The Importance of Unemployment Insurance as an Automatic Stabilizer*

Marco Di Maggio
Columbia Business School
mdimaggio@columbia.edu

Amir Kermani
University of California - Berkeley
kermani@berkeley.edu

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Abstract

We assess the extent to which unemployment insurance (UI) mitigates the economy's sensitivity to shocks by working as an automatic stabilizer. Using a local labor market design based on heterogeneity in local benefit generosity (defined as the percentage of household income recovered by the unemployment benefit), we estimate that a one standard deviation increase in generosity attenuates the effect of adverse shocks on employment growth by 12% and on earnings growth by 18%. Consistent with the hypothesis that this effect derives from the local demand channel, we find that consumption is less responsive to local labor demand shocks in counties with more generous UI. Moreover, the average wage growth of employed workers is less elastic to local labor shocks when benefits are more generous. Our analysis finds that the local fiscal multiplier of UI expenditure is approximately 1.2-1.8. Overall, our results suggest that UI has a beneficial effect on the economy by decreasing its sensitivity to shocks.

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1 Introduction

Fiscal response to any recession is significantly handicapped by the political difficulties that impede timely expansionary fiscal policy. Moreover, the slow recovery from the "Great Recession" has ignited a lively debate on whether the unconventional monetary policy measures adopted after the crisis succeeded in boosting aggregate demand. In principle, automatic stabilizers bypass these difficulties and can be a key factor in easing the consequences of negative economic shocks.[1] However, despite the relevance of this issue, the economic literature provides very little guidance on whether automatic stabilizers are able to buffer the economic consequences of negative shocks.[2]

This paper evaluates the extent to which unemployment insurance (UI) attenuates the decline in real economic activity in response to local labor demand shocks. There are several channels through which automatic stabilizers might moderate cyclical fluctuations. For instance, more generous UI may stabilize *aggregate demand* by reducing fluctuations in disposable income (Brown (1955)) or by *redistributing funds* towards individuals with a higher propensity to consume (Blinder (1975)). However, by increasing firms' hiring costs, more generous UI may also accentuate economic fluctuations by discouraging job creation (Hagedorn et al. (2013)). In other words, the role of UI as an automatic stabilizer and the channels through which it may impact on the economy are empirical questions. This paper shows that UI appears to have a beneficial effect on the economy by decreasing the *sensitivity* to shocks and reducing the variability in aggregate income, employment and consumption.

Our strategy follows Bartik (1991) and Blanchard and Katz (1992) in constructing a measure of the predicted change in demand-driven labor shocks in a county given by the

[1] They were quantitatively important; the Congressional Budget Office estimates that automatic stabilizers accounted for a significant fraction of the increase in government expenditures during the Great Recession: "In fiscal year 2012, CBO estimates, automatic stabilizers added $386 billion to the federal budget deficit, an amount equal to 2.3 percent of potential GDP. That outcome marked the fourth consecutive year that automatic stabilizers added to the deficit by an amount equal to or exceeding 2.0 percent of potential GDP, an impact that had previously been equaled or exceeded only twice in the past 50 years, in fiscal years 1982 and 1983." (Available here http://www.cbo.gov/publication/43977)

[2] For a recent paper on the role of automatic stabilizers see McKay and Reis (2013).

interaction between its initial industrial composition and national changes in industry employment within narrowly defined manufacturing industries. This Bartik shock measure should capture the differential effects of a national shock in the manufacturing sector on counties with pre-existing differences in the local composition of manufacturing. The key identifying assumption is that this measure is not related to county-specific labor supply shocks that may also affect labor market outcomes. The coefficient that we estimate is the interaction between this Bartik shock and UI generosity. Crucial to our approach is the possibility of exploiting variations in UI generosity across states, as well as the fact that even within a state the maximum weekly benefit is more binding in counties where average income is higher. Since we want to show that local economies are less responsive to local labor demand shocks where UI is more generous, we use the UI benefit as of 2000 as our main measure of generosity and do not consider UI extensions.[3] States differ significantly in the generosity of benefits, which range from $275 a week in Florida to $646 a week in Massachusetts. To account for the fraction of the worker's income that is recovered when he becomes unemployed, we compute UI generosity as the ratio of the maximum weekly benefit to the average weekly wage in the county in 2000. As a robustness check, we use two additional measures of UI generosity: first, using micro data from CPS we compute the replacement rate conditional on being unemployed and second, we consider the replacement rate multiplied by the take-up rate.

We start our analysis by estimating the response of earnings growth to shocks in counties with differing UI generosity. We find that counties with more generous UI tend to react less strongly to adverse shocks, captured by a negative interaction between the Bartik shock and UI generosity. The result is both statistically and economically significant. In fact, a one standard deviation increase (equivalent to 12%) in UI generosity decreases the effect of shocks by about 18%. We control for other shocks affecting all counties at the same time with year fixed effects and for unobserved differences across counties by county fixed effects.

[3] This approach has the additional of being less susceptible to endogeneity problems, in that UI extensions could well be driven by local labor conditions.

One potential concern with these estimates is that they could be driven by unobserved heterogeneity across counties, and specifically by differences in industrial characteristics. For instance, counties may be more or less cyclical depending on their main industries, and this could also be correlated with the generosity of unemployment benefits. To control for this possibility, we compute the fraction of employed people in each sector and control for the interaction between the Bartik shock and the fraction of employees in the different sectors. This allows counties whose main industry is manufacturing, for example, to react to the Bartik shock in a different way than those where services dominate. We find that the results remain both statistically and economically significant.

The importance of the effect of UI on aggregate demand can also be gauged by observing how employment growth responds to shocks in counties with different benefit levels. In counties with more generous UI employment growth is significantly less responsive to local labor demand shocks. A one standard deviation increase in UI generosity reduces the elasticity of employment growth with respect to local shocks by 12%.

We then examine the channels through which UI could buffer negative economic shocks. First, we decompose the effect of UI generosity on employment growth between the tradable and the non-tradable sectors. We find that employment in the non-tradable sector, which is mostly driven by local demand, reacts less to labor demand shocks in counties with more generous UI, but employment in the tradable sector does not. Second, we analyze the sensitivity of consumption to shocks. We employ two main measures. First, we show that consumption, proxied by car sales, is less responsive to local labor demand shocks in counties with more generous UI. We find that a one standard deviation increase in UI generosity reduces the local shock elasticity of car sales growth by 17%. The main benefit of this measure is that car sales are registered in the place of residency, which avoid any confounding factor generated by workers consuming in counties other than the ones they live in.[4] Second, we

[4] Admittedly this result is almost certainly an overestimate in that new car purchase is one of the most sensitive components of household consumption to disposable income and our measure of car sales only captures the extensive but not the intensive margin.

also compute total aggregate consumption at the state level, which includes both durables and non-durables, and find very similar results. This confirms the hypothesis that UI has a significant impact on aggregate consumption by moderating fluctuations in the disposable income of the individuals with the highest marginal propensity to consume. Collectively, these results strongly suggest that the mechanism by which UI affects the economy's sensitivity to shocks is the demand channel.

In addition to increasing the disposable income of the unemployed, more generous UI also prevents wage cuts for the employed in response to a negative shock. We supplement the evidence set forth above by analyzing the response of average wages to shocks, finding that they are significantly less sensitive to economic fluctuations in the counties where UI is most generous than in those where it is least generous. In other words, UI benefits affect the disposable income of unemployed workers directly, while indirectly also affecting the wages of the employed, both by sustaining local demand and by bolstering their bargaining power.

Robustness is checked by a series of tests. First, since during the Great Recession a number of federal and state policy measures were taken in response to local labor market conditions, such as the American Recovery and Reinvestment Act and the JOBS Act, we want to make sure that our results are not driven by these interventions. But even excluding all the observations after 2008, the magnitude and the statistical significance of our results are unaffected. Second, to control for time-varying heterogeneity, such as other state-level policies that might affect the local economic conditions and at the same time be correlated with UI generosity, we control for state by year fixed effects as well as the for the presence of right-to-work laws and the minimum wage in the state and their interaction with the Bartik shock. All our results remain unaffected.

Third, since the UI is funded by state taxes which are experience-rated, one potential concern is the endogenous sorting of firms into different states. To account for this possibility we compute the difference between the max and the min UI tax rate and control in our analysis for its interaction with the Bartik shock. Since there is a very strong correlation between this measure and the measure of the firm's marginal tax cost proposed by Card and Levine (2000), we control in this way for the firms' incentives to locate in a state based on the tax cost of firing. Fourth, we show that our results are not sensitive to the specific definition of UI generosity used as they hold also when we measure UI generosity using the replacement rate conditional on being unemployed and the replacement rate times the take-up rate as computed from CPS. Fifth, to rule out the possibility that unobserved heterogeneity may be driving the results, we estimate our main specification on the sample of counties at the state borders. We show that our results remain largely unaffected. Finally, we analyze pairs of bordering counties with similar industrial composition in different states; this significantly reduces the sample, but the results remain largely unaffected.

All in all, our findings can usefully inform the debate on the importance of automatic stabilizers. While generous unemployment insurance programs may adversely affect the *level* of unemployment, we show that more generous unemployment benefits, working through the demand channel, significantly attenuate the *volatility* of economic fluctuations.

1.1 Related Literature

We contribute to the growing literature on the role played by automatic stabilizers, and more specifically of unemployment insurance, on the economy. Blanchard et al. (2010), for instance, argue that designing better automatic stabilizers was one of the most important elements to achieve a more effective macroeconomic policy. Other papers such as Auerbach and Feenberg (2000), Auerbach (2009), Feldstein (2009) and Blinder (2004) among others, emphasize the importance of automatic stabilizers in shaping the economy's response to shocks, which is confirmed by Romer and Romer (2014), who finds a large, immediate, and statistically significant response of consumption to permanent increases in Social Security benefits.

