# An Ethnic Roller Coaster:
# Disparate Impacts of the Housing Boom and Bust

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Cleveland Fed Policy Summit, Pittsburgh, Juneteenth 2015

# Key Questions

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- But amplitude was especially great for Hispanics
- Just an incidental effect of the geography of boom and bust?
- Was boom and bust driven in part by Hispanic presence or entry?
- Within cities, did heavily Hispanic areas behave differently?
- Can differences across groups be attributed to differences in leverage?

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- Track relative and absolute changes across groups and over time

# Measuring Wealth

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- Track relative and absolute changes across groups and over time
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- For each household in group $i$ in year $t$, we map percentile in own distribution to percentile in reference distribution, which is $W_{99}$

## An Example

- For black household with wealth $y$ in year $t$ and percentile

$$p = B_t(y)$$

in own distribution, define

$$F_t^b(p) = W_{99}(B_t^{-1}(p))$$

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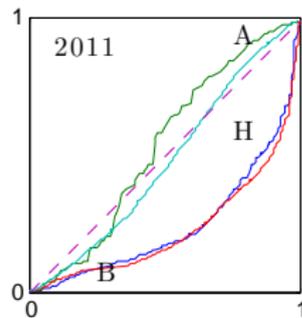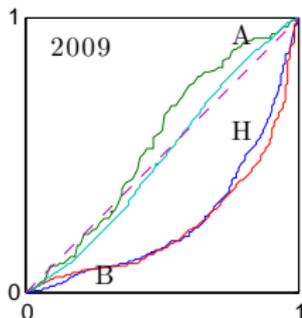
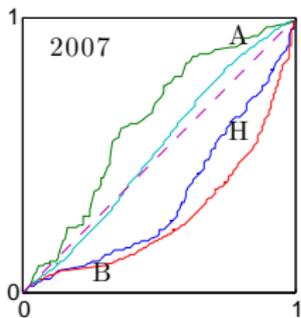$$F_t^b(p) = W_{99}(B_t^{-1}(p))$$

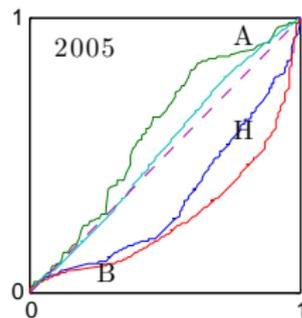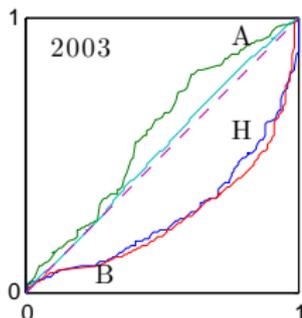as percentile this household would occupy in reference distribution

- Define $F_t^a$, $F_t^h$, and $F_t^w$ analogously
- These self-maps on $[0, 1]$ track wealth changes in normalized manner
- Patterns are consistent across databases (PSID and SIPP)

# 1999 Wealth Distributions (Source: PSID)
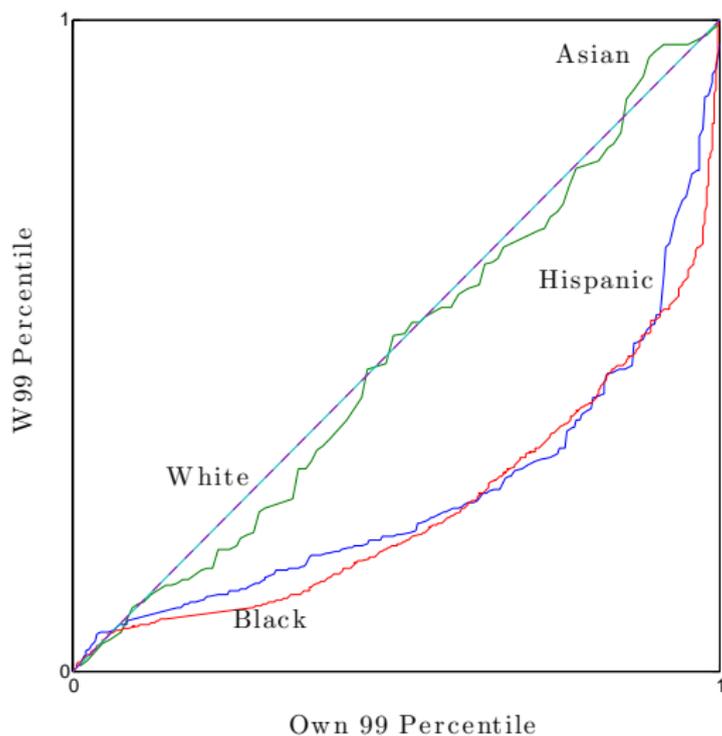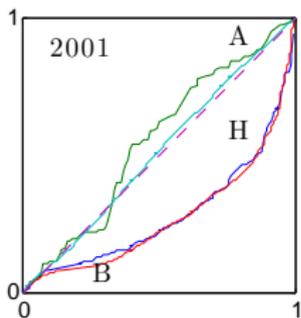
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- Analogous to computation of Gini index from Lorenz curves

