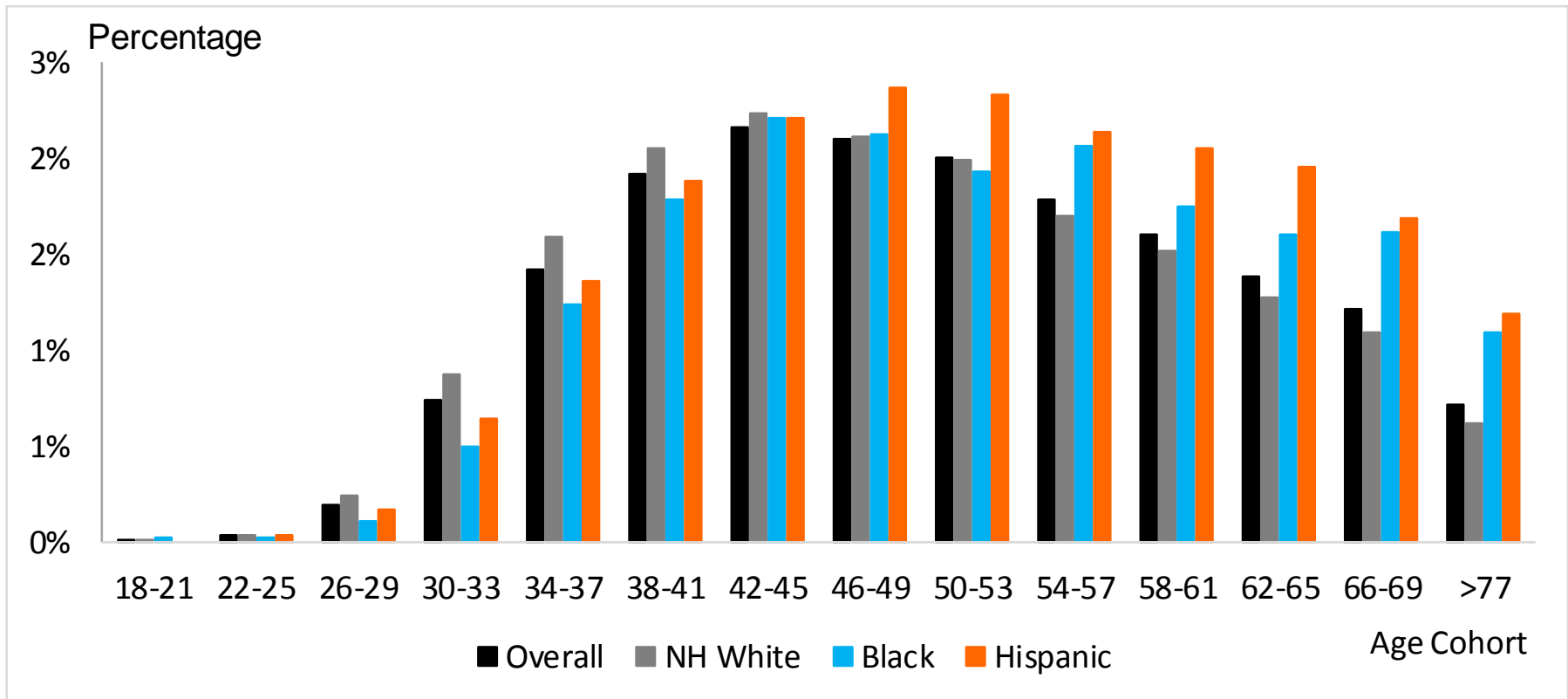


Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2016



- » Compared to NH whites, fewer Hispanics have student debt with lower median debt.

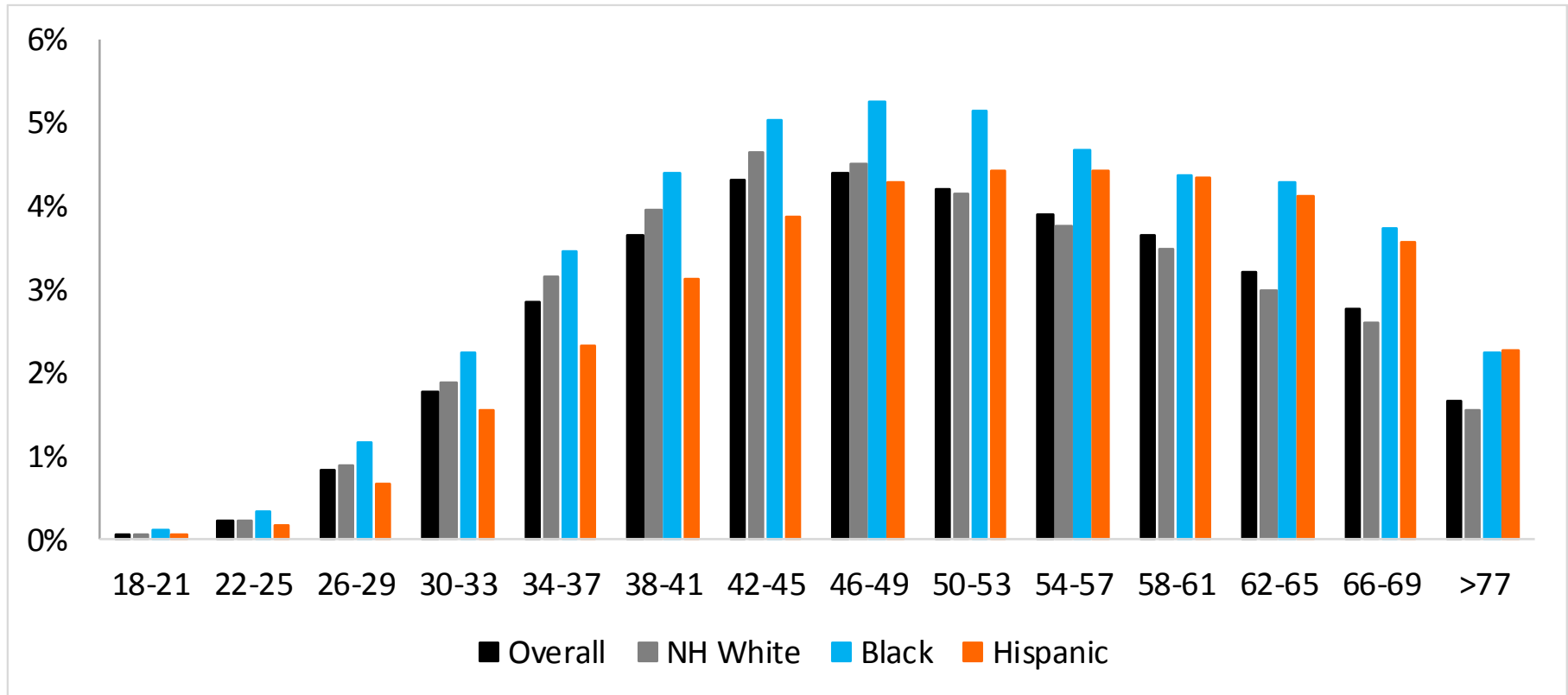
# Foreclosure (percentage)



Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2016

- » Older minorities are more likely to have foreclosures compared to NH whites.

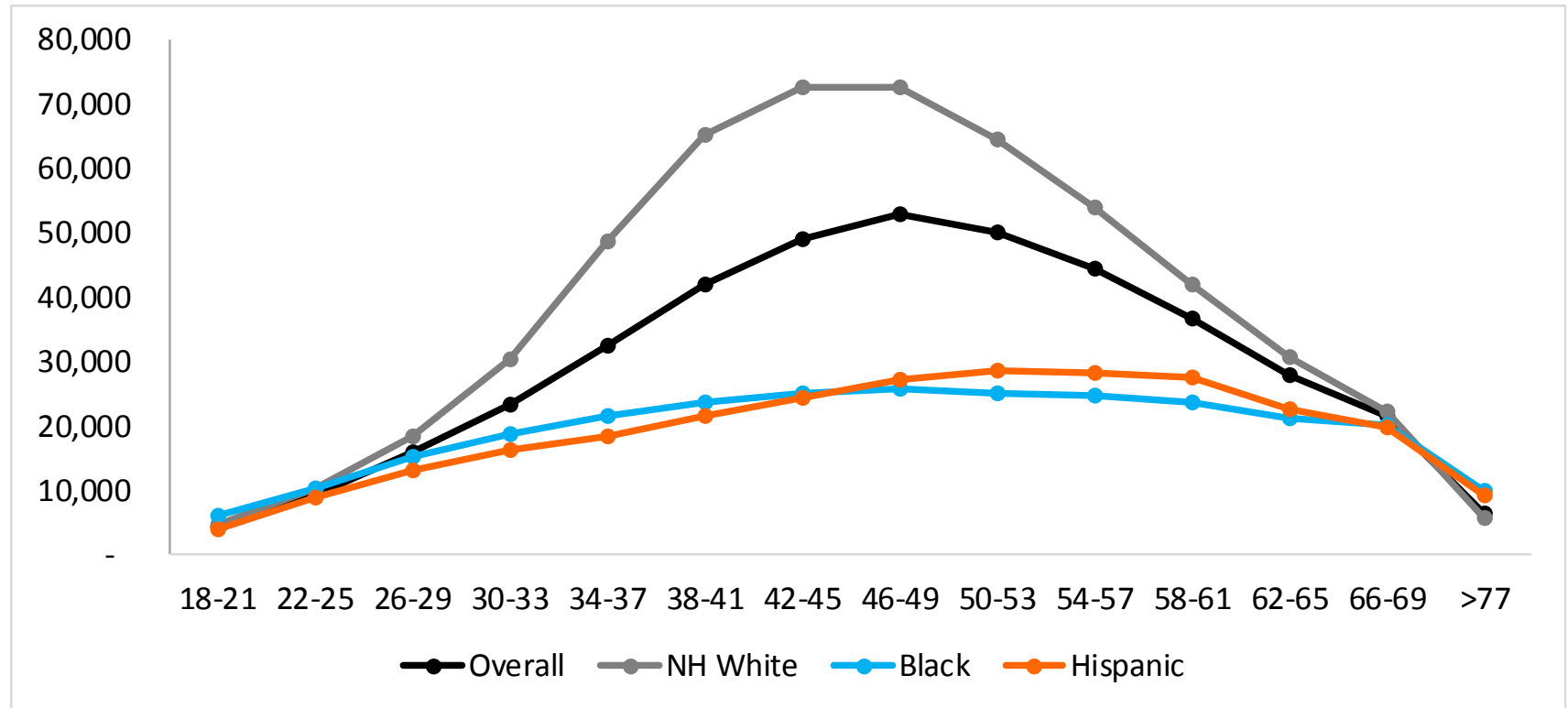
# Bankruptcies (percentage)



Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2016

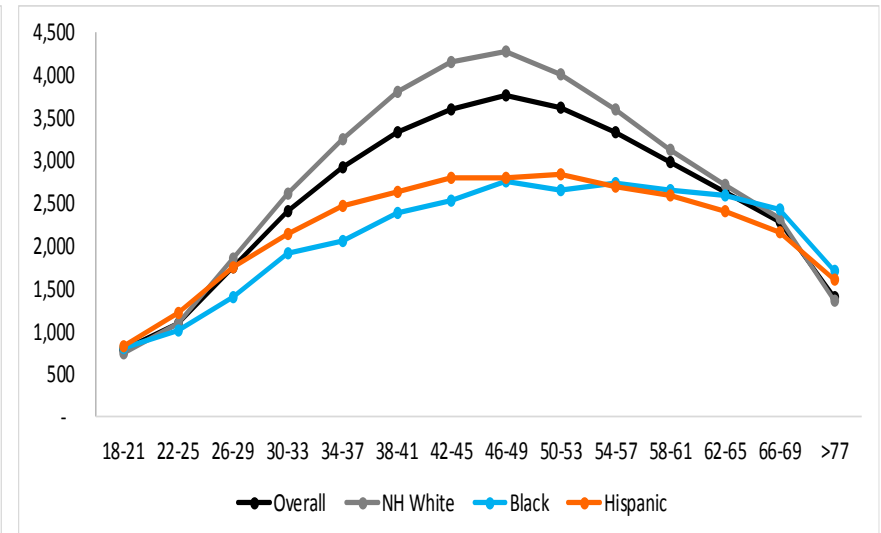
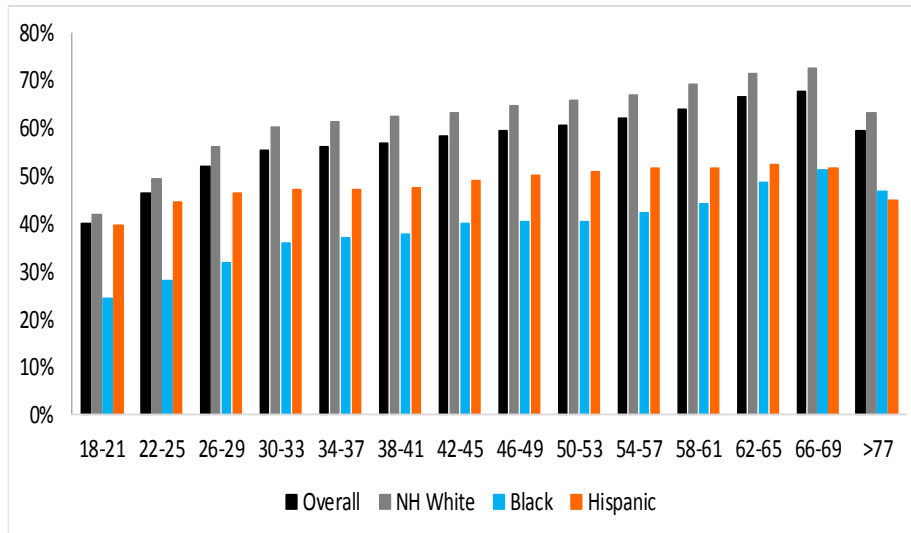


# Median All Debt (dollar amount)



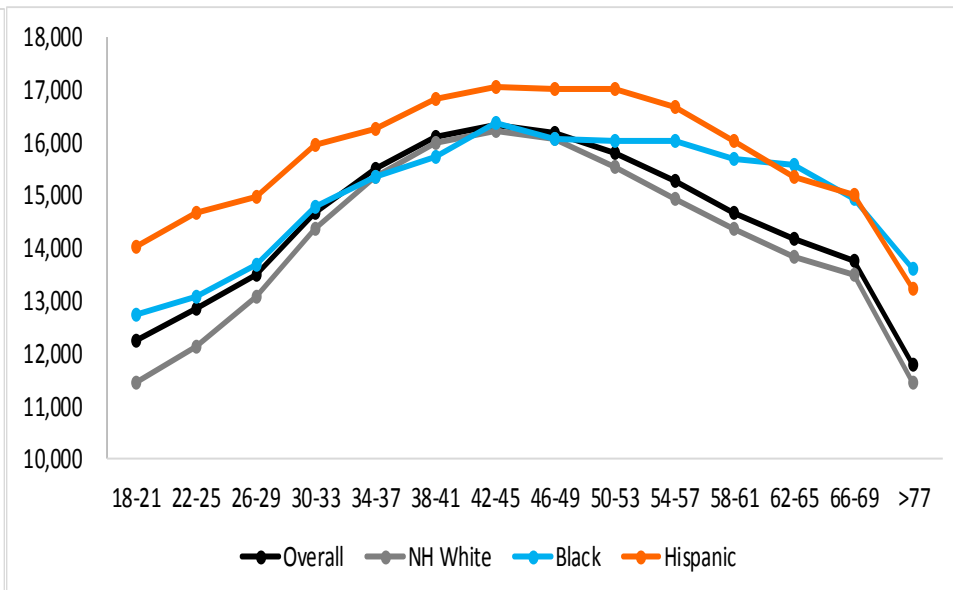
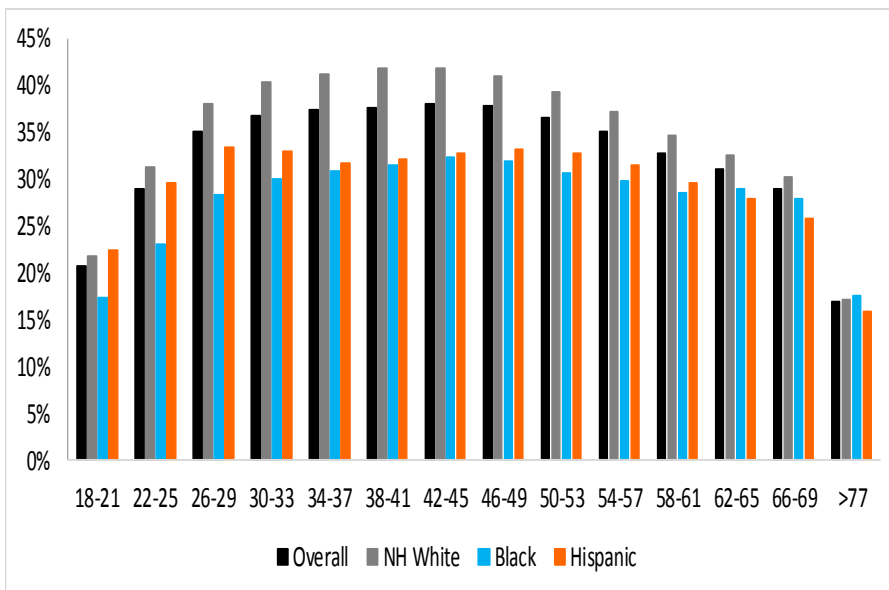
Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2016

# Credit card debt (percentage/median dollar amount)



Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2016

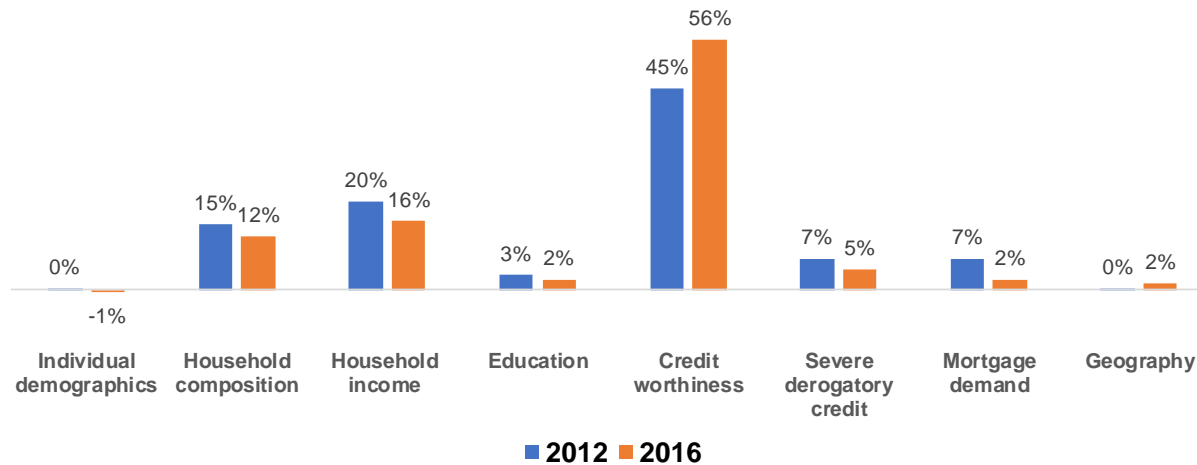
# Auto debt (percentage/median dollar amount)