In a recent paper, McKay and Reis (2013) propose a business-cycle model to study the role of automatic stabilizers in general equilibrium. They capture the channels through which automatic stabilizers may attenuate the business cycle, and use it to measure their quantitative importance. Specifically, McKay and Reis (2013) estimate how much higher the volatility of aggregate activity would be if some or all of the stabilizers were removed and show that programs that rely on redistribution (i.e. those that receive funds have higher propensities to spend them than those who give the funds, aggregate consumption and demand will rise with redistribution) and social insurance (i.e. policies alter the risks households face with consequences for precautionary savings and the distribution of wealth) can be more effective at reducing the volatility of aggregate output.[5] We provide empirical support for the redistribution channel, observing consumption responds less to adverse shocks in counties with a more generous UI, because the unemployed have higher disposable income. Furthermore, we also provide evidence suggesting that higher UI increases the average wages of the employed individuals, for instance, due to an increase in aggregate demand and possibly by boosting their bargaining power. Finally, our results on employment growth in the non-tradable sector may stem from a general equilibrium effect: when consumption is less responsive to shocks, the local economy can sustain a higher level of employment.[6]

A few recent papers have focused on the effects of UI extensions during the Great Recession with mixed results. On the one hand, Hagedorn et al. (2013), for instance, argue that the general equilibrium effect operating through the response of job creation to benefit extensions is quantitatively important. Specifically, they employ a regression discontinuity design focusing on U.S. state borders to show that benefit extensions raise equilibrium wages and lead to a sharp contraction in vacancy creation and a rise in unemployment.[7] On the other hand, Rothstein (2011) estimates that UI extensions had significant but small

[5] Another related paper is Dolls et al. (2012) which analyzes the effectiveness of the tax and transfer systems in the EU and the US to provide income insurance through automatic stabilization in the recent economic crisis.

[6] A related paper that studies how UI affects firms' policies is Agrawal and Matsa (2013). It exploits changes in state unemployment insurance laws as a source of variation in the costs borne by workers during layoff spells, finding that firms choose conservative financial policies partly to mitigate workers' exposure to unemployment risk.

[7] Similarly, Hagedorn et al. (2015) exploit the decision of Congress in December 2013 to end the federal benefit extensions introduced during the recession to provide evidence that 1.8 million additional jobs were created in 2014 due to the benefit cut.

negative effects on the probability that the eligible unemployed would exit unemployment. Our contribution differs in several respects. First, Hagedorn et al. (2013) and Rothstein (2011) analyze the direct impact of UI extensions, whereas our paper considers for a given level of UI, measured in 2000, how the sensitivity of the local economic activity to labor supply shocks captured by the Bartik measure depends on the generosity of UI. Second, our results complement these findings by showing that while UI extensions might affect the level of employment, UI generosity also has a significant effect on the volatility of the real economy activity. In other words, we point out that UI might have a beneficial effect on the economy by decreasing its sensitivity to shocks and by reducing the variability of aggregate consumption, employment and earnings. Third, the source of variation in the generosity of UI in the existing papers is the number of weeks, while in our paper is the maximum weekly benefits. The impact of changes in the number of weeks or the weekly benefit can have very different effects, for instance, on the moral hazard generated by UI.

Methodologically, our paper also relates to the works by Blanchard and Katz (1992), Bound and Holzer (2000), Autor and Duggan (2003), Notowidigdo (2011) and Charles et al. (2013) which employ the Bartik (1991) procedure to capture the effects of local labor demand shocks. We complement this evidence by showing that the UI benefits have aggregate effects by working as an automatic stabilizer in affecting the sensitivity of the economy to local labor shocks.

Finally, there are several papers that consider the effects of UI generosity at the individual level. Gruber (1997), Browning and Crossley (2001) and Bloemen and Stancanelli (2005), among others, finds that increases in UI benefits reduce the consumption drop during unemployment, as it allows unemployed workers to smooth consumption. A different strand of the literature has shown that unemployment insurance can reduce the incentives of unemployed workers to find a new job (Solon (1985), Moffitt (1985), Meyer (1990), Katz and Meyer (1990) and Card and Levine (2000) among others), as unemployment durations rise on average by 4-8% for every 10% increase in unemployment benefits.[8] The reason being that UI reduces the incentive to work by distorting the relative price of leisure and consumption, i.e. a substitution effect. Chetty (2005) shows that in environment with liquidity constraints this reduction in search is not necessarily inefficient and provides evidence supporting an income effect in addition to the conventional substitution effect, as workers have more cash on hand while unemployed.[9] However, the introduction of insurance for unemployed individuals starting a business might significantly spur entrepreneurial activity by increasing the incentive of unemployed individuals to start a new firm (Hombert et al. (2014)). More recently, a few studies such as Van Ours and Vodopivec (2008), Card et al. (2007a), Lalive (2007), and Nekoei and Weber (2014) have analyzed the impact of UI generosity on the quality of job matches. We complement these findings by showing that labor force and employment growth are less sensitive to economic shocks in counties with higher UI generosity.[10] In addition, we focus on the local general equilibrium effect of UI generosity as opposed to the effect of UI generosity on unemployed individuals' behavior.

The remainder of the paper is organized as follows. Section 2 provides details on the data sources and summary statistics. Section 3 describes the empirical strategy, while Section 4 presents and interprets the main results on the effect of UI on the economy sensitivity to shocks. Section 5 presents further evidence testing the robustness of our results. Section 6 employs our results to estimate a fiscal multiplier of UI, while Section 7 concludes.

[8] For comprehensive reviews of this literature see Atkinson and Micklewright (1991) and Krueger and Meyer (2002).

[9] Relatedly, Kroft and Notowidigdo (2011) analyze how the level of UI benefits trades off the consumption smoothing benefit with the moral hazard cost over the business cycle and show that the moral hazard cost is procyclical while the benefit is acyclical.

[10] Other recent papers on the role of UI during the Great Recession include Mueller et al. (2013) which employs the arbitrary pattern of UI benefit extensions to identify the effect of UI exhaustion on disability insurance application; and Hsu et al. (2014) which exploits the heterogeneity in UI generosity across U.S. states and over time to show that UI prevented about 1.4 million foreclosures by helping the unemployed avoid defaulting on their mortgage debt. We complement these studies by showing that UI also support aggregate demand by allowing not only an increase in expenditures on mortgage payments, but also on other goods and services.

2 Data and Summary Statistics

In 1935 the US Congress created a joint federal-state system to provide insurance to workers who become unemployed. Each state sets their own UI tax schedules on employers; in addition, employers pay a federal (FUTA) tax, which is used to finance federal extensions and emergency loans to states' UI trust funds, among other objectives. State taxes are required by federal law to be "experience-rated," such that the effective marginal tax rate increases as the number of claims from a firm increase.

One of the key features of this system is that each state can affect the generosity of the program, such as the amount of benefits paid or the number of weeks for which these benefits are provided. The generosity of the weekly benefit payment crucially depends on the individual's prior wages, but each state also provides a cap on the benefit amount and the duration of the benefits. During times of high unemployment, states might also provide further assistance in the form of extensions to the regular benefit period.

The U.S. Department of Labor publishes information on each state's benefit schedule. We measure the generosity of each state's UI benefits in 2000 using the ratio of the maximum weekly benefit amount and the weekly average wage in each county in 2000. We use this normalization to capture the fraction of the income recovered thanks to the UI and to take into account that the same dollar amount might have a significantly different effect within the same state but in counties with different cost of living. Moreover, since the extensions are endogenous to the local labor market conditions we only consider the UI generosity as of 2000 and investigate the impact of such programs from 2001 to 2011.[11] Figure 1.A depicts the substantial heterogeneity in UI generosity across the U.S. with darker regions exhibiting more generous UI relative to the average wages in the regions.

[11] During the Great Recession two important federal programs were enacted: Extended Benefits and Emergency Unemployment Compensation. The Extended Benefits (EB) program, which was adopted in 1970 and typically funded in equal shares by the state and the federal government, provides an additional 13 weeks of benefits when the state's insured unemployment rate rises above 5% and is at least 20% higher than its average over the prior two years. Extended benefits payments are typically funded in equal shares by the state and the federal government. The Emergency Unemployment Compensation (EUC) program, enacted in June 2008, was instead entirely federally funded, providing up to 53 weeks of additional benefits.

We take advantage of numerous sources of data; we mention here the data sets that play the most significant role in the analysis. The Bureau of Economic Analysis provides time-series data on earnings growth (measured by earnings which do not include dividend payments) and industrial composition, while employment growth by industry for each county is computed using yearly data provided by the County Business Patterns (CBP). The Quarterly Workforce Indicators (QWI) provides county-level data on average wages. To analyze the aggregate effects of UI generosity on the county-level consumption, we use a dataset provided by R. L. Polk & Company (Polk) that records all new car sales in the United States.[12] Finally, to control for heterogeneity in the population composition and their access to the credit markets, we collect the fraction of subprime borrowers in 2000 for each county from Equifax. It provides detailed data on a random, nationally representative 5% sample of US consumers.

Table 1 shows the summary statistics for our sample. Panel A reports the statistics for the static variables, i.e. the ones computed in 2000. The first row shows the main source of variation, the maximum unemployment benefit, which ranges from \$190 to more than \$400 a week in the most generous states. The next row shows that the number of weeks does not vary across regions; for all the states but one (Massachusetts), the maximum number of weeks is 26. We then report the main measures of UI generosity that we use, i.e. the ratio between the maximum weekly benefit and the weekly wage, as well as two alternative measures: the replacement rate conditional on being unemployed and the replacement rate times the take-up rate.[13] The table shows that for all three measures there is indeed a significant heterogeneity across states, which confirms what is shown in Figure 1. Among the static variables we also report some of the county-level controls, such as the fraction of subprime borrowers, as well as the share of employees in different sectors (i.e. manufacturing,

[12] This same data has been previously used by Mian et al. (2013).

[13] We only consider UI transfers because, as shown by Chodorow-Reich and Karabarbounis (2013), these account for 88% of all transfers that are related to employment status, while other transfers such as supplemental nutritional assistance (SNAP), welfare assistance (AFDC/TANF), and health care account for the rest. Moreover, these non-UI transfers are mainly federally administrated and their generosity does not vary by state.

construction, services and government). Panel B reports the statistics for the time-varying variables we employ in our analysis. There is a significant variation in the magnitude of the Bartik shock as its standard deviation is about 2%. We shall show that the effect of UI is inherently asymmetric as it only plays a role when the Bartik shocks are negative.

Figure 1.B shows instead that UI generosity is extremely persistent over time. In fact, we plot the correlation between the UI generosity as computed in 2000 and the one computed in 2010 weighted by population.[14] We find that this measure is very persistent over time. Given this persistence, we show in Table 2 the correlations between the different measures of UI generosity and several county characteristics, such as the fraction of employees in the different sectors, the fraction of subprime borrowers, the fraction of self-employed, the fraction of high-school graduates and the democratic share. We find that the main predictors of UI generosity are the democratic share, the wages, the fraction of individuals in the industrial sector and the fraction of subprime. To control for these differences across counties, in all of our specifications, we control for all of the characteristics in Table 2 and their interaction with the Bartik shock.

3 Empirical Methodology

In order to investigate how heterogeneity in UI generosity might impact the different regions' response to local labor demand shocks, we need to find a valid instrument for changes in local labor demand. We follow the strategy proposed by Bartik (1991) and Blanchard and Katz (1992) to construct a local demand index by interacting cross-sectional differences in industrial composition with national changes in industry employment shares. The key identifying assumption to make this a measure of plausibly exogenous labor demand shocks is that this proxy needs to be uncorrelated with unobserved shocks to local labor supply. Specifically, we are assuming that changes in industry shares at the national level are uncorrelated with

[14] The other two measures of UI generosity are very persistent as well and similar graphs to Figure 1.B can be found in the appendix.

city-level labor supply shocks and therefore can be used as a demand-induced variation in local employment.[15]

Our baseline specification is the following

$$\Delta Y_{i,t} = \beta_1(Bartik_{i,t} \times UI_{i,2000}) + \beta_2 Bartik_{i,t} + \beta_3 Bartik_{i,t} \times X_i + \eta_i + \gamma_t + \varepsilon_{i,t}, \quad (1)$$

where $\Delta Y_{i,t}$ represents the growth rate of the main dependent variables. Following Monte et al. (2015), since individuals might live and consume in a region but work in another one, we control for worker flows. The coefficient of interest is β_1, which captures how the sensitivity of ΔY is affected by the UI generosity (UI) measured in 2000. The coefficient β_2 captures the main effect of the Bartik shock, while we also control for a number of county-level characteristics (X_i), such as the fraction of subprime borrowers and the share of employees in each industrial sector and their interactions with the Bartik shock. We also include county and year fixed effects, that is, we allow for any general trend (like effects due to changes in demographics) at the county level. In our most demanding specification to allow for a differential response of states to the Bartik shock, we also include state by year fixed effect.

We start our analysis with a graphical illustration of our main results. Figure 2 plots the effect of UI generosity in attenuating the effects of Bartik shocks on each one of our main dependent variables using a spline regression with knots at the 10th, 50th, and 90th percentile of the Bartik shock. The solid line shows the effect for the counties with least generous UI, while the dash lined depicts the effects for the counties with the most generous UI and on the X-axis we have the Bartik shock. For all our variable of interest, we find that counties with more generous UI are less sensitive to negative labor shocks than counties with less generous UI. For instance, for earnings growth the counties in the top 25th percentile of UI generosity exhibit a very modest elasticity to Bartik shocks, even the most negative

[15] Other papers employing a similar strategy include Bound and Holzer (2000), Autor and Duggan (2003), Luttmer (2005), Notowidigdo (2011), and David et al. (2013).

ones, while counties in the bottom 25th percentile are significantly affected. Similarly, the sensitivity of employment growth to labor shocks is significantly smaller in counties with more generous UI. We can also start providing suggestive evidence that local demand is one of the key drivers of these results by showing the effect of Bartik shocks on car sales growth. The asymmetry of our effects is also conforting as we find that only negative shocks matter. This is only suggestive evidence and there might be omitted factors driving these results, that is, why we shall show in the next few sections that these results hold even after controlling for several potential confounding factors.

4 Main Results

We start by investigating the role of unemployment insurance generosity on earnings and employment. This will give us an estimate of how the sensitivity of the economy to local labor shocks is affected by the generosity of UI. We then turn to the evidence on the channels through which UI can affect the economy by investigating the effects on consumption, average wages and labor force participation growth. To facilitate interpretation of the results, in all the tables that follow we are demeaning all the interaction coefficients and UI generosity is normalized to have a standard deviation equal to 1. Hence, we can assess the magnitude of our effects as the ratio β_1/β_2 in 1, that is, between the interaction coefficient and the main effect.

4.1 Aggregate Earnings Growth

To examine the effects of UI on the economy we start our analysis by investigating the response of aggregate earnings growth to shocks in counties with different UI generosity. As a measure of local economic activity, we use aggregate earnings data from BEA (BEA Table CA30). The main advantage of earnings data with respect to income data is that it does not include any dividend payments or government transfers, which are unrelated to local economic activity. Table 3 reports the results.

Column (1) considers the full sample of counties and controls for unobserved differences across county including counties fixed effects. We also capture other shocks common to all counties with year fixed effects. We find that counties with a more generous UI tend to be less sensitive to adverse shocks as captured by the negative sign on the interaction between the Bartik measure and UI generosity. The result is both statistically and economically significant. In fact, a one standard deviation increase in UI generosity, which is equivalent to a 12% increase, attenuates the effect of the shocks by 18%.

In Column (2) we control for several county characteristics. A source of heterogeneity across counties that might matter for their sensitivity to labor shocks is the individuals' access to the credit market. If better access to credit helps households to smooth their consumption with respect to income shocks, we should expect consumption and aggregate demand to be more sensitive to local labor demand shocks in regions with higher fraction of subprime borrowers. A proxy for the individuals' ability to access the credit market is their FICO score. Thus, we compute the fraction of subprime borrowers, that is, those with a FICO score below 620 in 2000, and control for the interaction between this measure and the Bartik shock. Another potential concern with this result so far is that it might be driven by different industrial characteristics. For instance, counties might be more or less cyclical depending on their main industrial sector, which might also be correlated with the availability of unemployment benefits. To control for this possibility, we compute the fraction of employed people in each sector since 2001 for each county as provided by BEA, then we take the average for each sector over our sample period 2001-2011. We distinguish between construction, manufacturing, government (which includes federal, military, state and local government) and services industries. We also add as controls the interaction between all the variables in Table 2 and the Bartik shock. This specification allows counties whose main industry is manufacturing to react in a different way to the Bartik shock than counties mainly focused on services. We find that the results remain both statistically and economically significant.

We might be concerned that an important source of unobserved heterogeneity that could confound our results are the policies that have been implemented during the Great Recession. For instance, during the financial crisis there have been several extensions to UI and federal interventions to support unemployed workers, and these policies might also affect the counties' sensitivity to Bartik shocks. If this is the case, then our result may be confounded with the effect of extensions. Column (3) shows that this is not the case, because our estimates for the period preceding the financial crisis still show a significant and negative effect. This suggests the lower sensitivity of earnings growth to local labor shocks in counties with more generous UI is not driven by the UI extensions enacted to face the recent crisis.

Finally, in Column (4) we present the most conservative specification in which we control for the interaction between state and year fixed effects. This allows us to control for other unobservable time-varying factors that vary at the state level, such as regulation, minimum wages, etc. Even in this case the results remain largely unaffected. In sum, we find that variation in the generosity of UI significantly impacts the elasticity of earnings growth to local labor supply shocks. Quantitatively, if we compare the top quantile with the bottom quantile of UI generosity, we find that the counties with most generous UI see the effects of Bartik shocks on earnings attenuated by about 35%.

4.2 Employment Growth

We have shown that more generous UI dampens fluctuations in aggregate earnings growth. Now we turn to the analysis of how UI might also contribute to the stability of the local economy by affecting employment. For instance, a more generous UI can reduce the need for firms to fire additional workers in response to negative shocks when the local economy reacts less to such shocks. We now investigate this hypothesis by estimating the sensitivity of employment growth to shocks in Table 4.

As before we start our analysis by considering the full sample of counties and controlling for county and year fixed effects. We show that in counties with more generous UI employment growth is significantly less responsive to local labor demand shocks. The effect is also economically significant as a one standard deviation increase in UI generosity reduces the elasticity of employment growth with respect to local shocks by about 12%.

We test the robustness of these results by controlling in turn for the interaction between Bartik shocks and the industrial composition of the county and the covariates in Table 2 as well as by restricting attention to the pre-crisis period. This result remains statistically and economically significant indicating that unobserved differences in the main employment sectors, the unemployed workers ability to borrow as well as subsequent policy interventions during the Great Recession are not able to explain our results. Finally, we also include state times year fixed effects in our specification. The results remain largely unchanged.

To provide support for a demand channel, we distinguish between tradable and non-tradable sectors following the classification proposed by Mian and Sufi (2012) and compare the sensitivity of each sector to Bartik shocks. The non-tradable sector is mainly composed of small businesses such as restaurants and retails as well as of services, but it does not include construction. We report these results in Panel B of Table 4. Columns (1) and (2) report the results for the non-tradable sector, while Columns (3) and (4) focus on the tradable sector. We start with the baseline specification in which we only control for county and year fixed effects, and then turn to the specification in which we control for the industrial composition and the state-year fixed effect. We find that UI generosity only reduces the sensitivity of the employment in the non-tradable sector, while it has no significant effect on the tradable sector as both its economic and statistical significance is very small.

4.3 Consumption Growth

The previous results show that the local economy reacts better to shocks in the presence of more generous unemployment insurance. We now provide evidence that the demand channel is the key channel driving these results. To examine the effects of UI on aggregate demand we start our analysis by investigating the response of consumption as measured by car sales to shocks in counties with different generosity. One caveat applies to this measure of consumption: we might overestimate the total dampening in consumption due to UI because car sales is the most volatile component of consumption and it only captures the extensive margin, i.e. the number of cars sold. On the other hand, unlike other measures of consumption, the car sales in our data are linked to the county where the car was registered, not the county where the car was actually purchases. Thus car consumption more closely represents consumption in the county of residence, rather than counties that have more developed commercial districts, mitigating concerns about spillover effects. This point will be especially important for our border design discussed in section 5.

Table 5.1 reports the results. The intuition behind these tests is that if UI generosity increases the disposable income of the unemployed it should allow the unemployed to maintain more of their consumption, which supports aggregate demand and improves the economy's response to local shocks. In Column (1) we provide our baseline estimates, when we only control for county and year fixed effects. We find that a one standard deviation increase in UI generosity reduce the elasticity of consumption growth to local labor shock by about 20%. This effect remains significant and largely consistent across different specifications. A source of heterogeneity across counties that may be particularly important in explaining consumption fluctuations is the credit access of households. In counties where workers do not face financial constraints, aggregate consumption might react less to local labor shocks as unemployed workers can smooth their expenditures by borrowing. Moreover, existing studies have shown that there was an outward shift in the credit supply to riskier and subprime borrowers during the years preceding the crisis (see, for instance, Mian and Sufi (2009) and Di Maggio and Kermani (2014)). Accordingly, we want to make sure that credit availability is not driving these results. To take into account credit availability, we compute the fraction of borrowers with a FICO score below 620 in 2000, and control for the interaction between this measure and the Bartik shock in Column (2). Column (2) also include the interaction between other county characteristics and the Bartik shock as in the previous specifications. For similar reasons we might be concerned that consumption might be more responsive to shocks in counties with a higher concentration of subprime borrowers as they started to default at the onset of the crisis. Then, in Column (3) we focus on the pre-crisis period 2001-2007. Both the magnitude and the statistical significance remain unaffected. In Columns (4) we also allow for state by year fixed effects. In the most demanding specification the magnitude of the effect is smaller but still significant. In fact comparing counties in the top and in the bottom 25 percentiles of UI generosity the elasticity of consumption growth is 20% lower.

Since our county-level measure of consumption captures only one of the important components of consumption, we also collect information on total aggregate consumption at the state levelfrom BEA, which includes durables, nondurables, services and restaurant. Table 5.2 reports the results. We find that a one standard deviation increase in UI generosity reduces the sensitivity of total consumption to negative employment shocks by about 17%. Then, this is suggestive that our previous findings are not driven by special features of the auto industry, but are due to a more general demand channel.

These results are related to the seminal contribution by Gruber (1997). Gruber (1997) shows the ability of the government to smooth consumption during unemployment spells by providing direct evidence at the household level of the effect of UI on the consumption of unemployed workers. We complement these results by showing that in equilibrium consumption is less responsive to local labor shocks in presence of more generous UI due to a local general equilibrium effect.

4.4 Average Wages

The main motivation to introduce unemployment insurance benefits is to increase the disposable income of unemployed workers. However, in regions with more generous UI the wages of the employed workers can be less sensitive to negative labor shocks as well. In fact, one potential effect of a more generous UI program on average wages works through aggregate demand, while another is to provide a stronger outside option to employed workers boosting their reservation wages, which makes wages less responsive to economic fluctuations.

To test this hypothesis, in Table 6 we investigate how average wages growth react to Bartik shocks in counties with different UI generosity. The baseline estimates in Column (1) show that a one standard deviation increase in UI generosity significantly reduce the elasticity of average wage growth to labor shocks. Columns (2)-(4) test the robustness of this result by allowing the response to local labor shocks to differ across counties depending on county characteristics (Column 2), by showing that the results do not rely on the crisis period (Column 3), by controlling for the state times year fixed effect (Column 4).

Figure 3 complements the previous results by investigating if UI has differential effects depending on the level of wages. Specifically, in Figure 3 we use the sample provided by the Integrated Public Use Microdata Series of the Current Population Survey to compute the different wage percentile for a subset of counties and regress changes in the x-th percentile of wages on the Bartik shock and its interaction with the generosity of UI.[16] We also provide 95% pointwise confidence intervals constructed from robust standard errors clustered by county. It shows that the effect of UI is quite consistent across the whole wage distribution except at the very top, i.e. above 80th, for which its effect becomes insignificant.[17]

5 Further Evidence and Robustness Checks

In this section, we provide additional results and further test the validity of our identification strategy by restricting attention to counties at the state border and examine several alternative explanatory hypotheses.

[16] IPUMS provides county identifier only for the 300 largest counties.

[17] Chetverikov et al. (2013) provides a similar exercise for the effect of trade shocks on the wage distribution.

5.1 Asymmetric Effects

Up to now, we have considered all Bartik shocks together, without differentiating between positive and negative shocks. However, UI generosity is expected to be more important for large negative shocks, mainly because households may have some liquidity reserves helping them to smooth small shocks. We show evidence consistent with this hypothesis in Table 7. "Low Bartik Shock" identifies the lowest tercile in the magnitude of the Bartik shock, while "High Bartik Shock" identifies the other two terciles. In Column (1) the dependent variable is earnings growth, while in Column (2) it is the employment growth. In Column (3) we investigate the effect of UI and Bartik shock on the car sales growth measure as provided by Polk. In Column (4) the dependent variable is the average wages growth.

We find that only for negative labor supply shocks our main coefficient of interest is negative and statistically significant, whereas the interaction between UI and the Bartik shocks becomes smaller and insignificant for larger shocks. For Columns (1) and (2) the magnitude of the interaction coefficient is between two and three times larger for the most negative Bartik shocks. Column (3), instead, shows that for car sales the effects are concentrated in the bottom tercile of the Bartik-shocks distribution as the coefficient is significant and about eight times larger than for the top tercile. In Columns 4 we complement the previous evidence by reporting the results for average wages which is the only one for which we do not see a clear asymmetry between small and large shocks. Overall, these results confirm what we already showed in Figure 2, namely, that more generous UI only attenuates the sensitivity to negative shocks while it plays no role when the shocks are positive.

5.2 State Level Policies

Although we have shown that our estimates are robust to the inclusion of state by year fixed effects, which should capture any unobserved change in state-level policies, one potential concern with our estimates is that there might be other state-level policies, correlated with UI generosity, that might affect the sensitivity of the economy to local labor shocks. For instance, Holmes (1998) shows that the presence of right-to-work laws determine an endogenous sorting of firms into different states, which might affect our estimates is their presence is correlated with the generosity of UI. Moreover, the level of minimum wage might also affect unemployment by making wages less responsive and inducing rationing in the labor market.

Since these differences across states might also drive the sensitivity of the local economy to supply shocks, in Table 8 we test the robustness of our estimates by including the interaction between the Bartik shock and the presence of right-to-work laws as well as the interaction with the level of the minimum wage. We find a very similar pattern to the one uncovered in the prevous findings. We find that more generous UI decreases the sensitivity of earnings, employment, car sales and wages to negative shocks, while there is no similar effect for the employment in the tradable sector. This reassures us that our estimated are capturing the effect of the heterogeneity in UI generosity, rather than in some other policies that might affect the county sensitivity to economic fluctuations.

5.3 Sorting

Our baseline results could potentially be explained by a combination of the differences in UI generosity and an endogeous sorting of firms into different states based on the marginal UI tax cost. To check for this possibility, we collected data on the maximum and minimum UI tax in each state. Interestingly, as shown in Figure 4.A there is a very strong positive correlation between the difference in UI tax and the marginal tax cost computed by Card and Levine (2000) which uses proprietary data. Then, we use the difference in tax rate as a proxy for the cost beared by firms, which should affect their location.

First of all, we show in Figure 4.B that UI generosity is not sgnificantly correlated with the UI tax rate. However, it might still affect our results indirectly. We then control for the interaction of the Bartik shock with the difference in UI tax rate in Table 9. We find that our baseline findings are robust to this specification as well. Moreover, if there was sorting it should affect both the firms in the tradable and those in the non-tradable sector, while we do not find any significant effect in the tradable sector. This is indicative that sorting of firms into states cannot explain our main results.

5.4 Alternative UI Generosity Measures

Our baseline measure of UI generosity is computed as the ratio between the maximum weekly benefit and the weekly average wage. We can show that our results do not crucially hinge on this particular measure. In fact, Table 10 reports out main specification using two additional measures of UI generosity directly using UI payments. First, in Columns 1-5 we use the replacement rate computed from CPS in 2000. The Current Population Survey provides information on the individuals' income coming from unemployment insurance, we can then look at those households and their wages when they were employed. In this way, using the cross section we know how much of their income is replaced by their UI payment. We find very similar results to the baseline specification in Tables 3-6.

The previous measure computes the replacement rate conditional on being unemployed. However, among the unemployed many are not eligible if for instance they were temporary employees or self-employed, if they quit their job or if they worked in one of the sectors not covered by UI such as construction. In Columns 6-10, instead, we employ the replacement rate times the take-up rate as measured from CPS. To compute the take up rate, we compute among the unemployment how many individuals receive UI benefits, we find it to be about 40%. We rerun our main specification with this new measure and find that both the statistical and economic significance of our results is unaffected. This shows that our results are not driven by the specific normalization we used in the previous section, but is mainly driven by variation in the UI benefit.

5.5 Counties at the Border

In the previous sections, we have controlled for a number of county characteristics to make sure that the only source of heterogeneity affecting the counties sensitivity to labor shocks is UI generosity. However, in order to further control for potential unobserved heterogeneity across counties, another approach is to focus on the counties that border another state. In the following analysis we only consider county pairs at the border across different states. Figure 5 depicts the heterogeneity in UI generosity for the sample of counties at the border, while Table 11 reports the estimated results for this restricted sample.

In addition to controlling for county and year fixed effects as well as for the interaction between the Bartik shock and county characteristics in Table 2, we also control for state border fixed effects and state border linear trends in all the columns. This allows us to compare counties across the same border and different states to follow heterogeneous trends. Column (1) reports the results for earnings growth. We find that the results are still statistically and economically significant. Column (2) shows the results for employment growth, confirming that employment growth is higher when local economies are hit by negative shocks in counties with more generous UI, but the effect is significant only for the non-tradable sector (Column (3)) while it is absent in the tradable one (Column (4)). Columns (5) and (6) report the results for car sales and average wages, showing that aggregate demand is significantly affected by the role that UI plays in the case of negative shocks. Panel B shows that the main results are robust to the most conservative specification in which we control for state border by year fixed effects. Also notice that to the extent that counties on the border receive a similar shock, the main effect of the Bartik shock will be dampened, because we are controlling for state-border-year fixed effects. These findings reassure us that we are not misattributing our effects to the UI generosity while they are the result of time-varying local heterogeneity.

5.6 Industrial Structure

One potential concern with the previous results is that although we focus on counties at the borders, there might still be residual differences among counties that might drive the results. For instance, one possibility is that counties differ in their industrial composition due to, for instance, different right-to work legislation (Holmes (1998)). Then, if counties with a large manufacturing sector have more cyclical unemployment, they might also exhibit a more cyclical unemployment benefit policy, which might potentially confound our results. In section 4 we have corrected for this possibility by controlling for the interaction between the Bartik shock and the fraction of employees in different sectors. Here, as an additional robustness check, we restrict attention to a subset of *county pairs* at the border with a similar industrial composition.

We match counties in the following way. We collect data from BEA on the fraction of employed people in each two digit NAICS code sector, and then for each sector we take the average over the years 2001-2011 and form a vector X_i for county i. We then compute the distance between each two county pairs i and j as $|X_i - X_j|$ and only keep the county pairs whose distance is below the median.[18] This should make sure that not only these counties are geographically close to each other but also exhibit the same industrial characteristics. Table 12 reports our estimates. We show that all of our results remain significant with point estimates very close to the ones shown for the full sample specifications.

5.7 Labor Force Participation

UI generosity might also affect labor force participation through two different channels. On the one hand, unemployed workers might decide to reduce their search effort or maintain a higher reservation wage, which would result in longer unemployment spells. On the other hand, the unemployed workers could remain attached to the labor force for a longer period of time than in absence of extended benefits.

[18] A similar approach is employed by Hagedorn et al. (2013).