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- Index is twice the area below curve, ranges between 0 and 2
- For $W_{99}$ index equals 1 by construction
- Values above (below) 1 mean group is more (less) wealthy than $W_{99}$

# An Index of Wealth

- The self-maps may be used to compute an <span style="color:red">index</span> of wealth
- Analogous to computation of Gini index from Lorenz curves
- Index is twice the area below curve, ranges between 0 and 2
- For $W_{99}$ index equals 1 by construction
- Values above (below) 1 mean group is more (less) wealthy than $W_{99}$
- Can be used to track movements in <span style="color:red">absolute</span>, <span style="color:red">relative</span> wealth over time

# Evolution of Wealth Indexes by Group 1999-2011
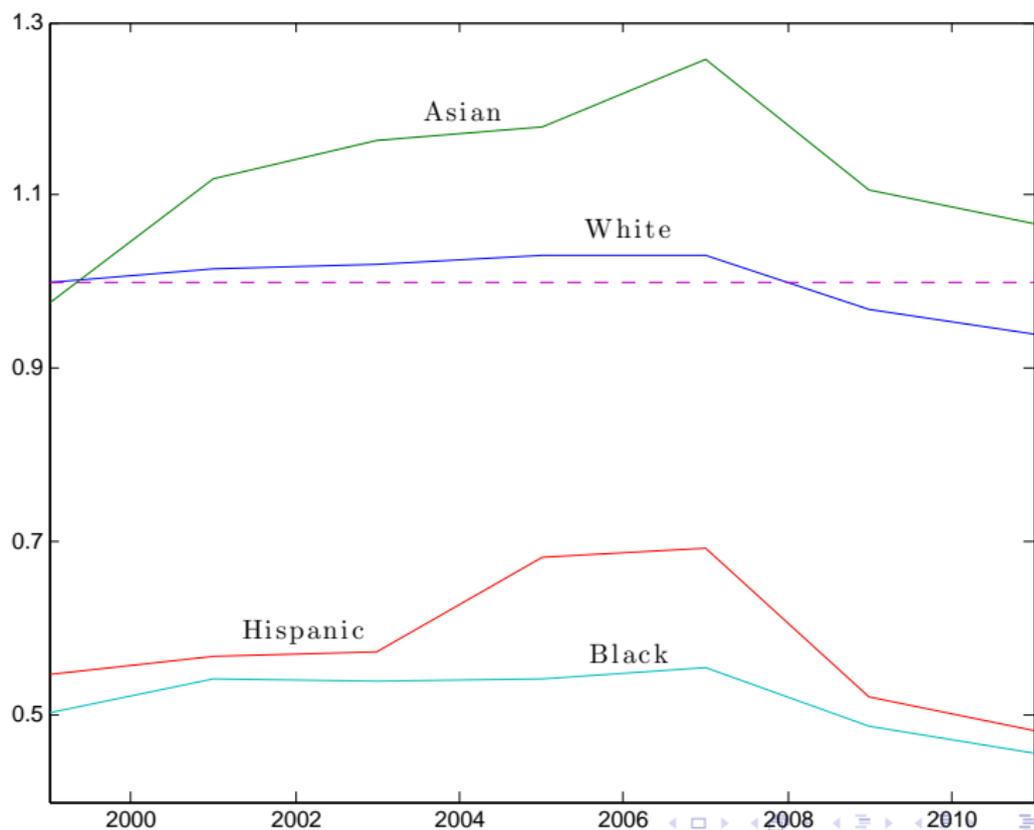
# Why does this matter?

- Hispanics are largest minority group in the US
- More Hispanics live in US than in any other country except Mexico
- Growth in the US Hispanic Population 1980-2014 extremely rapid
- Absolute growth exceeds 1990 population of Spain

# Why does this matter?

- Hispanics are largest minority group in the US
- More Hispanics live in US than in any other country except Mexico
- Growth in the US Hispanic Population 1980-2014 extremely rapid
- Absolute growth exceeds 1990 population of Spain
- How can this population be housed and accumulate wealth?
- Why did the cycle affect different groups in different ways?
- Did boom and bust have symmetric effects?

# The Boom (1999-2007)

- First consider continuers (owners in both 1999 and 2007)
- Dependent variable: change in wealth rank for household from 1999 to 2007 (rank in reference distribution)
- Explanatory variables: rich set of 1999 characteristics, including identity group, 1999 rank in wealth distribution, age, marital status, household size, kids, homeownership dummy, family money income, industry, ...
- In some specifications, add 2007 values of these variables even though they're not exogenous

# Hispanics and Asians did better in the boom, 1999-2007

|  | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