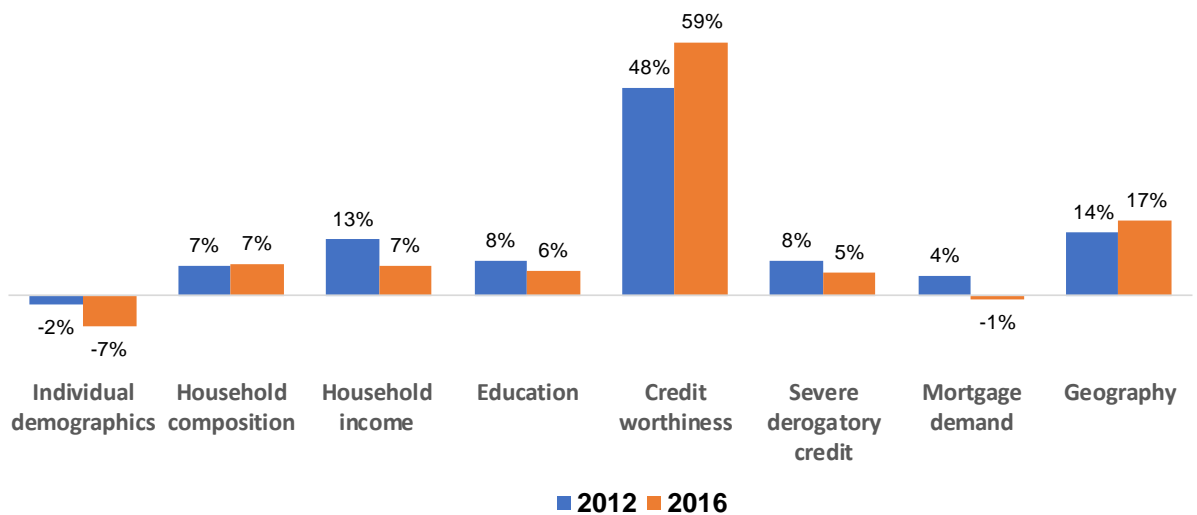
Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2016

# Repeat Cross-Section results

## White-Black gap in mortgage ownership rate



## White-Hispanic gap in mortgage ownership rate



# Summary statistics of individual characteristics

Age	
Median Age	48
18 ≤ age ≤ 25	6.10%
26 ≤ age ≤ 35	15.05%
36 ≤ age ≤ 45	13.66%
46 ≤ age ≤ 55	14.00%
56 ≤ age ≤ 65	12.90%
66 ≤ age ≤ 70	5.05%
Above 70	9.83%
Missing	23.43%
Race	
NH White	63.94%
Black	11.67%
Hispanic	16.84%
Other	33.46%
Missing	2.60%
Gender	
Male	41.02%
Female	41.09%
Unknown	5.74%
Missing	12.00%
Marital Status	
Married	47.53%
Single	17.95%
Unknown	22.53%
Missing	12.00%
Education	
High School diploma and higher	73.68%
Bachelor's degree and higher	22.72%
Missing	12.00%
Income	
Median individual income	64,000
Median household income	167,000

Source: Freddie Mac calculations using anonymized credit bureau data for Sep 2016

# Logistic regression output (all races pooled)

Variable	Category	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept		-5.8181	0.0655	7898.3198	<.0001
Race indicator	Black	-0.3234	0.0102	998.7502	<.0001
Race indicator	Hispanic	-0.2302	0.00855	724.8553	<.0001
Gender	Female	-0.1898	0.00537	1251.2096	<.0001
Gender	Male/Female Pair	-0.4619	0.1295	12.7218	0.0004
Gender	Unknown	-0.4803	0.0134	1287.8515	<.0001
Age cohort	Missing	-1.597	0.06	708.6183	<.0001
Age cohort	18 ≤ age ≤ 25	0.8258	0.0252	1071.6652	<.0001
Age cohort	26 ≤ age ≤ 35	1.6692	0.0118	20175.8059	<.0001
Age cohort	36 ≤ age ≤ 45	1.6818	0.0122	19101.8639	<.0001
Age cohort	46 ≤ age ≤ 55	1.4636	0.0122	14493.2135	<.0001
Age cohort	56 ≤ age ≤ 65	1.1605	0.0121	9240.4343	<.0001
Age cohort	66 ≤ age ≤ 70	0.8104	0.0147	3029.0304	<.0001
Number of Children		-0.0295	0.00314	88.7552	<.0001
Marriage	Single	-0.9189	0.0079	13533.5048	<.0001
Marriage	Unknown	-0.4145	0.00659	3957.5419	<.0001
Household Income (growth rate)		1.2681	0.00766	27374.5819	<.0001
Education level	HS diploma	-0.1238	0.00949	170.1378	<.0001
Education level	Some College	0.105	0.00932	127.0719	<.0001
Education level	Bachelors degree	0.1419	0.0101	199.0597	<.0001
Education level	Graduate degree	0.171	0.0112	231.9234	<.0001
Education level	Unknown	-0.0262	0.0339	0.5984	0.4392
FICO score		0.00433	0.00004	11512.0912	<.0001
FICO missing	2012=yes, 2016=no	2.4625	0.0282	7638.2669	<.0001
FICO missing	2012=no, 2016=yes	-7.2075	0.3764	366.7209	<.0001
FICO missing	2012=yes, 2016=yes	-3.7368	0.1978	356.7655	<.0001
Thin file indicator		-0.3894	0.00724	2893.9874	<.0001
HH student debt to income ratio		-0.4821	0.0144	1127.2465	<.0001
HH auto debt to income ratio		0.042	0.017	6.0783	0.0137
HH credit card debt to income ratio		1.0314	0.0419	605.8073	<.0001
All 90D indicator		-0.4885	0.0088	3083.8106	<.0001
Foreclosure in 84 mos indicator		0.5023	0.0256	385.7485	<.0001
Bankruptcy	0< bankruptcy <12	-1.0445	0.0615	288.8783	<.0001
Bankruptcy	12≤ bankruptcy <24	-0.5503	0.0538	104.6628	<.0001
Bankruptcy	24≤ bankruptcy <36	-0.3636	0.0482	56.8009	<.0001
Bankruptcy	36≤ bankruptcy <48	0.085	0.0438	3.7737	0.0521
Bankruptcy	48≤ bankruptcy <60	0.6752	0.03	506.7403	<.0001
Bankruptcy	60≤ bankruptcy <72	0.9662	0.0253	1458.2914	<.0001
Bankruptcy	≥72	0.9468	0.0287	1090.3479	<.0001
Mortgage inquiry in 2012 indicator		1.7068	0.00656	67666.5844	<.0001
Median house price to median income ratio (in log)	Single Family	-0.2677	0.0103	670.4371	<.0001
State dummies					
Number of Observations Used					2,354,827

# Means of analysis variables

Variable	Category	NH White			Black			Hispanic		
		N	Mean	Std Dev	N	Mean	Std Dev	N	Mean	Std Dev
Gender	Female	1567970	0.474824	0.499366	342084	0.4842086	0.499751	415064	0.465116	0.498782
Gender	Male/Female Pair	1567970	0.000455	0.021335	342084	0.00052911	0.022996	415064	0.002455	0.049488
Gender	Unknown	1567970	0.043251	0.203421	342084	0.0765631	0.265897	415064	0.054416	0.226836
Age cohort	Missing	1567970	0.123752	0.329299	342084	0.1148256	0.318812	415064	0.146486	0.353593
Age cohort	18 ≤ age ≤ 25	1567970	0.020305	0.141042	342084	0.0236112	0.151835	415064	0.020532	0.141811
Age cohort	26 ≤ age ≤ 35	1567970	0.215161	0.410934	342084	0.2445686	0.429832	415064	0.246863	0.431187
Age cohort	36 ≤ age ≤ 45	1567970	0.146977	0.354083	342084	0.1800113	0.384198	415064	0.207734	0.405686
Age cohort	46 ≤ age ≤ 55	1567970	0.141001	0.348023	342084	0.1593702	0.366022	415064	0.163336	0.369673
Age cohort	56 ≤ age ≤ 65	1567970	0.135851	0.34263	342084	0.1346745	0.341376	415064	0.109521	0.312292
Age cohort	66 ≤ age ≤ 70	1567970	0.059902	0.237305	342084	0.0467868	0.211182	415064	0.035734	0.185627
Number of Children		1503011	0.324624	0.809925	328318	0.3637175	0.813626	402271	0.315976	0.758592
Marriage	Single	1567970	0.173966	0.379081	342084	0.359859	0.47996	415064	0.266342	0.442046
Marriage	Unknown	1567970	0.269153	0.44352	342084	0.26238	0.439929	415064	0.227011	0.4189
Household Income (growth rate)		1567970	0.156227	0.326826	342084	0.1649563	0.343542	415064	0.245396	0.354064
Education level	HS diploma	1567970	0.318473	0.465884	342084	0.3522468	0.477671	415064	0.279711	0.448858
Education level	Some College	1567970	0.281518	0.449739	342084	0.2715473	0.444758	415064	0.204417	0.403275
Education level	Bachelors degree	1567970	0.164084	0.370352	342084	0.1064505	0.308414	415064	0.069339	0.25403
Education level	Graduate degree	1567970	0.092194	0.289299	342084	0.0529051	0.223844	415064	0.033323	0.179478
Education level	Unknown	1567970	0.01261	0.111584	342084	0.0124619	0.110935	415064	0.008871	0.093767
FICO score		1567970	548.4624	291.6111	342084	413.3017124	295.3233	415064	440.5132	306.5648
FICO missing	2012=yes, 2016=no	1567970	0.064568	0.245763	342084	0.1051496	0.306747	415064	0.102078	0.302752
FICO missing	2012=no, 2016=yes	1567970	0.075554	0.264284	342084	0.0924481	0.289658	415064	0.085122	0.279063
FICO missing	2012=yes, 2016=yes	1567970	0.134957	0.341678	342084	0.211793	0.40858	415064	0.206744	0.404971
Thin file indicator	2012	1567970	0.299996	0.458256	342084	0.2173823	0.412465	415064	0.28626	0.452013
HH student debt to income ratio		1567970	0.010096	0.166275	342084	0.0232985	0.202236	415064	0.008969	0.125237
HH auto debt to income ratio		1567970	0.018478	0.13303	342084	0.0301338	0.148129	415064	0.031765	0.147356
HH credit card debt to income ratio		1567970	0.004417	0.056122	342084	0.0057335	0.043052	415064	0.007285	0.048129
All 90D indicator		1567970	0.364233	0.481215	342084	0.6348792	0.481465	415064	0.502607	0.499994
Foreclosure in 84 mos indicator		1567970	0.007427	0.085862	342084	0.005867	0.076371	415064	0.007536	0.086484
Bankruptcy	0< bankruptcy <12	1567970	0.003408	0.058275	342084	0.0063259	0.079284	415064	0.00305	0.055144
Bankruptcy	12≤ bankruptcy <24	1567970	0.00371	0.060796	342084	0.0057384	0.075534	415064	0.003551	0.059487
Bankruptcy	24≤ bankruptcy <36	1567970	0.003999	0.063115	342084	0.0052443	0.072228	415064	0.003942	0.062658
Bankruptcy	36≤ bankruptcy <48	1567970	0.003873	0.062109	342084	0.0042972	0.065412	415064	0.003751	0.061132
Bankruptcy	48≤ bankruptcy <60	1567970	0.005727	0.075461	342084	0.0048438	0.069429	415064	0.00572	0.075412
Bankruptcy	60≤ bankruptcy <72	1567970	0.006506	0.080396	342084	0.0046334	0.067911	415064	0.006616	0.081069
Bankruptcy	≥72	1567970	0.004596	0.067641	342084	0.0029466	0.054203	415064	0.004187	0.064574
Mortgage inquiry in 2012 indicator		1567970	0.074195	0.262089	342084	0.0581056	0.233943	415064	0.074157	0.262027
Median house price to median income ratio (logged)	Single Family	1567970	0.768488	0.392801	342084	0.7290578	0.418859	415064	0.982356	0.440872



