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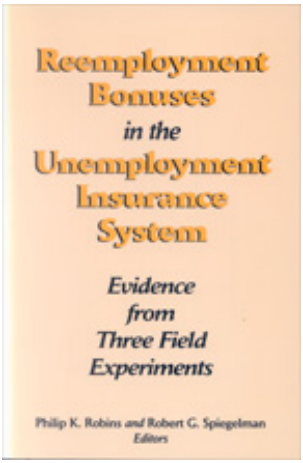

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Participation in the Reemployment Bonus Experiments

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Participation in a social experiment—the proportion of program-eligible individuals who actually participate—is of interest for two main reasons. The first is external validity, or the relevance of an experiment's results to implementing a program based on the experiment. If participation in an experiment differs from participation in an actual program, then the experiment's results, however valid they may be on their own grounds, may yield poor estimates of the costs, the number of individuals served, and the outcomes for individuals that could be expected in an actual program. The issue of translating experimental results into estimates that are useful for policy is central to experimentation, and we explore it both here and more fully in Chapter 6.

Second, differences in the extent to which different groups respond to an experimental treatment are intrinsically interesting to both policymakers and experimenters. The policymaker's interest in participation stems mainly from a need to design policies that are "target efficient," i.e., that benefit groups believed to be most in need of assistance. Other things equal, a program that benefits workers with high earnings would generally be less desirable than a program that benefits workers with low earnings. Similarly, the experimenter's interest in participation stems from a need to understand how a treatment "works." In the case of a reemployment bonus, for example, if workers with long expected spells of unemployment participate in the program—that is, respond to the treatment and accept the bonus offer—then the bonus will be effective in reducing the duration of unemployment spells.

Understanding which groups of workers respond to a bonus treatment can shed light on the extent to which a bonus is effective.

Many of these issues overlap the issues of treatment impact discussed in Chapters 4 and 5. Although it could be argued that impact, not participation, is the central issue in evaluating and understanding an experimental treatment, we hope that it will be clear from both this chapter and Chapter 6 that participation is central to understanding what the costs of a reemployment bonus program would be and how the reemployment bonuses in Illinois, Pennsylvania, and Washington operated.

The next section of this chapter provides a descriptive look at participation in the three reemployment bonus experiments. In particular, we focus on three measures of participation: the rate at which claimants partially qualified for a bonus (as defined below), the bonus receipt rate, and the bonus take-up rate. We then offer an attempt to model and explain the differences in participation among the experiments using various regression models.

BONUS QUALIFICATION, RECEIPT, AND TAKE-UP RATES

What percentage of UI claimants enrolled in the three experiments qualified for a bonus? What percentage actually received a bonus? What was the bonus take-up rate—that is, what percentage of those who qualified chose to collect a bonus?

Table 3.1 displays basic data on participation in the three reemployment bonus experiments and allows one to trace the progress of claimants through the bonus experiments. As discussed in Chapter 2, both the Pennsylvania and Washington experiments had multiple treatments: each of these treatments is referred to by its bonus amount (low or high in Pennsylvania; low, medium, or high in Washington) and its qualification period (short or long). In Illinois, there was only one treatment, but about half the claimants assigned to the single $500 bonus treatment were eligible only for 26 weeks of regular state UI benefits, whereas the other half were eligible for an additional 12 weeks of Federal Supplemental Compensation (FSC), for a total of 38

Table 3.1 Reemployment Bonus Qualification, Receipt, and Take-Up Rates, by Treatment Group

Group[a]	Sample size (1)	Claimants in group who: Partially qualified[b] (%) (2)	Received bonus: Total (%) (3)	Received bonus: Given partially qualified (%) (4)
Illinois experiment				
All treatment groups[c]	4,186	42.9	13.6	31.8
Treatment—FSC-elig.	2,337	46.0	15.7	34.3
Treatment—FSC-inelig.	1,589	39.1	11.5	29.4
Control—FSC-elig.	2,106	39.6	—	—
Control—FSC-inelig.	1,600	34.0	—	—
Pennsylvania experiment				
All treatment groups	8,834	56.6	10.6	18.6
Low bonus/short qual. period	1,395	46.1	6.9	14.9
High bonus/short qual. period	1,910	47.5	8.4	17.3
Low bonus/long qual. period	2,456	61.6	10.7	17.6
High bonus/long qual. period	3,073	63.1	13.5	21.4
Control/short qual. period	3,392	42.8	—	—
Control/long qual. period	3,392	58.1	—	—
Washington experiment				
All treatment groups	12,452	55.7	14.6	26.1
Low bonus/short qual. period	2,246	47.0	8.7	18.6
Medium bonus/short qual. period	2,348	48.2	12.4	25.8
High bonus/short qual. period	1,583	50.2	15.0	29.8
Low bonus/long qual. period	2,387	63.0	13.9	22.1
Medium bonus/long qual. period	2,353	61.3	17.8	29.0

High bonus/long qual. period	1,535	65.9	22.0	33.3
Control/short qual. period	3,082	48.0	—	—
Control/long qual. period	3,082	61.3	—	—

SOURCE: Tabulations from the Illinois, Pennsylvania, and Washington Reemployment Bonus Experiment Public-Use data files.