|  | b/se | b/se | b/se | b/se |
| NHB | −0.809 | −0.342 | −3.055** | −1.182 |
|  | (1.101) | (1.264) | (1.235) | (1.086) |
| Hisp | 5.970** | 5.703* | 4.206 | 4.792* |
|  | (3.002) | (3.415) | (3.358) | (2.670) |
| Asian | 9.995*** | 7.159** | 8.406*** | 6.444*** |
|  | (3.267) | (3.023) | (2.392) | (1.831) |
| Wealth rank in 1999 |  |  | −0.361*** | −0.419*** |
|  |  |  | (0.024) | (0.022) |
| Home Owner in 1999 |  | −1.800 | 6.237*** | −3.196*** |
|  |  | (1.153) | (1.128) | (1.062) |
| Home Owner in 2007 |  |  |  | 23.219** |
|  |  |  |  | (1.085) |
| Constant | 7.017*** | 12.983*** | 4.104* | −12.416 |
|  | (0.575) | (2.485) | (2.394) | (8.135) |
| Number of observations | 4371 | 4371 | 4371 | 4361 |
| Adj.$R^2$ | 0.01 | 0.10 | 0.20 | 0.38 |
| $X_{99,i}$ | No | Yes | Yes | Yes |
| $X_{07,i}$ | No | No | No | Yes |

Legend: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Source: PSID
Note: Base group is NHW, married, and working in the service industry.
Wealth rank is centered around the median.

## The Boom: Adding MSA house price appreciation makes a big difference

|  | (1) | (2) | (3)*** |
|---|---|---|---|
| NHB | −3.005* | −3.153** | −1.301 |
|  | (1.526) | (1.295) | (1.251) |
| Hisp | 2.531 | −2.154 | 0.195 |
|  | (4.592) | (4.784) | (3.755) |
| Asian | 4.908 | 4.244 | 0.227 |
|  | (3.476) | (3.573) | (2.733) |
| Home Owner in 1999 | 7.106*** | 6.184** | −0.968 |
|  | (1.529) | (2.442) | (2.511) |
| Home Owner in 2007 |  |  | 14.887*** |
|  |  |  | (2.710) |
| Home Owner in 1999=0 × ΔHPI |  | 8.075*** | 12.048*** |
|  |  | (2.738) | (3.340) |
| Home Owner in 1999=1 × ΔHPI |  | 10.591*** | 11.920*** |
|  |  | (1.480) | (1.308) |
| Home Owner in 2007=0 × ΔHPI |  |  | −11.459*** |
|  |  |  | (4.024) |
| Constant | 5.911* | −0.293 | 4.524 |
|  | (3.376) | (3.913) | (11.602) |
| Number of observations | 2268 | 2268 | 2259 |
| Adj.$R^2$ | 0.23 | 0.26 | 0.43 |

Legend: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Source: PSID
FHFA HPI index is based on sales prices and appraisal data at MSA level.

Similar results are found in the AHS for houses owned by Hispanics in 1999

Bottom line for the boom:

- Hispanics (and Asians) were in MSAs where house prices rose rapidly (and African Americans were not)
- Agnostic about whether this correlation is causal and if it is, what direction. Maybe just a coincidence.
- Saiz (2011) finds that increases in Hispanic population causes MSA house prices to rise – data *before* the boom. But magnitude of the effect he measures is small relative to the boom.

Exits and entries

- Change in cross-section distribution of wealth depends not only on how continuing households' wealth changed, but also how entering households differ from leaving households and from continuing households.

- Decomposition of cross-section averages shows that exits and entries amplify the identity group differences.

- The same is true for the bust.

The same kind of analysis doesn't work for the bust.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| NHB | −1.459 | −6.074*** | −5.978*** | −4.838*** |
| | (0.980) | (2.231) | (2.073) | (1.805) |
| Hisp | −7.685*** | −5.059** | −3.942** | −4.957** |
| | (1.347) | (2.183) | (1.969) | (2.227) |
| Asian | −2.832 | 1.091 | 0.534 | −0.277 |
| | (1.858) | (2.676) | (2.779) | (2.365) |
| Home Owner in 2007 | | 3.499* | 5.183*** | −7.134*** |
| | | (1.967) | (1.954) | (1.819) |
| Home Owner in 2011 | | | | 18.985*** |
| | | | | (2.335) |
| Renter in 2007 $\times$ $\Delta$HPI | | | 0.092** | 0.308*** |
| | | | (0.045) | (0.077) |
| Home Owner in 2007 $\times$ $\Delta$HPI | | | 0.211*** | 0.244*** |
| | | | (0.054) | (0.058) |
| Renter in 2011 $\times$ $\Delta$HPI | | | | −0.224** |
| | | | | (0.090) |
| Constant | −2.971*** | −9.146*** | −7.041** | −9.805 |
| | (0.436) | (3.077) | (2.970) | (6.115) |
| Number of observations | 2110 | 2110 | 2110 | 2104 |
| Adj.$R^2$ | 0.01 | 0.16 | 0.18 | 0.27 |
| $X_{07,i}$ | No | Yes | Yes | Yes |
| $X_{11,i}$ | No | No | No | Yes |

Legend: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Source: PSID
FHFA HPI index is based on sales prices and appraisal data at MSA level.

The excess loss is concentrated among "continuous homeowners".

| Relative to NHW continuous renters | | |
| --- | --- | --- |
| | NHW | Hispanics |
| Continuous renters | 0.00 | 2.02 |
| Homeownership entrants | 13.46 | 12.31 |
| Homeownership leavers | $-14.69$ | $-3.69$ |
| Continuous owners | 9.68 | $-5.83^{***}$ |

\* Significantly different from NHWs in same
homeownership history group with p-value$< 0.001$.

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- It's not a portfolio composition or consumption expenditure story
- It's not a neighborhood story.
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- It's not a timing story
- It's primarily a house value story

# Leverage

- Was dramatic decline in Hispanic wealth due to higher leverage?
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- For owners, the imputed value takes account of leverage

# Leverage

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- Replace 2011 housing wealth with imputed value: 2007 housing wealth deflated by mean home price decline in state of residence
- Non-housing wealth unchanged, so actual = imputed for renters
- For owners, the imputed value takes account of leverage
- Actual and imputed distributions are virtually identical for whites
- The two distributions are close for Asians, somewhat less so for blacks
- For Hispanics, actual wealth decline much greater than imputed
- Something other than differential leverage levels played significant role

# Actual (blue) and Imputed (red) 2011 Wealth Distributions
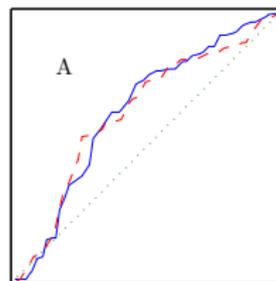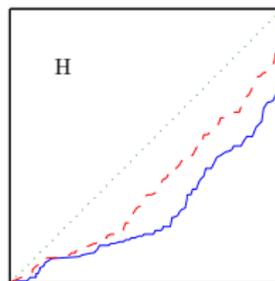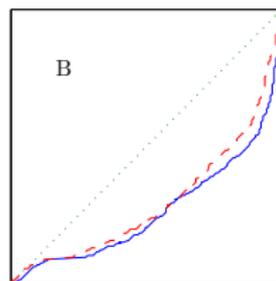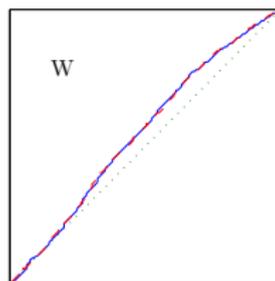
It's not mainly a neighborhood effect.

| | (1) | (2) |
|---|---|---|
| NHB | −1.943 | 3.317 |
| | (5.359) | (6.456) |
| Hisp | −15.852** | −10.886 |
| | (6.723) | (8.253) |
| Asian | −6.426 | −4.837 |
| | (18.250) | (20.463) |
| ΔHPI | 0.845*** | 0.861*** |
| | (0.167) | (0.156) |
| NHW × Heavily Hispanic Tract=1 | | 13.583 |
| | | (21.649) |
| NHB × Heavily Hispanic Tract=1 | | 4.522 |
| | | (9.370) |
| Hisp × Heavily Hispanic Tract=1 | | −9.199 |
| | | (8.953) |
| Asian × Heavily Hispanic Tract=1 | | −15.903 |
| | | (27.467) |
| NHW × Heavily NHB Tract=1 | | −13.067** |
| | | (5.237) |
| NHB × Heavily NHB Tract=1 | | −10.784 |
| | | (7.887) |
| Hisp × Heavily NHB Tract=1 | | −17.539** |
| | | (8.708) |
| Constant | −0.482 | −0.173 |
| | (8.506) | (8.240) |
| Number of observations | 1707 | 1707 |
| Adj.$R^2$ | 0.13 | 0.13 |

Legend: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Source: PSID.
Note: Tract level information on ethnicity is based on Census 2010 data.

It's an immigrant effect.

|  | (1) | (2) |
|---|---|---|
| NHW × immigrant | −0.064 | −0.033 |
|  | (0.050) | (0.039) |
| NHB × non-immigrant | 0.037 | 0.012 |
|  | (0.028) | (0.025) |
| NHB × immigrant | −0.044 | 0.014 |
|  | (0.112) | (0.077) |
| Hisp × non-immigrant | 0.002 | 0.039 |
|  | (0.048) | (0.028) |
| Hisp × immigrant | −0.178*** | −0.069** |
|  | (0.059) | (0.030) |
| Asian × non-immigrant | −0.053 | −0.043 |
|  | (0.045) | (0.051) |
| Asian × immigrant | −0.001 | 0.020 |
|  | (0.047) | (0.045) |
| $\Delta$HPI |  | 1.384*** |
|  |  | (0.065) |
| Constant | −0.288*** | −0.012 |
|  | (0.021) | (0.075) |
| Number of observations | 5961 | 5961 |
| Adj. $R^2$ | 0.01 | 0.15 |
| Controls | No | Yes |

Legend: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$. Source: AHS.

Why did non-Asian immigrant house values fall more in the bust?

- Maybe optimism (Geanakoplos 2010)
- Maybe lack of sophistication – BUT no immigrant effect in the boom
- Most stories in the literature are about mortgages, not houses.
- Should be distinguishable by looking at the boom.

## Conclusion

- Myrdal's principle of cumulative causation did not hold: reduction of housing finance discrimination did not lead to better outcomes for minorities even in closely related markets.

- Did Hispanic population increase have a bigger causal effect on housing prices in the boom than in the 20th century that Saiz studied?

- How could it all have worked out better?