# Mean Values of Decomposition Runs

Sample used for coefficients	All Races Pooled
NH white transition rate	0.1042
Black transition rate	0.0444
Black/NH white gap	0.0598
<b>Contributions from racial differences in:</b>	
Individual demographics	-0.0160
	0.0001
	-27%
Family dynamics	0.0108
	0.0001
	18%
HH income growth	-0.0041
	0.0000
	-7%
Education	0.0014
	0.0001
	2%
Credit worthiness	0.0344
	0.0002
	57%
Severe derogatory credit	0.0071
	0.0001
	12%
Mortgage demand	0.0102
	0.0000
	17%
Geography	0.0009
	0.0001
	2%
Percentage explained by all variables included	75%

Sample used for coefficients	All Races Pooled
NH white transition rate	0.1042
Hispanic transition rate	0.0664
Hispanic/NH white gap	0.0378
<b>Contributions from racial differences in:</b>	
Individual demographics	-0.0216
	0.0001
	-57%
Family dynamics	0.0040
	0.0000
	11%
HH income growth	-0.0124
	0.0001
	-33%
Education	0.0031
	0.0002
	8%
Credit worthiness	0.0310
	0.0002
	82%
Severe derogatory credit	0.0045
	0.0001
	12%
Mortgage demand	0.0051
	0.0000
	13%
Geography	0.0098
	0.0002
	26%
Percentage explained by all variables included	62%



# DATA TALK: EFFECTS OF PARENTAL HOMEOWNERSHIP ON MILLENNIAL HOMEBUYING

#LiveAtUrban





Tuesday, September 25, 2018

# Intergenerational Homeownership

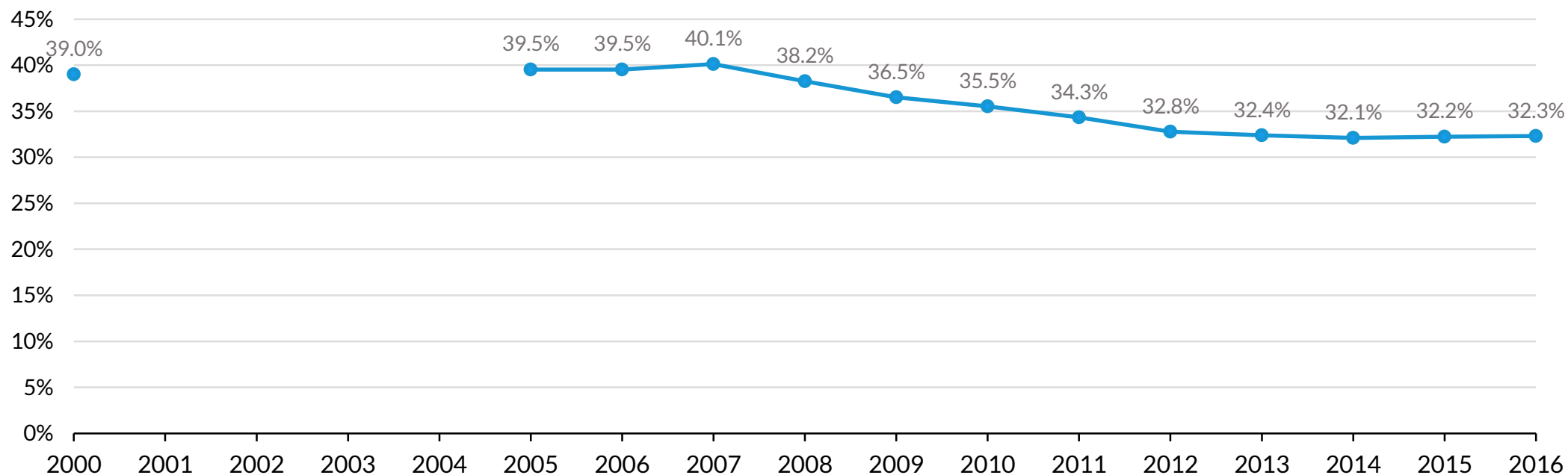
Impact of Parent's Homeownership and Wealth on Child's Tenure Choices



# Young adult's (ages 18–34) homeownership rate has continuously declined since 2007

## Young Adult Homeownership Rate

(Ages 18–34/Year 2000–2016)

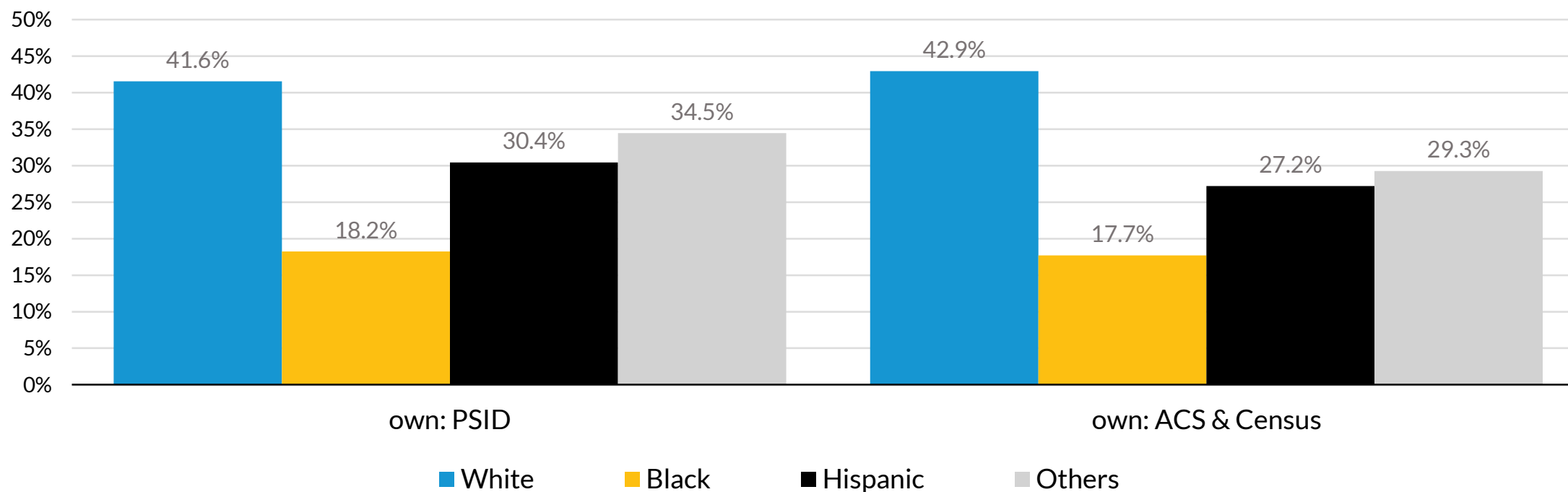


Source: Decennial Census and American Community Survey.

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# Racial disparities in young adult's homeownership remain persistent over time

**Young Adult Homeownership Rate by Race & Ethnicity**  
(Age 18-34/Year 2000-2016)



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Source: PSID &amp; ACS/Decennial Census

## Q. How much does parent's homeownership and wealth influence young adult's (age 18-34) tenure choice?

- How much does parental homeownership and wealth explain the black-white children's homeownership gap?
- Does parent's homeownership stability matter?
- Is there a threshold of parent wealth?
- Does parental influence differ across location?
- Does parental influence differ across time?

## Q. Why should parent's homeownership and wealth affect child's tenure choice?

- Parent's Homeownership:
  - Gain greater information about the mortgage application process
  - Acknowledge the benefit of owning
- Parent's Wealth:
  - Provide financial assistance for down-payment

## Panel Study of Income Dynamics

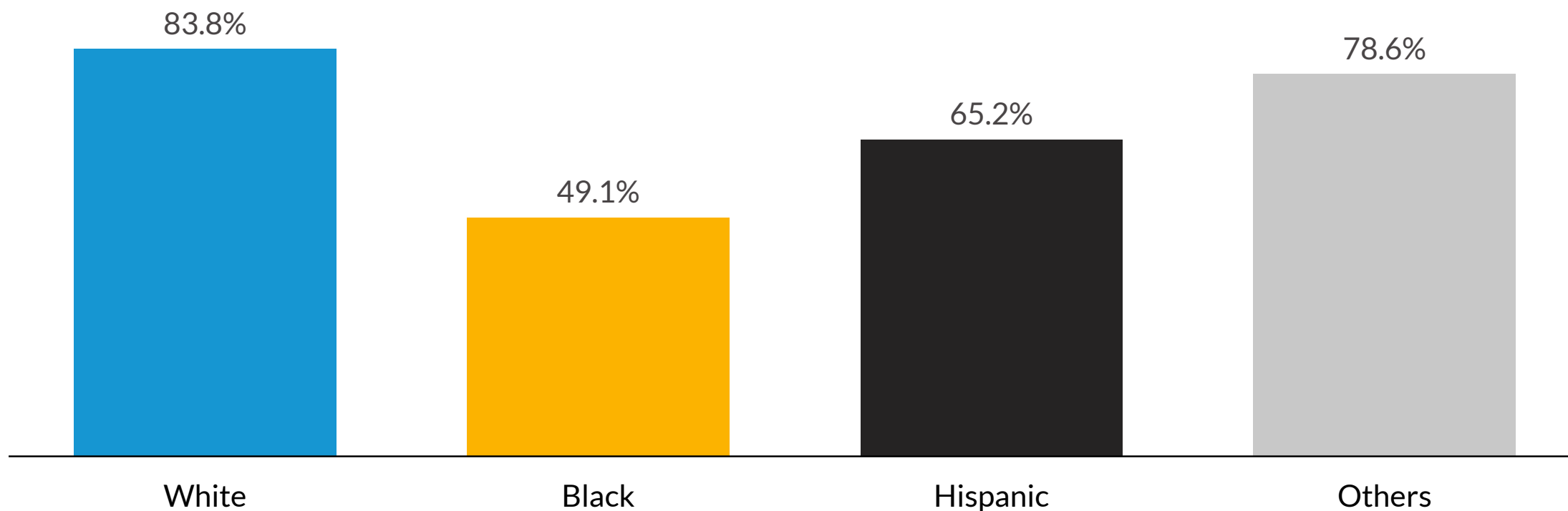
- A panel dataset – followed US individuals since 1968
- Switched from annual to biannual survey since 1997
- Contains extensive information on individual and household level characteristics
- Able to link parent's information to child's information
- Sample period: 1999-2015