[a] See text for full description of each group and the bonus take-up rate.

[b] Stopped receiving UI by qualification date.

[c] The number of claimants assigned to "All treatment groups" in the Illinois experiment exceeds the sum of FSC-eligible and FSC-ineligible treatment-assigned claimants because claimants who were monetarily ineligible for FSC have been dropped from the FSC-eligible and FSC-ineligible subgroups. See Chapters 2 and 4 for further discussion.

weeks of benefits. Since the effects of the bonus offer differed significantly between these two groups (see Chapter 4), it is important to distinguish between FSC-eligible and FSC-ineligible claimants.

Table 3.1 also displays data on the control groups from each experiment. The Illinois control group is divided into those who were eligible and those who were ineligible for FSC. For Pennsylvania and Washington, the percentages of each control group who satisfied the criteria of the short and long bonus qualification periods are reported.

Column 2 of Table 3.1 shows that between 39 and 66 percent of the eligible UI claimants who were assigned to one of the bonus treatments stopped receiving UI benefits within their bonus qualification period. We refer to these claimants as having "partially qualified" for the bonus, because in order to fully qualify for a bonus they also needed to be reemployed (and submit a Notice of Hire) and stay employed for four months. We adopt this definition of qualification because the available administrative data do not allow us to construct a reliable measure of full qualification that is consistent across the three experiments.

We would expect variation in the percentage of claimants who partially qualified for a bonus to be influenced by three factors: the length of the qualification period, the bonus amount, and a variety of other factors such as individual characteristics and labor market conditions.

A longer qualification period clearly makes it easier to qualify for a bonus. Hence, it is not surprising that, in both the Pennsylvania and

Washington experiments, a higher percentage of claimants partially qualified for the bonus offers that had long qualification periods (11 or 12 weeks). In Pennsylvania, 62 to 63 percent of claimants partially qualified for the bonus offers that had a long (12-week) qualification period. In Washington, 61 to 66 percent of claimants partially qualified for the bonus offers that had a long (11-week) qualification period.

Surprisingly, though, only 43 percent of claimants in the Illinois experiment stopped receiving UI benefits within its 11-week qualification period, which was roughly the same as the long qualification periods in Pennsylvania and Washington. It seems likely that general labor market factors played a role in reducing the number of Illinois claimants who stopped receiving UI within the qualification period. Only 34 and 40 percent of the Illinois controls stopped receiving UI by the qualification date, whereas the comparable figures for long-qualification-period controls in Pennsylvania and Washington are 58 percent and 61 percent (Table 3.1).[1] That is, the labor market and other factors unrelated to the bonus experiment reduced the rate at which claimants escaped from UI during the Illinois experiment.

Higher bonus amounts appear to lead to a higher percentage of claimants ending insured unemployment within the qualification period, although the relationship is not strong. The high bonus treatment led to a slightly higher percentage of claimants ending UI within the short-qualification-period treatments in Pennsylvania (47 percent in the high bonus treatment versus 46 percent in the low bonus treatment). Comparisons across the long-qualification-period treatments in Pennsylvania suggest a similar result. The results are again similar in the Washington experiment: larger bonus amounts led to higher percentages of claimants who stopped receiving UI within the short-qualification-period treatments (47, 48, and 50 percent). The most generous bonus also led to the highest percentage of claimants who stopped receiving UI within the long-qualification-pepriod treatment (65.9 percent), although the relationship between low and medium bonus treatments is anomalous.

Differences between the control groups and the corresponding treatment groups in the percentage of claimants who stopped receiving UI by the qualification date foreshadow differences in treatment effects discussed in Chapters 4 and 5. For example, in Illinois, the difference in qualification rates between the FSC-eligible control and FSC-eligi-

ble treatment groups is about 6 percentage points (46.0 vs. 39.6), and the Illinois bonus had a large effect on unemployment and reemployment outcomes of the FSC-eligible treatment group. In contrast, there are only small differences between the qualification rates of the control group and the short-qualification-period treatment groups in Washington (–1.0, 0.2, and 2.2 percentage points). These Washington treatments had relatively small effects on unemployment and reemployment outcomes.