Recent papers on the topic include Chetty (2008), Farber and Valletta (2013) and Farber et al. (2015) among others.[19] Chetty (2008) argues that most of the increase in unemployment durations caused by UI benefits is not due to the effects on search effort ("moral hazard") but due to a "liquidity effect". Farber and Valletta (2013), instead, focus on the UI extensions during the Great Recession and the labor market downturn in the early 2000s to show that they resulted in a small but statistically significant reduction in the unemployment exit rate and a small increase in the expected duration of unemployment. Moreover, they show that the effects of extended benefits on exit from unemployment occur primarily through a reduction in labor force exits rather than a reduction in job finding. Farber et al. (2015) investigates the effect of extended benefits on unemployment exits both during the period of benefit expansion and the later period of rollback. They find that in both periods there is little or no effect on job-finding but a reduction in labor force exits due to benefit availability

In the same spirit, we analyze how the sensitivity of the labor force growth to local labor shocks changes in counties with different UI generosity. Table A.1 shows the main results. We find that a one standard deviation increase in UI leads to a significant reduction in the sensitivity of the labor force to Bartik shocks. Thus, while the existing literature focuses on the spike in the exit rate from unemployment around the expiration of jobless benefits, we complement these studies by showing that the elasticity of the labor force participation is also significantly affected by the generosity of UI benefits.

6 Fiscal Multiplier

The Great Recession has revived the interest in the stimulus effects of government spending and tax changes. We can contribute to this debate by using our estimates to obtain a local fiscal multiplier for UI expenditures. We start by computing the fiscal multiplier μ_e for

[19] See Card et al. (2007b) for an overview of the existing literature on the effects of UI benefits on exit from unemployment.

earnings by reporting the regression specifications that we use:

$$employment\,growth_{it} = \gamma_{i2} + \alpha_{t2} + \beta_{12} \times bartik_{it} + \beta_{22} \times bartikXUIgen_{it} + X_{it} \times \Phi_2 + \epsilon_{it},$$

and

$$earning\,growth_{it} = \gamma_{i3} + \alpha_{t3} + \beta_{13} \times bartik_{it} + \beta_{23} \times bartikXUIgen_{it} + X_{it} \times \Phi_3 + \epsilon_{it}. \quad (2)$$

Thus, we can compute the multiplier as follows:

$$\begin{aligned}
\mu_e &= \frac{\$\,increase\,of\,earnings}{\$\,increase\,in\,UI\,payment} \\
&= -\frac{\beta_{23}}{\beta_{12}} \times \frac{Earning}{Totalemployment \times Average\,Wages} \\
&= \frac{1.21}{0.76} \times 1.4 = 2.2.
\end{aligned}$$

To make this calculation we had to make few assumptions. First, we assume that all unemployed workers apply for UI. We do not divide it in half, because the unemployment generated by Bartik shocks is quite long-term (see for instance, Autor et al. (2014) and Davis and von Wachter (2011)), which means that since it takes more time to find a job, the incentives to apply for UI are higher. Second, we assume that labor force participation does not change significantly, which makes the number of unemployed workers exactly equal to the negative change in the number of the employed ones. Then, we can compute the denominator in the expression for μ_e by multiplying β_{12} by the Bartik shock, which gives us the employment growth, and then we multiply it by the number of employed workers to get the change in the number of employed workers.

To compute the change in payments to unemployed workers, we use the change in UI generosity (as measured by the realized payments made to unemployed workers) times the average wage. For the numerator, we use the earnings growth equation in (2) to compute the earnings growth as β_{23} times the Bartik shock times the change in UI generosity. And then, we multiply it by the level of earnings to get the change in earnings. We then compute from BEA the ratio of total earnings and total wages, and we find that is about 1.4 and also very stable over our sample period. Thus, we find an average multiplier of 2.2 for earnings. This means that for each additional dollar of transfer through UI, earnings go up by twice that much.

In a similar way, we estimate a multiplier μ_{emp} on employment as follows:

$$\begin{aligned}\mu_{emp} &= \frac{\$\, increase\, of\, wages\, of\, new\, employed}{\$\, increase\, in\, UI\, payment} \\ &= -\frac{\beta_{22}}{\beta_{12}} = \frac{1.1}{0.76} = 1.44,\end{aligned}$$

where for the denominator we followed the same steps as for the earnings multiplier, while for the numerator we can simply compute the change in employment times their wages, which captures the dollar increase in wages of newly employed workers. Thus if we take the ratio of average wages in 2010 and μ_{emp} we get that each \$32,000 of transfers through UI creates one new job.

This relates our paper to the series of recent papers using cross-state variation to estimate fiscal multipliers.[20] Moreover, our estimates are very consistent with those found in other papers that use a different source of variation in government spending. For instance, Serrato and Wingender (2010) exploit the fact that a large number of federal spending programs depend on local population levels and exploit changes in the methodology that the Census uses to provide a count of local populations to estimate a fiscal multiplier of 1.57. Shoag et al. (2010) instruments state government spending with variations in state-managed benefit pension plans and find that government spending has a local income multiplier of 2.12 and an estimated cost per job of \$35,000 per year. More recently, Chodorow-Reich et al. (2012) examine the effect of the \$88 billion of aid to state governments through the Medicaid reimbursement process contained in The American Recovery and Reinvestment Act (ARRA)

[20] For a survey of the literature on national output multipliers see Ramey (2011).

of 2009 on states' employment and find a multiplier of about 2. Whereas Nakamura and Steinsson (2014) employ data on military procurement spending across U.S. regions their differential effects across regions to estimate an "open economy relative multiplier" of approximately 1.5.

Our estimates are broadly consistent with the range of estimates for fiscal multipliers on income and employment provided by the existing studies, which also reassures us that our methodology is not capturing other unobserved differences across counties that might bias our results upwardly.

7 Concluding Remarks

This paper evaluates the extent to which unemployment insurance (UI) attenuates the sensitivity of real economic activity to local labor demand shocks. Our strategy follows Bartik (1991) and Blanchard and Katz (1992) in constructing a measure of the predicted change in demand-driven labor shocks for each county. We then interact this measure with the county-level UI generosity in 2000. We provide two main findings. First, we start our analysis by estimating the response of earnings growth to shocks in counties with different UI generosity. We find that counties with more generous UI tend to react significantly less to negative shocks.

Second, we provide evidence that the main channel through which UI affects the sensitivity of the economy to shocks is a demand channel. In fact, car sales become less sensitive to negative shocks in counties with more generous UI. Moreover, we find that only employment in the non-tradable sector which is mainly driven by local demand conditions is affected by variation in UI across states.

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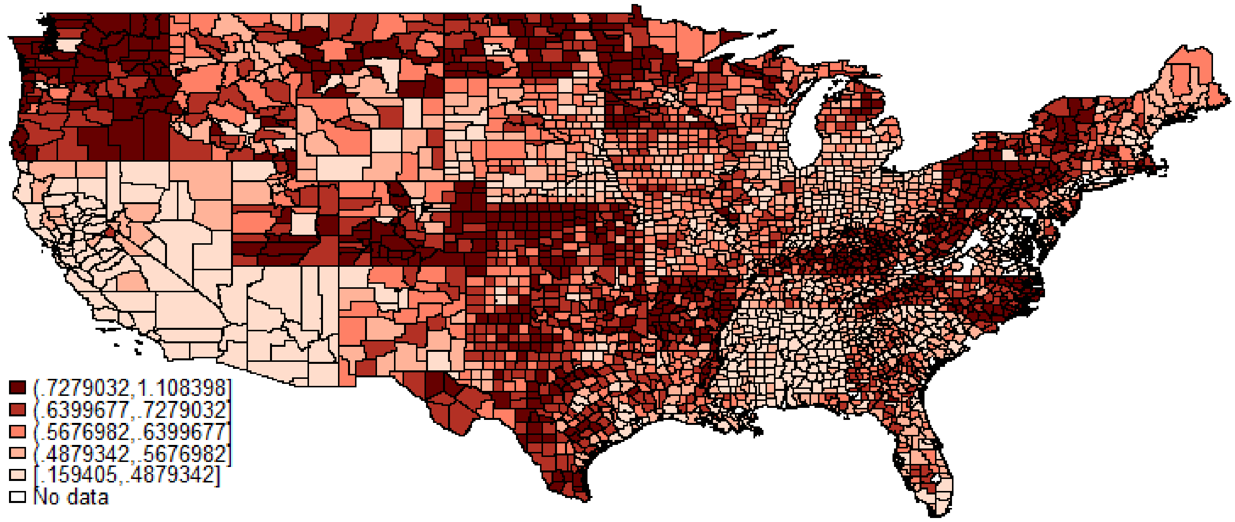

Figure 1.A UI Generosity

This graph shows the unemployment insurance generosity in 2000 for all the counties, with darker regions having more generous UI benefits.

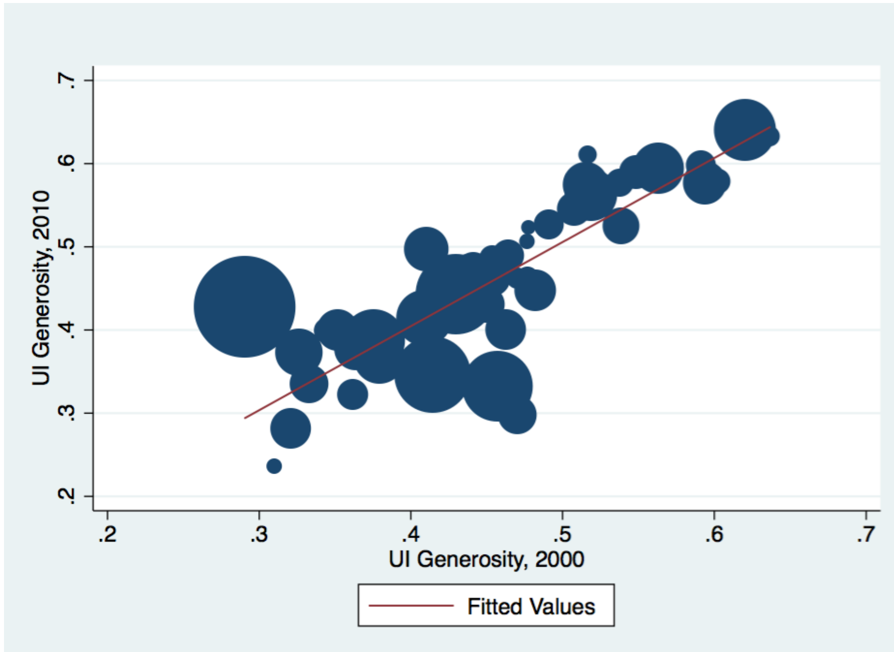

Figure 1.B UI Generosity

This graph shows the correlation between the unemployment insurance generosity in 2000 and in 2010 for all the counties weighted by population.

Figure 2 Spline

This graph depicts the effect of the UI generosity in attenuating the Bartik shocks using a spline for each dependent variable and the knots being at the 10^{th}, 50^{th}, and 90^{th} percentile of Bartik shock. It shows the effects for the top and the bottom 25^{th} percentile in the UI generosity.

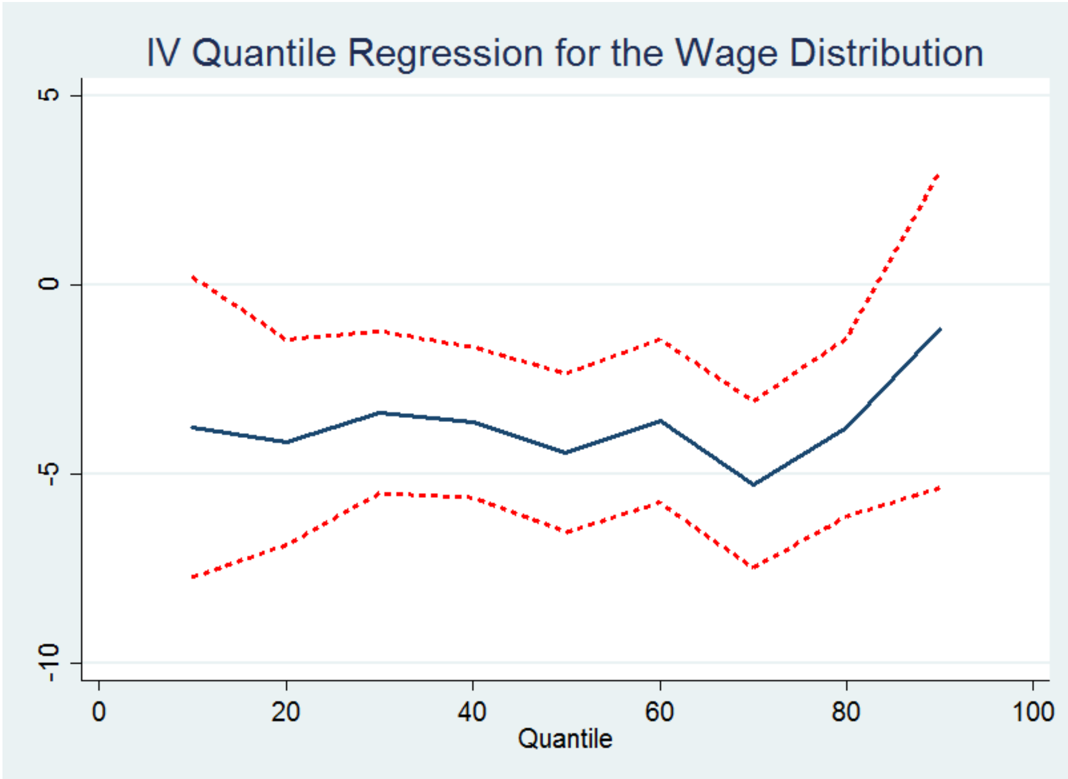

Figure 3 Effects of UI Generosity on Wage Distribution

Figure plots the coefficient on the UI generosity interaction with Bartik shock in the regression of wage growth of the nth percentile of the wages. 95% pointwise confidence intervals are constructed from robust standard errors clustered by county and observations are weighted by population.

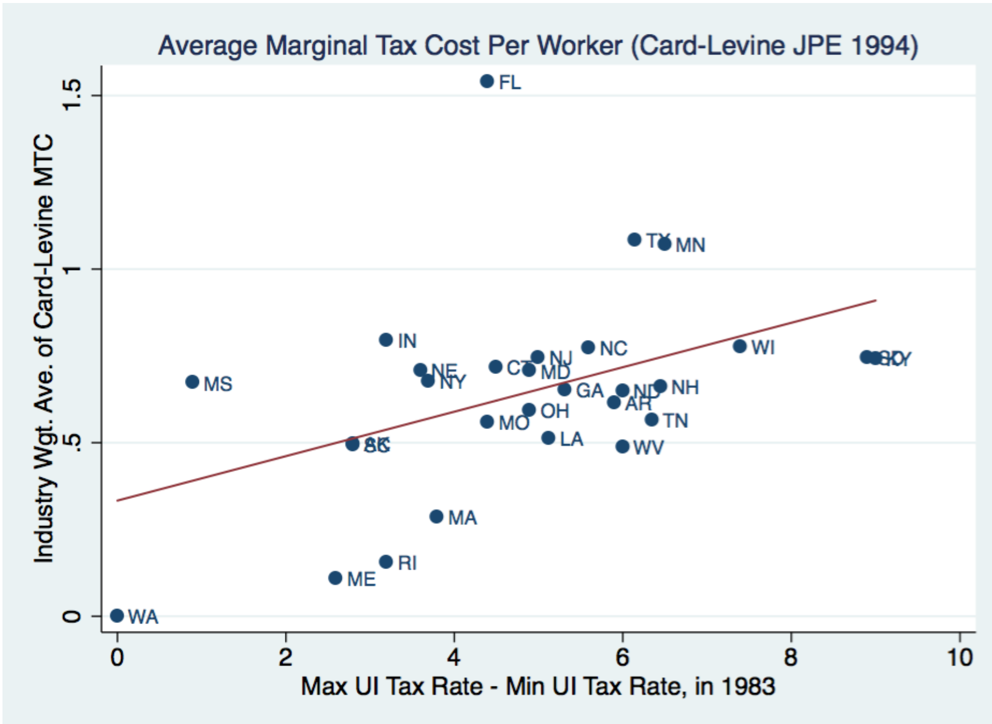

Figure 4.A Effects of UI Generosity on Wage Distribution

Figure plots the correlation between the difference between the maximum and the minimum UI tax rate and the industry weighted average marginal tax cost provided by Card and Levine (2000).

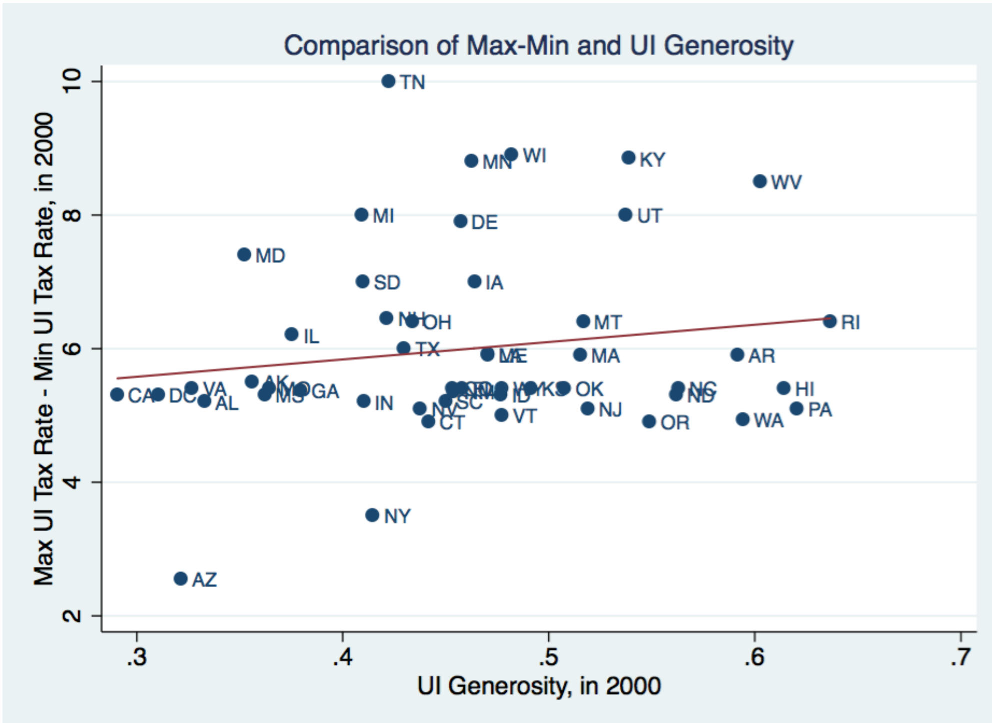

Figure 4.B Effects of UI Generosity on Wage Distribution

Figure plots the correlation between the difference between the maximum and the minimum UI tax rate and the UI generosity in 2000.

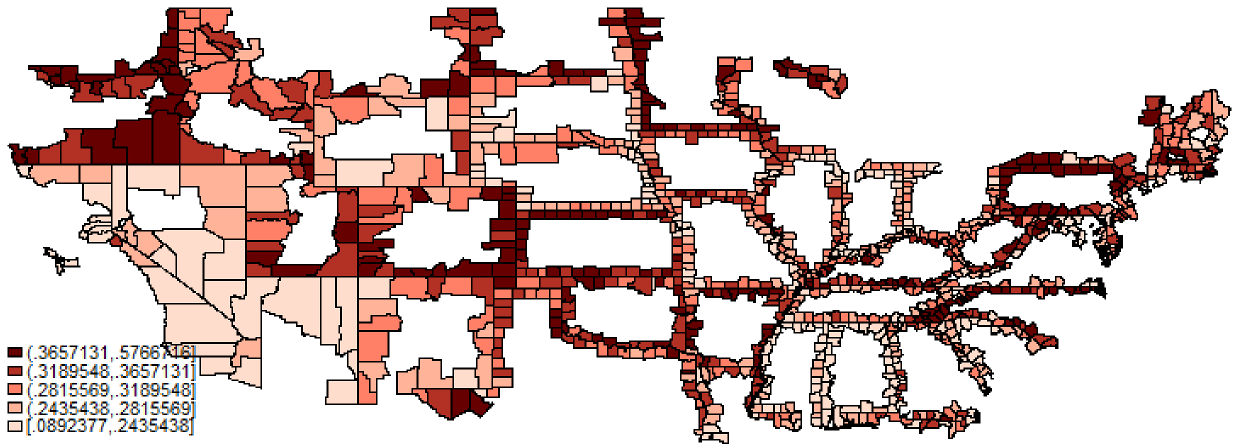

Figure 5 Regression Discontinuity

This graph shows the heterogeneity in UI generosity for the sample of counties at the border which we use in our RD regressions.

Table 1

Summary Statistics

The table reports the summary statistics for the main variables. Panel A focus on the variables computed in 2000, while Panel B examines the variables over the period 2001-2011. The data on earnings growth and industrial composition is collected from the Bureau of Economic Analysis, while employment growth by industry for each county is computed using yearly data provided by the County Business Patterns (CBP). Data on average wages is provided by the Quarterly Workforce Indicators (QWI). R. L. Polk & Company records all new car sales in the United States and provides our measure of car sales. The fraction of subprime borrowers in 2000 for each county is from Equifax.