# Parent's homeownership rate differs across race and ethnicity

## Parent's Homeownership Rate by Race & Ethnicity

(Year: 1999–2015)



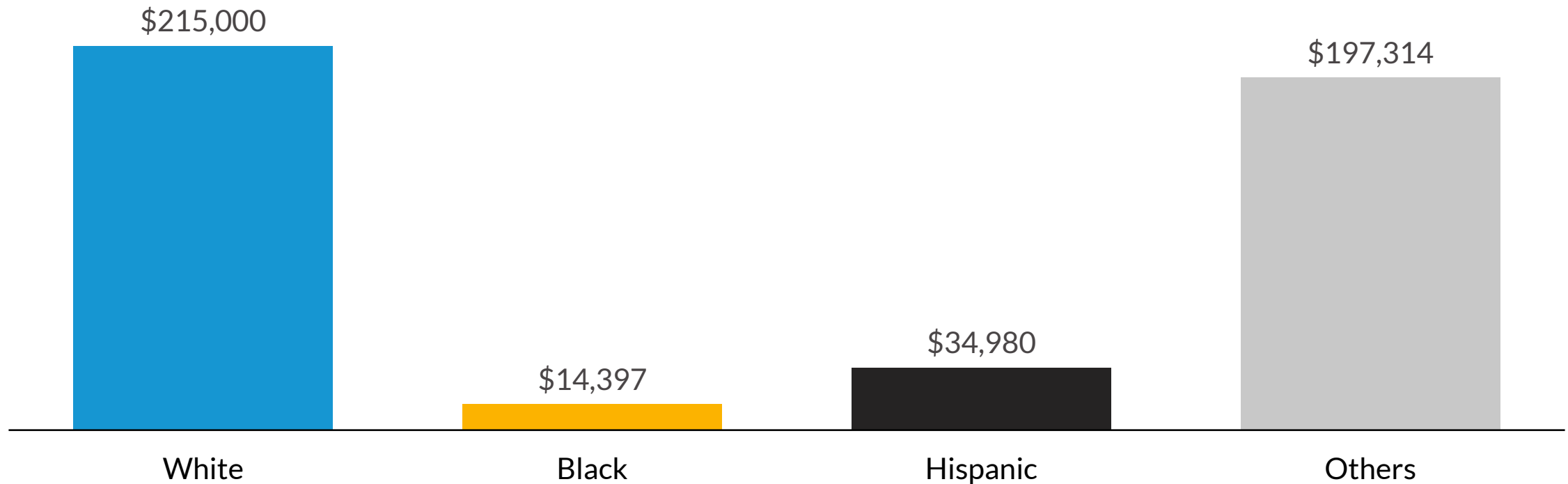
Source: Panel Study of Income Dynamics.

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# Parent's wealth differs across race and ethnicity

## Parent's Median Wealth by Race & Ethnicity (2015 Dollars)

(Year 1999–2015)



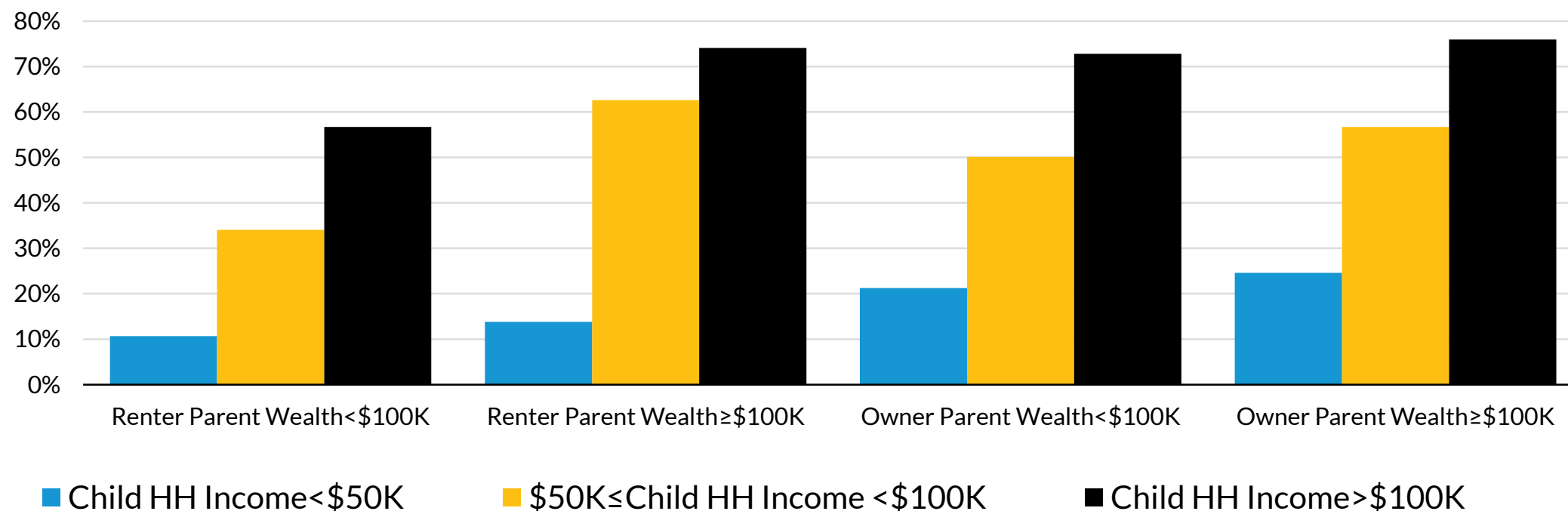
Source: Panel Study of Income Dynamics

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# Child's homeownership differs by their income and their parent's homeownership & wealth

## Child's Homeownership

by Child's HH Income, Parent's Homeownership & Wealth



Source: Panel Study of Income Dynamics

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Method: OLS

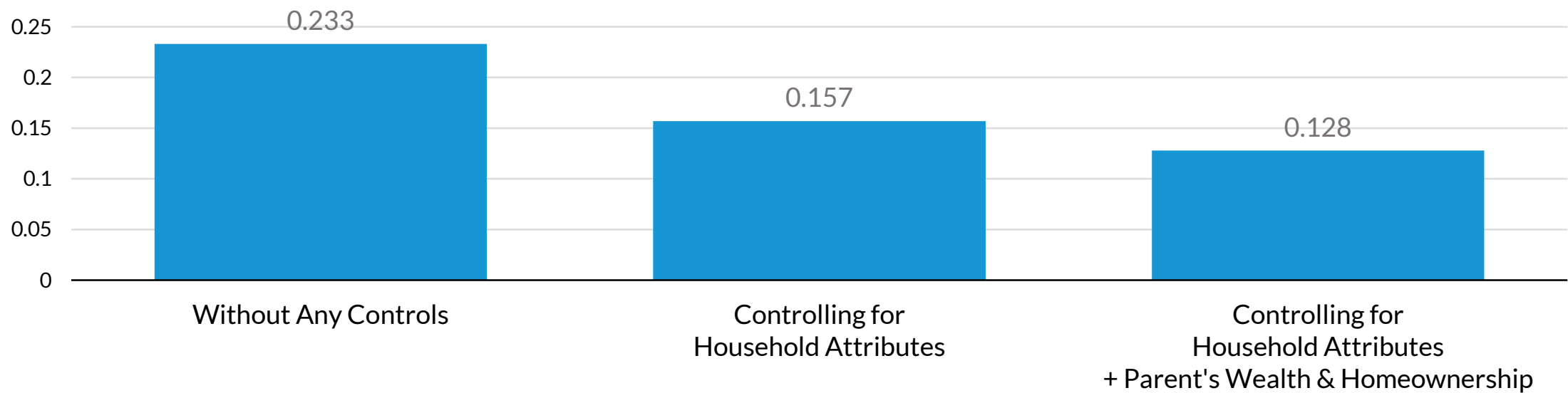
Dependent: Child's  
Homeownership (=1 if own)

VARIABLES	(1)	(2)	(3)	(4)	(5)
<b>black</b>	<b>-0.233***</b> (0.021)	<b>-0.157***</b> (0.019)	<b>-0.142***</b> (0.020)	<b>-0.129***</b> (0.020)	<b>-0.128***</b> (0.020)
hispanic	-0.111*** (0.036)	-0.011 (0.030)	-0.003 (0.030)	0.011 (0.030)	0.011 (0.030)
others	-0.071 (0.068)	-0.013 (0.070)	-0.011 (0.070)	-0.009 (0.069)	-0.009 (0.069)
<b>parent own</b>			<b>0.074***</b> (0.018)		<b>0.040**</b> (0.020)
<b>log(parent wealth)</b>				<b>0.021***</b> (0.004)	<b>0.017***</b> (0.004)
age		0.022*** (0.002)	0.022*** (0.002)	0.022*** (0.002)	0.022*** (0.002)
female		-0.099*** (0.015)	-0.100*** (0.015)	-0.098*** (0.015)	-0.099*** (0.015)
married		0.109*** (0.019)	0.107*** (0.019)	0.108*** (0.019)	0.107*** (0.019)
div/sep/widowed		0.030 (0.026)	0.030 (0.026)	0.035 (0.026)	0.035 (0.026)
high school		0.094*** (0.033)	0.086*** (0.033)	0.083** (0.033)	0.081** (0.033)
college		0.111*** (0.033)	0.097*** (0.033)	0.084** (0.033)	0.083** (0.034)
Child exist		0.134*** (0.015)	0.136*** (0.015)	0.142*** (0.015)	0.141*** (0.015)
log(HH Income)		0.100*** (0.007)	0.099*** (0.007)	0.095*** (0.007)	0.095*** (0.007)
parent: number of moves					0.002 (0.005)
Constant	0.416*** (0.011)	-1.584*** (0.127)	-1.620*** (0.130)	-1.771*** (0.133)	-1.763*** (0.136)
Year Fixed Effect	N	Y	Y	Y	Y
State Fixed Effect	N	Y	Y	Y	Y
Observations	9,944	9,944	9,944	9,944	9,944
R-squared	0.029	0.288	0.291	0.293	0.294

