Aid and Encouragement:

Does a Letter Increase Enrollment Among UI Recipients?

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Abstract

While job loss is widely associated with adverse consequences like prolonged periods of reduced wages, health issues, and heightened risk of death, a channel which may attenuate these adverse consequences of unemployment or lead to long-term improvements in economic outcomes is post-secondary education and skill acquisition. Indeed, there is some evidence that high-quality college training generates substantial returns (Jacobson, LaLonde, and Sullivan 2005). Yet, there are good reasons to believe that neither recent high school graduates nor older individuals with significant employment experience are fully aware of the federal financial aid and enrollment opportunities available to them. Indeed, one concern during the recent recession is that limited knowledge of financial aid availability and eligibility might limit the extent to which workers receiving unemployment Insurance (UI) would avail themselves of collegiate opportunities. In May of 2009, an executive initiative and guidance from the Department of Labor and the Department of Education encouraged states to send letters to UI recipients. These letters provided three broad types of information and encouragement: (1) suggested training as an avenue to better job security and higher wages, (2) informed displaced workers about the Pell grant program, and (3) suggested that displaced workers may be given special consideration for Pell grant receipt. We use variation in sending and the timing of sending of Pell letters within and across states to identify the effect of this information on college enrollment. Using the 2008 Panel of the Survey of Income and Program Participation, we find that individuals that are more likely to have received a letter are more likely to enroll in college within the following six months. While educational attainment appears to increase slightly, there are no observable earnings gains two years out from initial UI receipt, suggesting that the intervention may not have benefited individuals or society as a whole.

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The sharp erosion of economic conditions associated with the recession that began in 2008 led to a dramatic spike in job loss in the U.S., with the unemployment rate rising from 6.5% in October 2008 to 10% a year later in October of 2009. Many of those losing jobs were young workers and a disproportionate share of those entering unemployment are job losers rather than job leavers, temporary layoffs or re-entrants (Kroft, Lange, Notowidigdo, and Katz, 2013).

One policy response was the combined federal and state efforts to encourage job losers to use the period of slack labor demand to invest in skills. In May of 2009, the Department of Labor and the Department of Education issued guidelines intended to encourage post-secondary enrollment among Unemployment Insurance recipients and to inform these potential students of their likely eligibility for financial aid in the form of Pell grants. At question is whether this very general informational intervention affected enrollment and subsequent outcomes of those experiencing spells of unemployment. For job losers receiving Unemployment Insurance (UI), it is well-known that employment disruption may have a long-term adverse impact on earnings, particularly when coming from sectors where jobs are declining such as manufacturing. Evidence from Jacobson and Sullivan (2005) indicates earnings gains for displaced workers who participate in community college programs, even though attainment is often modest.

Basic economic theory suggests that –particularly for relatively young workers – times of temporary slack labor demand provide an opportunity to invest in skills. Indeed, weak labor demand may lead those already enrolled to stay in school longer as well as encourage those already in the labor force to return to school.

Yet, even as policy makers frequently extoll the virtues of "job training" and additional skill acquisition, those workers who are unemployed, particularly owing to job loss, may face

substantial barriers in pursuing collegiate or training options. One challenge is that credit constraints may limit the capacity to pay tuition and the associated living costs while enrolled. Second, workers who have been full-time labor force participants for a number of years may lack the information needed to navigate post-secondary application, financial aid application, and the choice of a post-secondary program well-matched to prior achievement and aspirations.

With the Pell grant at a near historical high of $5500 in 2008-09, one might hypothesize that – combined with extended UI benefits – UI recipients would find strong incentives to enroll in post-secondary programs. Indeed, the Pell grant may be a particularly powerful tool in assisting unemployed workers access to post-secondary training options given its generosity and broad portability. However, one policy concern is that eligible non-traditional students – including job losers – might not avail themselves of the Pell grant and other financial aid because they are unaware of its generosity or they find the application process onerous and burdensome.

Fundamentally, a well-functioning higher education system relies on potential students well informed about their post-secondary options. While there have been a number of purposeful tests of informational interventions designed to affect enrollment and college choice in recent years (see, for example, Hoxby and Turner (2013) and Bettinger, Long, Oreopoulos, and Sanbonmatsu (2012), the ad hoc implementation of the letter sending following the May 2009 guidance ("Pell letters") provides a natural experiment through which we can study an information intervention at scale. In addition, rather than providing customized guidance specific to an individual's circumstances, the "Pell letters" tend to provide a very basic message about college enrollment and the likely availability of financial aid.

Our analysis begins with a brief overview of the institutional details and post-secondary enrollment behavior of the unemployed, particularly those eligible for UI, and the intersection of

the UI program with federal financial aid programs like the Pell grant program. The second section gives a detailed exposition of the "Pell letters" policy, explaining the implementation along with the observed variation across states. The third section provides a discussion of the data and the descriptive results in our analysis. The fourth section covers the estimation approach, which relies on within state variation in Pell letter implementation, to identify the effects of the policy on enrollment.

Results show a substantial impact on enrollment caused by the introduction of the Pell letter. UI recipients receiving the letter were five to six percentage points more likely to enroll during the following six months. Yet, we observe moderate effects on attainment and no improvement in subsequent labor market outcomes two years after initial UI receipt. The broad takeaway is that plausibly low cost informational interventions may have large impacts on the enrollment behavior of new UI recipients. Some of the affected individuals appear to have completed additional training; however, there is little evidence that this training led to increasing earnings. Given the foregone earnings during training and the direct costs of post-secondary education born by individuals in the form of tuition payments and the government in the form of financial aid, it is important to recognize that the increased enrollment generated by the Pell letter comes at a significant cost. However, given the limitations of the data, we are unable to perform a rigorous cost-benefit analysis due to limitations on the available measures of attainment and earnings.

Section 1: Unemployment Insurance, Post-Secondary Enrollment and Federal Student Aid

1.1 Unemployment Insurance and Post-Secondary Enrollment

While there are large bodies of research literature focused on how parameters of the UI program affect the duration of unemployment (see, for example, Meyer 1990 and Chetty, 2008), the research on how UI program parameters affect enrollment is much more limited (see Barr and Turner, 2014, for a recent addition to this discussion). That UI recipients participate in post-secondary education is not a phenomenon unique to the most recent recession. Focusing on dislocated workers receiving UI, Jacobson and Sullivan find 23.5% of women under 35 and 16.8% of men in this age range completed as least one community college course.

While the participation of UI recipients in post-secondary education has received far less attention in the research literature than estimates of the direct effect of UI on employment duration or transitions to other social policies such as Disability Insurance, the incidence of post-secondary participation among UI recipients is substantial. Based on estimates from the SIPP, we find that about 13% of UI recipients aged 20 to 40 are enrolled in a post-secondary program while receiving UI, with this participation yet greater (21%) among those 20 to 25 who will have the longest period to accrue benefits from investments in training.

How a worker eligible for Unemployment Insurance might access programs that promote skill acquisition varies markedly from state-to-state. Because UI program parameters are determined mainly at the state level, it is not just benefit levels that differ across states but also the circumstances in which individuals may engage in job training or post-secondary enrollment while receiving benefits. State-specific eligible training rules determine what types of post-secondary courses of study or training programs meet eligibility standards and constitute "approved training." If a UI benefit recipient chooses to enroll in a non-approved program, he or she forfeits benefit receipt regardless of whether he or she meets other search and work availability requirements. While virtually any undergraduate program would qualify in some

states (e.g., Delaware or California), other states limit qualified training to a much narrower set of explicitly vocational programs (e.g., Alabama or South Carolina). Thus, it is not surprising that UI recipient enrollment responds differently to changing enrollment incentives. Barr and Turner (2014) use a binary measure of training leniency "academics approved", to examine differential enrollment responses to changing labor market conditions (see the appendix to Barr and Turner (2014) for details of the construction of the variable).

