HOUSEHOLD CREDIT AND EMPLOYMENT IN THE GREAT RECESSION

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QUESTION

How much did the contraction in the supply of credit to households contribute to the decline in employment during the Great Recession?

ACCOUNTING FOR THE GREAT RECESSION

- Collapse in house prices: destroyed net worth and collateral, which reduced demand
  - Mian and Sufi (2014), Mian, Rao, and Sufi (2013)
- Firm credit: financial crisis led to a contraction in credit to firms, which reduced investment and labor demand
  - Almeida, Campello, Laranjeira, and Weisbenner (2009), Campello, Graham, and Harvey (2010), Chodorow-Reich (2014), Cornett, McNutt, Strahan, and Tehranian (2011), Greenstone, Mas, and Nguyen (2014), and Ivashina and Scharfstein (2010)
- Household credit: financial crisis led to a contraction in credit to households, which reduced demand
  - Theory: Eggertson and Krugman (2012), Guerreri and Lorenzoni (2011), Hue and Rios-Rull (2013), Midrigan and Philippon (2011)
  - Empirics: Benmelech, Meisenzahl, and Ramcharan (2014), Dagher and Kazimov (2012), Gropp, Krainer, and Laderman (2014), Ramcharan, Van den Heuvel, and Verani (2012)
  - Closely related to DiMaggio and Kermani (2014), who focus on the credit boom

TODAY

- Exploit collapse of Wachovia as exogenous shock to credit supply across counties

  -large, average retail lender, became distressed due to purchase of toxic lender Golden West Financial in 2006

- Exposure to Wachovia affected local outcomes

  -flow of credit, retail expenditures, house prices, and house sales fell

  -employment losses concentrated in residential construction and non-tradables

- Wachovia primarily reflects shock to household credit

  -elasticity of employment with respect to supply-driven changes in measure of household credit is large, about 0.3

- Construct a measure of the shock to household credit in a county and do a simple accounting exercise

  -identify lender-specific shocks and weight them in each county

  -direct effect of shocks to household credit imply large losses in employment: 30-60% of what was observed

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Herbert Sandler: *My wife and I had a company which aggressively marketed subprime mortgages and then bundled them into securities to sell to banks such as Wachovia. Today our portfolio is worth almost nothing, though, at one point it was worth close to $19 billion.*

Pelosi: *My god, I am so sorry! Were you able to sell it for anything?*

H. Sandler: *Yes! For $24 billion!*

Pelosi: *I see. So, in that sense . . . you're not here to speak as actual victims?*

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DATA

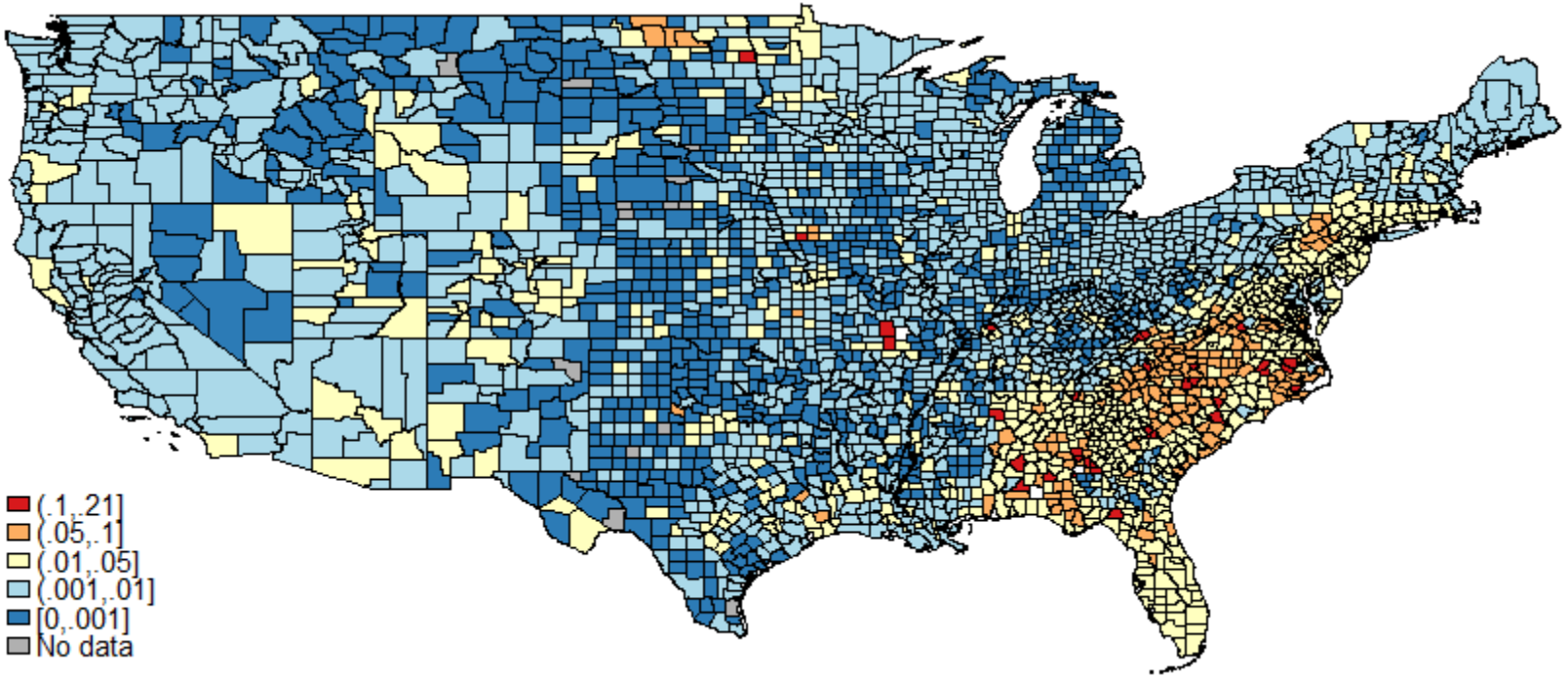
- Household credit: annual flows from the Home Mortgage Disclosure Act (HMDA)
  - *Does not measure equity extraction (e.g. HELOCs)*

- Firm Credit: annual flow of small business loans from the Community Reinvestment Act (CRA)

- Employment from County Business Patterns

- House prices and sales from Zillow, debt stocks from the New York Federal Reserve –Equifax Consumer Credit Panel (CCP), income from the IRS, and non-durable expenditures from the Nielsen retail scanner data.