# Parent’s homeownership and wealth explains 12.4% the black-white children’s homeownership gap

## Black-White Children's Homeownership Gap

Impact of Parental Wealth & Homeownership



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Source: Panel Study of Income Dynamics

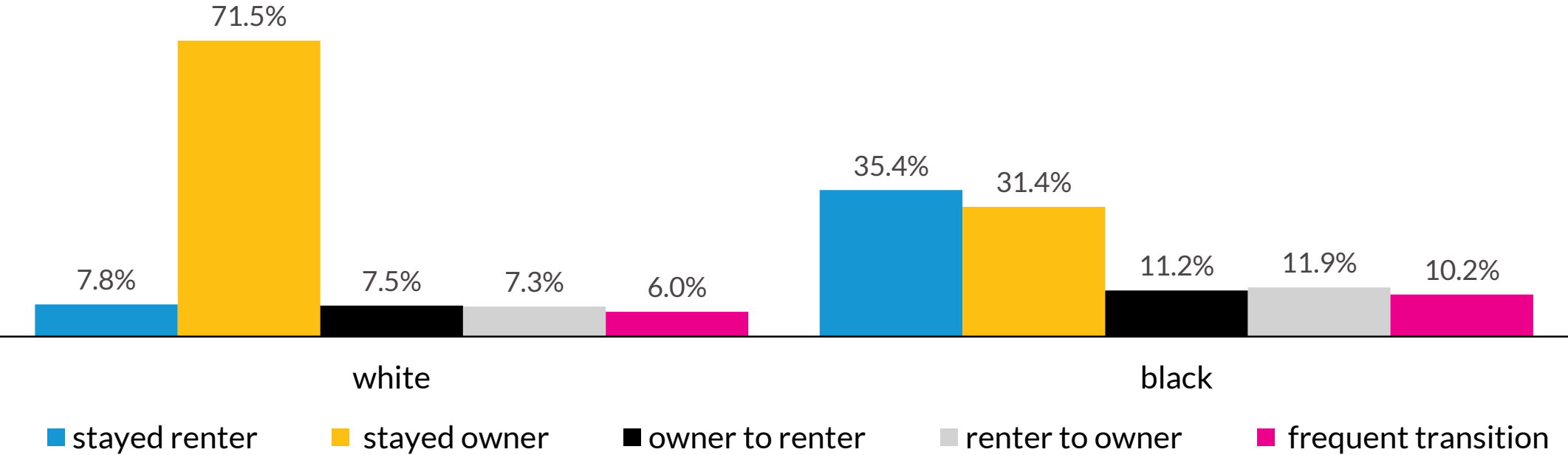
Method: OLS

Dependent: Child's  
Homeownership (=1 if own)

VARIABLES	(1)	(2)
parent: stayed owner	<b>0.060**</b> (0.030)	
parent: owner to renter	0.008 (0.038)	
parent: renter to owner	0.028 (0.034)	
parent: frequent transition	0.035 (0.034)	
\$100K<parent wealth≤\$200K		0.015 (0.019)
\$200K<parent wealth		<b>0.071***</b> (0.017)
parent own		0.055*** (0.019)
log(parent wealth)	0.016*** (0.004)	
Controls	Y	Y
Year Fixed Effect	Y	Y
State Fixed Effect	Y	Y
Observations	9,944	9,944
R-squared	0.294	0.294

# Black parent's homeownership is less stable than white parent's homeownership

Parent's Homeownership Stability  
Black vs. White

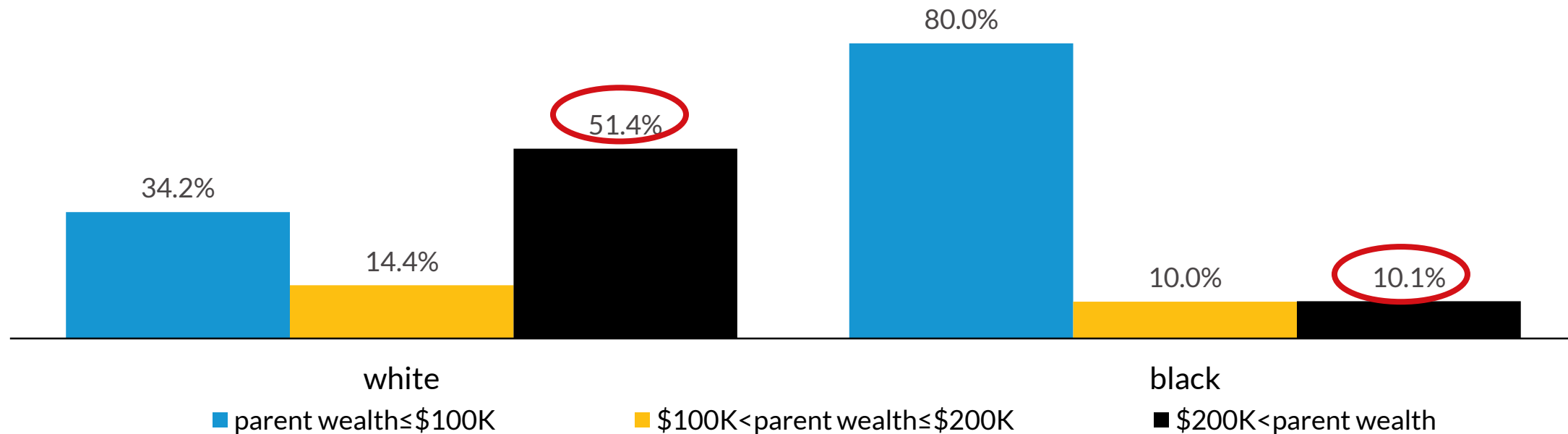


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Source: Panel Study of Income Dynamics

# Black parents have significantly lower share of those with wealth greater than \$200,000 than white parents

Parent's Wealth Bracket  
Black vs. White



Note: Panel Study of Income Dynamics

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# Including house prices do not affect our main results

Method: OLS

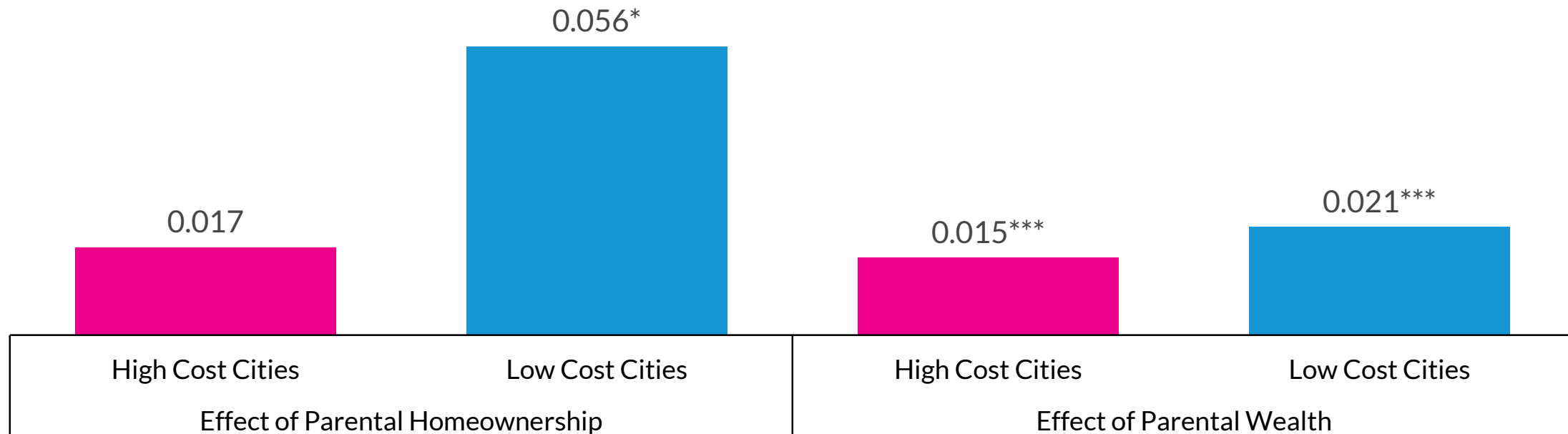
Dependent: Child's  
Homeownership (=1 if own)

VARIABLES	(1)
parent own	0.041* (0.024)
log(parent wealth)	0.017** (0.005)
log(house price)	-0.045** (0.022)
Controls	Y
Year Fixed Effect	Y
State Fixed Effect	Y
Observations	7004
R-squared	0.300