Column 3 of Table 3.1 reports the percentages of claimants who ultimately collected a bonus. Overall, 13.6 percent of the claimants assigned to the Illinois treatment, 10.6 percent of the Pennsylvania claimants, and 14.6 percent of the Washington claimants received a bonus. In both Pennsylvania and Washington, the highest rates of bonus receipt occurred for the high-bonus/long-qualification-period bonus offers. In Illinois, the bonus receipt rate was higher among FSC-eligible claimants than among those ineligible for FSC.

What is striking about the bonus receipt rates is that in Illinois, where the rate of ending UI by the qualification date was low as compared with both Pennsylvania and Washington, the overall bonus receipt rate was 13.6 percent—nearly as high as in Washington. In Pennsylvania, where the rate of ending UI by the qualification date was similar to that in Washington (and much higher than in Illinois), the overall bonus receipt rate was only 10.6 percent. Compared with either Pennsylvania or Washington, then, more of the Illinois claimants who ended UI by the qualification date ultimately collected a bonus.

Why did the Illinois treatment-assigned claimants overtake the Pennsylvania claimants and nearly catch up with the bonus-receipt rate of the Washington claimants? There are two possible reasons. First, they may have been more likely to fully satisfy the bonus qualification requirements (that is, by staying employed for four months) once they found a job within the qualification period. Second, they may have been more likely to claim a bonus when they fully qualified for one. Whether a worker stays employed for four months after reemployment (so as to fully qualify for a bonus) is at least partly a question of labor demand conditions during a bonus experiment. Collecting a bonus after qualifying for one, however, is a matter of voluntary participation. Unfortunately, the available data are inadequate to distinguish between the above two possibilities in a convincing way.[2]

We refer to the propensity of claimants who partially qualify for a bonus to collect a bonus as the *bonus take-up rate*. The rate is calculated as the number of bonus-offered claimants who received a bonus, divided by the number who stopped receiving UI benefits by the qualification date (that is, partially qualified), expressed as a percentage. The denominator of this bonus take-up rate overstates the number of claimants who qualified for a bonus, because some claimants who ended UI within the qualification period were not reemployed in a job that they held for at least four months. But again, the available data do not permit construction of a convincing indicator of full bonus qualification.

Column 4 of Table 3.1 displays estimates of the bonus take-up rate for each experiment. The figures again suggest that participation in the Illinois and Washington experiments was greater than in the Pennsylvania experiment. Take-up rates were 32 percent in Illinois (which had a qualification period of 11 weeks), 18 and 21 percent for the long-qualification-period treatments in Pennsylvania, and 22, 29, and 33 percent for the long-qualification-period treatments in Washington. We explore possible explanations of these differences in the next section.

These observations on bonus qualification, receipt, and take-up can be tied together by observing that there is a simple relationship among the three. Specifically, the probability that a worker receives a bonus is the product of the probability that she partially qualifies for a bonus and the probability that she collects a bonus given that she partially qualified:

$$\begin{aligned}\Pr(\text{bonus received}) = {} & \Pr(\text{partially qualified for bonus}) \\ & \times \Pr(\text{bonus received} \mid \text{partially qualified})\end{aligned}$$

In Table 3.1, these probabilities translate into the proportions (expressed as percentages) shown in columns 3 (bonus receipt), 2 (partial bonus qualification), and 4 (bonus take-up).

The above relationship makes clear that bonus receipt depends partly on a probability that is to some degree beyond the control of a worker—the probability of partially qualifying for a bonus, which depends on the existence of job vacancies as well as on a worker's job search efforts. Bonus receipt also depends on a probability that is to a significant extent a matter of voluntary program participation—the

probability of collecting a bonus conditional on ending UI by the qualification date. In the next section, we examine the correlates of each of these three probabilities.

EXPLAINING VARIATIONS IN BONUS QUALIFICATION, RECEIPT, AND TAKE-UP

To what extent can the differences in partial bonus qualification, bonus receipt, and bonus take-up rates among the three experiments be explained by the characteristics of claimants who enrolled in each of the three experiments and other observable variables? We approach this issue by using the data on individual claimants from each of the three experiments to estimate linear probability models of participation in the bonus experiments. Each of the models we estimate has a zero-one dependent variable indicating some form of participation in the reemployment bonus experiment—partial qualification for a bonus, bonus receipt, or bonus receipt conditional on partial qualification (that is, bonus take-up).