WACHOVIA'S HOUSEHOLD CREDIT MARKET SHARE 2005-2006

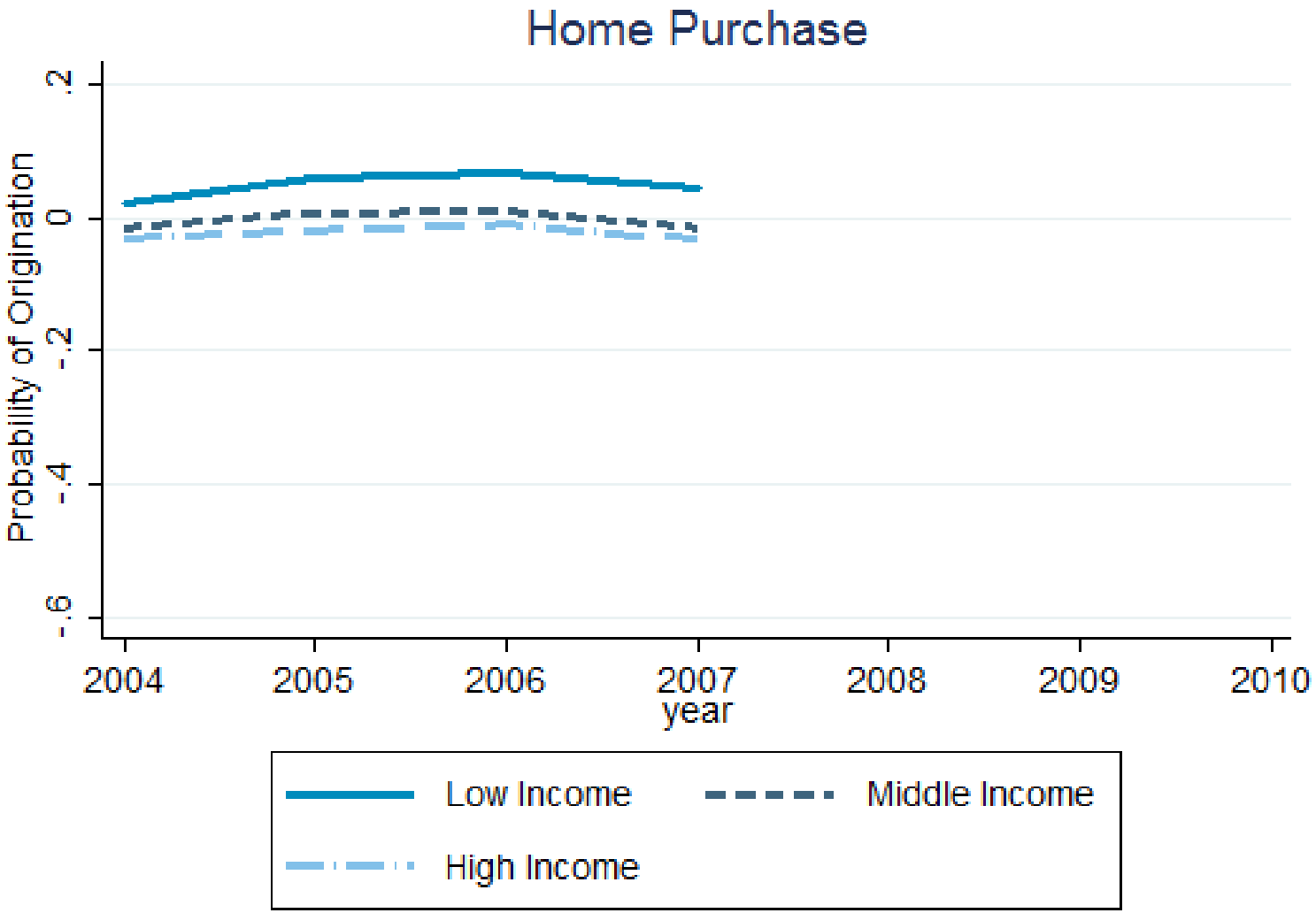


Wachovia heavily concentrated in the East and South

-Average share in these areas around 2%

DID WACHOVIA REDUCE ACCESS TO CREDIT?

$$Prob(\text{Originated})_{it} = \alpha_{ct} + \beta_t \text{ Wachovia}_i + X_i' \gamma_t + e_{it}$$



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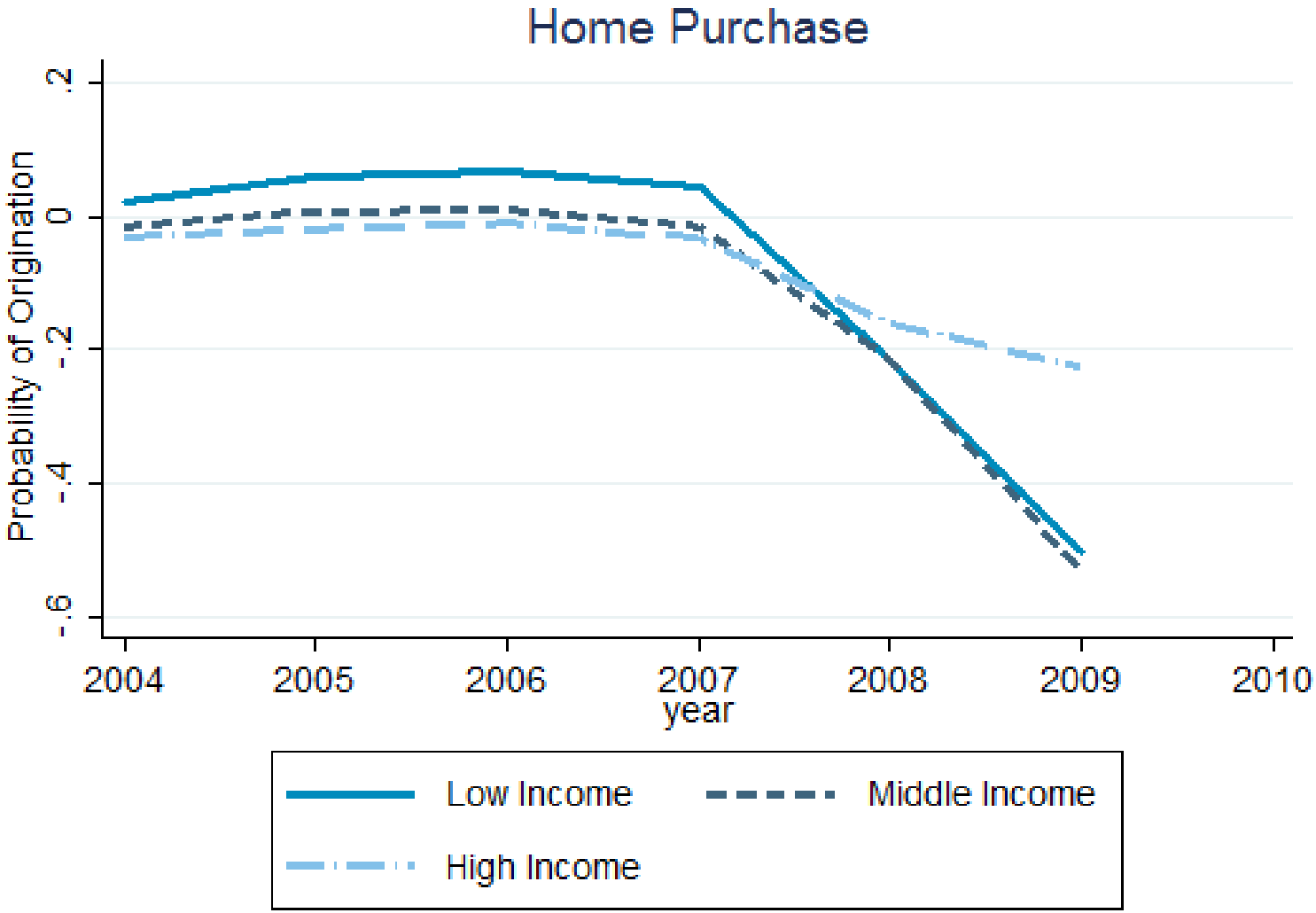