# Parent's homeownership and wealth has a greater association with child's homeownership in low-cost cities

## Parent's Homeownership & Wealth on Child's Homeownership

by Location: High Cost vs. Low Cost Cities



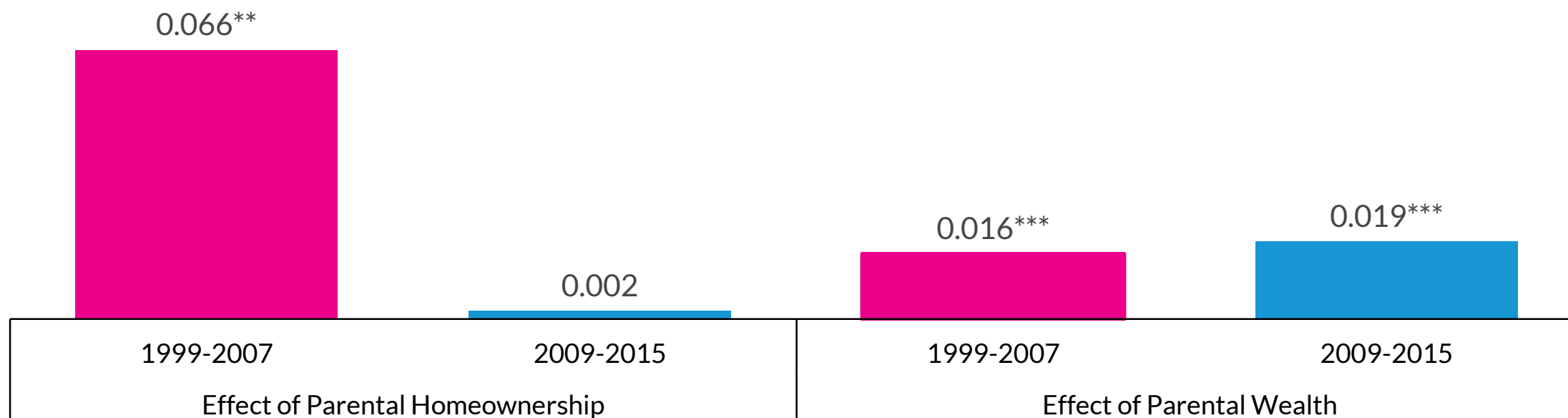
Source: Panel Study of Income Dynamics

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# The impact of parent's homeownership and wealth changed post-crisis

## Parent's Homeownership & Wealth on Child's Homeownership

by Time: 1999-2007 vs. 2009-2015



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Source: Panel Study of Income Dynamics

## Our study finds that...

- Children of homeowner parents are **4-5** percentage points more likely to be homeowners, all else equal.
- A 10 percent increase in parental wealth increases child's likelihood of owning by **0.15-0.20** percentage points.
- The difference in the parental homeownership and wealth explains about **12-13** percent of the black-white children's homeownership gap.
- Children are more likely to be homeowners if their parent's are stable homeowners and their parent's wealth exceed \$200,000.
- Both parental wealth and homeownership have a stronger relationship to a child's likelihood of home owning in low cost cities.
- The parental homeownership effect is stronger during boom years and the wealth impact is stronger during a bust.

## Our study implies that...

- The strong relationship between parental wealth and homeownership suggests that parental financial support can be critical to a child's ability to access homeownership.
- Due to the tight credit conditions and increase in house prices in recent years, it is likely that children have become more reliant on their parents' financial support to obtain a mortgage.
- The lower levels of black homeownership rate and wealth mean that black children are less likely to receive financial support from their parents, which can continue or worsen persistent racial disparities in homeownership.

## Policy Recommendations

- Improve young adults' understanding of how to access sustainable homeownership: building savings, down payment assistance, building a good credit record
- Open the credit box to more credit worthy borrowers: include rental payment, telecom and utility bills in mortgage underwriting criteria, capture household income more accurately
- Introduce a tax-free account to save for a down payment, potentially including a match in the form of a refundable tax credit





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# DATA TALK: EFFECTS OF PARENTAL HOMEOWNERSHIP ON MILLENNIAL HOMEBUYING

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# Parent Housing Wealth, Credit Constraints, and Homeownership Transitions

*Journal of Housing Research, Forthcoming*

Jaclene Begley  
Economic & Strategic Research  
Fannie Mae

The views expressed are those of the authors and not those of Fannie Mae or the Federal Housing Finance Agency.







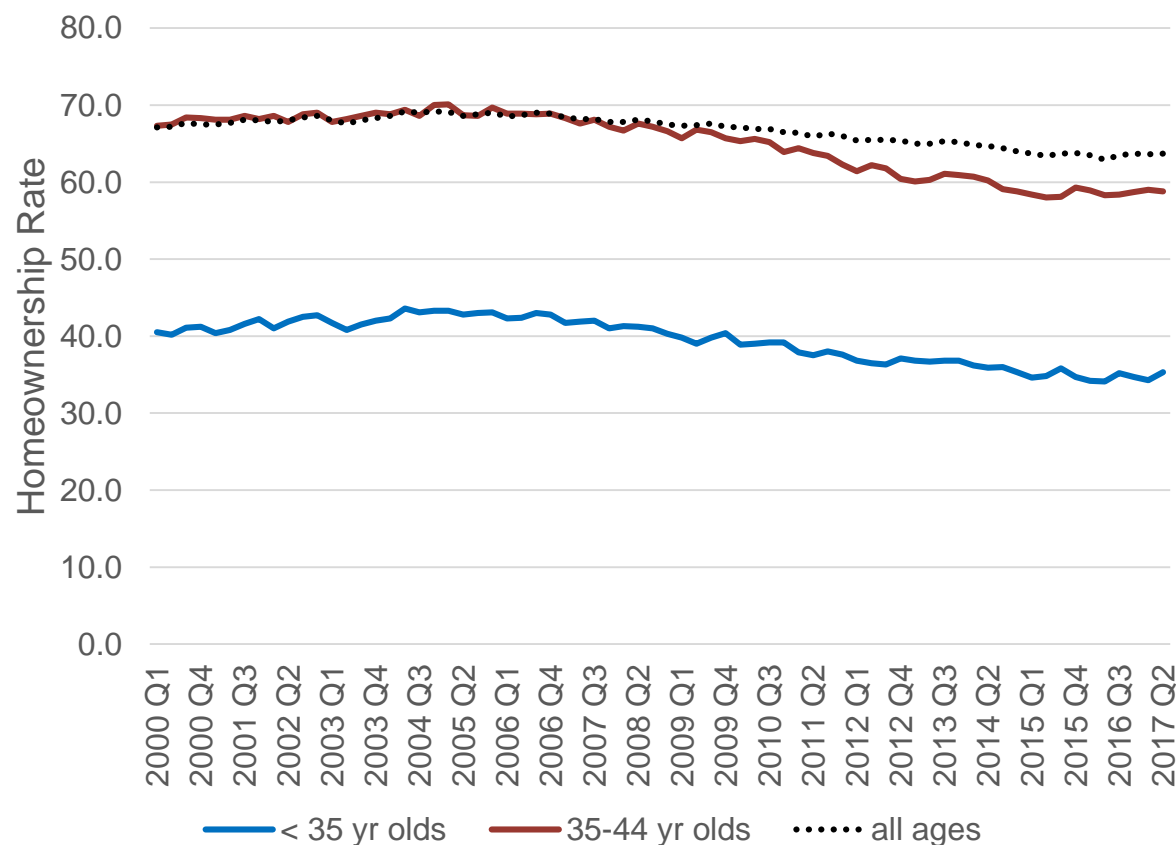
# Homeownership is an important component in wealth building

Housing comprises the largest proportion of total savings for most households

Homeownership is an important wealth-building vehicle (Boehm and Schlottmann 2002)

Delays to home purchases results in delayed wealth-building, particularly for low-income households (Shlay 2005; Restinas and Belsky 2004)

Homeownership rates today among younger households are at historic lows



Source: US Census, Table 19



## **Parental wealth has always been a part of intergenerational homeownership transmission**

Parental homeownership is an important predictor of homeownership for younger generations:

- Positive externalities associated with homeownership
- Parental wealth transfers are a key source of financial assistance for home purchases, lead to quicker purchases of more expensive homes
- Parental homeownership and wealth may influence homeownership decisions through indirect channels, such as tenure preferences, educational attainment, financial literacy

Financial assistance should matter more for households facing liquidity constraints, for example: may reduce reliance on mortgage debt



## Research Questions

How does parental housing wealth affect transitions to homeownership?

- What is the relationship between parent housing values and cash transfers to kids?
- What is the relationship between parents housing values and transitions to homeownership?
- Did this relationship change over the housing boom and bust?



## Conclusions

Increases in parent housing values:

- Increase probabilities that homeowner parents will transfer money to their children
- Are correlated with larger transfer amounts
- Are correlated with homeownership transitions

Receiving a large cash transfer is correlated with homeownership

Significant results are mostly concentrated in the 2007+ time period



## Data

### Panel Study of Income Dynamics (PSID)

- Longitudinal geocoded data, follows families across generations
- Oversample of lower income households
- Data on households, finances, and homeownership transitions
- Biennial
- Through 2011

Zillow estimates of zip code-level median housing values

American Community Survey (ACS) data on neighborhoods

Bureau of Labor Statistics (BLS) data on local unemployment rates

Home Mortgage Disclosure Act (HMDA) data on local loan activity



## Sample Restrictions

Non-homeowner household heads ages 21–45

Parent-child matches

Two samples: consistently homeowner parents or renter parents

Boom = 2001 through 2005

Bust = 2007 through 2011



## Benefits and Limitations of data

### Great:

Tracks families over time

Neighborhood-level information for parents and children

Family identifiers

### Not-so-great:

Matches with parents still in the sample

Matches with Zillow data

Biennial data

Transfer timing



# Modeling intergenerational relationships

## Dependent variables:

$p(\text{Receive Transfer}) / \text{Transfer Amount} / p(\text{Homeownership}) =$

## Independent variables:

Parent housing values + Parent other wealth + Parent Employment + Children Wealth + Children employment + Children household characteristics + Local housing market characteristics + Family fixed effects





## Empirical models

1. Relationship between parent housing values and transfers
  - Probability of receiving a transfer, transfer amounts
2. Relationship between parent housing values and home purchases
  - Probability of becoming a homeowner if your parents are experiencing gains
3. Counterfactual for rental parent households

Models include:

Household characteristics

Permanent income

Family fixed effects

Local and national housing market controls

Housing bust interactions

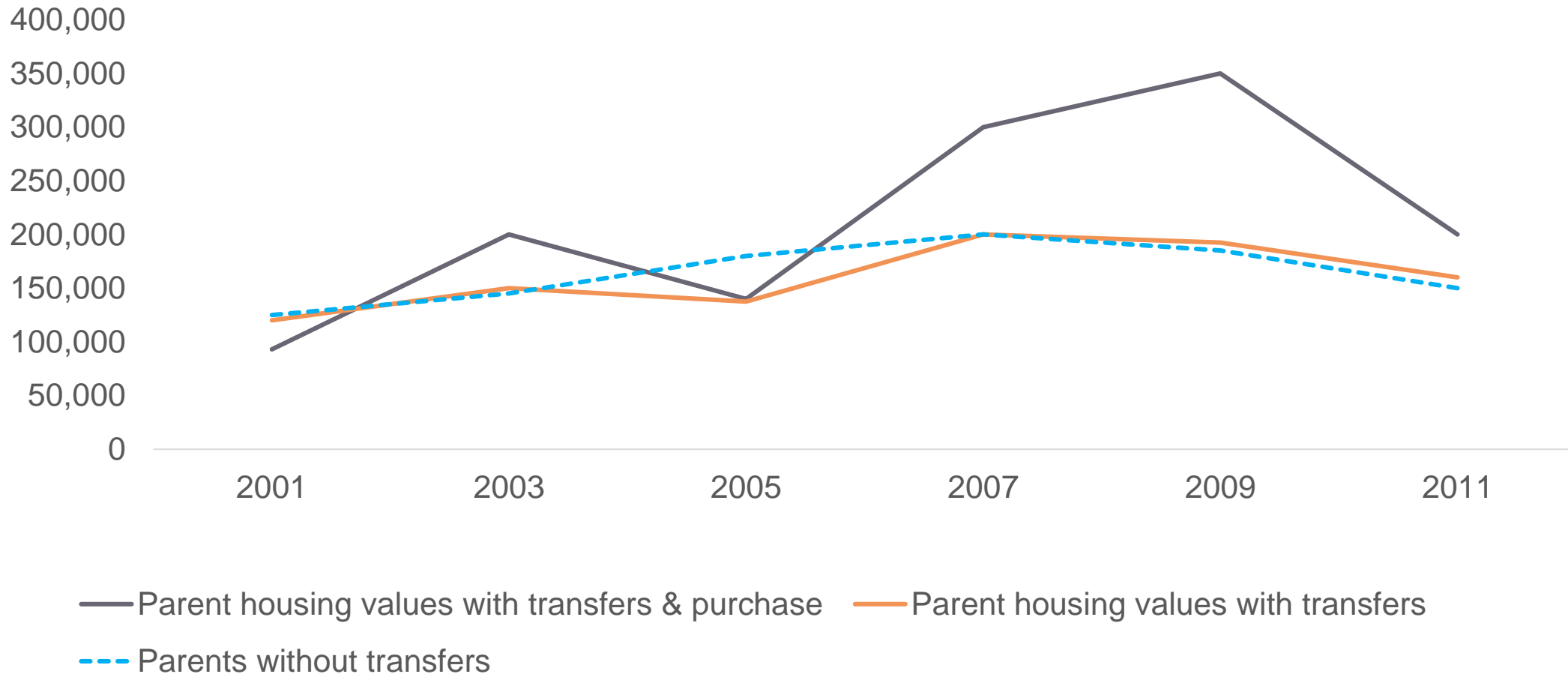


## Sample Summary Statistics

	Homeowner Parents: homeowners	Homeowner Parents: renters	Renter Parents
Parent characteristics			
Self-reported housing value	\$229,207	\$243,951	--
% change in ZIP code value	14%	3%	8%
Non-housing wealth	\$194,505	\$195,503	\$80,248
Share employed	78%	70%	46%
Annual income	\$80,819	\$80,255	\$37,710
Children characteristics			
Home purchase price	\$208,469	--	\$149,056
Permanent income	\$59,219	\$56,481	\$49,202
<b>Avg. Annual transfers received</b>	<b>\$4,669</b>	<b>\$2,664</b>	<b>\$1,190</b>
N	291	3,662	1,706



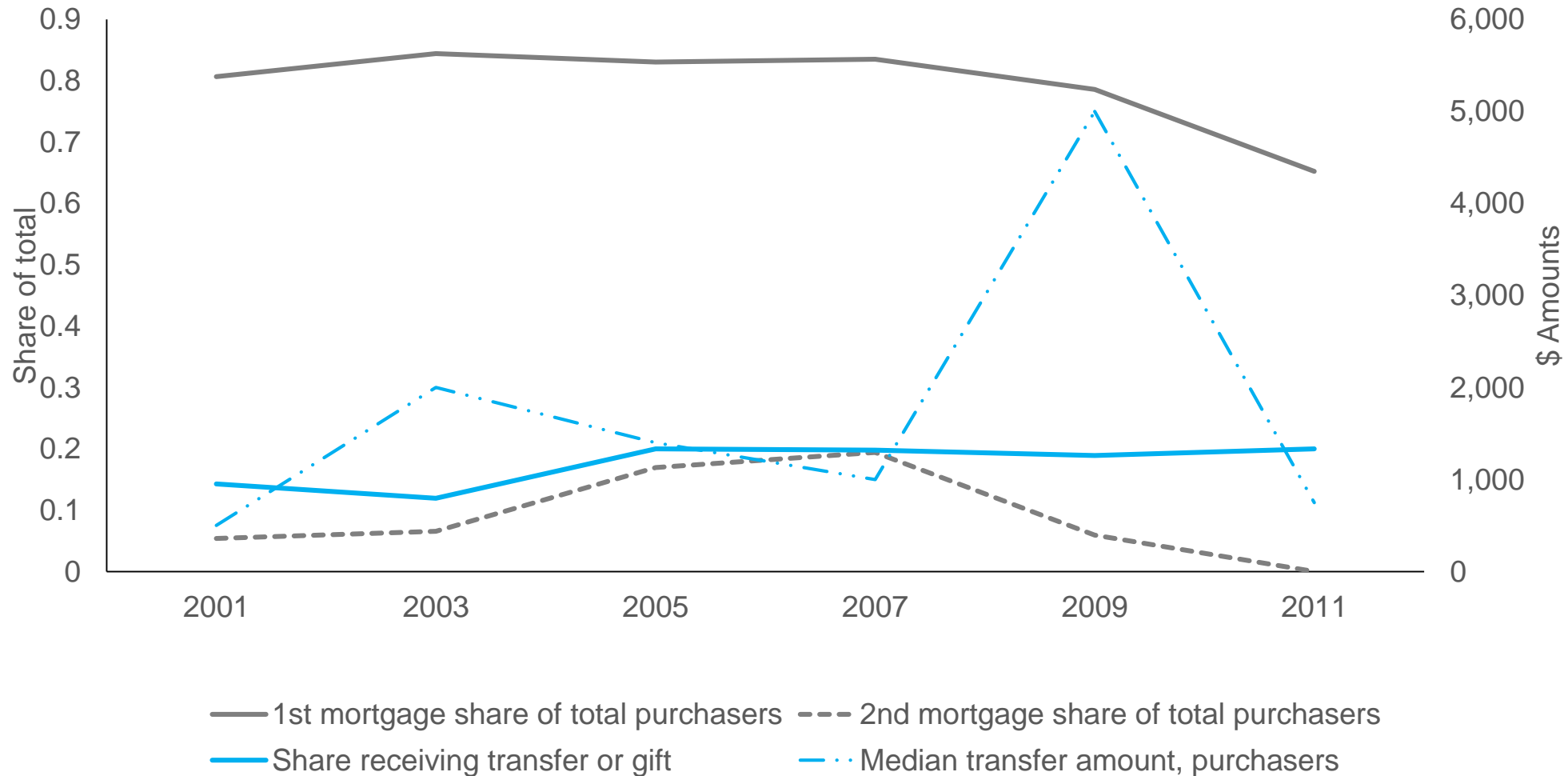
# Parent housing values, cash transfers, and home purchases



Source: Author's calculations from the PSID



## New home purchases with mortgages also declined, while median family transfer \$ amounts increase



Source: Author's calculations from the PSID



## Parent housing and financial transfers

	Logit	OLS
	Whether receive a transfer	ln(transfer amount)
ln(parent housing values)*Boom	1.073 (0.144)	0.1063 (0.099)
ln(parent housing values)*Bust	1.268** (0.130)	0.167** (0.077)
Bust	0.146 (0.232)	-0.715 (1.161)
Other controls + Family fixed effects	Y	Y

- The odds of receiving a transfer were larger and statistically significant during the housing bust
- An increase in parent's housing values is associated with an increase in transfer amounts, but an overall decrease in transfer amounts experienced during the housing bust



## Parent housing and homeownership

	Logit
	Transitions to homeownership
Parent % change in local housing values*Boom	0.78 (0.331)
Parent % change in local housing values*Bust	1.399** (0.232)
Bust	0.722 (0.149)
Other controls + Family fixed effects	Y

- The odds of becoming a homeowner were higher if your parents experienced increases in their local housing values during the housing bust, but no similar relationship during the housing boom



## Transfers received and homeownership

	Logit
	Households receiving > \$10k in transfers
Household received a transfer*Boom	1.556 (1.629)
Household received a transfer*Bust	3.167** (1.646)
Bust	0.758 (1.161)
Other controls + Family fixed effects	Y

- During the housing bust, receiving a large transfer was correlated with a home purchase
- Cannot untangle transfer and home purchase timing between waves



## Models using renter parents

Households with renter parents as a counterfactual:

- Renter parents in the same market will not experience the wealth fluctuations that homeowners experience
- Ensure that the models are not capturing other location- or market-based factors

Findings: No statistically significant relationship between transfer receipt, transfer amounts, or homeownership transitions





# Conclusions

Increases in parent housing values:

- Increase the probability that homeowner parents will transfer money to their children
- Are correlated with larger transfer amounts
- Are correlated with homeownership transitions
- Mostly concentrated in 2007+ time period

Receiving a large cash transfer is correlated with homeownership

Households with renter parents in the same neighborhoods are not differentially affected by the local housing market across these time periods

Family resources, and particularly housing wealth, matter more during periods of economic decline when households may face economic constraints



## Policy Implications

- Homeownership plays an important role in wealth-building for many households
- Housing has the potential to mitigate wealth inequality
- Intergenerational transmission of homeownership may amplify current trends
- Family resources matter more during housing market downturns
- These can have long-term implications for wealth-building and inequality across generations



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