Variation in UI benefits also affects post-secondary participation. Barr and Turner (2014) provide evidence that increases in the duration of UI benefits have a substantial impact on post-secondary participation. An additional 10 weeks of benefits increases the enrollment likelihood by about 1.5 percentage points, implying a relative adjustment of around 18%. The marginal enrollment occurs largely at two-year institutions.

The available evidence on the extent to which post-secondary participation increases long-term earnings and employment outcomes for UI recipients is limited.[1] Jacobson, LaLonde, and Sullivan (2005a, 2005b) present two of the only studies on the return to formal training among displaced workers. They find that an additional year of community college education generates increases in long-term earnings of 7 to 10 percent among displaced workers. Decomposing this effect, they find that the training resulted in both higher wages and additional hours worked. However, the returns to training were not homogenous; the effects for technical coursework were generally greater than 10 percent while non-technical credit receipt resulted in a small or null increase in earnings.

1.2 Federal Financial Aid and Unemployment Insurance Recipients

[1] There has been somewhat more work on the effects of informal training provided through the Workforce Investment Act (for example, see Andersson (2013) and Heinrich (2009)).

Historically, there has been little policy articulation related to the intersection of federal student aid policy, including the Pell grant program which provides portable need-based grants and the Stafford loan program which provides subsidized loans to low-income student borrowers, and active labor market policies Indeed, the absence of cooperation between administering agencies – state level employment offices charged with administering UI and the federal Department of Education charged with distributing financial aid – has been widely cited (Carnevale 2009).

Section 2: "Pell Letters" – Guidance and Implementation

2.1 "Pell Letter" Guidance

At the height of the fiscal crisis in May 2009, the Executive Branch, the Department of Labor and the Department of Education began a pro-active effort to encourage UI recipients to invest in training. With the May 2009 announcement that nearly 540,000 individuals lost jobs in the prior month, President Obama announced a pro-active effort to encourage post-secondary investment by aligning Department of Labor and Department of Education policies. In a speech on May 9, 2009, President Obama noted "In a 21st century economy where the most valuable skill you can sell is your knowledge, education is the single best bet we can make – not just for our individual success, but for the success of the nation as a whole. So if we want to help people not only get back on their feet today but prosper tomorrow, we need to take a rigorous new approach to higher education and technical training. And that starts by changing senseless rules that discourage displaced workers from getting the education and training they need to find and fill the jobs of the future."

The interagency effort was intended to address multiple barriers to investment in training: first, typical state UI rules imposed barriers to enrollment while receiving UI benefits; secondly, determination of eligibility for aid relied on prior year earnings or earnings from the last job which were often inconsistent with the current capacity to pay for job losers; and, finally, job losers might not be well-informed about opportunities for federal financial aid for post-secondary enrollment.

The policy initiatives were multipronged involving coordinated action from the Department of Labor and the Department of Education. First, in a guidance letter, Secretary of Labor Hilda Solis sent a letter to all states directing them to inform all unemployed workers of potential eligibility for federal financial aid for post-secondary enrollment. Secondly, Department of Education Secretary Arne Duncan sent a letter to all post-secondary financial aid officers explaining the relaxation of determination of aid eligibility for unemployment insurance recipients. At the federal level, these efforts were promoted through the new website, Opportunity.gov. In the words of Anthony Carnevale, "With one quick opening step Obama crossed the Mall between the DOE and the DOL."

The federal guidance was in no way binding and states were given latitude to decide whether to contact or send a letter to UI recipients, when to send the letter and who to send the letter. Roughly forty states had sent or were in the process of sending these letters by the end of 2009 (National Association of State Workforce Agencies 2010). The decision in each state resided with the state employment office. Broadly, the letters sent by the states included two general messages: 1) UI recipients were encouraged to seek training and 2) UI recipients were informed of their likely eligibility for Pell grants.

Beyond information distributed by state employment agencies, the federal Department of Education also provided "guidance" to colleges and universities which was intended to make it easier for institutions to "use `professional judgment', to adjust aid awards for those workers who had experienced job losses." The guidance included:

> During this period of economic hardship, you may use the letter from the state unemployment agency, or other evidence that a student is receiving unemployment benefits, to document that the income earned from work of that student is zero for the purposes of adjusting data items for the student on the student's federal financial aid application. For purposes of implementing this letter only, unemployment benefits can also be considered zero as the Department of Education, in consultation with the Department of Labor and the Office of Management and Budget, has determined that the maximum unemployment benefits available would not have a material impact on the Expected Family Contribution of an independent student. If there are other members of the student's family for whom you may have evidence of their receiving unemployment benefits, we encourage you to examine the totality of the family's economic situation and make any appropriate adjustments. Unemployed individuals will be able to present letters for 90 days from the date of issuance of those letters to an aid administrator for consideration under this guidance. (The letter should not be accepted if you know that an applicant already has obtained other employment.) Other verification of current receipt of unemployment benefits is an acceptable substitute for the state unemployment agency letter. (http://www2.ed.gov/policy/gen/guid/secletter/090512.html)

In effect, those able to present information on eligibility for UI were to be treated as having zero income for the purpose of calculating eligibility for federal financial aid. What is more, the letter sent by state employment offices served as an effective "ticket" for determination of financial aid eligibility.

2.2 Collecting Information of State-Specific Initiatives

We systematically (and repeatedly) contacted each state to inquire about whether a letter was sent and, if so, the timing and incidence of the letter. Our initial requests were in the form of a survey sent via email (with follow-up). For those non-respondent states, we also sent a paper document by mail. For persistent non-responders, we sent FOIA or public records requests as

permitted by state rules requesting a copy of the state's letter (if one was sent) and other descriptive information on the initiative (see Appendix A1 for additional information).

Figure 1 provides an overview of state participation in the initiative, with the time period from May 2009 to March 2010 displayed across the columns. Shaded cells in each state-period indicate that letters were sent to UI recipients. Overall, at least 38 states sent letters and, among those sending, there is wide variation in the period over which letters were sent with California and Oklahoma sending the letters for only a short period while others like New Jersey and Wyoming sent the letters repeatedly. There is also variation in the timing of initial letter sending; while 4 states managed to send letters promptly in June of 2009, the largest addition of states sending letters occurred between July and August 2009.[2] Anecdotal evidence from an external survey suggests that variation in the timing of sending was largely idiosyncratic, but we explore the potential endogeneity issues further below.

2.3 Mechanism of Impact

Available evidence suggests that low-income students may lack information about the availability of financial aid and, as a result, may be deterred from pursuing post-secondary education because they conclude that post-secondary programs are unaffordable based on "sticker price" (Hoxby and Turner, 2013; Bettinger, Long, Oreopoulos, and Sanbonmatsu, 2012).

For students beyond their high school years, information deficits about financial aid and college choice may be particularly acute because they do not have access to high school counselors who may be able to facilitate application decisions (Bettinger, Long, Oreopoulos, and

[2] This figure masks additional variation generated by whether a state sent the letters to all UI recipients or only new recipients.

Sanbonmatsu, 2012). Thus, notification about the availability of financial aid and encouragement from an authoritative source to pursue post-secondary education in the form of a letter may serve as a "nudge" to encourage collegiate investments. In some respects, this intervention might be seen as parallel to the "information only" treatment used in the Bettinger et al (2012) experiment in which potential low-income students were given different amounts of information and assistance with the financial aid application.

While broad encouragement for college attendance and information about the availability of financial aid may impact the extensive margin of college attendance, the impact on attainment may be limited. In relation to personal investments including education choices and health care coverage, response to informational interventions is demonstrably greater when the materials delivered are tailored and well-matched to an individual's circumstances. Examples include the Kling et al (2012) examination of how the presentation of personalized cost information affects Medicare Part D subscription, the Hastings and Weinstein (2008) examination of local school choice and the Hoxby and Turner (2013) study of college choice among high-achieving low-income students. What is more, encouragement for attendance without guidance on the difference in potential benefits (likelihood of completion and future earnings) among colleges may facilitate poorly informed college choice which may actually hurt intended beneficiaries if induced students forego labor market opportunities or incur substantial debts.

Section 3: Data and Descriptive Results

Our primary source of data on individual behavior is the 2008 Survey of Income and Program Participation (SIPP). The SIPP is a longitudinal survey conducted at 4-month intervals which not only records economic circumstances at the interview dates, but also provides a

monthly history of education and labor market outcomes. Unlike many other surveys, such as the CPS or the ACS, the SIPP asks direct questions about program participation over time, recording both UI receipt and the receipt of federal student aid including Pell grants.

Table 1 presents descriptive characteristics for our primary sample which includes UI recipients in the age range 20-40. We restrict the sample to include individuals initially receiving UI between October 2008 and November 2010. We further eliminate any individuals enrolled in the month prior to initial UI receipt. As with the population of UI recipients more generally, individuals in the sample are more likely to be male and less educated than the general population; while over a quarter of individuals in this age group have a bachelor's degree, only eighteen percent of the UI recipient sample does.

Through much of the period of observation, the contemporaneous post-secondary enrollment rate of individuals receiving UI is between 10% and 18%. When we look at contemporaneous enrollment of UI recipients, there appears to be a substantial increase in enrollment after the introduction of the policy (Figure 2). Looking within individuals in our sample, about ten percent of UI recipients enroll within six months of initial UI receipt. A little less than half of these individuals receive Pell grants.[3] We constructed an estimate of annual employment earnings at 6, 12, 18, and 24 months following initial UI receipt by calculating average earnings over the following three months and converting it to an annual figure. We later use this as one metric of the success of the intervention.

Section 4: Estimation and Empirical Results

[3] Enrollment and Pell receipt are somewhat higher when we restrict to baseline education levels of at least high-school but less than a bachelor's degree.

To estimate the effect of the "Pell letter" on post-secondary outcomes, we use both the variation between states over time, the within-state variation in the timing of the contact with students, and states' decisions to contact all UI recipients or only new recipients. Using the SIPP data, our outcomes include enrollment, Pell grant receipt, collegiate attainment, and labor market outcomes. Individuals are distinguished by demographic characteristics, state of residence at the point of initial UI receipt and the initial timing of UI receipt. Our basic specification is:

$$E_{ist} = X_i\beta 1 + \alpha_S + \lambda_t + \gamma Letter_{ist} + \varepsilon_{ist} \qquad (1)$$

where E_{ist} is a binary variable representing enrollment in six months following displacement, X_i are indicator variables for age, race, and gender characteristics and α_S and λ_t are state and year-month fixed effects for the state and time of initial UI receipt. Our primary measure of whether an individual received a Pell letter is whether a letter was sent to individuals of the individual's type within the six months subsequent to initial UI receipt. When this variable is equal to one, we refer to individuals as being "treated", with the associated coefficient gamma representing the treatment effect.

4.1 Baseline Enrollment Estimates

Our baseline results in Table 2 indicate that Pell letter receipt increased enrollment by five to six percentage points, a large increase off a base of just less than ten percentage points. The estimates are robust to the inclusion of local labor market controls (state unemployment rate) in column (3), as well as controls for baseline education levels in column (4); these controls include indicator variables for the attainment values contained in the SIPP. In column (5), we restrict the sample to individuals with at least a high-school degree but less than a bachelor's degree, education levels eligible to receive a Pell grant. We also present estimates using a

shorter time period that contains most of the variation in letter sending, but also allows us to observe longer-term effects.[4] The point estimates are similar throughout.[5]

Across specifications, the 95 percent confidence intervals are large, including estimates as low as three percentage points, a 30 percent increase off baseline enrollment. These estimates may appear implausibly big for such a light touch intervention; recall that the letter merely encouraged training and noted Pell grant eligibility for displaced workers. However, comments from state workforce agencies at the time suggest the response may have been quite large.[6] The letters were generally very simple, were essentially endorsed by President Obama, and contained easy and direct instructions on how to proceed to pursue training and obtain a Pell grant. Given the relative vacuum of training information and encouragement provided to most UI recipients, this information may have been quite important.

4.2 Robustness Checks

In Table 3, we probe the robustness of the results to the inclusion of state by year trends and the restriction of the sample to individuals in states that ever sent a Pell letter. The first specification controls for within-state trends that may be correlated with the decision or timing of letter sending. The second addresses concerns about the appropriateness of using non-sending

[4] The SIPP only interviews individuals through the beginning of 2013. By limiting the intervention period, we can look at effects on employment or earnings farther out from initial UI receipt.

[5] We also explore the robustness of the results to different windows of Pell letter receipt, examining the effect of having a letter in the first three, four, or five months from first UI receipt. Estimates are similar across specifications (Table A1).

[6] For example Washington noted "approximately a 20% increase in traffic" at its colleges, Utah said that the number of UI approved training participants "increase[d] 169% for the 4 months since the state wide notification letters were sent," Rhode Island notes "a substantial increase in the number of claimants requesting approval to attend training," Missouri "had a tremendous increase in the number of claimants … that are receiving a Pell grant," and Florida noted "a dramatic increase in the number of inquiries to its call center" (NASWA 2010).

states in the control group.[7] Point estimates from both specifications are consistent with the analogous results in columns (2) and (4) of Table 2.

In Figure 3, we present raw average enrollment by month since initial UI receipt. Treated individuals, those likely to have received a Pell letter, are more likely to enroll in the two years following initial UI receipt.[8]

4.3 Enrollment Intensity and Financial Aid

Given the contents of the intervention, it is only natural to investigate whether exposure to the letter resulted in an increase in Pell grant receipt. The estimates in Table 4 indicate that the intervention increased Pell grant receipt by two percentage points, substantially smaller than the estimates in Table 2. The disparity in point estimates suggests that some of the marginal enrollees were not Pell recipients, though these effects are imprecisely estimated.

We also examine the intensity of enrollment. The enrollment increases generated by the intervention appear to be largely full-time enrollments, suggesting significant investments in education (Table 5). While the point estimates are all near zero for part-time enrollment, full-time enrollments increase by six percentage points.

4.4 Educational Attainment and Labor Market Outcomes

In the short-term, the intensive investments in education observed in Tables 2-5 suggest that individuals may have shifted effort from job search to retraining. If this is the case, we would expect that treated individuals might remain unemployed and receiving UI longer. While

[7] For example, if states that do not allow training did not send letters then an overall upward trend in training during this time period might be captured as a Pell letter effect.

[8] This increase appears to occur earlier and be more pronounced in states that sent letters to only new UI recipients (Figure A1) These individuals arguably experience a stronger treatment as they are encouraged to receive training simultaneous to initial UI receipt.

not statistically significantly different from zero, the estimates in Table 6 suggest that this was the case; treated individuals are several percentage points more likely to be receiving UI 12 and 18 months after initial UI receipt. Similarly, earnings for treated individuals are 10 to 20 percent lower 6, 12, and 18 months after initial UI receipt (Table 7).[9]

However, given prior estimates on the return to formal training for displaced workers (Jacobson, LaLonde, and Sullivan 2005), we might hope that treated individuals were more likely to accumulate credits or obtain a degree leading to increased earnings further down the road. While there are some issues with sample attrition, we investigate treatment effects on the number of years of college completed 18 and 24 months after initial UI receipt (Table 8). We constructed this variable using the available enrollment and attainment variables available in the SIPP (see Data Appendix). As we are examining educational outcomes, we condition all regressions on baseline educational attainment levels. We use two measures of baseline educational attainment: (1) the educational attainment variable contained in the SIPP and used in previous specifications, and (2) baseline years of college education. Across specifications, the point estimates suggest that the intervention resulted in a moderate increase in average college attainment, at most a tenth of a year of college attainment, with most confidence intervals including zero.[10]

Analogous point estimates for earnings two years after initial UI receipt indicate no significant difference in earnings for treated individuals, although we cannot rule out earnings increases of as much as 20% (Table 9). In Figure 4, we present the trajectory of earnings for treated and untreated individuals. To construct this figure, we regressed earnings for the 20 to 40

[9] The estimates in the table reflect the difference in earnings in annual terms, but are constructed using a maximum of three months of earnings observations (see the Data Appendix for additional details).

[10] Effects on certificate or degree (associate or bachelor) receipt are insignificantly different from zero, although we note that the lack of detail in the SIPP's attainment measures limits our ability to measure these effects.

year old full SIPP sample on state and year-month fixed effects, demographic characteristics, and baseline education. This removed constant variation in earnings across states as well as variation in earnings generated by over time changes in severity of the recession. We then averaged the residuals by month since initial UI receipt separately for treated and untreated individuals. Earnings for treated and untreated individuals are similar prior to initial UI receipt. Consistent with the results in Table 8, treated individuals have lower earnings in the 18 months after initial UI receipt, at the same time that they are more likely to be enrolled. Following this, their earnings track closely with those of untreated individuals.

The results suggest that the intervention caused UI recipients to pursue additional post-secondary training. This training came at the expense of lost earnings during at least the first 18 months following initial UI receipt. Furthermore, these individuals were more likely to take advantage of Pell grants and remained on UI many months following initial receipt, additional costs of the intervention. At question is whether this enrollment resulted in attainment gains that translated into better labor market outcomes, and whether the improved outcomes are worth the associated costs. Two years out, the evidence suggests at most small increases in college attainment and no significant gains in earnings. The point estimates suggest that the intervention increased government expenditures without resulting in improved outcomes for individuals, but the confidence intervals are too wide to rule out meaningful positive effects on earnings. Given the combination of reduced earnings while in school and no observed gain in earnings two years from initial UI receipt, it is possible that the intervention was a net cost to society.

Another way to examine this question is to look at the effect of treatment on total earnings over the two years following initial UI receipt (Table 9). Using a constructed measure of total earnings, we find that treatment reduced two-year earnings by around $5,000, or 13

percent (see Data Appendix for details). This effect is statistically significant at around the ten percent level and a 95 percent confidence interval provides an upper bound of roughly $2,000. Thus, we conclude that the intervention had at most small positive effects on earnings and may have left individuals worse off.

4.5 Competing Explanations

While the evidence strongly suggests large enrollment effects of the targeted information, we devote considerable attention to exploring alternative explanations. Specifically, we address concerns related to the endogeneity of Pell letter sending and timing and whether changes to approved training rules, maximum UI benefit durations, and local labor market conditions may have coincided with the treatment. We also briefly discuss the potential endogenity of UI receipt and the related concerns about the assignment of our treatment variable.

4.5.1 Policy Endogeneity

While the initial policy innovation was a direct federal response to rising unemployment, variation in the rollout of the policy occurred at the state level. Because we are controlling for over time variation with year-month fixed effects, the concern is whether states happened to send Pell letters in months in which new UI recipients were more likely to enroll for some other reason. For example, states may have decided to send the letters when labor market conditions were at their worst. If this were the case, we might observe higher enrollment of UI recipients who received Pell letters merely due to the lower opportunity cost of enrollment driven by the weaker labor market conditions. The states' own responses suggest that the timing and duration of letter sending was largely idiosyncratic (NASWA 2010). However, the decision to send a

letter at all appears to have been driven primarily by variation in resources across states. While we control for constant variation across states using state fixed-effects, this is potentially a concern if low resources states are a poor control group for the letter sending states. One way to address this concern is to restrict the sample to states that ever sent a letter. We presented these results above, demonstrating similar effects using only the variation in the timing of Pell letter sending in states that sent letters. In Table 10, we explore whether average labor market conditions or the leniency of approved training rules in a state predicts the decision to send a letter; neither is a meaningful predictor.

Returning to the endogeneity of the timing of Pell letter sending, we explore this issue by regressing whether a letter was sent in a state in a particular year-month on state characteristics during that month. We control for state and year-month fixed-effects, thus the estimates indicate whether a state was more likely to have sent a letter during a particular month because it had a higher unemployment rate or maximum UI benefit duration during that month. As no state would have sent (nor did) a letter prior to the announcement of the initiative, we restrict the sample to years and months after the Pell letter initiative was announced. We find no evidence that states were more likely to send letters when unemployment rates were higher; in fact, while statistically insignificantly different from zero, the point estimates are negative (Table 11). Similarly, statistically states were no more likely to send letters when UI benefit duration maximums were higher. While positive, the point estimate is small, suggesting that states were four tenths of a percentage point more likely to send a letter when maximum benefit durations were one week longer. Results are similar using state-characteristics lagged three months to predict Pell letter sending. These estimates suggest: (1) that Pell letter timing was not an endogenous response to labor market conditions or benefit availability, and (2) that labor market

conditions and UI benefit availability are not directly responsible for the observed increase in enrollment of UI recipients.

Another potential concern is that states may have changed their approved training rules at the same time that they began sending letters. To explore this, we also coded the changes in approved training rules from 2008 to 2011; however, this information is only available at a coarse (annual) level, preventing us from conducting a similar set of regression analyses. Information collected from the United States Department of Department of Labor, Employment, and Training Administration's 2008 through 2011 comparison of state unemployment insurance laws indicates that there were very few changes in approved training rules. In contrast, a survey directed at states in 2009 suggests some changes in the interpretation of approved training rules may have taken place around the time of the American Recovery and Reinvestment Act of 2009. In particular, four states began allowing enrollment in some four-year post-secondary programs, and two states began allowing academic courses "not leading to a specific occupation" as approved training.[11] This is potentially a concern if the timing of these changes was similar to the timing of Pell letter sending. We address this concern by simply excluding these states from the analysis; this leaves the estimates largely unchanged.[12]

4.5.2 UI Receipt Endogeneity

In all of the above, the sample has been restricted to individuals who received UI and treatment has been assigned based on the month of initial UI receipt. As UI receipt is a necessary condition for receiving a Pell letter, restricting the sample to UI recipients is a natural

[12] Excluding these states from the baseline specification in column (2) of Table 2 results in a point estimate of .064 (se .0236), statistically indistinguishable from that obtained in the unrestricted sample. Full results are available from the authors upon request.

way to focus the estimation on those individuals eligible for the treatment. However, UI receipt is partially determined by the individual. If individuals in states and months during which letters are being sent alter their decisions to collect UI, and the types of individuals that increase UI uptake are those with higher propensities to enroll, the result we have presented above may be a result of this selection into UI receipt and not a response to the Pell letters.

One way to address this concern is to instead assign treatment based on the month of initial unemployment spell for individuals experiencing layoffs. As experiencing a layoff is not chosen by an individual it does not suffer from the same selection concerns associated with UI receipt. We derive an individual's first month on layoff as the first (of at least two) month experiencing any layoff following at least two months with full month employment. We then assign treatment, likely Pell letter receipt, analogously to how we used the first month of UI receipt previously. As many of these individuals are not UI eligible and/or will not choose to receive UI, we expect smaller treatment effects. In Table A2, we demonstrate that the effects using this strategy are similar, but somewhat smaller, than those in Table 2.

4.6 Approved Training Rules

As we observe little change in training rules, and no relationship between the timing of letter sending and the changes that did occur, we can explore the relationship between training rule leniency and the treatment effect. In prior work, we demonstrated that the inclusivity of a state's UI approved training rules may attenuate or magnify changing incentives to enroll (Barr and Turner 2014). Here, we use the binary measure of training leniency "academics approved" constructed in Barr and Turner (2014) to examine whether effects are larger in states that approve a broader set of academic training (see the appendix to Barr and Turner (2014) for

details of the construction of this variable and its variation). We caution that sample sizes are small and confidence intervals are large once we split the sample by approved training classification. The results for the group of states allowing academic programs are broadly similar to the overall results in the magnitude of the effects, although the standard errors are large enough to prevent us from ruling out meaningful differences in the sizes of the point estimates (Table 12). What is particularly noteworthy is that the effects on Pell grant receipt are larger in states that allow a broader set of academic options. These point estimates are about twice the magnitude of those for the full sample, suggesting that state" approved training" rules may be linked to the institutional and program choices for those students affected by the policy.[13]

Section 5: Discussion and Conclusion

While there have been have been a number of time and resource-intensive efforts to test how information-based interventions affect individual responses to available public policies and choices in healthcare and education, the "Pell Letter" initiative introduced by the federal government in May of 2009 presents a source of variation in dissemination similar to a randomized control trial. The idiosyncratic nature of state response to this federal policy guidance creates an extraordinarily important experiment in how an "informational nudge" affects decisions to pursue collegiate attainment among UI benefit recipients. The overall enrollment effects are striking: we observe enrollment increases of 5-7 percentage points among the population that received letters with enrollment rate increases of at least 50%. These results are all the more striking because estimates from other surveys would suggest that – in the overall

[13] The effects on enrollment and full-time enrollment, particularly for those with Pell-eligible education levels, are also somewhat larger.

population – it would take an increase in financial aid of approximately $1.5k to produce this magnitude of enrollment response (Dynarski and Scott-Clayton 2013).[14]

Yet, while the scope for an informational intervention to impact collegiate investment appears quite large, our longer term estimates on earnings after a period of 24 months subsequent to treatment suggest the need for considerable caution. Not only do those receiving the enrollment encouragement fail to demonstrate higher earnings two years after initial UI receipt but they also earn less than the control group during the period of expected enrollment, implying substantial costs with little realized benefits.

These outcomes raise substantial questions about how UI recipients and older dislocated workers navigate the choice of postsecondary program. One concern is that these potential students receive little guidance and are not well-informed about differences in outcomes among programs (Baum and Scott-Clayton 2013). The result may be considerable attrition and sunk costs, as well as the accumulation of student debt. Unfortunately, our capacity to evaluate these choices is limited by the absence of data on the type of institution and curricular program chosen by students in the SIPP.

[14] Although more recent work estimating the effects of financial aid on older students (Barr 2015) suggests that a much larger amount would be necessary.

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Appendix A1: Pell Letter Survey and Response

Between May 31, 2013 and December 31, 2013 we contacted the workforce agency of all 50 states and the District of Columbia with a request for information about each agency's participation in the Pell letter initiative (we have attached a copy of the survey below). Initially, we e-mailed this survey to the commissioner (or equivalent) of each state's workforce agency as well as the analogous leader of related state agencies (e.g., the Department of Labor). For states that did not respond to our initial request, we sent several additional e-mail requests. We followed this with a paper mailing containing hard copies of the survey and pre-paid addressed return envelopes. We followed this with phone calls to the relevant states contacts where possible to encourage survey response. For the states remaining at this point, we submitted public record and Freedom of Information Act requests where possible.

In total, 45 states responded to the survey. We archived the responses and Pell letters online.[15] In a separate survey, an additional 3 states indicated that they had not sent a Pell letter and had no intention of doing so (NASWA 2010). We have been unable to obtain responses from Tennessee, DC, and Ohio.

[15] The archive can be accessed at www.people.virginia/~acb3u/research.htm. While 38 states indicated that they had sent a letter, only 28 sent copies of their Pell letter with their response.

State Survey

Our research team is evaluating how notification about the availability of educational opportunities affects the post-secondary educational attainment of UI benefit recipients. As you may know, the Department of Labor issued guidance on May 8, 2009:

> "To strongly encourage states to: (1) broaden their definition of approved training for Unemployment Insurance (UI) beneficiaries during economic downturns, (2) notify UI beneficiaries of their potential eligibility for Pell Grants and other student aid, and (3) help individuals apply for Pell Grants through One-Stop Career Centers." [http://wdr.doleta.gov/directives/attach/TEGL/TEGL21-08acc.pdf]

Our interest is in understanding how [state] responded to this guidance. In particular, we are interested in whether [state] sent a letter, the associated timing of the mailing, and the population of UI recipients targeted to receive such communication. Our questions follow below:

Did [state] send a letter or other communication to individuals receiving unemployment insurance in response to the federal Pell grant initiative on May 8 2009? Would you please send us a copy as a pdf attachment to email or by regular mail?

If YES:

a. On what date did [state] first send this letter?
b. Was the letter sent to all UI recipients or just new recipients at the time of distribution?

___ All UI recipients
___ New UI recipients

c. Were there any other criteria determining which UI recipients received the letter?
d. Was this a one-time mailing or has the mailing been repeated for new UI recipients after May 2009?

___ One time
___ Repeated at
    ___ weekly
    ___ monthly interval

If repeated, is this policy ongoing?

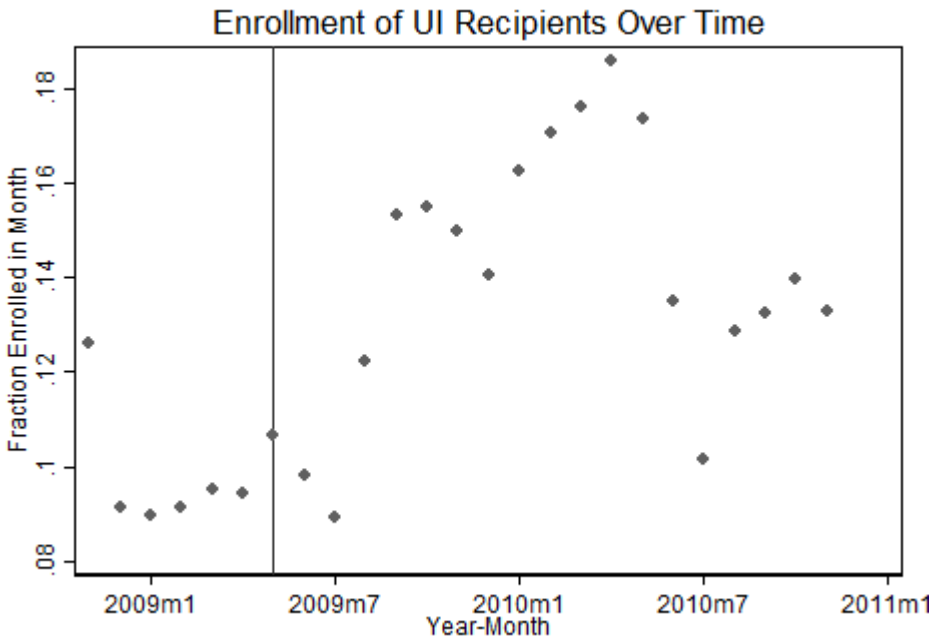
___ Yes ___ No

If no, when were the last letters sent out?

Figure 1. States Participating in "Pell Letter" Initiative

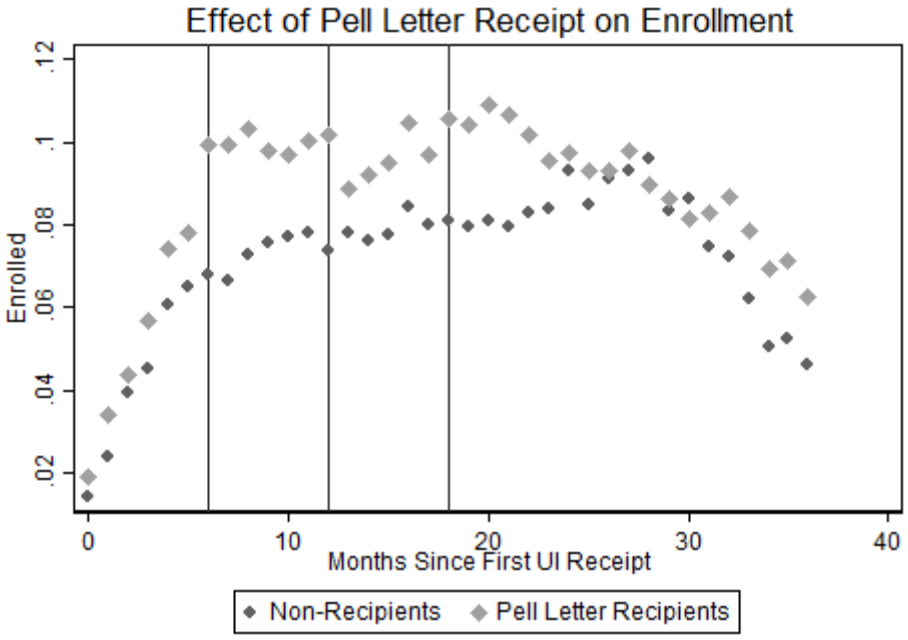
Note: Rectangles shaded black indicate that a Pell letter was sent in a state during that month. The figure presents information from the 38 states that sent a Pell letter and responded to our survey. Maine stopped sending the letters in December 2010 and Wisconsin and Wyoming stopped sending in January 2011. All other states continued sending letters throughout the sample period. We confirmed that nine states (Arizona, Alabama, Alaska, Kansas, Nebraska, Nevada, New Hampshire, New Mexico, and North Dakota) did not send a letter. Indiana's survey response was inconclusive and Tennessee, Ohio, and the District of Columbia have yet to respond to our requests (see Data Appendix for additional informatio

Figure 2. Enrollment of UI Recipients



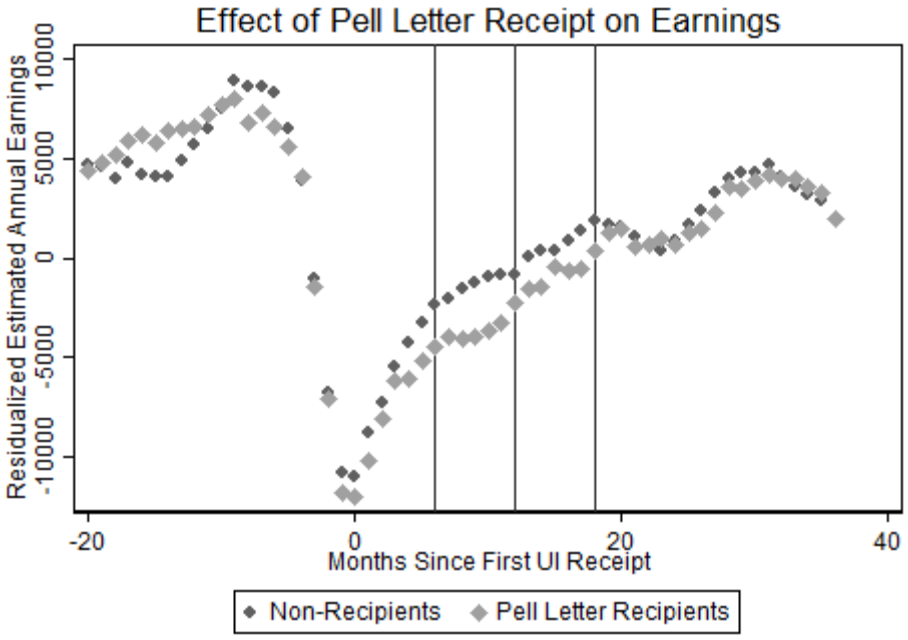
Note: The figure plots unweighted average enrollment of UI recipients over time. The vertical line indicates the announcement of the federal initiative.

Figure 3: Enrollment by Months Since Initial UI Receipt



Note: The figure plots raw average enrollment rates of individuals against the number of months since first UI receipt.

Figure 4: Effect of Pell Letter Receipt on Earnings



Note: We construct an estimate of yearly earnings using rolling three month windows (see Data Appendix for additional information). To construct the figure we regressed earnings for the full SIPP sample (age 20-40) on state and year-month fixed effects. We then averaged the residuals for UI recipients separately for Pell letter recipients and non-recipients by months since initial UI receipt.

Table 1

Sample Characteristics

Pell Letter Next 6 Months	0.43
Age	31.07
White	0.79
Black	0.13
Male	0.59
Academic Approved	0.61
HS Degree +	0.90
Some +	0.58
Associate +	0.28
Bachelors +	0.18
Enrolled Next 6 Months	0.10
Enrolled Next 12 Months	0.13
Part-time Next 6 Months	0.04
Full-time Next 6 Months	0.06
Pell Next 6 Months	0.04
UI Receipt 6 Months Out	0.62
UI Receipt 12 Months Out	0.44
UI Receipt 18 Months Out	0.34
Employed 6 Months Out	0.42
Employed 12 Months Out	0.49
Employed 18 Months Out	0.60
Employed 24 Months Out	0.63
Baseline Earnings	$24,279
Earnings 6 Months Out	$15,528
Earnings 12 Months Out	$17,645
Earnings 18 Months Out	$21,294
Earnings 24 Months Out	$21,823

Note: Includes 1,234 individuals age 20-40 from the 2008 SIPP panel. Sample restricted to individuals who first received unemployment compensation (for at least two months) between November 2008 and November 2010. Variables of type "__ Next X Months" (e.g., Pell Next 6 Months) are binary variables indicated whether the condition was true during any of the six months following first UI receipt. Variables of type "__ X Months Out" (e.g., Employed 6 Months Out) indicate whether the condition was true during the month X months from date of first UI receipt. Earnings is constructed in annual terms using any earnings observations available during the three months following the time period in question. Similarly, baseline earnings is an annual measure generated using the three months prior to initial UI receipt (see Data Appendix for additional information).

Table 2

Enrollment in Six Months Following First Receipt of UI

	(1)	(2)	(3)	(4)	(5)
November 2008 < First UI_{ym} < November 2010					
Pell Letter Next 6 Months	0.0777***	0.0550**	0.0523**	0.0661**	0.0632**
	(0.0190)	(0.0212)	(0.0210)	(0.0280)	(0.0284)
November 2008 < First UI_{ym} < November 2009					
Pell Letter Next 6 Months	0.0749***	0.0712**	0.0718**	0.0802**	0.0734**
	(0.0276)	(0.0307)	(0.0309)	(0.0352)	(0.0362)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y
N	1,234 / 850	1,234 / 850	1,234 / 850	878 / 615	878 / 615

Note: Each cell represents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variable is whether an individual is enrolled within six months of the first month of UI receipt. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. "Education Controls" are indicator variables for all attainment levels. "Educ. Restrictions" limits the sample to individuals with at least a high-school degree, but less than a bachelor's degree at initial UI receipt. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 3

Enrollment in Six Months Following First Receipt of UI
November 2008 < First UI_{ym} < November 2010

	(1)	(2)	(4)	(5)
Pell Letter Next 6 Months	0.0470	0.0531	0.0484	0.0575*
	(0.0297)	(0.0326)	(0.0324)	(0.0340)
Year-Month FE	Y	Y	Y	Y
State-Year Trends	Y	Y	Y	Y
Pell Sending State Restriction	N	N	Y	Y
Educ. Restrictions	N	Y	N	Y
N	1,234	878	1,139	801

Note: Each cell represents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variable is whether an individual is enrolled within six months of the first month of UI receipt. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. The "Pell Sending State Restriction" restricts the sample to states that sent a Pell letter at any point during the sample period. All specifications include age, race, and gender indicator variables as well as state fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. See the notes to Table 2 for additional details. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 4

Pell Grant Receipt in Six Months Following First Receipt of UI
November 2008 < First UI_{ym} < November 2010

	(1)	(2)	(3)	(4)	(5)
Pell Letter Next Six Months	0.0185*	0.0131	0.0111	0.0239	0.0217
	(0.0106)	(0.0137)	(0.0133)	(0.0188)	(0.0188)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y
N	1,234	1,234	1,234	878	878

Note: Each cell presents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variable is whether an individual received a Pell grant within six months of the first month of UI receipt. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. See the notes to Table 2 for additional details. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 5

College Enrollment Intensity in Six Months Following First Receipt of UI
November 2008 < First UI_{ym} < November 2010

Dependent Variable	(1)	(2)	(3)	(4)	(5)
Part Time Next 6 Months	0.0191	-0.00454	-0.00562	-0.000291	-0.00121
	(0.0127)	(0.0150)	(0.0143)	(0.0194)	(0.0195)
Full Time Next 6 Months	0.0585***	0.0596***	0.0579***	0.0664**	0.0644**
	(0.0141)	(0.0162)	(0.0171)	(0.0263)	(0.0261)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y
N	1,234	1,234	1,234	878	878

Note: Each cell presents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variable is whether an individual is enrolled part-time or full-time within six months of the first month of UI receipt. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. See the notes to Table 2 for additional details. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 6

UI Receipt At Several Points Following First Receipt of UI
November 2008 < First UI_{ym} < November 2010

Dependent Variable	(1)	(2)	(3)	(4)	(5)
UI Receipt 6 Months Out	0.0964**	0.0699	0.0705	0.0291	0.0276
	(0.0461)	(0.0441)	(0.0451)	(0.0459)	(0.0456)
UI Receipt 12 Months Out	0.0426	0.0725	0.0731	0.0658	0.0665
	(0.0464)	(0.0549)	(0.0548)	(0.0606)	(0.0613)
UI Receipt 18 Months Out	0.0153	0.0576	0.0538	0.0339	0.0359
	(0.0364)	(0.0459)	(0.0443)	(0.0403)	(0.0406)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y
N	1,231	1,231	1,231	877	877

Note: Each cell presents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variable is whether an individual received any UI benefits during a three month period beginning 6, 12, or 18 months following initial UI receipt. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. See the notes to Table 2 for additional details. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 7

Earnings Trajectory Following First Receipt of UI
November 2008 < First UI_{ym} < November 2010

Dependent Variable	(1)	(2)	(3)	(4)	(5)
Earnings 6 Months Out	-3,175*	-2,319	-2,275	-2,300	-2,087
	(1,614)	(1,661)	(1,686)	(2,276)	(2,309)
Earnings 12 Months Out	-696.2	-3,482	-3,511	-4,817*	-4,685
	(1,977)	(2,597)	(2,602)	(2,854)	(2,873)
Earnings 18 Months Out	-777.5	-2,122	-2,053	-1,807	-1,733
	(1,630)	(2,340)	(2,365)	(2,791)	(2,773)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y

Note: Each cell presents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variable is a measure of earnings during a three month period (converted to an annual measure) beginning 6, 12, or 18 months following initial UI receipt. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. See the notes to Table 2 for additional details. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 8

Years of College Attainment Following First Receipt of UI
November 2008 < First UI_{ym} < November 2010

	(1)	(2)	(3)	(4)
Years of College Completed 18 Months Out	0.107*	0.132	0.0953**	0.112
	(0.0545)	(0.0812)	(0.0466)	(0.0714)
Years of College Completed 24 Months Out	0.0917	0.0707	0.0829	0.0632
	(0.0727)	(0.0998)	(0.0657)	(0.0982)
Education Controls	Y	N	Y	N
Years of College Controls	N	Y	N	Y
Educ. Restrictions	N	Y	N	Y

Note: Each cell presents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variables related to years of college completion are constructed using various college enrollment and attainment variables. For example, if an individual's years of college completion is set to one if an individual is observed enrolled in a second year of college or observed with an educational attainment level of associates or greater (see Data Appendix for further details). The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state and year-month fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. See the notes to Table 2 for additional details.
***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 9

Overall Earnings Effects

November 2008 < First UI_{ym} < November 2010

Dependent Variable	(1)	(2)	(3)	(4)	(5)
Earnings 24 Months Out	1,078	-119.1	-231.2	-636.6	-769.1
	(1,792)	(2,211)	(2,268)	(2,641)	(2,658)
Total Earnings over 24 Months	-4,999	-7,545	-7,537	-8,736	-9,070*
	(3,447)	(4,636)	(4,750)	(5,439)	(5,334)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y

Note: Each cell presents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The first dependent variable is a measure of earnings during a three month period (converted to an annual measure) beginning 24 following initial UI receipt. The second dependent variable is a measure of total earnings over the 24 months since initial UI receipt. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 10

Testing for Endogeneity of Decision to Send Letter

	(1)
Average State Unemployment Rate	0.0309
	(0.0345)
Academic Coursework Approved	0.0148
	(0.119)
N	47

Note: Each cell represents a separate regression. The dependent variable is a binary variable indicating whether a state ever sent a letter. "Academic Coursework Approved" indicating that a states UI approved training rules are more lenient or inclusive (see the text for additional information). Robust standard errors are in parentheses. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table 11

Testing for Endogeneity of Pell Letter Timing

	(1)
State Unemployment Rate	-0.0203
	(0.0654)
State Maximum UI Benefit Duration	0.00392
	(0.00412)
3 Month Lagged State Unemployment Rate	-0.00728
	(0.0583)
3 Month Lagged State Maximum UI Benefit Duration	0.00484
	(0.00334)
N	912

Note: Each cell represents a separate regression. Each observation corresponds to a state and year-month. The sample is restricted to year-months between the first sending of a letter (June 2009) and the last month observed in Figure 1 (November 2011). The dependent variable is a binary variable indicating whether a Pell letter was sent in a state during a particular month. All regressions include year-month and state fixed effects. The state unemployment rate is measured at the year-month level on a 1 to 100 scale and the state maximum UI benefit duration is measured in weeks. Robust standard errors clustered at the state level are in parentheses. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

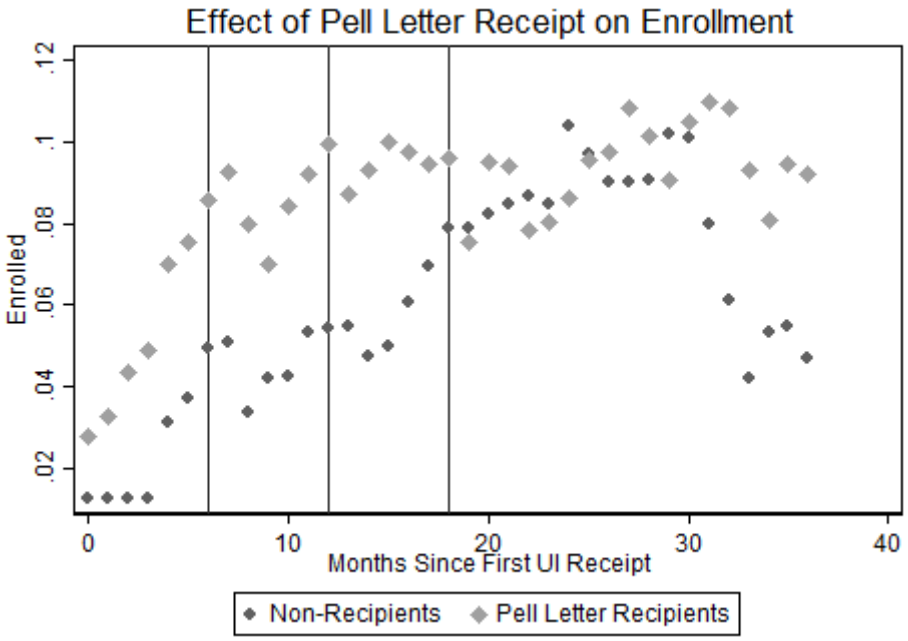
Table 12

Selected Outcomes Following First Receipt of UI
Academic Approve States Only
November 2008 < First UI_{ym} < November 2010

	(1)	(2)	(3)	(4)	(5)
Enrolled Next 6 Months	0.0756***	0.0654**	0.0576**	0.0895*	0.0889*
	(0.0176)	(0.0256)	(0.0240)	(0.0473)	(0.0486)
Enrolled Next 12 Months	0.0785***	0.0870**	0.0870**	0.111*	0.109*
	(0.0251)	(0.0358)	(0.0346)	(0.0611)	(0.0619)
Part Time Next 6 Months	0.00418	-0.00867	-0.0129	-0.0165	-0.0151
	(0.0105)	(0.01000)	(0.0114)	(0.0125)	(0.0125)
Full Time Next 6 Months	0.0519***	0.0682***	0.0612**	0.109**	0.109**
	(0.0157)	(0.0231)	(0.0241)	(0.0477)	(0.0477)
Pell Next 6 Months	0.0267*	0.0358*	0.0313	0.0530*	0.0512*
	(0.0143)	(0.0186)	(0.0184)	(0.0267)	(0.0260)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y
N	755	755	755	535	535

Note: Each cell presents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. See notes to prior tables and data appendix for details on the construction of the dependent variables. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. The sample is further restricted to individuals residing in states with more inclusive approved training rules as discussed in the text. Robust standard errors clustered at the state level are in parentheses. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Figure A1: Enrollment by Months Since Initial UI Receipt
(States Sending to New Recipients Only"



Note: The figure plots raw average enrollment rates of individuals against the number of months since first UI receipt. The sample is restricted to states that sent letters to new UI recipients only.

Table A1

Enrollment in Six Months Following First Receipt of UI

	(1)	(2)	(3)	(4)	(5)
Pell Letter Next 3 Months	0.0696***	0.0547***	0.0508***	0.0618***	0.0617***
	(0.0170)	(0.0170)	(0.0160)	(0.0223)	(0.0222)
Pell Letter Next 4 Months	0.0874***	0.0690***	0.0647***	0.0732**	0.0706**
	(0.0211)	(0.0244)	(0.0237)	(0.0294)	(0.0288)
Pell Letter Next 5 Months	0.0932***	0.0733***	0.0689***	0.0807**	0.0785**
	(0.0192)	(0.0230)	(0.0219)	(0.0322)	(0.0320)
Pell Letter Next 6 Months	0.0777***	0.0550**	0.0523**	0.0661**	0.0632**
	(0.0190)	(0.0212)	(0.0210)	(0.0280)	(0.0284)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y

Note: Each cell represents a separate regression. Each observation corresponds to an individual's first spell of unemployment insurance receipt. The dependent variable is whether an individual is enrolled within six months of the first month of UI receipt. The explanatory variables of interest indicate whether a Pell letter was sent in an individual's state during any of the first three, four, five, or six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. "Education Controls" are indicator variables for all attainment levels. "Educ. Restrictions" limits the sample to individuals with at least a high-school degree, but less than a bachelor's degree at initial UI receipt. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.

Table A2

Enrollment in Six Months Following First Unemployment Spell of Previously Employed Individuals

	(1)	(2)	(3)	(4)	(5)
November 2008 < First UI_{ym} < November 2010					
Pell Letter Next 6 Months	0.0433***	0.0457**	0.0452**	0.0460**	0.0473**
	(0.0145)	(0.0188)	(0.0181)	(0.0227)	(0.0223)
Year-Month Trends	Y	N	N	N	N
Year-Month FE	N	Y	Y	Y	Y
Unemployment Rate	N	N	Y	N	N
Education Controls	N	N	N	Y	Y
Educ. Restrictions	N	N	N	N	Y
N	1,932	1,932	1,932	1,319	1,319

Note: Each cell represents a separate regression. Each observation corresponds to an individual's first spell of likely covered unemployment. We measure this as the first two consecutive months of any weeks on layoff following at least two months of being employed all month (see Data Appendix for further details). The dependent variable is whether an individual is enrolled within six months of the first month of the first spell of unemployment. The explanatory variable of interest indicates whether a Pell letter was sent in an individual's state during any of the first six months since the first month of UI receipt. All specifications include age, race, and gender indicator variables as well as state fixed effects. "Education Controls" are indicator variables for all attainment levels. "Educ. Restrictions" limits the sample to individuals with at least a high-school degree, but less than a bachelor's degree at initial month of layoff. All regressions restricted to individuals aged 20-40 who were not enrolled during the two months prior to first UI receipt. Robust standard errors clustered at the state level are in parentheses. ***Significant at the 1 percent level. **Significant at the 5 percent level. *Significant at the 10 percent level.