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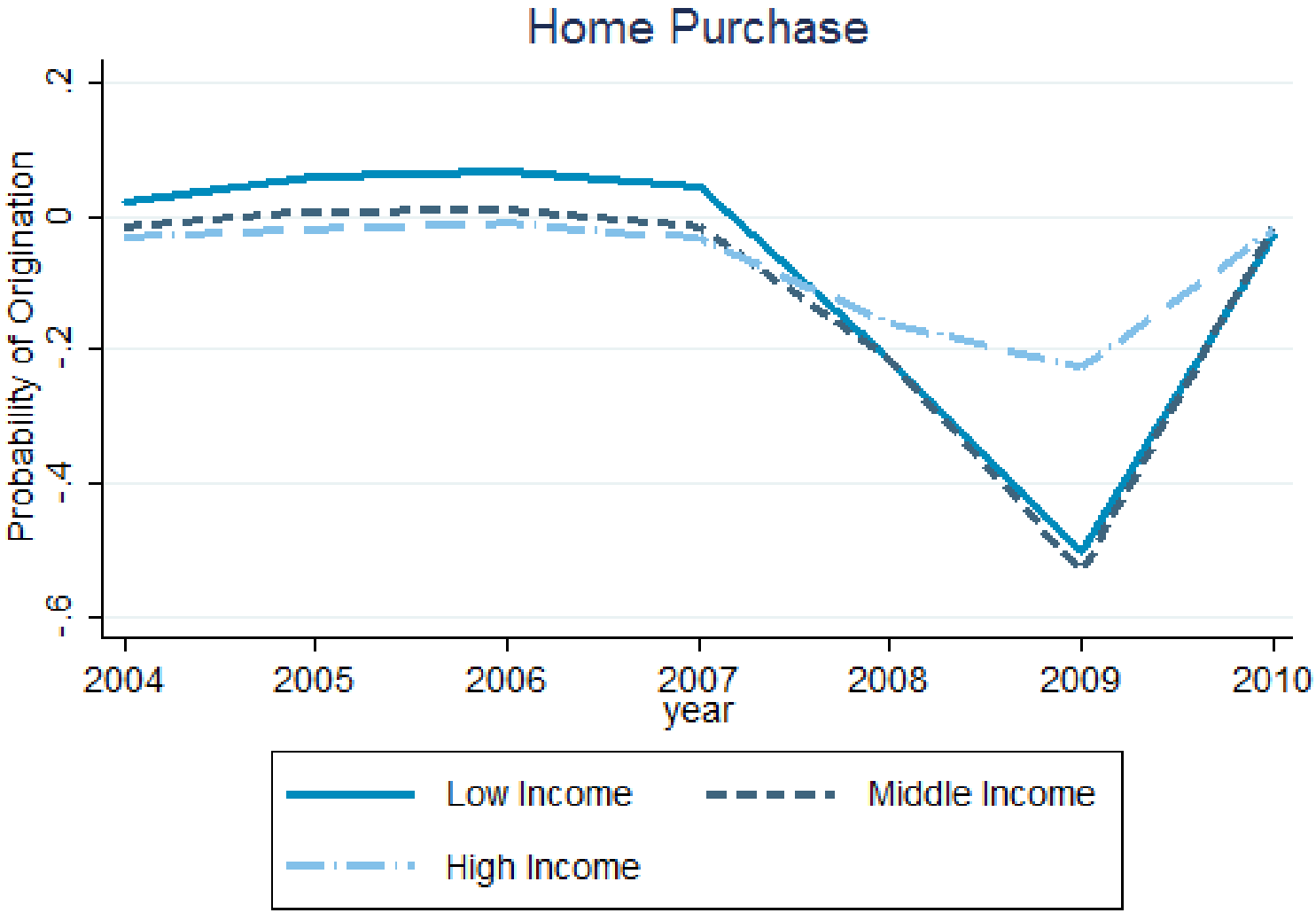

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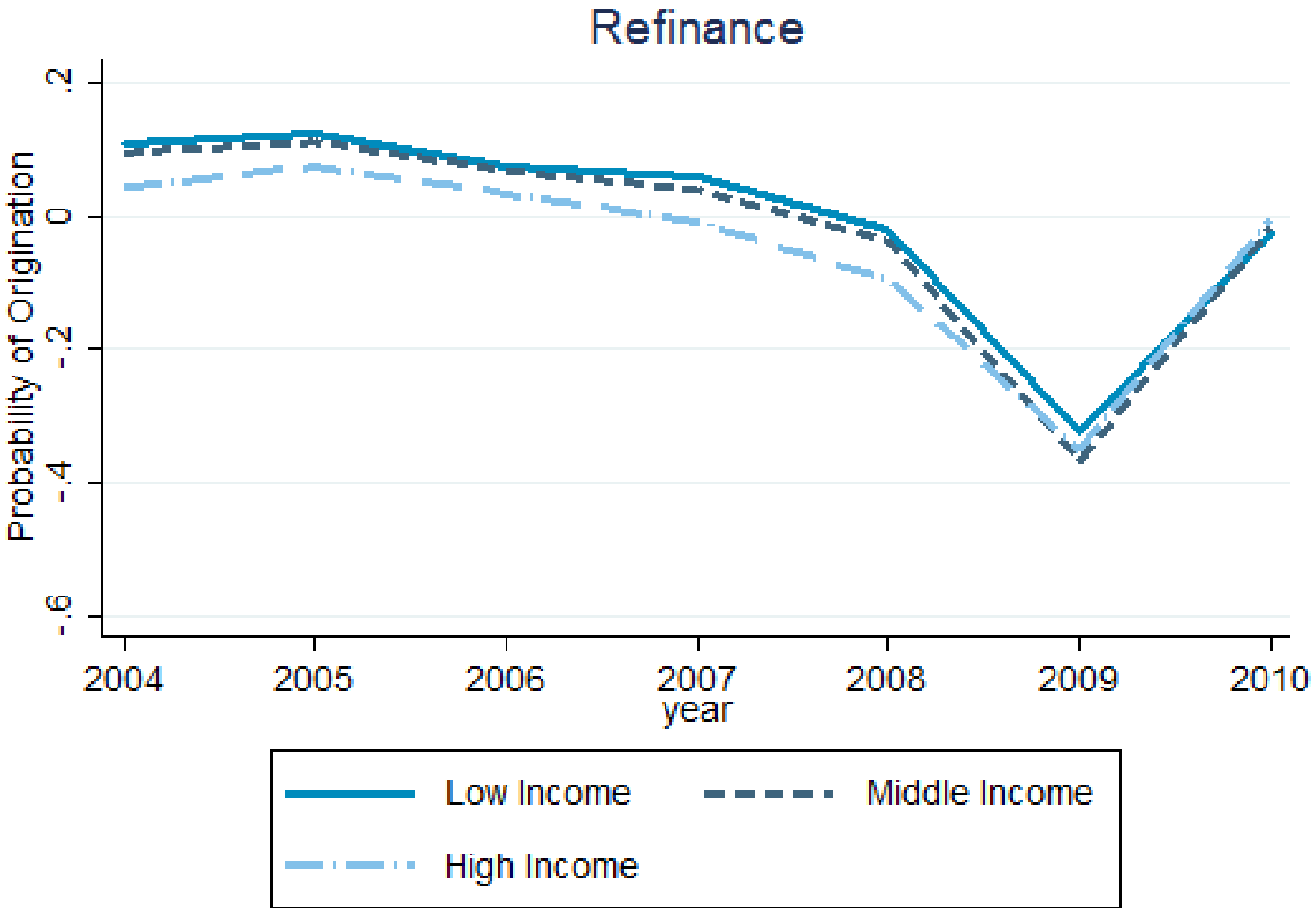
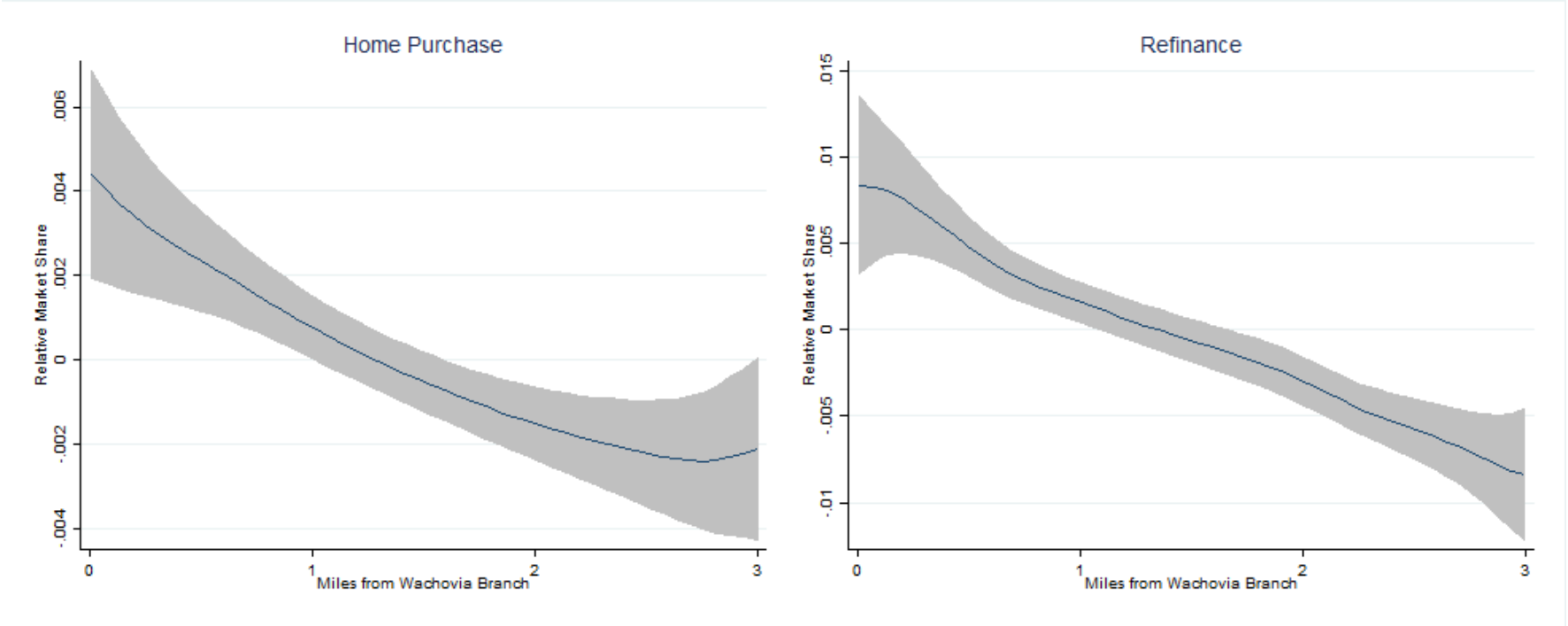


DISTANCE FROM WACHOVIA AND MARKET SHARE

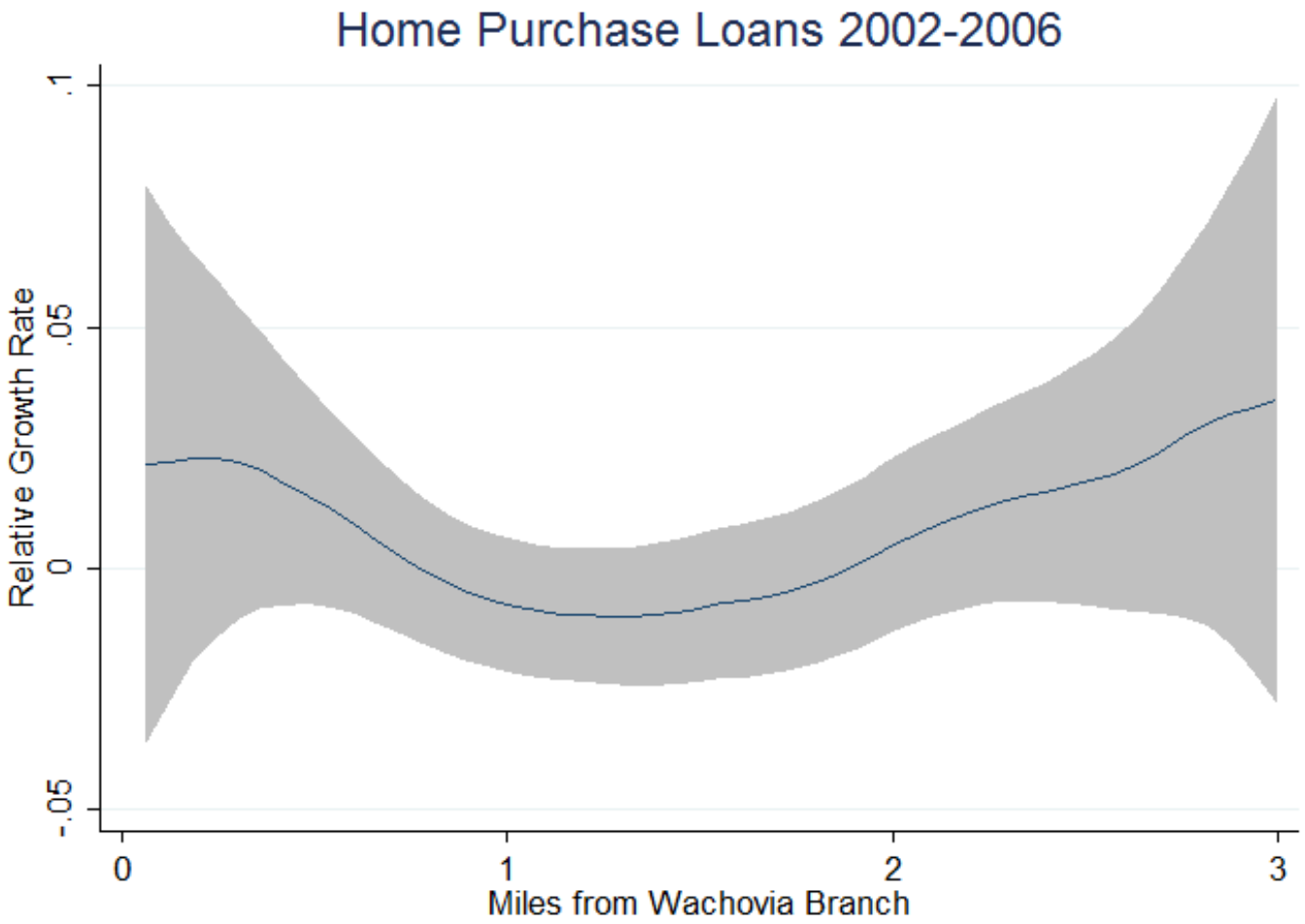
$$(\text{WACHOVIA MARKET SHARE} - \text{MEAN})_i = f(\text{DISTANCE FROM BRANCH}_i) + e_i$$



Wachovia's market share declines strongly in distance

DISTANCE FROM WACHOVIA AND CREDIT GROWTH

$$(\text{CREDIT GROWTH} - \text{MEAN})_i = f(\text{DISTANCE FROM BRANCH}_i) + e_i$$