Partial Qualification for the Bonus

We first examine the correlates of partial qualification for the bonus. Columns 1, 2, and 3 of Table 3.2 report estimates of a model in which the dependent variable equals 1 if a claimant stopped receiving UI benefits by the qualification date, zero otherwise. In view of the data limitations described in note 1 to this chapter, this measure of partial qualification is the best available measure of qualification for a bonus. For each of the three experiments, we regress partial qualification on the following explanatory variables:

- Gender of the claimant.
- Ethnicity of the claimant.
- Age of the claimant.
- Whether the claimant was employed in manufacturing before the current UI claim spell.

- Whether the claimant expected to be recalled to the previous job (in Pennsylvania or Washington only) or received job referrals only through a union (in Washington only).
- Base period earnings of the claimant (in $10,000s)—that is, earnings in roughly the year preceding the initial claim for UI benefits.
- Basic features of the UI benefits received by the claimant—the weekly benefit amount (in $100s) and the potential duration of UI benefits. In Illinois, the latter is a dummy variable equal to 1 if the worker was eligible for FSC—that is, a total of 38 weeks of benefits rather than only 26 weeks of regular state benefits. In Pennsylvania, potential duration of benefits is modeled by a dummy variable equal to 1 if the worker was eligible for 26 weeks of benefits, rather than the 16 weeks of benefits for which about 1 percent of Pennsylvania claimants were eligible. In Washington, potential duration is modeled as the number of weeks of benefits for which the worker was eligible (times 10, which scales the variable to make its coefficient roughly comparable to those of the Illinois and Pennsylvania potential duration variables).
- In Pennsylvania and Washington, characteristics of the bonus offer made to the claimant, modeled in each case as a set of dummy variables. As in Table 3.1, treatments are referred to by their bonus amount (low or high in Pennsylvania; low, medium, or high in Washington) and the qualification period (short or long).
- A set of site dummy variables indicating the ES office where the claimant was assigned to treatment status and informed of the bonus offer. These site variables may capture a variety of effects, including differences from site-to-site in the way the bonus experiment was applied as well as regional differences in the labor market, which would affect the difficulty of obtaining reemployment. (Coefficients of the site dummies are not reported in the table.)

Table 3.2 Linear Probability Models of Partial Qualification, Bonus, Receipt, and Bonus Take-Up[a]

	Dependent variable								
	Partially qualified			Received bonus			Bonus take-up		
Explanatory variable	Illinois (1)	Pennsylvania (2)	Washington (3)	Illinois (4)	Pennsylvania (5)	Washington (6)	Illinois (7)	Pennsylvania (8)	Washington (9)
Gender									
Female	–0.024 (0.016)	–0.053 (0.011)	–0.046 (0.009)	0.007 (0.011)	–0.002 (0.007)	–0.003 (0.007)	0.038 (0.023)	0.019 (0.012	0.034 (0.011)
Ethnicity									
Black	–0.103 (0.024)	0.054 (0.021)	–0.042 (0.022)	–0.074 (0.017)	–0.064 (0.013)	–0.072 (0.016)	–0.121 (0.037)	–0.114 (0.021)	–0.120 (0.028)
Hispanic	–0.016 (0.034)	0.021 (0.030)	0.005 (0.020)	–0.084 (0.023)	–0.058 (0.019)	–0.044 (0.015)	–0.176 (0.050)	–0.099 (0.030)	–0.076 (0.023)
Other	–0.063 (0.052)	0.870 (0.067)	0.011 (0.021)	–0.036 (0.036)	–0.039 (0.042)	–0.039 (0.015)	–0.032 (0.076)	–0.073 (0.065)	–0.074 (0.024)
Age									
<35	0.061 (0.016)	0.010 (0.012)	0.059 (0.009)	0.026 (0.011)	–0.001 (0.007)	0.025 (0.007)	0.006 (0.024)	–0.024 (0.012)	0.011 (0.011)
≥55	NA[b]	–0.096 (0.018)	0.001 (0.016)	NA	–0.058 (0.011)	–0.042 (0.012)	NA	–0.082 (0.021)	–0.073 (0.019)
Industry before unemployment									
Manufacturing	–0.015 (0.018)	0.054 (0.012)	0.073 (0.011)	–0.011 (0.013)	–0.019 (0.008)	–0.014 (0.008)	–0.018 (0.026)	–0.045 (0.013)	–0.050 (0.012)