Panel A. Static Variables in 2000

	(1) N	(2) Mean	(3) St. Dev	(4) p1	(5) p10	(6) p50	(7) p90	(8) p99
Max Weekly Benefit	3,072	298.0	64.20	190	230	284	408	441
Number of Weeks	3,072	26.18	0.820	26	26	26	26	30
Max Weekly Benefit / Average Income	3,072	0.491	0.141	0.205	0.315	0.480	0.692	0.859
Max Weekly Benefit / Median Income	3,069	0.371	0.110	0.170	0.240	0.352	0.514	0.685
(UI Expenditure / N. Unemployed)/Average Wage	3,025	0.230	0.107	0.0808	0.123	0.202	0.376	0.575
Fraction of Subprime Borrowers	3,071	0.300	0.0893	0.140	0.194	0.284	0.427	0.516
Share of Employees in Construction Sector	3,021	0.0590	0.0190	0.0228	0.0378	0.0563	0.0824	0.118
Share of Employees in Manufacturing Sector	3,023	0.0842	0.0528	0.0121	0.0314	0.0746	0.154	0.273
Share of Employees in Services Sector	3,072	0.642	0.101	0.338	0.496	0.665	0.749	0.806
Share of Employees in Government Sector	3,072	0.139	0.0596	0.0549	0.0857	0.124	0.210	0.368
Population	3,072	1052000	1881000	8,621	35,460	417,939	2465000	9519000

Panel B. Dynamic Variables

Bartik Shock 2000	40,781	-0.00725	0.0294	-0.0986	-0.0502	0.000659	0.0231	0.0422
Employment Growth	41,201	0.00416	0.0572	-0.139	-0.0584	0.00381	0.0626	0.181
Employment in Non-Tradable Sector Growth	41,201	-0.0173	0.122	-0.408	-0.141	-0.000366	0.0839	0.292
Employment in Tradable Sector Growth	41,196	0.00880	0.225	-0.460	-0.164	-0.00852	0.161	0.911
Income Growth	40,024	0.0417	0.0861	-0.191	-0.0400	0.0373	0.119	0.377
Car Sales Growth	34,356	-0.0152	0.145	-0.361	-0.197	-0.0182	0.158	0.411
Average Wages Growth	40,024	0.0337	0.0291	-0.0469	0.00261	0.0325	0.0660	0.130
Labor Force Growth	40,679	0.00408	0.0399	-0.126	-0.0332	0.00332	0.0416	0.156
Unemployment Growth	41,201	0.0671	0.212	-0.257	-0.131	0.0130	0.362	0.785

Table 2

UI Generosity and County Characteristics

The table reports the correlations between our three measures of UI generosity and several regional characteristics measured in 2000. The fraction of subprime borrowers in 2000 for each county is from Equifax. The data on industrial composition is collected from the Bureau of Economic Analysis, while data on average wages is provided by the Quarterly Workforce Indicators (QWI). Asterisks denote significance levels (***=1%, **=5%, *=10%).

	Max Weekly Benefit / Average Wages	*Conditional Raplacement Ratio*	*Unconditional Replacement Rate*
Fraction Subprime Borrowers	-0.0888**	-0.0269	-0.202***
	(0.0424)	(0.0691)	(0.055)
Fraction Construction	-0.0306	-0.092	-0.148
	(0.0638)	(0.115)	(0.0965)
Fraction Industrial	0.0104	0.0452	0.0941**
	(0.0314)	(0.0487)	(0.0413)
Fraction Service	-0.0067	-0.0319	-0.0214
	(0.0314)	(0.0435)	(0.0337)
Fraction Government	0.00387	-0.103	-0.0386
	(0.0389)	(0.0652)	(0.051)
Log Average Wages	-0.119***	-0.0660*	-0.0447*
	(0.0179)	(0.0359)	(0.026)
Fraction Self-Employed	-0.00282	-0.0881	-0.103
	(0.0424)	(0.0771)	(0.0699)
High School Graduates	0.000197	0.00161	0.000699
	(0.000632)	(0.00101)	(0.00057)
Democratic Share	0.000428**	0.000834**	0.000967***
	(0.000207)	(0.000315)	(0.000181)
Observations	3,053	3,053	3,053
R-squared	0.552	0.141	0.355

Table 3

Earnings Growth

The table reports coefficient estimates of weighted least square regressions relating earnings growth to the unemployment insurance generosity and Bartik shock. The full sample includes the period 2001-2011. In all columns the dependent variable is the earnings growth and we control for county and year fixed effects. In Columns 2-4 we control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. In column 3 we restrict attention to the pre-crisis period. In column 4 we control for the state-by-year fixed effects. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)
	Earnings Growth			
	Full Sample	*Full Sample*	*Year <2008*	*Full Sample*
Bartik Shock × UI Generosity	-0.12***	-0.12***	-0.09**	-0.16***
	(0.02)	(0.03)	(0.05)	(0.04)
Bartik Shock	0.74***	0.72***	0.95***	0.73***
	(0.07)	(0.07)	(0.07)	(0.08)
County Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Bartik Shock × Controls		Yes	Yes	Yes
State × Year Fixed Effects				Yes
Observations	33,805	32,845	21,462	40,014
R-squared	0.02	0.02	0.02	0.04
Number of Counties	3,084	2,989	3,071	3,078

Table 4

Employment Growth

The table reports coefficient estimates of weighted least square regressions relating the employment growth to the unemployment insurance generosity and Bartik shock. The full sample includes the period 2001-2011. In Panel A, the dependent variable is the employment growth and we control for county and year fixed effects. In Columns 2-4 we control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. In column 3 we restrict attention to the pre-crisis period. In column 4 we control for the state-by-year fixed effects. Panel B distinguish between employment growth in the non-tradable (Columns 1-2) and tradable (Columns 3-4) sector. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

Panel A. Employment Growth

	(1)	(2)	(3)	(4)
	Employment Growth			
	Full Sample	*Full Sample*	*Year <2008*	*Full Sample*
Bartik Shock × UI Generosity	-0.08***	-0.07*	-0.08**	-0.08***
	(0.03)	(0.03)	(0.04)	(0.02)
Bartik Shock	0.60***	0.62***	0.98***	0.52***
	(0.06)	(0.06)	(0.09)	(0.06)
County Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Bartik Shock × Controls		Yes	Yes	Yes
State × Year Fixed Effects				Yes
Observations	33,805	32,845	21,462	40,014
R-squared	0.02	0.03	0.02	0.02
Number of Counties	3,084	2,989	3,071	3,078

Panel B. Employment Growth in Tradable and Non-Trdable Sectors

	(1)	(2)	(3)	(4)
	Employment in Non-Tradable Sector	*Employment in Non-Tradable Sector*	*Employment in Tradable Sector*	*Employment in Tradable Sector*
Bartik Shock × UI Generosity	-0.20***	-0.16***	-0.05*	-0.06
	(0.04)	(0.02)	(0.03)	(0.04)
Bartik Shock	0.48***	0.36***	0.70***	0.57***
	(0.06)	(0.04)	(0.12)	(0.08)
County Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Bartik Shock × Controls		Yes		Yes
State × Year Fixed Effects		Yes		Yes
Observations	33,784	40,014	33,153	40,009
R-squared	0.01	0.02	0	0
Number of Counties	3,081	3,078	3,051	3,078

Table 5.1

Car Sales

The table reports coefficient estimates of weighted least square regressions relating car sales to the unemployment insurance generosity and Bartik shock. The number of cars sold in each county is provided by Polk, and the full sample includes the period 2001-2011. In all columns the dependent variable is the car sales and we control for county and year fixed effects. In Columns 2-4 we control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. In column 3 we restrict attention to the pre-crisis period. In column 4 we control for the state-by-year fixed effects. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)
	Car Sales			
	Full Sample	*Full Sample*	*Year <2008*	*Full Sample*
Bartik Shock × UI Generosity	-0.23***	-0.20***	-0.50***	-0.12*
	(0.07)	(0.07)	(0.15)	(0.07)
Bartik Shock	0.95***	0.87***	0.36	0.91***
	(0.17)	(0.15)	(0.34)	(0.27)
County Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Bartik Shock × Controls		Yes	Yes	Yes
State × Year Fixed Effects				Yes
Observations	33,805	32,845	21,462	30,730
R-squared	0.02	0.03	0.02	0.01
Number of Counties	3,084	2,989	3,071	3,076

Table 5.2

Total Consumption

The table reports coefficient estimates of weighted least square regressions relating total consumption to the unemployment insurance generosity and Bartik shock. Total consumption includes both durables and non durables consumption in each state and is provided by BEA, and the full sample includes the period 2001-2011. In all columns we control for county and year fixed effects. In Columns 2-4 we control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. In column 3 we restrict attention to the pre-crisis period. In column 4 we control for the state-by-year fixed effects. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)
		Total Consumption		
	Full Sample	*Full Sample*	*Year <2008*	*Full Sample*
Bartik Shock × UI Generosity	-0.09**	-0.09**	0.04	-0.09**
	(0.04)	(0.04)	(0.03)	(0.05)
Bartik Shock	0.53**	0.49**	0.62**	0.54**
	(0.23)	(0.22)	(0.29)	(0.24)
County Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Bartik Shock × Fraction of Subprime Borrowers		Yes	Yes	Yes
Industrial Characteristics × Bartik Shock				Yes
Observations	663	663	408	663
R-squared	0.04	0.05	0.03	0.07
Number of States	51	51	51	51

Table 6

Average Wage Growth

The table reports coefficient estimates of weighted least square regressions relating the average wage growth to the unemployment insurance generosity and Bartik shock. The full sample includes the period 2001-2011. In all columns the dependent variable is the average wage growth and we control for county and year fixed effects. In Columns 2-4 we control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. In column 3 we restrict attention to the pre-crisis period. In column 4 we control for the state-by-year fixed effects. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)
	Average Wage			
	Full Sample	*Full Sample*	*Year <2008*	*Full Sample*
Bartik Shock × UI Generosity	-0.08***	-0.08***	-0.11***	-0.11***
	(0.01)	(0.01)	(0.03)	(0.02)
Bartik Shock	0.20***	0.20***	0.31***	0.24***
	(0.03)	(0.03)	(0.05)	(0.02)
County Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Bartik Shock × Controls		Yes	Yes	Yes
State × Year Fixed Effects				Yes
Observations	33,805	32,845	21,462	40,014
R-squared	0.02	0.03	0.02	0.03
Number of Counties	3,084	2,989	3,071	3,078

Table 7

Asymmetric Effects

The table reports coefficient estimates of regressions relating the main dependent variables to the unemployment insurance generosity and Bartik shock. The full sample includes the period 2001-2011. "Low Bartik Shock" identifies the lowest tercile in the magnitude of the Bartik shock, while "High Bartik Shock" identifies the other two terciles. In Column 1 the dependent variable is earnings growth, while in Column 2 it is the employment growth. In Column 3 we investigate the effect of UI and Bartik shock on the car sales growth measure as provided by Polk. In Column 4 the dependent variable is the average wages growth. We control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)
	Earnings Growth	*Employment Growth*	*Car Sales*	*Average Wages*
Low Bartik Shock × UI Generosity	-0.22***	-0.16***	-0.71***	-0.05**
	(0.05)	(0.05)	(0.14)	(0.02)
High Bartik Shock × UI Generosity	-0.10***	-0.05**	0.09	-0.12***
	(0.04)	(0.02)	(0.12)	(0.01)
Low Bartik Shock	0.75***	0.79***	0.12	0.39***
	(0.04)	(0.04)	(0.16)	(0.03)
High Bartik Shock	0.77***	0.32***	4.78***	0.28***
	(0.05)	(0.05)	(0.25)	(0.03)
County Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Bartik Shock × Controls	Yes	Yes	Yes	Yes
Observations	40,014	40,014	33,806	40,014
R-squared	0.23	0.22	0.21	0.22

Table 8

Robustness I: State-Level Policies

The table reports coefficient estimates of regressions relating the main dependent variables to the unemployment insurance generosity and Bartik shock controlling for other state policies. We control for the presence of right-to-work laws and the minimum wage in the state and their interaction with the Bartik shock. The full sample includes the period 2001-2011. In Column 1 the dependent variable is earnings growth, while in Column 2 it is the employment growth. In Column 3 we investigate the effect of UI and Bartik shock on the car sales growth measure as provided by Polk. In Column 4 the dependent variable is the average wages growth. We control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)	(5)
	Earnings Growth	*Employment Growth*	*Employment in Non-Tradable Sector*	*Employment in Tradable Sector*	*Car Sales*
Bartik Shock × UI Generosity	-0.11***	-0.12***	-0.17***	-0.04	-0.46***
	(0.03)	(0.04)	(0.05)	(0.09)	(0.08)
Bartik Shock × Right-to-Work	0.11	0.01	0.03	-0.02	-0.05
	(0.07)	(0.05)	(0.07)	(0.10)	(0.18)
Bartik Shock × Minimum Wage	0.04	0.16***	0.19***	0.1	0.24
	(0.05)	(0.04)	(0.05)	(0.07)	(0.15)
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Bartik Shock × Controls	Yes	Yes	Yes	Yes	Yes
Observations	28,104	28,108	28,108	28,108	27,088
R-squared	0.04	0.05	0.02	0.01	0.03
Number of Counties	2,558	2,558	2,558	2,558	2,465

Table 9

Robustness II: Sorting of Firms into States

The table reports coefficient estimates of regressions relating the main dependent variables to the unemployment insurance generosity and Bartik shock controlling for UI tax rate. We control for the difference between the max and min UI tax rate and its interaction with the Bartik shock. The full sample includes the period 2001-2011. In Column 1 the dependent variable is earnings growth, while in Column 2 it is the employment growth. In Column 3 we investigate the effect of UI and Bartik shock on the car sales growth measure as provided by Polk. In Column 4 the dependent variable is the average wages growth. We control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)	(5)
	Earnings Growth	*Employment Growth*	*Employment in Non-Tradable Sector*	*Employment in Tradable Sector*	*Car Sales*
Bartik Shock × UI Generosity	-0.15***	-0.08**	-0.10**	-0.03	-0.23*
	(0.04)	(0.04)	(0.04)	(0.08)	(0.14)
Bartik Shock × (Tax Max – Tax Min)	-0.07**	-0.10**	-0.17***	-0.07	-0.14
	(0.03)	(0.05)	(0.06)	(0.06)	(0.11)
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Bartik Shock × Controls	Yes	Yes	Yes	Yes	Yes
Observations	32,845	32,843	31,631	31,994	32,828
R-squared	0.03	0.04	0.01	0.01	0.02
Number of Counties	2,989	2,989	2,878	2,973	2,989

Table 10

Robustness III: Different Measures of UI Generosity

The table reports coefficient estimates of weighted least square regressions relating the main dependent variables to the unemployment insurance generosity and Bartik shock. The full sample includes the period 2001-2011. In Columns 1-5 we use the replacement rate computed from CPS in 2000 to measure UI generosity. In Columns 6-10, instead, we employ the replacement rate times the take-up rate as measured from CPS. In Columns 1 and 6 the dependent variable is earnings growth, while in Columns 2 and 7 it is employment growth. In Columns 3 and 8 we investigate the effect of UI and Bartik shock on the employment in the non-tradable, while in Columns 4 and 9 we analyze the employment in the tradable sector. In Columns 5 and 10 the dependent variable is the car sales growth measure as provided by Polk. In all columns we control for county and year fixed effects as well as by the interaction between the controls in Table 2 and the Bartik shock. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	UI Generosity = Replacement Rate					*UI Generosity = Replacement Rate X Take-Up Rate*				
	Earnings Growth	*Employment Growth*	*Employment in Non-Tradable Sector*	*Employment in Tradable Sector*	*Car Sales*	*Earnings Growth*	*Employment Growth*	*Employment in Non-Tradable Sector*	*Employment in Tradable Sector*	*Car Sales*
Bartik Shock × UI Generosity	-0.10***	-0.10**	-0.15***	-0.04	-0.35***	-0.18***	-0.11***	-0.17***	-0.06	-0.28**
	(0.03)	(0.04)	(0.05)	(0.06)	(0.10)	(0.04)	(0.04)	(0.05)	(0.07)	(0.14)
Bartik Shock	0.72***	0.91***	0.41***	1.59***	0.69**	0.67***	0.89***	0.38***	1.57***	0.66*
	(0.12)	(0.10)	(0.11)	(0.27)	(0.31)	(0.13)	(0.11)	(0.13)	(0.28)	(0.34)
County Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bartik Shock × Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	32,845	32,843	31,631	31,994	32,828	32,845	32,849	32,849	32,849	31,631
R-squared	0.03	0.04	0.02	0.01	0.01	0.03	0.04	0.02	0.01	0.01
Number of Counties	2,989	2,989	2,989	2,989	2,878	2,989	2,989	2,989	2,989	2,878

Table 11

Robustness IV: Bordering Counties

The table reports coefficient estimates of weighted least square regressions relating the main dependent variables to the unemployment insurance generosity and Bartik shock. The sample includes all the counties within 10 miles from the border during the period 2001-2011. In Column 1 the dependent variable is earnings growth, while in Column 2 it is the employment growth. In columns 3 and 4 we distinguish between employment growth in the non-tradable and tradable sectors. In Column 5 we investigate the effect of UI and Bartik shock on the car sales growth measure as provided by Polk. In Column 6 the dependent variable is the average wages growth. In all columns we control for county and year fixed effects. We control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. In all columns we control for state border fixed effects and state border linear and square trends. In Panel B we also control for state by year fixed effects. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)	(5)	(6)
	All counties					
	Earnings Growth	*Employment Growth*	*Employment in Non-Tradable Sector*	*Employment in Tradable Sector*	*Car Sales*	*Average Wages*
Bartik Shock × UI Generosity	-0.15***	-0.13**	-0.18***	-0.09	-0.43***	-0.13***
	(0.05)	(0.06)	(0.05)	(0.07)	(0.13)	(0.05)
Bartik Shock	0.68***	0.78***	0.21	1.49***	0.80**	0.22**
	(0.13)	(0.11)	(0.13)	(0.28)	(0.38)	(0.10)
County Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Bartik Shock × Controls	Yes	Yes	Yes	Yes	Yes	Yes
State Border Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
State Border Linear and Square Trends	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,015	14,007	14,007	13,813	13,553	13,518
R-squared	0.02	0.02	0.01	0	0.03	0.01
Number of Counties	1,275	1,275	1,275	1,266	1,233	1,262

Panel B

	(1)	(2)	(3)	(4)	(5)	(6)
	All counties					
	Earnings Growth	*Employment Growth*	*Employment in Non-Tradable Sector*	*Employment in Tradable Sector*	*Car Sales*	*Average Wages*
Bartik Shock × UI Generosity	-0.12**	-0.04	-0.10**	0.00	-0.21**	-0.14***
	(0.05)	(0.04)	(0.04)	(0.09)	(0.08)	(0.06)
Bartik Shock	0.51***	0.45***	0.02	0.86***	-0.19	0.33***
	(0.10)	(0.10)	(0.11)	(0.28)	(0.19)	(0.10)
County Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Bartik Shock × Controls	Yes	Yes	Yes	Yes	Yes	Yes
State Border × Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14,015	14,015	14,015	14,015	13,553	13,518
R-squared	0.02	0.01	0.00	0.00	0.01	0.01
Number of Counties	1,275	1,275	1,275	1,275	1,233	1,262

Table 12

Robustness V: Bordering Counties with Similar Industrial Composition

The table reports coefficient estimates of weighted least square regressions relating the main dependent variables to the unemployment insurance generosity and Bartik shock. The sample includes all the counties within 10 miles from the border during the period 2001-2011 with similar industrial composition. We collected data from BEA on the fraction of employed people in each sector, then for each sector we take the average over the years 2001-2011 and form a vector X_i for county i. We then compute the distance between each two county pairs i and j and only keep the county pairs whose distance is below the median. In Column 1 the dependent variable is earnings growth, while in Column 2 it is the employment growth. In Columns 3 and 4 we distinguish between employment growth in the non-tradable and tradable sectors. In Column 5 we investigate the effect of UI and Bartik shock on the car sales growth measure as provided by Polk. In Column 6 the dependent variable is the average wages growth. In all columns we control for county and year fixed effects. We control for the interaction between the Bartik shock and all the controls in Table 2, such as the fraction of employees in construction, manufacturing, government (which includes federal, military, state and local government), self-employed and services industries as well as the fraction of subprime borrowers, the democratic share and the fraction of individuals with high-school degree. In all columns we control for state border fixed effects and state border linear and square trends. Standard errors are clustered at the county level. Asterisks denote significance levels (***=1%, **=5%, *=10%).

	(1)	(2)	(3)	(4)	(5)
	Similar Industry Composition				
	Earnings Growth	*Employment Growth*	*Employment in Non-Tradable Sector*	*Car Sales*	*Average Wages*
Bartik Shock × UI Generosity	-0.14***	-0.13**	-0.22***	-0.44***	-0.13***
	(0.05)	(0.06)	(0.06)	(0.11)	(0.04)
County Fixed Effects	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes
Bartik Shock × Controls	Yes	Yes	Yes	Yes	Yes
State Border Fixed Effects	Yes	Yes	Yes	Yes	Yes
State Border Linear and Square Trends	Yes	Yes	Yes	Yes	Yes
Observations	7,713	7,713	7,713	7,471	7,378
R-squared	0.02	0.02	0.01	0.03	0.03
Number of Counties	702	702	702	680	689