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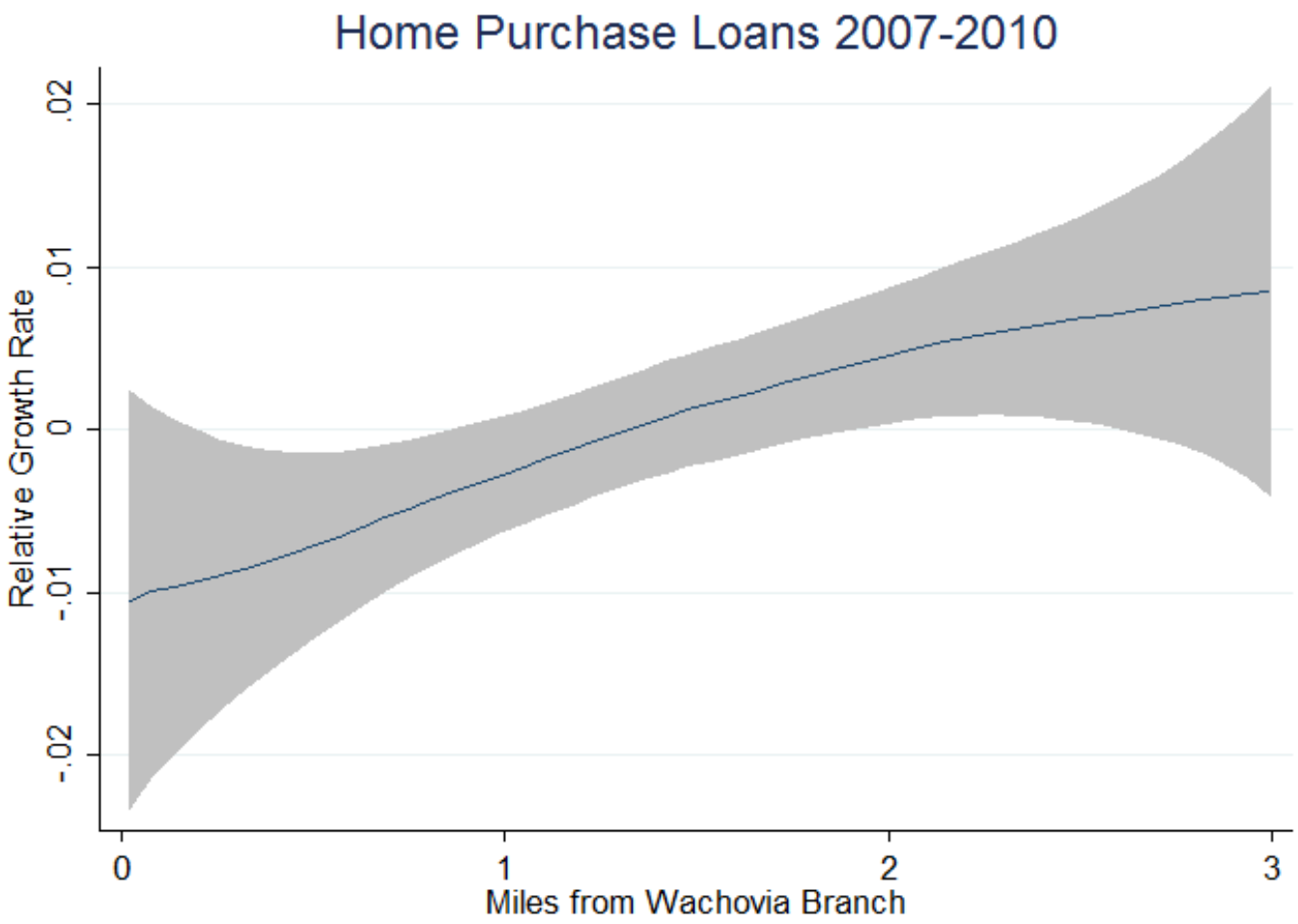
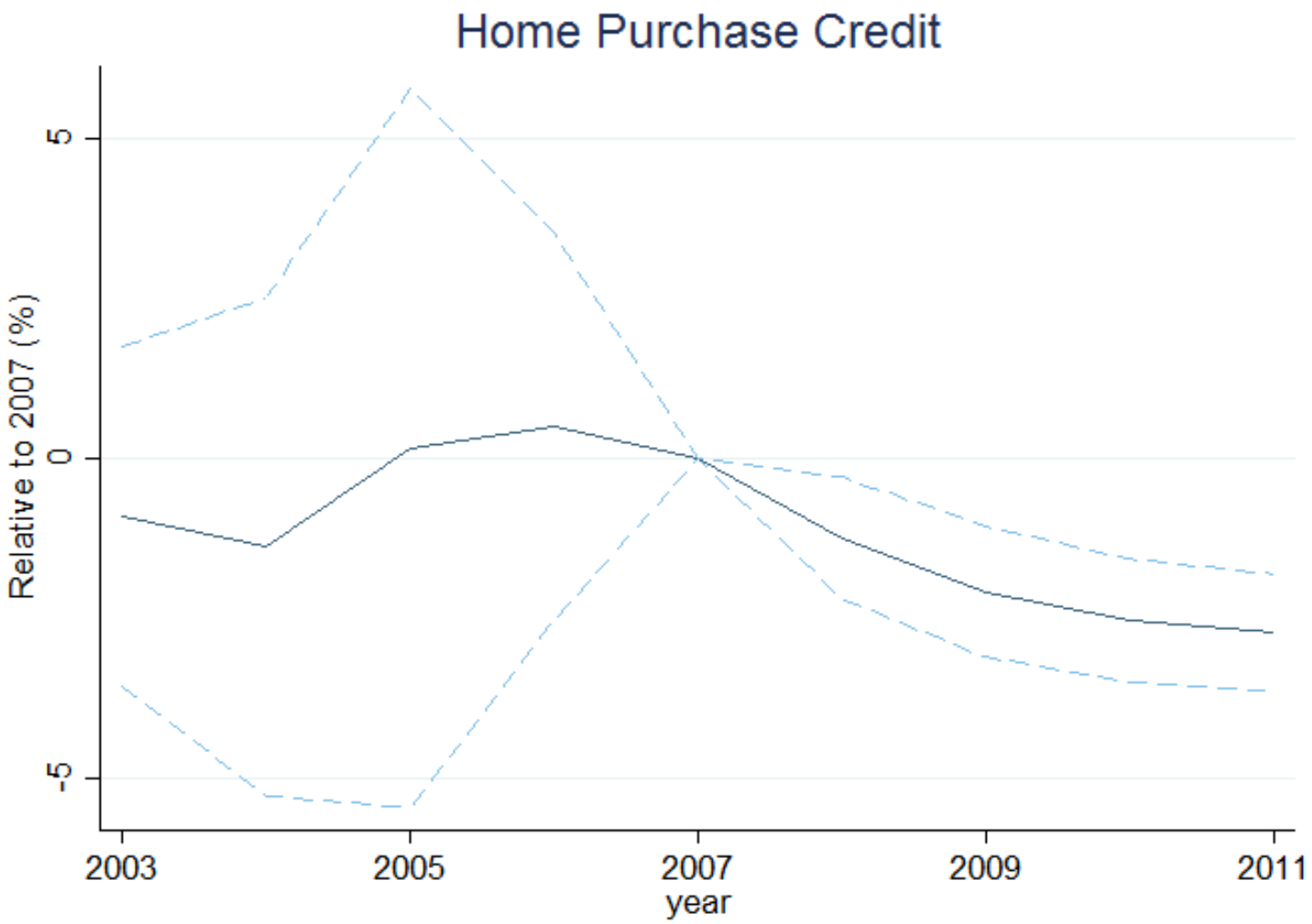


HOME PURCHASE CREDIT

$$\frac{Loans_{i,t}}{Loans_{i,2007}} - 1 = \beta_t Wachovia\ Exposure_i + e_{it}$$



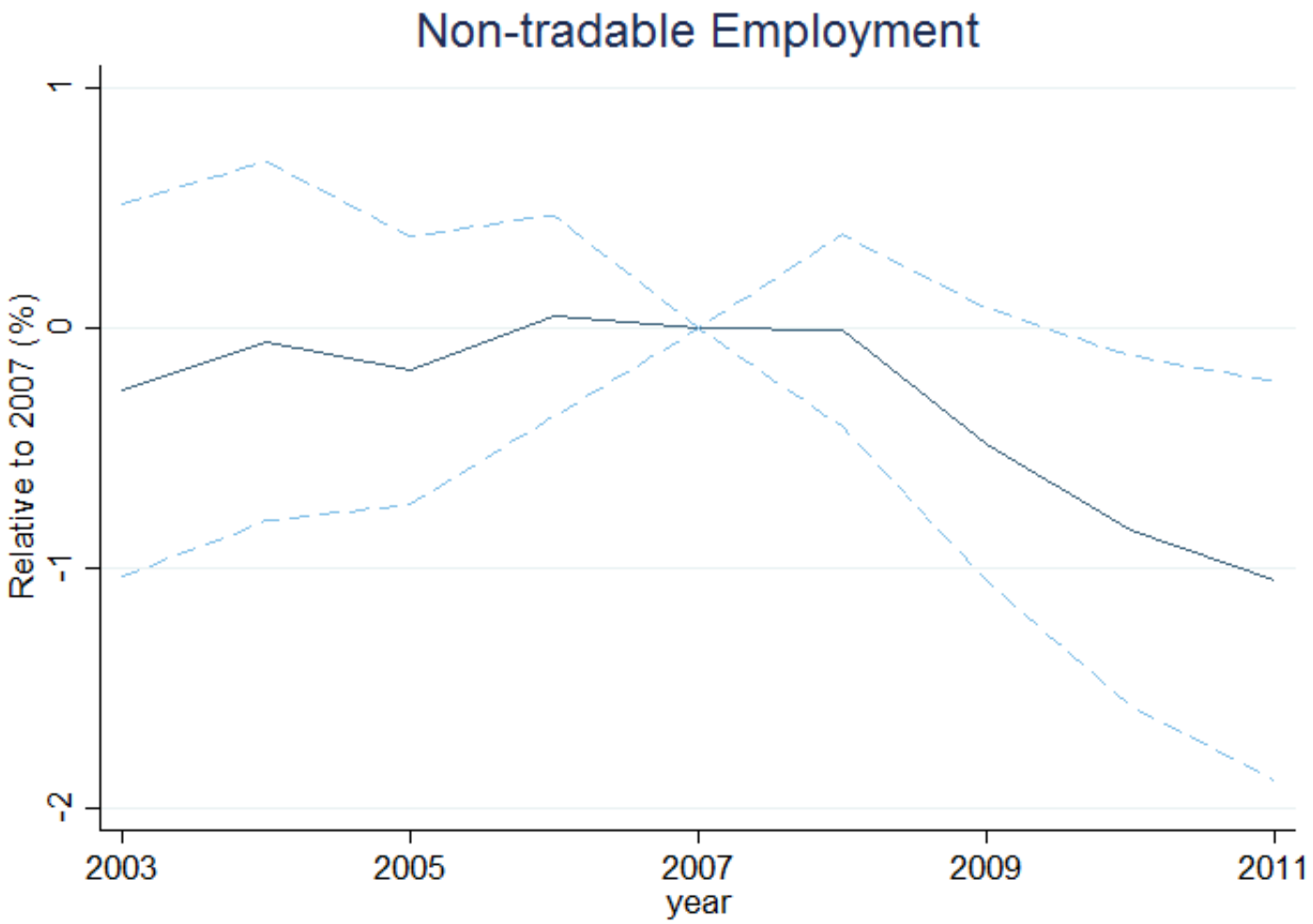
EXPOSURE TO WACHOVIA

- Declines in household credit flows, house prices, house sales and retail expenditure growth
  - Increasing exposure to Wachovia by one standard deviation reduces home purchase credit growth from 2007-2010 by about 4%.

- Employment?

NON-TRADABLE EMPLOYMENT

$$\frac{Emp}{Emp_{i,2007}} - 1 = \beta_t Wachovia\ Exposure_i + e_{it}$$



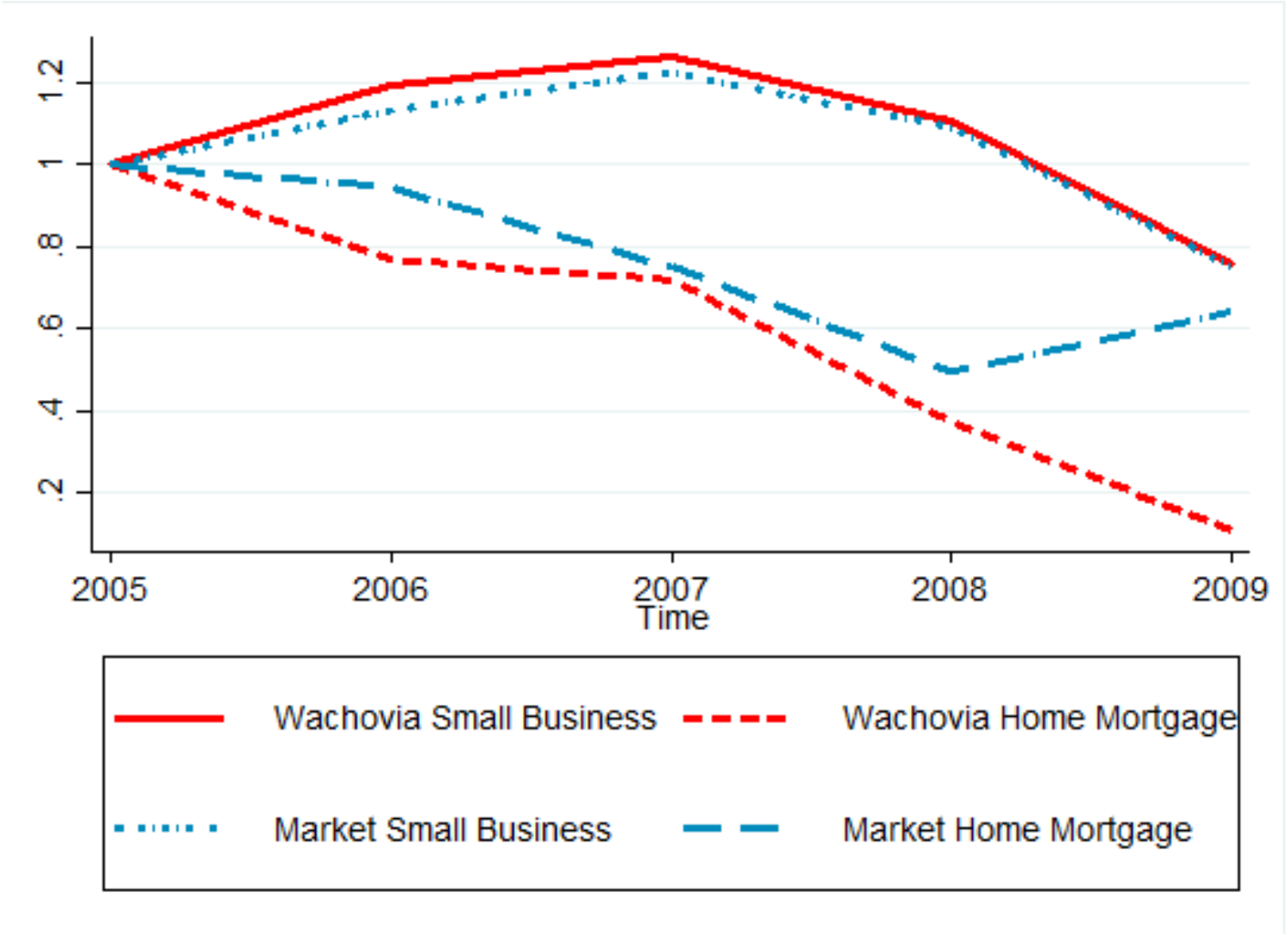
EXPOSURE TO WACHOVIA

- Declines in household credit flows, house prices, house sales and retail expenditure growth

- Employment losses concentrated in non-tradables and residential construction

- Household or firm credit?

HOUSEHOLD AND FIRM CREDIT ORIGINATIONS



HOUSEHOLD AND FIRM CREDIT ORIGINATIONS

$$\hat{E}_i = \beta_1 * Wachovia\ (House) + \beta_2 * Wachovia\ (Firm) + e_i$$

	Baseline	+ High Exposure to Wachovia (Firm)	Both discrete	Both continuous
$\boldsymbol{\beta_1}$	**-0.662**	**-0.637**	**-0.027**	**-0.444**
p	0.180	0.136	0.090	0.542
(CI 95%)	(-1.608, -0.285)	(-1.732, 0.310)	(-0.060, 0.005)	(-1.818, 0.930)
$\boldsymbol{\beta_2}$		-0.002	0.003	0.020
p		0.362	0.450	0.352
(CI 95%)		(-0.027, 0.023)	(-0.031, 0.037)	(-0.019, 0.060)
N	478	478	478	478
Clusters	25	25	25	25
R^2	0.315	0.314	0.315	0.316
F	7.114	2.172	7.114	2.876

EXPOSURE TO WACHOVIA

- Declines in household credit flows, house prices, house sales and retail expenditure growth

- Employment losses concentrated in non-tradables and residential construction

- Declines driven by exposure to Wachovia in the household credit market, not firm credit market or deposits

  - Elasticity of employment with respect to declines in household credit caused by supply shocks is large: 0.2-0.3

ACCOUNTING FOR HOUSEHOLD CREDIT

$$Aggregate\ Direct\ Contribution \equiv \text{AVERAGE DIRECT EFFECT} \times \sum_i \omega_i \text{SHOCK}_i$$

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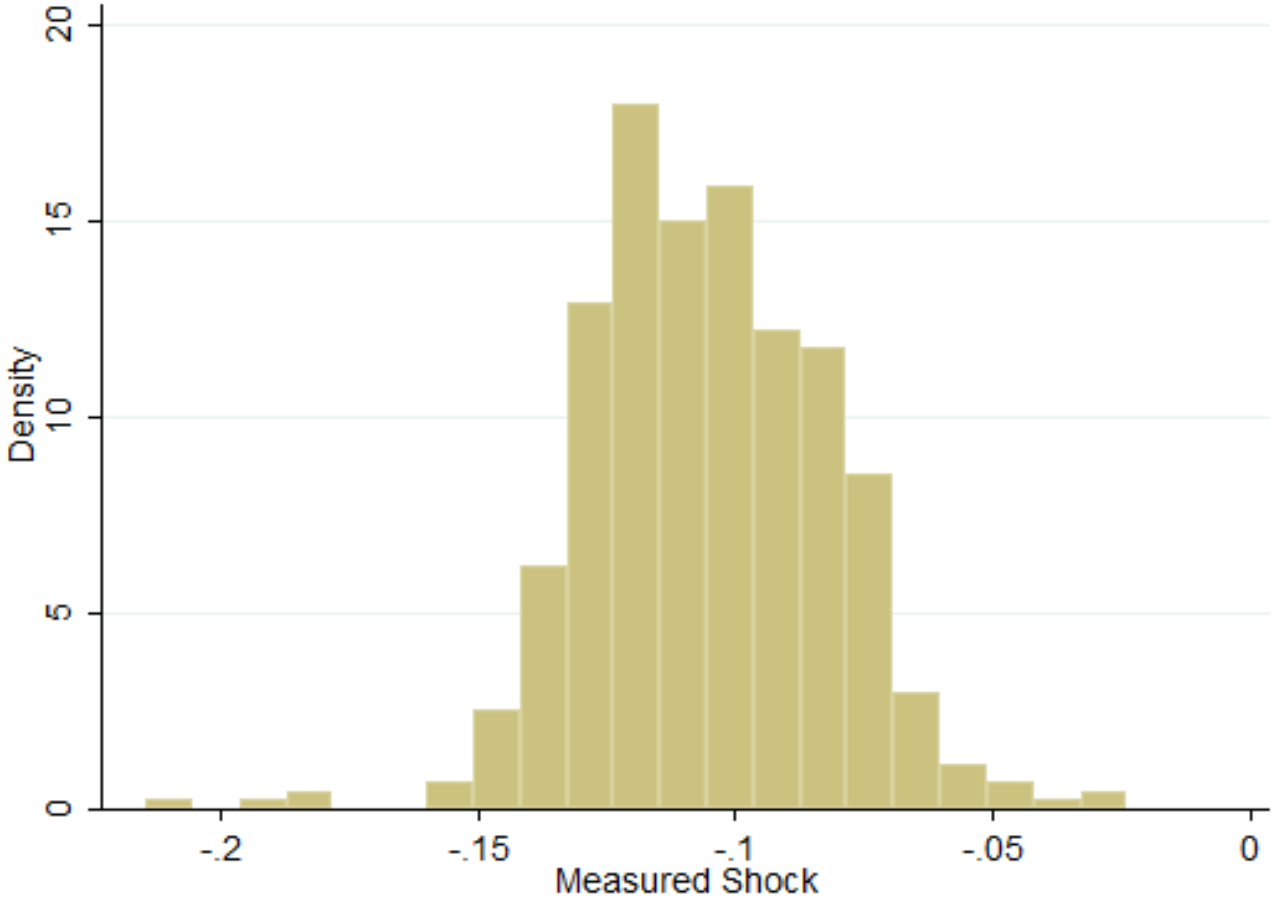
Intuition:

1) Measure supply shock from each lender using variation across areas and lenders

2) Weight lender shock for each county by market shares, sum to create a county-level shock

3) Can then estimate the effect of this shock and aggregate as above

AGGREGATION



Subtract average of high-shock counties from all shocks

AGGREGATION

$$lower\ bound = \text{AVERAGE DIRECT EFFECT} \times \sum_i \text{SHOCK}_i - correction$$

	Total OLS	Total 2SLS
No Adjustment – South and East	-6.8 (112%)	-11.8 (196%)
75th Percentile – South and East	-2.1 (34%)	-3.6 (60%)
75th Percentile – National	-2.6 (37%)	-4.5 (64%)

CONCLUSION

- Shocks to household credit supply mattered, distinct from collapse in house prices
  - Frictions in household credit market: areas exposed to Wachovia experienced larger declines in housing and non-housing expenditures
  - Employment losses concentrated in residential construction and non-tradables
  - Elasticity of employment with respect to supply-driven declines in household credit large (about 0.3)

- Used relatively little structure to quantify size of shock
  - Direct effects of shocks imply declines equivalent to 30-60% of observed decline

GOING FORWARD

- How/why were households relying on credit?
- Direct liquidity effect vs. precautionary effect?
- What observables account for the variation across lenders?
- Why do there seem to be large frictions in the household credit market?
- Policy response to distressed institutions