

Does Unemployment Insurance Stabilize the Housing Market?

A comment on Hsu, Matsa, and Melzer (2018)

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Abstract

Hsu, Matsa, and Melzer (2018) (HMM) study the effect of unemployment insurance (UI) on the housing market. Exploiting time-series variation in regular state UI generosity and cross-sectional variation in federal supplements to regular state UI generosity during the Great Recession, HMM find that UI reduces the likelihood of mortgage delinquency and foreclosure among the unemployed. In this comment, I show that both of these sources of variation in UI generosity are confounded by variation in state economic conditions. Taking account of state economic confounds reduces the magnitude of HMM's headline estimates and renders them statistically indistinguishable from zero.

*I thank Brian Melzer for helpful discussion of an earlier draft of this comment. Email: ryan.kessler@brown.edu

1 Introduction

Hsu, Matsa, and Melzer (2018) (henceforth HMM) study the effect of unemployment insurance (UI) on the housing market. Exploiting time-series variation in regular state UI generosity and cross-sectional variation in federal supplements to UI generosity during the Great Recession, HMM find that UI reduces the likelihood of mortgage default and foreclosure among the unemployed.

HMM's headline finding — that federal supplements to UI generosity during the Great Recession prevented more than 1.3 million foreclosures, significantly more than were prevented by other foreclosure mitigation policies — was widely reported in the media (Vinik 2014; O'Brien 2014; Pathe 2015) and is frequently cited by policy makers and advocates as evidence of the stabilizing role of UI during downturns (Conti 2016; Doggett 2016; Sheridan 2017).

In this comment, I provide evidence that casts doubt on the key identifying assumptions underlying HMM's analysis and explore implications for HMM's main findings. I proceed in two steps.

First, I revisit HMM's analysis of regular state UI generosity. States differ substantially in regular UI benefit generosity, both in the cross section and how they adjust benefits over time (HMM, page 50). The key identifying assumption underlying HMM's analysis of regular state UI generosity is that state changes in UI generosity are independent of factors that might otherwise affect loan default among the unemployed (HMM, page 50).

I highlight a statutory link between regular state UI generosity and state average wages not discussed by HMM. I show using HMM's and supplemental data that, consistent with this statutory link, regular state UI generosity is endogenous to state economic conditions, with UI generosity increasing with both state average wages and state real gross domestic product (GDP) per capita. I show that improvements in state economic conditions, like increases in regular state UI generosity, are associated with significantly larger declines in mortgage delinquency among laid-off workers than among others. Controlling for interactions between layoff status and HMM's measures of state economic conditions reduces the magnitude of HMM's headline estimate of the effect of regular UI generosity on the likelihood of mortgage delinquency by nearly 65 percent and renders it statistically insignificant.

Second, I revisit HMM's analysis of federal supplements to regular state UI generosity during the Great Recession. During the Great Recession, unemployed workers became eligible for supplemental benefits through the federal Extended Benefits (EB) and Emergency Unemployment Compensation (EUC) programs. Under the EB and EUC programs, federal supplements to regular state UI generosity jumped discretely at statutory state unemployment rate thresholds. The key identifying assumption underlying HMM's analysis

of the federal supplements to regular state UI generosity is that, conditional on a flexible function of the state unemployment rate, the variation in federal supplements to regular state UI generosity across states is independent of factors that might otherwise affect loan default among the unemployed (HMM, pages 64-67).

I show that the variation in federal supplements to regular state UI generosity across states is confounded by variation in state economic conditions. Conditional on a flexible function of the state unemployment rate, states with larger federal supplements to regular state UI generosity tend to have significantly higher average wages and real GDP per capita. I show that the association between state economic conditions and the likelihood of mortgage delinquency is significantly more negative among laid-off workers than among others. Controlling for interactions between layoff status and HMM's measures of state economic conditions reduces the magnitude of HMM's headline estimate of the effect of federal supplements to regular state UI generosity on the likelihood of mortgage delinquency by over 40 percent and renders it statistically insignificant.

Taken together, the findings in this comment suggest that HMM's headline estimates of the effect of UI generosity on the likelihood of mortgage delinquency reflect the association between mortgage delinquency and a confluence of UI generosity and state economic conditions rather than the causal effect of UI generosity per se. Additional research is needed to isolate the causal effect of UI generosity on mortgage delinquency and the broader housing market.

The rest of this comment proceeds as follows. Section 2 reviews determinants of regular state UI generosity. Section 3 describes the data. Section 4 presents the analysis. Section 5 concludes.

2 Determinants of regular state UI generosity

A number of factors lead to variation in regular state UI generosity across states and over time (HMM, page 53). In this section, I highlight a statutory link between regular state UI generosity and state average wages not discussed by HMM.

Eligible UI claimants receive a weekly benefit amount (WBA) for a specified number of weeks (benefit duration). The WBA is increasing in claimants' previous earnings, up to a statutory maximum WBA. HMM use the product of the maximum WBA and the maximum benefit duration as their primary measure of regular state UI generosity.

Since the mid-1950s many states have set their maximum WBA to be a fixed percentage of the statewide average weekly wage (AWW) (O'Leary and Wandner 1997). For example, in 2003 — a year toward the middle of HMM's sample period — 32 of the 51 states (including DC) had laws requiring the maximum

WBA to be updated annually to remain at some percent α of the state AWW during a recent one-year period, usually the preceding calendar year, with α ranging from 50 in Nevada to 70 Washington (US Department of Labor 2003). Such AWW-induced adjustments to the maximum WBA are commonly reported in the press materials of state employment agencies (See, e.g., Washington State Employment Security Department 2016).

The statutory link between the maximum WBA and AWW suggests that, contrary to the claim of HMM, within-state variation in regular state UI generosity is driven at least in part by within-state variation in state economic conditions.

3 Data

The primary data source in this comment is HMM’s replication archive. I downloaded the replication archive via the American Economic Association website on January 4, 2018.

Due to contractual limitations, the replication archive does not contain HMM’s CoreLogic data on state-by-year house price growth rates. I construct state-by-year house price growth rates using the Federal Housing Finance Agency (FHFA)’s quarterly All-Transactions House Price Index (STHPI). I downloaded the STHPI via the FRED tool maintained by the Federal Reserve Bank of St. Louis on October 20, 2017. For each state, I calculate year-over-year growth rates in annual averages of the quarterly STHPI.

Results reported in the replication appendix show that, up to minor differences driven by the different house price growth rate control, I’m able to replicate HMM’s main findings exactly.

I supplement the replication archive with additional data on state real GDP per capita from the Bureau of Economic Analysis (BEA). I downloaded annual data on state real GDP per capita from the BEA website on October 17, 2017. The series exhibits a discontinuity in 1997, when the BEA switched from using SIC industry definitions to NAICS industry definitions. The BEA cautions that this discontinuity “may affect both the levels and the growth rates of GDP by state” and “strongly cautions” against appending pre- and post-1997 data in an attempt to construct a single time series (BEA 2018). When exploring the relationship between UI generosity and state real GDP per capita, I therefore consider robustness checks in which I divide the sample into pre- and post-1997.

Because Washington, DC can be highly influential when measuring associations between state-level outcomes and state economic conditions, I restrict attention to households residing in one of the fifty US states.¹ This excludes from my analysis 0.2 percent of households in HMM’s Survey of Income and Program

¹For example, in a regression of regular state UI generosity on the log of real GDP per capita with state and year fixed effects (paralleling HMM table 3 column 2) Washington, DC has a median Cook’s distance (across years) of 70, two orders of magnitude

Participation (SIPP) sample who reside Washington, DC.

4 Results

4.1 Regular state UI generosity and state economic conditions

HMM find no evidence of an association between regular state UI generosity and state economic conditions. Conditional on state and year fixed effects, they estimate correlations between regular state UI generosity and state economic conditions to be small in magnitude and statistically insignificant (HMM, page 55).

Table 1 revisits the relationship between regular state UI generosity and state economic conditions. Motivated by the proportional statutory link between the maximum WBA and the statewide AWW in the previous year, columns (1) and (2) present log-log specifications of the relationship between UI generosity and contemporaneous and previous-year average wages. In both columns, the estimated elasticity is economically large (> 0.93) and statistically significant ($p < 0.01$).

The remaining columns revisit the relationship between UI generosity and state real GDP per capita. Following columns (1) and (2), columns (3) and (4) present log-log specifications of the relationship between UI generosity and contemporaneous and previous-year state real GDP per capita using HMM data. As noted in the data section, the GDP per capita series exhibits a discontinuity in 1997. To assess the role of this discontinuity, columns (5) and (6) reestimate columns (3) and (4) using only post-1997 data.

Across columns (3)-(6), the estimated elasticities range from 0.38 to 0.43 and are in all cases statistically significant ($p < 0.01$). Columns (7)-(10) repeat columns (3)-(6) using state real GDP per capita data sourced directly from the BEA. Relative to their counterparts based on HMM data, the BEA-based elasticities are generally larger in magnitude (with range 0.47-0.54) and more-precisely estimated (with $p < 0.01$).²

4.2 Mortgage delinquency and regular state UI generosity

Table 2 explores whether improvements in state economic conditions, like increases in UI generosity, are associated with larger declines in the likelihood of mortgage delinquency among laid-off workers than among others.

The first three columns are the same as HMM table 4, up to minor differences in the estimation sample and the house price growth rate control. The estimates mirror their published counterparts, with a \$1,000

larger than that of any other state and well above commonly-used thresholds for highly-influential observations.

²The source of the discrepancy between the HMM- and BEA-based estimates is unclear. One hypothesis is that the HMM data do not reflect the comprehensive revisions to the GDP series implemented by the BEA in 2014. According to the BEA, these revisions “incorporated significant improvements to more accurately portray the state economies” (BEA 2018).

increase in UI generosity associated with a 22-24 basis point reduction in the likelihood of mortgage delinquency.

Columns (4) through (6) parallel columns (1) through (3), with a log of real GDP per capita \times Layoff interaction substituted in for the Max benefit \times Layoff interaction. Columns (4) through (6) control for max benefit. Column (4) reports the average association between the log of real GDP per capita and mortgage delinquency for all households. The estimate is negative but statistically insignificant. However, as is the case with UI generosity, the average association for all residents obscures meaningful heterogeneity by layoff status. Columns (5) and (6) suggest that for a 10 percent increase in real GDP per capita, delinquencies decline by 52-54 basis points more among laid-off workers than among others ($p < 0.01$).

Taken together, the results in tables 1 and 2 suggest that HMM's estimates of the effect of regular state UI generosity on the likelihood of mortgage delinquency may be driven, at least in part, by state economic conditions. Figure 1 assesses this concern by reestimating HMM's headline specification (HMM table 4 column 3) controlling for various state-year control \times Layoff interactions.

Consistent with state economic conditions being an important confound, the estimated coefficient on Max benefit \times Layoff is sensitive to the inclusion of state-year control \times Layoff interactions. Controlling for HMM's full set of state-year control \times Layoff interactions reduces the magnitude of the estimated coefficient on Max benefit \times Layoff by over 64 percent and increases its standard error by over 58 percent, rendering the point estimate statistically indistinguishable from zero.

4.3 Federal supplements to regular state UI generosity and state economic conditions

To measure differences in federal supplements to regular state UI generosity in dollar terms, HMM define *Max EB EUC* to be the product of the state's maximum WBA and the number of weeks of extended UI authorized under the EB and EUC programs.

Table 3 explores the relationship between federal supplements to regular state UI generosity and state economic conditions. Columns (1) and (2) present log-log specifications of the relationship between Max EB EUC and state average wages. Columns (3)-(6) present analogous specifications of the relation between Max EB EUC and state real GDP per capita. In columns (3) and (4), state real GDP per capita sourced from HMM. In columns (5) and (6) state real GDP per capita is sourced directly from the BEA.

Columns (2), (4), and (6) suggest that, conditional on a flexible function of the state unemployment rate, states with larger federal supplements to regular state UI generosity tend to have higher average wages and real GDP per capita, with elasticities greater than 0.83 ($p < 0.05$).

4.4 Mortgage delinquency and federal supplements to regular state UI generosity

Table 4 explores whether better state economic conditions, like more generous federal supplements to regular state UI generosity, are associated with a lower likelihood of mortgage delinquency among laid-off workers than among others.

Columns (1) and (2) are the same as columns (1) and (2) of HMM table 6, up to minor differences in the estimation sample. The estimates mirror their published counterparts, with a \$1,000 increase in UI generosity associated with a 24-30 basis point reduction in the likelihood of mortgage delinquency.

Columns (3) and (4) parallel columns (1) through (2), with a log of real GDP per capita \times Layoff interaction substituted in for the Max EB EUC \times Layoff interaction. Columns (3) and (4) suggest that, for a 10 percent increase in real GDP per capita, delinquencies decline by 119-129 basis points more among laid-off workers than among others ($p < 0.10$).

Taken together, the results in tables 3 and 4 suggest that HMM’s estimates of the effect of federal supplements to regular state UI generosity on the likelihood of mortgage delinquency may be driven, at least in part, by state economic conditions. Figure 2 assesses this concern by reestimating HMM’s headline specification (HMM table 6 column 2) controlling for various state-year control \times Layoff interactions. Controlling for HMM’s full set of state-year control \times Layoff interactions reduces the magnitude of the estimated coefficient on Max EB EUC \times Layoff by 42 percent and increases its standard error by 36 percent, rendering the point estimate statistically indistinguishable from zero.

5 Conclusion

This comment presents evidence that casts doubt on the identifying assumptions underlying HMM’s analysis of the effect of UI generosity on mortgage delinquency and the broader housing market. Time-series variation in regular state UI generosity and cross-sectional variation in federal supplements to regular state UI generosity during the Great Recession are confounded by variation in state economic conditions. Taking account of state economic confounds reduces the magnitude of HMM’s headline estimates of the effect of UI generosity on mortgage delinquency and renders them statistically indistinguishable from zero.

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Table 1: Regular state UI generosity and state economic conditions, revisited

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log of average wage	0.931 (0.254)									
Log of average wage in previous year		0.973 (0.250)								
Log of real GDP per capita			0.379 (0.137)		0.410 (0.145)	0.408 (0.145)	0.475 (0.120)	0.538 (0.117)	0.466 (0.134)	
Log of real GDP per capita in previous year				0.430 (0.136)						0.516 (0.126)
<i>N</i>	1000	950	1000	950	650	650	1000	950	650	650
<i>R</i> ²	0.96	0.96	0.95	0.95	0.95	0.95	0.96	0.96	0.96	0.96
State and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Source of independent variable	HMM	HMM	HMM	HMM	HMM	HMM	BEA	BEA	BEA	BEA
Years in estimation sample	1991-2010	1992-2010	1991-2010	1992-2010	1998-2010	1998-2010	1991-2010	1992-2010	1998-2010	1998-2010

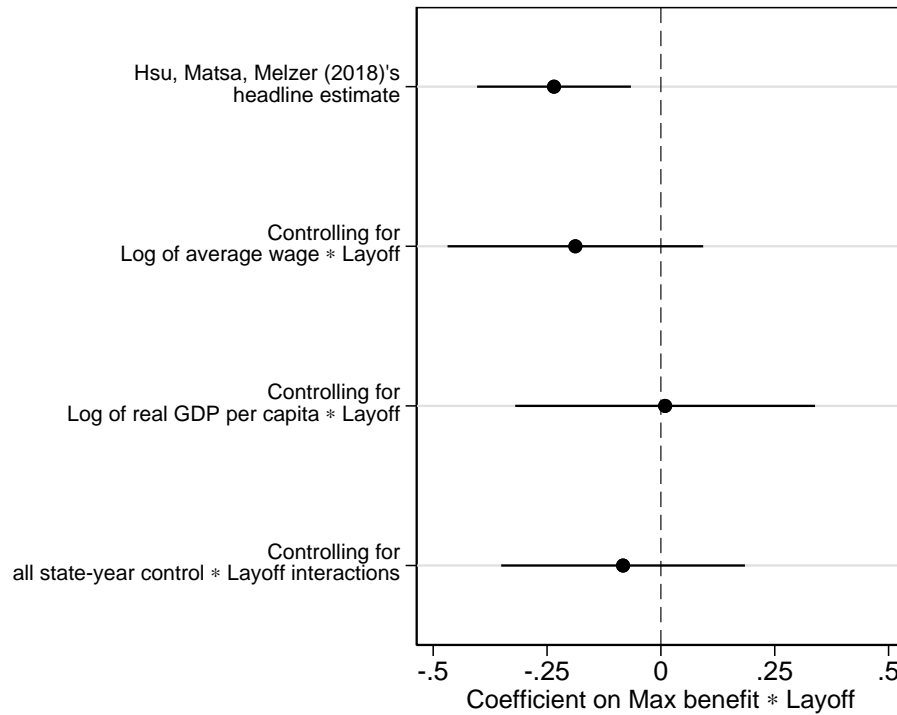
Notes: This table revisits the relationship between state regular UI generosity and state economic conditions. The table presents regressions of the log of max benefit (the maximum total regular benefit available under the state's UI system, in thousands of \$) on select measures of state economic conditions. The sample is all 50 states in the given sample period. The sample period varies across columns for two reasons. In columns (2), (4), and (8) the year 1991 is excluded due to the inclusion of one-year lags. In columns (5), (6), (9), and (10) the sample is restricted to years 1998-2010 to assess the role of a discontinuity in the real GDP per capita series in 1997. All regressions include state and year fixed effects. Standard errors in parentheses are clustered by state.

Table 2: Regular state UI generosity and mortgage delinquency, revisited

	Mortgage delinquency					
	(1)	(2)	(3)	(4)	(5)	(6)
Max benefit	-0.001 (0.114)	0.044 (0.113)				
Max benefit \times Layoff		-0.221 (0.082)	-0.235 (0.084)			
Log of real GDP per capita				-2.134 (4.410)	-1.335 (4.418)	
Log of real GDP per capita \times Layoff				-5.232 (1.327)	-5.358 (1.330)	
Layoff	6.493 (0.346)	6.441 (0.325)	6.437 (0.326)	6.493 (0.346)	6.227 (0.278)	6.222 (0.281)
N	64807	64807	64807	64807	64807	64807
R^2	0.04	0.04	0.05	0.04	0.04	0.05
Household controls	Yes	Yes	Yes	Yes	Yes	Yes
State-year controls	Yes	Yes	—	Yes	Yes	—
State and year fixed effects	Yes	Yes	—	Yes	Yes	—
State-year fixed effects	No	No	Yes	No	No	Yes

Notes: This table explores whether improvements in state economic conditions, like increases in regular state UI generosity, are associated with larger declines in the likelihood of mortgage delinquency among laid-off workers than among others. The table presents estimates of linear probability models of mortgage delinquency on a state-year characteristic, a layoff indicator, their interaction, and a variety of controls. The sample is SIPP households who reside in one of the fifty US states. In columns (1)-(3) the state-year characteristic is max benefit (the maximum total regular benefit available under the state's UI system, in thousands of \$). In columns (4)-(6) the state-year characteristic is the log of state real GDP per capita (sourced from HMM). In all of the columns, the household controls are identical to those used in HMM table 4. In columns (1) and (2), the state-year controls are the same as those used in HMM table 4, up to the different data sources for the house price growth rate. In columns (4) and (5), the state-year controls are the same as those used in columns (1) and (2) except that these columns add max benefit, include the log of state average wages instead of the level of state average wages, and exclude the log of state real GDP per capita. Standard errors in parentheses are clustered by state.

Figure 1: Robustness of association between regular state UI generosity and mortgage delinquency



Notes: This figure explores the robustness of HMM's headline estimate of the effect of regular state UI generosity on mortgage delinquency. The figure plots the coefficient and 95 percent confidence interval on the Max benefit \times Layoff interaction from a regression following the specification of HMM table 4 column (3) and controlling for the listed state-year control \times Layoff interaction. The sample is SIPP households who reside in one of the fifty US states. The log of real GDP per capita series is sourced from the BEA. The last specification includes among the interactions all state-year controls used in HMM table 4 except that it includes the log of state average wages instead of the level of state average wages and a house price growth rate control sourced from the FHFA instead of CoreLogic. Confidence intervals are adjusted for clustering at the state level.

Table 3: Federal supplements to UI generosity and state economic conditions, revisited

	Log of max EB EUC					
	(1)	(2)	(3)	(4)	(5)	(6)
Log of average wage	1.774 (0.408)	1.193 (0.460)				
Log of real GDP per capita			0.615 (0.372)	0.837 (0.369)	0.764 (0.392)	0.991 (0.346)
<i>N</i>	50	50	50	50	50	50
<i>R</i> ²	0.24	0.43	0.05	0.42	0.07	0.45
Cubic in state unemployment rate	No	Yes	No	Yes	No	Yes
Source of independent variable	HMM	HMM	HMM	HMM	BEA	BEA

Notes: This table explores the relationship between federal supplements to UI generosity and state economic conditions. The table presents regressions of the log of Max EB EUC (the generosity of extended benefits available under the state's UI system in May 2009, in thousands of \$) on select measures of state economic conditions in 2008. The sample is all 50 states. Columns (2), (4), and (6) control for cubic functions of the state's unemployment rate in early 2009. In columns (3) and (4), the log of real GDP per capita series is sourced from HMM. In columns (5) and (6), the log of real GDP per capita series is sourced from the BEA.

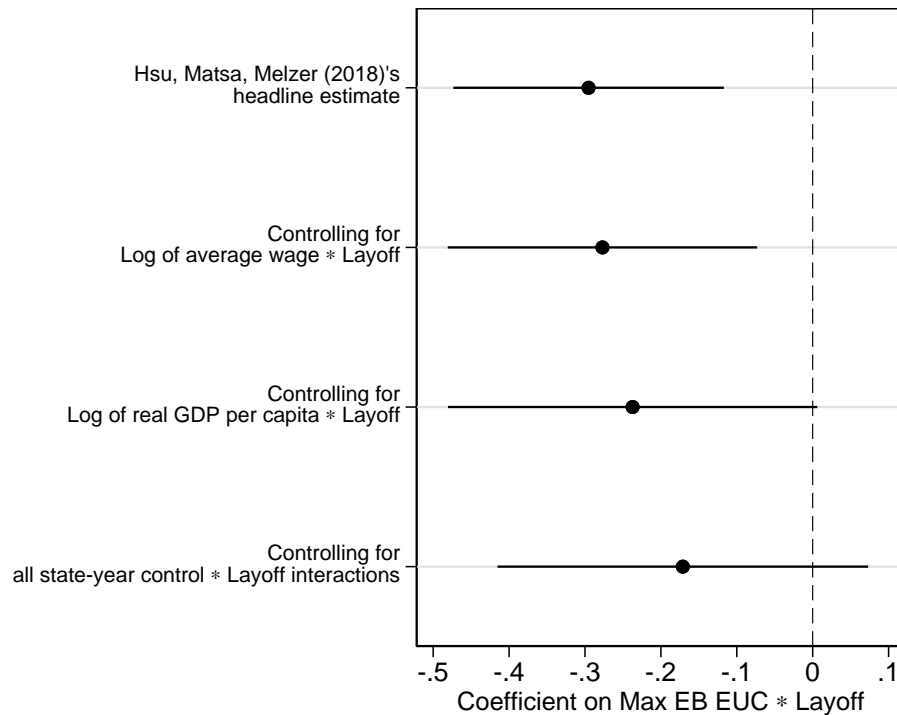
Standard errors in parentheses are robust to heteroskedasticity.

Table 4: Federal UI extensions and mortgage delinquency, revisited

	Mortgage delinquency			
	(1)	(2)	(3)	(4)
Max EB EUC \times Layoff	-0.238 (0.090)	-0.295 (0.089)		
Log of real GDP per capita \times Layoff			-11.864 (6.513)	-12.892 (6.195)
Layoff	8.128 (0.739)	8.888 (0.883)	8.119 (0.840)	8.706 (1.051)
N	12578	12578	12578	12578
R^2	0.07	0.07	0.07	0.07
Household controls	Yes	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes	Yes
Layoff \times cubic in state unemployment rate	No	Yes	No	Yes

Notes: This table explores whether better state economic conditions, like more generous federal supplements to regular UI generosity, are associated with an especially low likelihood of mortgage delinquency among laid-off workers. The table presents estimates of linear probability models of mortgage delinquency on a state-year characteristic, a layoff indicator, their interaction, and a variety of controls. The sample is SIPP households who reside in one of the fifty US states. In columns (1)-(2) the state-year characteristic is max EB EUC (the generosity of extended benefits available under the state's UI system in May 2009, in thousands of \$). In columns (3)-(4) the state-year characteristic is the log of state real GDP per capita in 2008 (sourced from HMM). The household and layoff \times cubic in unemployment rate controls are identical to those used in HMM table 6. Standard errors in parentheses are clustered by state.

Figure 2: Robustness of association between federal supplements to UI generosity and mortgage delinquency



Notes: This figure explores the robustness of HMM's headline estimate of the effect of federal supplements to regular state UI generosity on mortgage delinquency. The figure plots the coefficient and 95 percent confidence interval on the Max EB EUC \times Layoff interaction from a regression following the specification of HMM table 6 column (2) controlling for the listed 2008 state-year control \times Layoff interaction. The sample is SIPP households who reside in one of the fifty US states. The log of real GDP per capita series is sourced from the BEA. The last specification includes among the interactions all state-year controls used in HMM table 4 except that it includes the log of state average wages instead of the level of state average wages and a house price growth rate control sourced from the FHFA instead of CoreLogic. Confidence intervals are adjusted for clustering at the state level.

A Replication appendix

Table A1: UI generosity and economic conditions, 1991-2010

	Max benefit							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Unemployment rate	-0.041 (0.078)							0.009 (0.078)
Log of real GDP per capita		2.405 (1.881)						1.770 (1.562)
House price growth			0.004 (0.013)					-0.002 (0.011)
Average wage				0.062 (0.104)				0.055 (0.098)
Union coverage					0.013 (0.060)			0.010 (0.058)
UI trust fund reserves						0.022 (0.193)		-0.094 (0.164)
UI trust fund reserve < 0							-0.530 (0.512)	-0.490 (0.413)
<i>N</i>	1020	1020	1020	1020	1020	1020	1020	1020
<i>R</i> ²	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
State and year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: This table replicates HMM table 3. The table presents regressions of max benefit (the maximum total regular benefit available under the state's UI system, in thousands of \$) on measures of state economic conditions. The sample is all 51 states (including DC) between 1991-2010. All regressions include state and year fixed effects. Standard errors in parentheses are clustered by state. Relative to HMM table 3, this table differs only in that the house price growth rate control is sourced from the FHFA instead of CoreLogic.

Table A2: UI generosity and mortgage delinquency: SIPP, 1991-2010

	Mortgage delinquency		
	(1)	(2)	(3)
Max benefit	-0.021 (0.112)	0.024 (0.110)	
Max benefit \times Layoff		-0.220 (0.082)	-0.234 (0.084)
Layoff	6.488 (0.345)	6.436 (0.324)	6.431 (0.325)
<i>N</i>	64919	64919	64919
<i>R</i> ²	0.04	0.04	0.05
Household controls	Yes	Yes	Yes
State-year controls	Yes	Yes	—
State and year fixed effects	Yes	Yes	—
State-year fixed effects	No	No	Yes

Notes: This table replicates HMM table 4. The table presents estimates of linear probability models of mortgage delinquency on max benefit (the maximum total regular benefit available under the state's UI system, in thousands of \$), a layoff indicator, their interaction, and a variety of controls. The household controls are identical to those used in HMM table 4. The state-year controls are the same as those used in HMM table 4 except that the house price growth rate control is sourced from the FHFA instead of CoreLogic. Standard errors in parentheses are clustered by state.

Table A3: Federal UI extensions and mortgage delinquency: SIPP, 2010

	Mortgage delinquency		
	(1)	(2)	(3)
Max EB EUC \times Layoff	-0.238 (0.090)	-0.296 (0.088)	
Max EB EUC duration \times Layoff			-0.306 (0.096)
Layoff	8.134 (0.737)	8.895 (0.878)	8.806 (0.867)
<i>N</i>	12602	12602	12602
<i>R</i> ²	0.07	0.07	0.07
Household controls	Yes	Yes	Yes
State fixed effects	Yes	Yes	Yes
Layoff \times cubic in state unemployment rate	No	Yes	Yes

Notes: This table replicates HMM table 6. The table presents estimates of linear probability models of mortgage delinquency on the generosity of extended benefits available under the state's UI system in May 2009, a layoff indicator, their interaction, and a variety of controls. Max EB EUC duration is the maximum number of weeks of benefits paid under the Extended Benefits (EB) and Emergency Unemployment Compensation (EUC) programs, and Max EB EUC is the maximum total potential dollars paid. The household and layoff \times cubic in unemployment rate controls are identical to those used in HMM table 6. Standard errors in parentheses are clustered by state.