Unknown	–0.091 (0.025)	0.030 (0.018)	0.149 (0.106)	–0.028 (0.017)	0.018 (0.012)	0.182 (0.077)	–0.020 (0.039)	0.023 (0.019)	0.199 (0.115)
Job attachment									
Expect recall or union referral	NA	–0.056 (0.017)	0.247 (0.011)	NA	–0.068 (0.011)	–0.088 (0.008)	NA	–0.116 (0.018)	–0.240 (0.012)
Base period earnings ($10,000s)	–0.004 (0.012)	0.016 (0.008)	–0.004 (0.005)	0.000 (0.000)	0.027 (0.005)	–0.004 (0.004)	0.010 (0.018)	0.050 (0.009)	–0.002 (0.006)
UI benefits									
Weekly benefit amount ($100s)	–0.022 (0.028)	–0.067 (0.013)	–0.090 (0.012)	0.037 (0.019)	0.007 (0.008)	0.041 (0.009)	0.099 (0.041)	0.028 (0.013)	0.128 (0.015)
Illinois: FSC-elig.	0.062 (0.016)	NA	NA	0.035 (0.011)	NA	NA	0.038 (0.023)	NA	NA
Pennsylvania: long duration	NA	0.045 (0.051)	NA	NA	0.005 (0.032)	NA	NA	–0.007 (0.053)	NA
Washington: potential duration (×10)	NA	NA	0.127 (0.012)	NA	NA	0.058 (0.009)	NA	NA	0.049 (0.015)

(continued)

Table 3.2 (continued)

Explanatory variable	Dependent variable: Partially qualified			Received bonus			Bonus take-up		
	Illinois (1)	Pennsylvania (2)	Washington (3)	Illinois (4)	Pennsylvania (5)	Washington (6)	Illinois (7)	Pennsylvania (8)	Washington (9)
Bonus characteristics[c] (Penn. and Wash. only)									
Low bonus/ short qual. period	NA	NA	reference[d]	NA	NA	reference	NA	NA	reference
Medium bonus/short qual. period	NA	reference	0.011 (0.014)	NA	reference	0.034 (0.010)	NA	reference	0.070 (0.018)
High bonus/ short qual. period	NA	0.003 (0.017)	0.036 (0.016)	NA	0.015 (0.011)	0.061 (0.011)	NA	0.032 (0.020)	0.100 (0.019)
Low bonus/ long qual. period	NA	NA	0.160 (0.014)	NA	NA	0.050 (0.010)	NA	NA	0.024 (0.017)
Medium bonus/long qual. period	NA	0.142 (0.016)	0.148 (0.014)	NA	0.036 (0.010)	0.088 (0.010)	NA	0.030 (0.018)	0.089 (0.017)

High bonus/ long qual. period	NA	0.157 (0.016)	0.183 (0.016)	NA	0.068 (0.010)	0.129 (0.011)	MA	0.071 (0.018)	0.131 (0.018)
Low bonus	NA	NA	reference	NA	NA	reference	NA	NA	reference
Medium bonus	NA	reference	–0.003 (0.010)	NA	reference	0.036 (0.007)	NA	reference	0.067 (0.012)
									(continued)
High bonus	NA	0.004 (0.011)	0.026 (0.011)	NA	0.023 (0.007)	0.068 (0.008)	NA	0.036 (0.011)	0.103 (0.013)
Short qual. period	NA	reference	reference	NA	reference	reference	NA	reference	reference
Long qual. period	NA	0.149 (0.011)	0.147 (0.008)	NA	0.044 (0.007)	0.055 (0.006)	NA	0.033 (0.012)	0.021 (0.010)
Intercept	0.376 (0.045)	0.385 (0.062)	0.160 (0.055)	0.038 (0.031)	–0.004 (0.039)	–0.073 (0.040)	0.111 (0.067)	0.047 (0.065)	0.008 (0.069)
Sample size	4,186	8,748	12,452	4,186	8,748	12,452	1,795	4,947	6,939
R^2	0.040	0.054	0.092	0.036	0.045	0.048	0.047	0.078	0.124
MSE	0.235	0.232	0.224	0.113	0.090	0.118	0.206	0.140	0.169

[a] OLS coefficients, with standard errors in parentheses.

[b] "NA" indicates that the variable does not apply to the analysis.

[c] The Pennsylvania and Washington bonus characteristics are not strictly comparable, but the medium and high bonus amounts are similar, as are the short and long qualification periods. There was no low bonus amount in Pennsylvania. Also included in each regrression is a set of site dummy variables indicating where the claimant was assigned to the bonus experiment.

[d] "Reference" refers to the reference category in a set of categorical variables.

We estimate a separate model of bonus receipt for each of the three experiments because pairwise tests for pooling the samples (Chow tests) strongly reject pooling.

Although many of the relationships between the explanatory variables and partial bonus qualification differ across the three experiments, some patterns do emerge (see columns 1, 2, and 3 of Table 3.2). These patterns reflect widely observed patterns of unemployment duration by ethnicity, age, and so on. For example, ethnic minorities tend to be less likely to partially qualify for a bonus (in Illinois and Washington), and younger workers are more likely than older workers to partially qualify for a bonus. Both outcomes reflect the shorter spells of unemployment that white workers and younger workers generally experience. Higher weekly benefit amounts (in Pennsylvania and Washington) tend to reduce the probability of partially qualifying for a bonus, and greater potential duration of benefits (in Illinois and Washington) tends to increase the probability of partially qualifying.

The estimates suggest that larger bonus offers and longer qualification periods lead to higher probabilities of partially qualifying for a bonus. The increases in partial qualification resulting from increased bonus amounts are rather small and are statistically significant only in the case of the high bonus amount in Washington (compare the coefficients of the low, medium, and high bonus amounts under the bonus characteristics in Table 3.2). It is much clearer that partial qualification rates rise with the length of the qualification period (compare the coefficients of the short and long qualification periods under the bonus characteristics in Table 3.2).

In regressions that are not reported, we included the bonus amount and the qualification period as continuous variables in models that are otherwise the same as those reported in Table 3.2. These regressions suggest that a $1,000 increase in the bonus amount increased the probability of partially qualifying by about 3 percentage points in Pennsylvania and by about 6 percentage points in Washington. They also suggest that extending the bonus qualification period by one week increased the probability of partially qualifying by about 1.5 percentage points in both Pennsylvania and Washington.

Bonus Receipt

Columns 4, 5, and 6 of Table 3.2 display estimates of models in which a dummy variable equal to 1 if a claimant received a bonus (zero otherwise) is regressed on the same explanatory variables used in the partial qualification equations reported in columns 1–3. The bonus receipt equations have less explanatory power than do the partial qualification equations (see the lower adjusted R^2 values at the bottom of Table 3.2). Again we estimate a separate model for each of the three experiments because pooling is rejected for the model of bonus receipt, as it was for partial qualification.

Most of the relationships between bonus receipt and the explanatory variables are similar to the those observed for partial qualification. Ethnic minorities are less likely to receive a bonus (in all three experiments), and younger workers are more likely to receive a bonus than are older workers (again in all three experiments). Workers who expect recall are less likely to receive a bonus (in Pennsylvania and Washington). Greater potential duration of benefits (in Illinois and Washington) tends to increase the probability of bonus receipt. Although higher weekly benefit amounts tend to reduce the probability of partially qualifying for a bonus, higher weekly benefit amounts tend to increase the probability of bonus receipt (in Illinois and Washington). (We return to this point in the discussion of bonus take-up rates below.) Also, although there is an ambiguous relationship between the industry from which a worker was laid off and partial qualification, workers laid off from manufacturing jobs seem less likely than others to receive a bonus (in Pennsylvania and Washington).

The probability of bonus receipt increases strongly both with larger bonus offers and with longer qualification periods—compare the coefficients of the low, medium, and high bonus amounts and those of the short and long qualification periods under the bonus characteristics in Table 3.2. In regressions not reported, we find that a $1,000 increase in the bonus offer increased the probability of bonus receipt by 4.5 percentage points in Pennsylvania and by 10 percentage points in Washington. Extending the bonus qualification period by one week increased the probability of bonus receipt by about 1 percentage point in both Pennsylvania and Washington.

Bonus Take-Up Rates

The third issue we seek to understand is what factors influenced whether a claimant who partially qualified for a bonus ultimately collected a bonus. This propensity of claimants who partially qualified for a bonus to collect a bonus is the bonus take-up rate. Columns 7, 8, and 9 of Table 3.2 display estimates of take-up rate models for Illinois, Pennsylvania, and Washington.[3] In each, we have regressed a dummy variable equal to 1 if a claimant received a bonus (zero otherwise) on the same explanatory variables that were used in the partial qualification and bonus receipt equations already discussed. The difference between the take-up rate models and the partial qualification and bonus receipt models is that the sample used in the take-up rate models includes only treatment-assigned claimants *who partially qualified for the bonus* (that is, ended UI benefit receipt by the qualification date).

These estimates show several patterns. Women tend to have higher take-up rates than men, other things equal, although the relationship is strong and statistically significant only in Washington. Ethnic minorities have much lower take-up rates than whites in all three experiments. Workers laid off from manufacturing jobs have lower take-up rates than other workers (in Pennsylvania and Washington). These effects arguably reflect differences in tastes—including possible differences in the extent to which workers trust the experimenters—that exist among different groups of workers.

Workers who expected to be recalled or (in Washington) to be placed by a union had much lower take-up rates than others, all else equal. In Pennsylvania, this effect was in addition to a lower tendency of workers who expected recall to qualify for a bonus. In Washington, this effect offsets the (rather surprising) positive effect of recall expectations on partial qualification and produces a net negative impact of recall expectations on the probability of bonus receipt.

Higher weekly benefit amounts (in all three experiments) are associated with higher take-up rates. This result seems counterintuitive, at least in Illinois, where a given bonus provides a smaller payoff (in relative terms) to a worker who receives high weekly benefits than to a worker who receives low weekly benefits. A possible interpretation, however, is that workers with higher weekly benefits tend to have relatively higher human capital and earnings. In other words, workers with

high weekly benefit amounts are likely to be more productive, better able to make use of the UI system, and more likely to collect a bonus for which they qualify.[4]

A potentially interesting result is the relatively weak relationship between the potential duration of benefits and the bonus take-up rate. Recall that (except in Pennsylvania) longer potential duration of benefits lead to higher probabilities of qualifying for and receiving a bonus. The relationship between potential duration and bonus take-up is weaker in both Illinois and Washington, however, which suggests that the gross relationship between potential duration and bonus receipt results from search behavior, not bonus take-up behavior. That is, the evidence is consistent with the idea that bonus offers lead to a significant increase in the search intensity of workers for whom the potential duration of benefits is longer. Their propensity to collect a bonus is no greater than that of workers whose potential duration of benefits is shorter, but because they increase their search intensity more than do workers with shorter potential duration of benefits, a higher proportion of workers with a long potential duration of benefits qualifies for and ultimately collects a bonus.

The results in Table 3.2 suggest that larger bonus offers lead unambiguously to larger bonus take-up rates. In regressions not reported, we find that a $1,000 increase in the bonus offer would have increased the take-up rate by 8 percentage points in Pennsylvania and by 17 percentage points in Washington.

We have seen that larger bonus offers result in a higher probability of receiving a bonus, but they are only weakly related to the probability of qualifying for a bonus. The results in columns 7, 8, and 9 of Table 3.2 show that the observed positive effect of a larger bonus offer on bonus receipt occurs because larger bonus offers increase the take-up rate. That is, larger bonuses raise the probability of bonus receipt mainly because they raise the bonus take-up rate, not because they raise the probability of qualification. The point is potentially important in designing a reemployment bonus program. If higher bonus offers raise the bonus take-up rate without significantly raising the probability of partial qualification for a bonus (that is, of cutting short the spell of unemployment), then a higher bonus would lead to larger bonus payments without the benefit of shortening unemployment spells. This

question is considered further in Chapter 4 when we consider the optimal size of a bonus offer.

Extending the bonus qualification period has a relatively weak effect on the probability of bonus take-up. Although statistically nonzero, the coefficients on the long qualification period variable are rather small in the take-up equations compared with those in the qualification equations. In unreported regressions, we find that extending the bonus qualification period by one week would have increased the take-up rate by less than 1 percentage point in Pennsylvania and Washington. A longer qualification period makes it easier to qualify for a bonus but does not increase a worker's incentive to collect a bonus (as does an increase in the bonus amount). Accordingly, it makes sense that the take-up rate should be weakly affected by the length of the qualification period.

EXPLAINING DIFFERENCES AMONG THE EXPERIMENTS

How would partial qualification for the bonus, bonus receipt, and bonus take-up have differed if the workers in one experiment (Illinois, say) had faced the "structure" of partial qualification, bonus receipt, and bonus take-up that existed in either of the other experiments (Pennsylvania or Washington)? Answering this question can suggest the extent to which differences among the experiments in partial qualification, bonus receipt, and bonus take-up can be explained by differences in observable factors associated with the experiments, such as the characteristics of claimants and characteristics of the labor market where the experiments were conducted.

For example, we could ask how many of the workers assigned to the Illinois treatment would have received a bonus if their probability of receiving a bonus had been determined by the structure of bonus receipt estimated in the Pennsylvania experiment. First, let $\boldsymbol{x}_{PA}$ denote the vector of mean observed characteristics of the workers who were assigned to a treatment in Pennsylvania and let $\boldsymbol{b}_{PA}$ denote the vector of estimated coefficients from the Pennsylvania bonus receipt equation. Then the proportion of Pennsylvania claimants who actually received a bonus (y_{PA}) can be expressed as:

$$y_{PA} = \boldsymbol{x}_{PA} \cdot \boldsymbol{b}_{PA}$$

Next, we can simulate the proportion of Illinois claimants who would have received a bonus if their bonus receipt were determined by the structure of bonus receipt observed in the Pennsylvania experiment. We denote this simulated proportion by $y_{IL|PA}$ and compute it by substituting the mean characteristics of the Illinois claimants ($\boldsymbol{x}_{IL}$) into the Pennsylvania bonus receipt equation:

$$y_{IL|PA} = \boldsymbol{x}_{IL} \cdot \boldsymbol{b}_{PA}$$

The dot product $\boldsymbol{x}_{IL} \cdot \boldsymbol{b}_{PA}$ is a simulated proportion of Illinois bonus recipients because it applies the model of bonus receipt that was estimated for the Pennsylvania experiment to the characteristics of workers assigned to the Illinois experiment. A similar approach can be used to simulate the proportion of Washington claimants who would have received a bonus if they had been assigned to the Pennsylvania experiment, and so on.

Implementing the above procedure requires that the partial qualification, receipt, and take-up equations reported in Table 3.2 be modified in three ways. First, in the Illinois and Pennsylvania models, the dummy variables indicating the potential duration of UI benefits are replaced with continuous variables for the potential duration of UI benefits. Second, in the Pennsylvania and Washington models, the bonus amount and qualification period dummy variables are replaced with continuous variables indicating bonus amount and length of the qualification period (there was no variation in either the bonus amount or qualification period in Illinois). Third, in the models for all three experiments, we replace the site dummies with two sets of variables that attempt to capture the state of the labor market in which workers sought reemployment:

- The unemployment rate in the local area and quarter in which the worker filed his or her initial claim for UI benefits (entered as four dummy variables: less than 5 percent, from 5 to 7 percent, from 7 to 10 percent, and greater than 10 percent).

- The percentage change in employment in the local area where the worker filed the initial claim during the three months following the initial claim.[5]

The above modifications are needed so that the mean characteristics of the workers in each experiment can be substituted into the structure of partial qualification, bonus receipt, and bonus take-up estimated for the other experiments. The dummy variables that were used to characterize the potential duration of UI benefits, bonus characteristics, and sites in the models reported in Table 3.2 are not conformable across the three experiments.

Table 3.3 displays the results of simulating the partial qualification, bonus receipt, and take-up rates for each of the three experiments using the approach outlined above. The actual bonus receipt rate in Illinois was 13.6 percent, in Pennsylvania 10.6 percent, and in Washington 14.6 percent (column 2). The differences among the three experiments can be explained in either of two ways. First, recall that the probability of bonus receipt is the product of the probability of partially qualifying for a bonus and the probability of taking up a bonus for which one partially qualifies (see pp. 83). Column 1 of Table 3.3 shows that the partial qualification rates were higher in Pennsylvania and Washington than in Illinois. However, Illinois made up for its low partial qualification rate by having the highest take-up rate, and Pennsylvania was pulled down by the lowest take-up rate. This much we already knew from Table 3.1.

The simulations in Table 3.3 allow a second, potentially more revealing, kind of explanation of the differences among the three experiments. The simulations let us speculate about whether the differences among the three experiments in partial qualification and take-up rates can in turn be explained by differences among the three in the characteristics of the experimental claimants or the labor market conditions they faced. If claimant characteristics and labor market conditions don't explain much of the differences, then we would have to conclude that the differences in partial qualification and take-up stem from factors that are not captured in the variables that we can quantify and observe.

The partial qualification rates in column 1 suggest that more of the Illinois claimants would have partially qualified for a bonus if they had

been in either the Pennsylvania or the Washington experiment (57.2 or 65 percent, instead of the actual 42.9 percent). Fewer Pennsylvania claimants would have partially qualified for a bonus in Illinois (46.1 percent, instead of the actual 56.6 percent), and a somewhat higher percentage of Pennsylvania claimants would have partially qualified for a bonus in Washington (58.3 percent, instead of the actual 56.6 percent). Finally, fewer of the Washington claimants would have partially qualified for a bonus in either Illinois (47.3 percent, instead of the actual 55.7 percent) or in Pennsylvania (49.1 percent, instead of the actual 55.7 percent).

However, differences among the experiments in the observable characteristics of the claimants and the labor market explain little if

Table 3.3 Actual and Simulated Partial Qualification, Bonus Receipt, and Bonus Take-Up Rates[a] (%)

	Partially qualified[b] (1)	Received bonus (2)	Bonus take-up[c] (3)
Illinois means applied to			
Illinois model (actual)	42.9	13.6	31.8
Pennsylvania model	57.2	10.1	19.8
Washington model	65.0	20.8	32.8
Pennsylvania means applied to			
Illinois model	46.1	19.7	42.5
Pennsylvania model (actual)	56.6	10.6	18.6
Washington model	58.3	19.1	25.3
Washington means applied to			
Illinois model	47.3	19.4	41.7
Pennsylvania model	49.1	10.3	17.3
Washington model (actual)	55.7	14.6	26.1

[a] The simulated take-up rates were obtained by substituting the mean characteristics of, for example, the Illinois treatment group into the take-up equations that were estimated for the Pennsylvania and Washington treatment groups. