13TH JACQUES POLAK ANNUAL RESEARCH CONFERENCE
NOVEMBER 8–9, 2012

Foreclosure Delay and U.S. Unemployment

Kyle F. Herkenhoff
University of California, Los Angeles

Lee E. Ohanian
University of California, Los Angeles

Paper presented at the 13th Jacques Polak Annual Research Conference
Hosted by the International Monetary Fund
Washington, DC—November 8–9, 2012

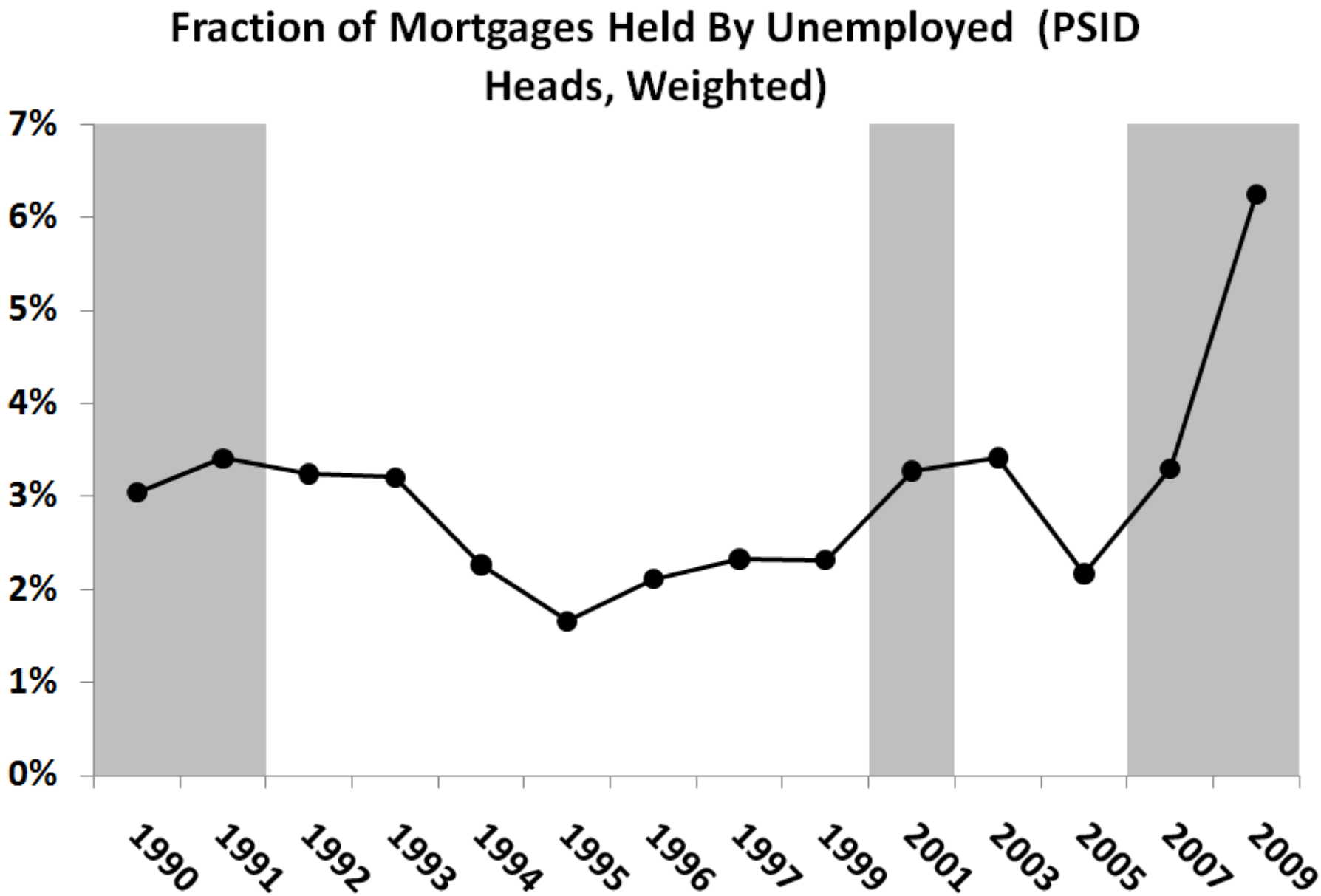
Foreclosure Delay and US Unemployment

Kyle Herkenhoff and Lee Ohanian

UCLA

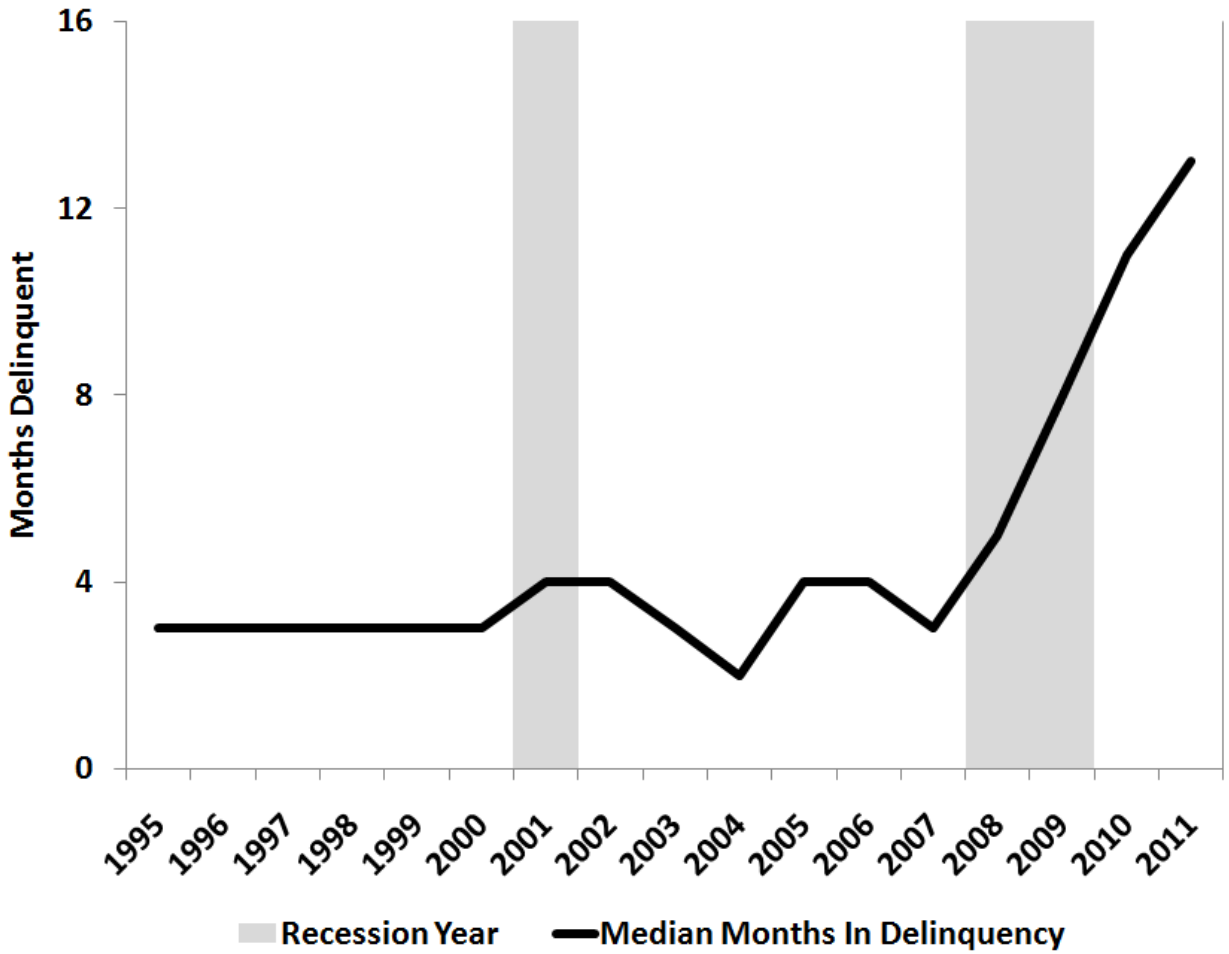
Jacques Polack Conference

6 Million Unemployed Mortgagors



Record Foreclosure Delay

Figure: Median Months in Delinquency (LPS Data, At Least 60+ Days Late)



▸ Alternate Measures

Introduction

Idea:

- Foreclosure delays provide new way to smooth consumption for unemployed mortgagors
- Unemployed mortgagors use ability to skip mortgage payments for long periods without being foreclosed *and* then resume payments and exit the foreclosure process as implicit line of credit

Introduction

Idea:

- Foreclosure delays provide new way to smooth consumption for unemployed mortgagors
- Unemployed mortgagors use ability to skip mortgage payments for long periods without being foreclosed *and* then resume payments and exit the foreclosure process as implicit line of credit

Incentives Effects:

- Foreclosure means line of credit runs out, strong incentives to accept job (PSID, SCF)
- Similar to spike out of unemployment at UI expiration
- More insurance means better matches- may improve output

Introduction

Idea:

- Foreclosure delays provide new way to smooth consumption for unemployed mortgagors
- Unemployed mortgagors use ability to skip mortgage payments for long periods without being foreclosed *and* then resume payments and exit the foreclosure process as implicit line of credit

Incentives Effects:

- Foreclosure means line of credit runs out, strong incentives to accept job (PSID, SCF)
- Similar to spike out of unemployment at UI expiration
- More insurance means better matches- may improve output

Unique Conditions:

- Past unemployed mortgagors use cash-out refi's to smooth, (Hurst and Stafford 2002)
- Now, historical number underwater, *no more cash out refi's*

Introduction, Continued

Goal: Quantify impact of foreclosure delay on aggregates-

- How much higher is unemployment because of delay?
- Does ability to find better matches increase aggregate output?
  - Output trade-off: not working vs. waiting and working for better match

Introduction, Continued

Goal: Quantify impact of foreclosure delay on aggregates-

- How much higher is unemployment because of delay?
- Does ability to find better matches increase aggregate output?
  - Output trade-off: not working vs. waiting and working for better match

Model Framework:

- Construct model economy with:
  i. Frictional employment- Search and wage acceptance decisions
  ii. Rich set of mortgage payment choices
  iii. High aggregate state time and low aggregate state
- **Quantitative Experiment:** Consider an initially depressed economy that transits to high state
  - Compare unemployment and other variables in this economy with normal time to foreclose, and with delayed foreclosure.

Introduction, Continued

Goal: Quantify impact of foreclosure delay on aggregates-

- How much higher is unemployment because of delay?
- Does ability to find better matches increase aggregate output?
  - Output trade-off: not working vs. waiting and working for better match

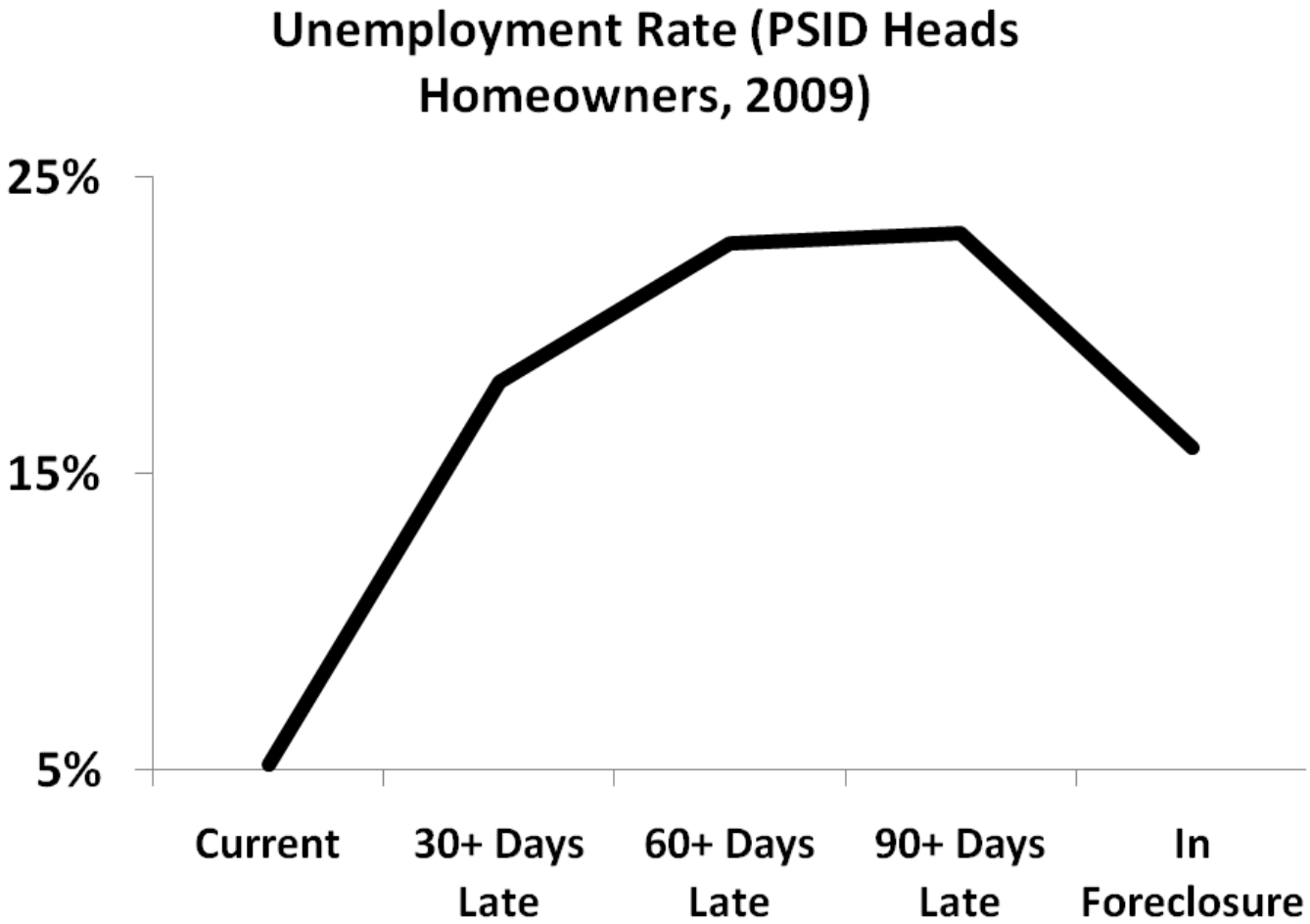
Model Framework:

- Construct model economy with:
  i. Frictional employment- Search and wage acceptance decisions
  ii. Rich set of mortgage payment choices
  iii. High aggregate state time and low aggregate state
- **Quantitative Experiment:** Consider an initially depressed economy that transits to high state
  - Compare unemployment and other variables in this economy with normal time to foreclose, and with delayed foreclosure.

Preview of Findings:

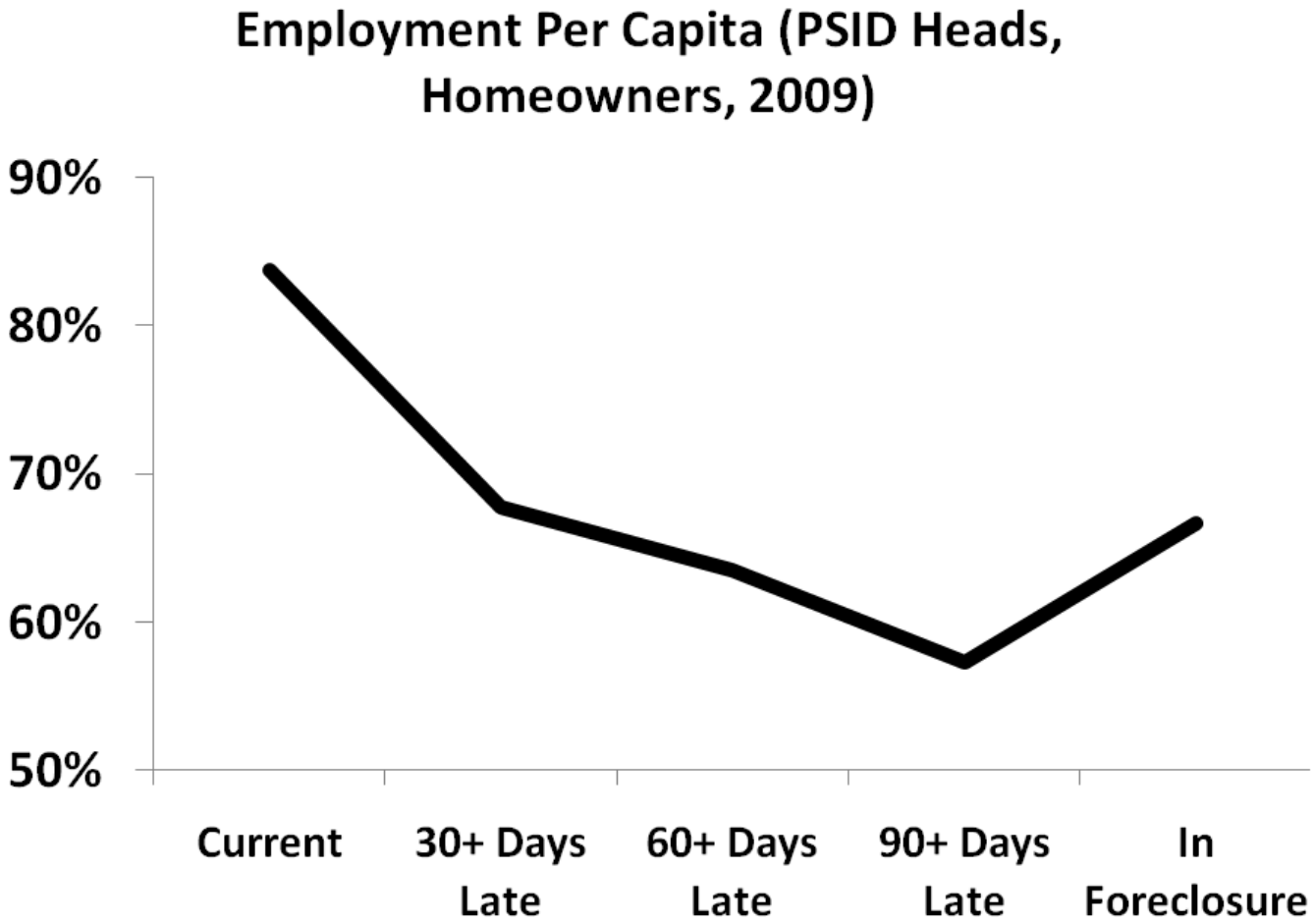
- Delays increase UR $\frac{1}{2}$ %
- Better matches increase output by $\frac{2}{10}$ %

Spike out of Unemployment near Foreclosure, Panel Study of Income Dynamics (PSID)

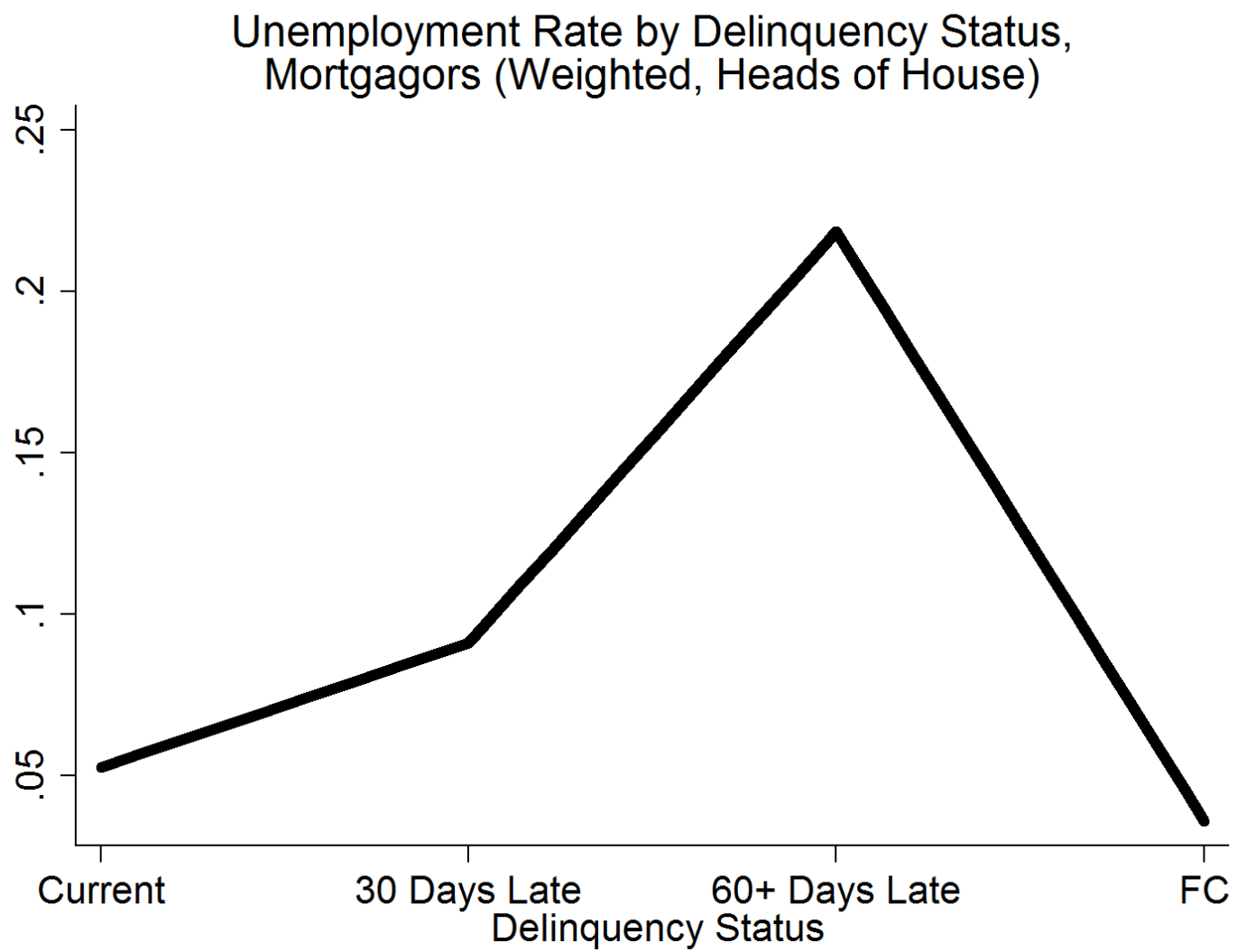


▸ More

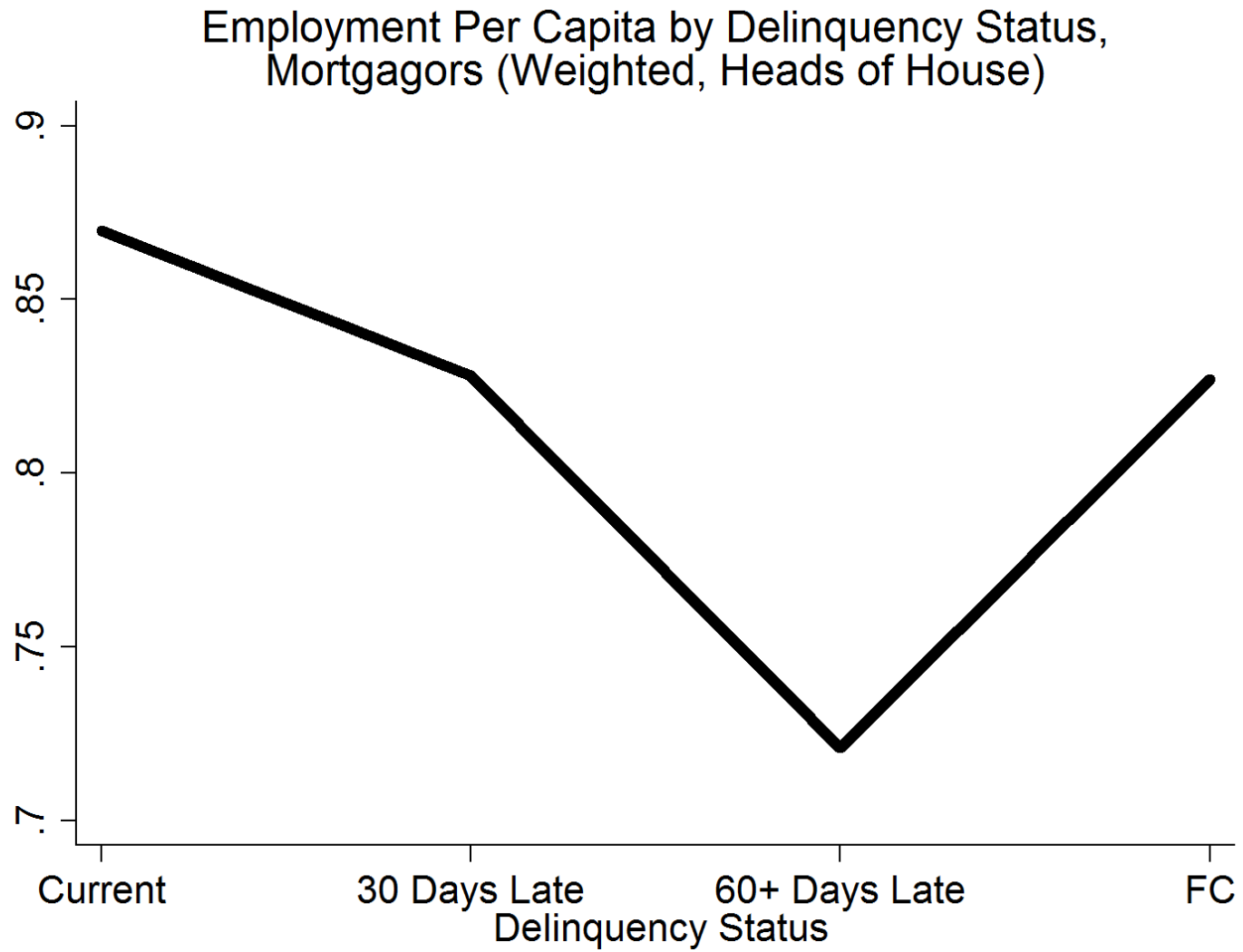
Increase in Employment near Foreclosure, Panel Study of Income Dynamics (PSID)



Corroborating Evidence, Survey of Consumer Finances



Corroborating Evidence, Survey of Consumer Finances



Source: 2007-2009 SCF

Formula: Employed/WAPOP by Lateness

Ins and Outs of Default (Red:2001-2003, Black:2009-2011)

	Current	30+ Days Late	60+ Days Late	90+ Days Late	In Foreclosure	Foreclosed/ Paid Off	Modified
Current	96.0 / 97.0	1.5 / 1.7	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	2.5 / 1.3	0.0 / 0.0
30+ Days Late	41.2 / 24.4	38.7 / 47.8	15.9 / 26.7	0.4 / 0.1	0.0 / 0.0	3.8 / 0.7	0.0 / 0.3
60+ Days Late	18.7 / 5.6	21.0 / 11.3	24.7 / 37.8	30.4 / 42.8	2.6 / 1.4	2.5 / 0.2	0.0 / 1.0
90+ Days Late	7.1 / 0.8	3.4 / 0.6	4.7 / 1.6	68.4 / 83.0	14.6 / 9.8	1.8 / 0.9	0.0 / 3.3
In Foreclosure	5.3 / 0.6	1.1 / 0.1	0.1 / 0.1	7.8 / 4.6	75.2 / 88.3	10.6 / 5.7	0.0 / 0.7
Foreclosed/ Paid Off	0.0 / 0.0	0.1 / 0.0	0.0 / 0.0	0.8 / 0.0	0.6 / 0.0	98.5 / 100.0	0.0 / 0.0
Modified	0.0 / 78.4	0.0 / 12.4	0.0 / 2.3	0.0 / 3.7	0.0 / 1.3	0.0 / 0.2	100.0 / 1.7

Ins and Outs of Default (Red:2001-2003, Black:2009-2011)

	Current	30+ Days Late	60+ Days Late	90+ Days Late	In Foreclosure	Foreclosed/ Paid Off	Modified
Current	96.0 / 97.0	1.5 / 1.7	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	2.5 / 1.3	0.0 / 0.0
30+ Days Late	41.2 / 24.4	38.7 / 47.8	15.9 / 26.7	0.4 / 0.1	0.0 / 0.0	3.8 / 0.7	0.0 / 0.3
60+ Days Late	18.7 / 5.6	21.0 / 11.3	24.7 / 37.8	30.4 / 42.8	2.6 / 1.4	2.5 / 0.2	0.0 / 1.0
90+ Days Late	7.1 / 0.8	3.4 / 0.6	4.7 / 1.6	68.4 / 83.0	14.6 / 9.8	1.8 / 0.9	0.0 / 3.3
In Foreclosure	5.3 / 0.6	1.1 / 0.1	0.1 / 0.1	7.8 / 4.6	75.2 / 88.3	10.6 / 5.7	0.0 / 0.7
Foreclosed/ Paid Off	0.0 / 0.0	0.1 / 0.0	0.0 / 0.0	0.8 / 0.0	0.6 / 0.0	98.5 / 100.0	0.0 / 0.0
Modified	0.0 / 78.4	0.0 / 12.4	0.0 / 2.3	0.0 / 3.7	0.0 / 1.3	0.0 / 0.2	100.0 / 1.7

Detailed Version

Ins and Outs of Default (Red:2001-2003, Black:2009-2011)

	Current	30+ Days Late	60+ Days Late	90+ Days Late	In Foreclosure	Foreclosed/ Paid Off	Modified
Current	96.0 / 97.0	1.5 / 1.7	0.0 / 0.0	0.0 / 0.0	0.0 / 0.0	2.5 / 1.3	0.0 / 0.0
30+ Days Late	41.2 / 24.4	38.7 / 47.8	15.9 / 26.7	0.4 / 0.1	0.0 / 0.0	3.8 / 0.7	0.0 / 0.3
60+ Days Late	18.7 / 5.6	21.0 / 11.3	24.7 / 37.8	30.4 / 42.8	2.6 / 1.4	2.5 / 0.2	0.0 / 1.0
90+ Days Late	7.1 / 0.8	3.4 / 0.6	4.7 / 1.6	68.4 / 83.0	14.6 / 9.8	1.8 / 0.9	0.0 / 3.3
In Foreclosure	5.3 / 0.6	1.1 / 0.1	0.1 / 0.1	7.8 / 4.6	75.2 / 88.3	10.6 / 5.7	0.0 / 0.7
Foreclosed/ Paid Off	0.0 / 0.0	0.1 / 0.0	0.0 / 0.0	0.8 / 0.0	0.6 / 0.0	98.5 / 100.0	0.0 / 0.0
Modified	0.0 / 78.4	0.0 / 12.4	0.0 / 2.3	0.0 / 3.7	0.0 / 1.3	0.0 / 0.2	100.0 / 1.7

Detailed Version

Model

Necessary Features

- Decision theoretic model: nondurable consumption, utility flow from housing (rent or own), disutility from search
- Pay mortgage, skip payments (default $\neq$ foreclosure), or sell
- If unemployed, make search effort decisions
- Draw wages from stationary distribution, accept or reject $\rightarrow$ reservation wages

Model

Necessary Features

- Decision theoretic model: nondurable consumption, utility flow from housing (rent or own), disutility from search
- Pay mortgage, skip payments (default $\neq$ foreclosure), or sell
- If unemployed, make search effort decisions
- Draw wages from stationary distribution, accept or reject $\rightarrow$ reservation wages

Mechanism:

- With long foreclosure delays, economize on search effort, wait for high wage draws
- Foreclosure imminent, reservation wage declines and search effort increases
- Like UI running out,
  spike out of unemployment near exhaustion (foreclosure).

Experiment

Turbulence Experiment:

- Start the model economy in bad times (Ljungqvist and Sargent (1998))
- Elevated job destruction with parametric home price decline
- Look at economic recovery with and without foreclosure delay
  - Treat delay as exogenous - Mortgage Servicer Settlement, Robo Signing, Moratoria Robo

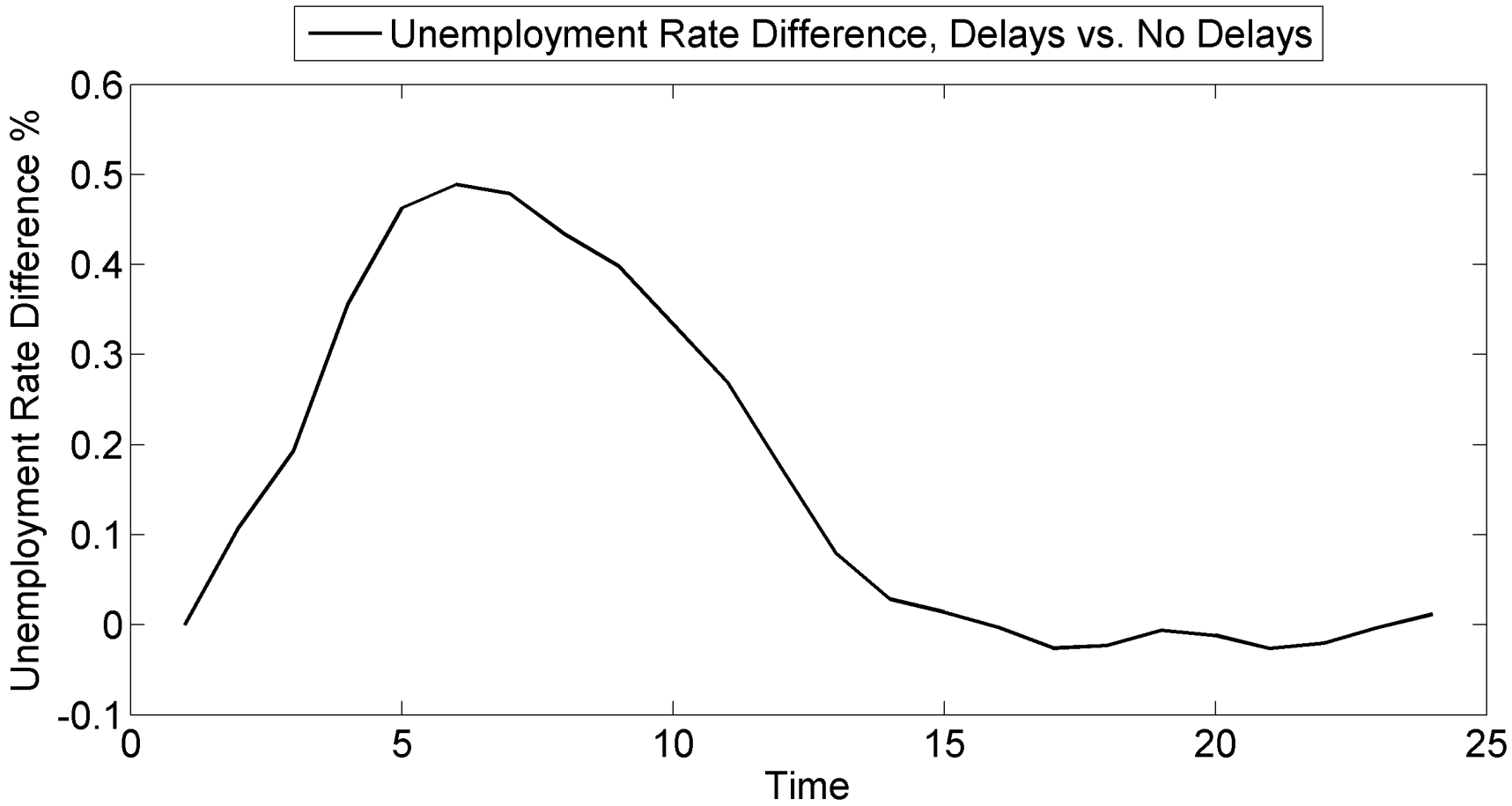
Figure: Model Transitions with Delays vs. Great Recession Data

	Current	30 Days Late	60 Days Late	90+ Days Late	Renter
Current	98.4	(Data: 1.7) 1.6	0.0	0.0	0.0
30 Days Late	(Data: 24.4) 25.4	0.0	73.5	0.0	1.1
60 Days Late	0.0	(Data: 11.3) 25.0	0.0	74.0	1.1
90+ Days Late	0.0	0.0	(Data: 4.6) 6.8	(Data: 88.3) 88.2	(Data: 5.7) 5.0
Renter	0.0	0.0	0.0	0.0	100.0

Figure: Model Transitions (Red Underlined=No Delay, Black=Delay)

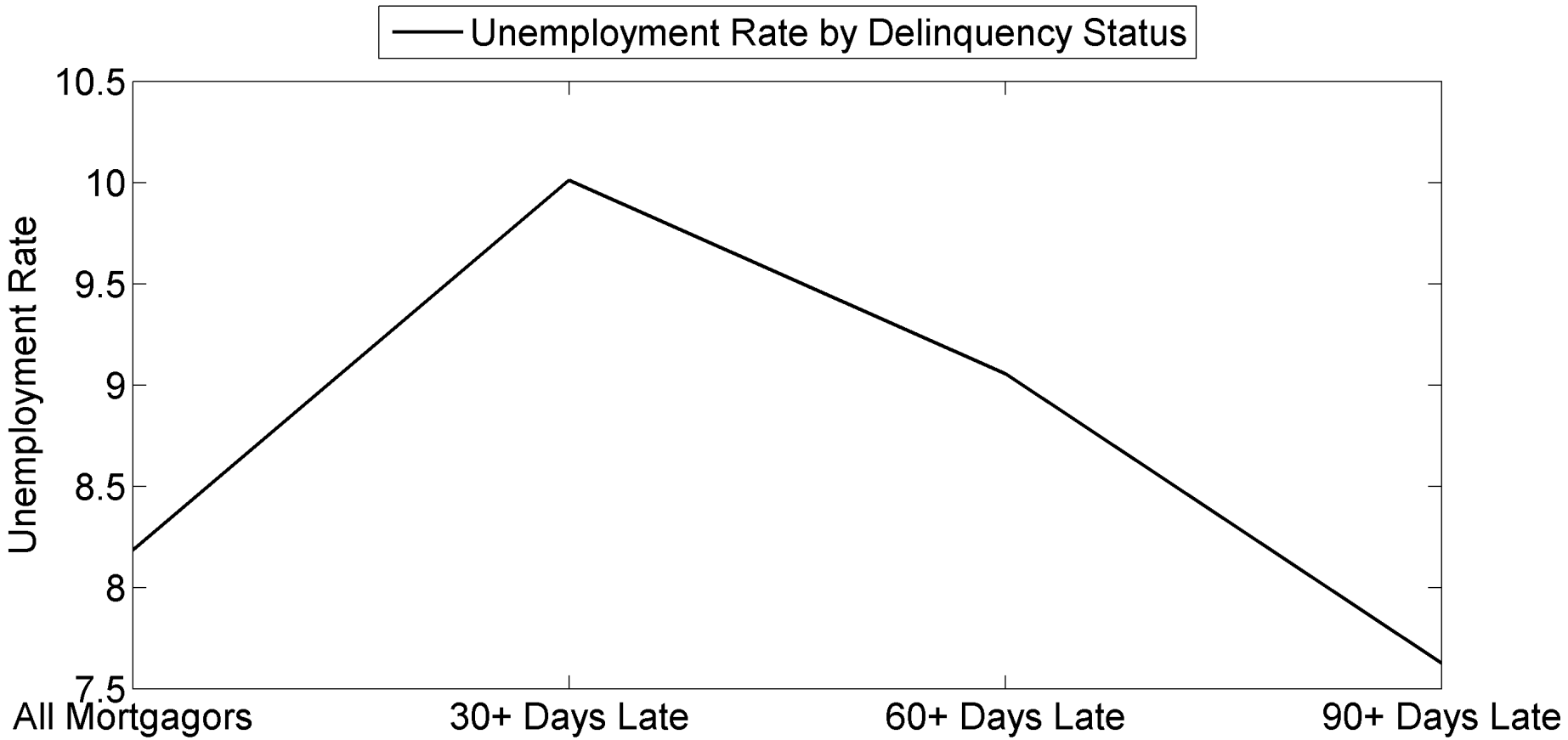
	Current	30 Days Late	60 Days Late	90+ Days Late	Renter
Current	98.5 98.4	1.5 (Data: 1.7) 1.6	0.0 0.0	0.0 0.0	0.0 0.0
30 Days Late	19.0 (Data: 24.4) 25.4	0.0 0.0	79.8 73.5	0.0 0.0	1.3 1.1
60 Days Late	0.0 0.0	22.3 (Data: 11.3) 25.0	0.0 0.0	76.8 74.0	1.0 1.1
90+ Days Late	0.0 0.0	0.0 0.0	18.3 (Data: 4.6) 6.8	54.1 (Data: 88.3) 88.2	27.7 (Data: 5.7) 5.0
Renter	0.0 0.0	0.0 0.0	0.0 0.0	0.0 0.0	100.0 100.0

Figure: Unemployment Difference



▸ Alternate

Figure: Unemployment Rate by Delinquency Status



Additional Predictions

Model Predictions:

- With delays, default stock 2x as large (8-12% more defaults)
- Delays increase homeownership rate by 3%
- Implied real rate of interest on implicit line of credit is 18%

$$\textbf{Real Rate} = \frac{\text{Consumption Equivalent of Becoming Renter*Pr(Foreclosed) +Repayment*Pr(Not Foreclosed)}}{\text{Mortgage Payment}}$$

Conclusions

Purely **Positive** Lens to this Point

- Foreclosure delay impacts labor market and recovery
  - Pros: More homeownership and better matches increase output by $\frac{2}{10}$ %
  - Cons: Increase in unemployment rate $\frac{1}{2}$% and 2x more defaults

Normative Work

- Should we subsidize default? (Mortgage Servicer Settlement 2012, CARD 2009)
- **Preliminary Findings:** Default improves welfare, especially for low income, low asset households with limited credit access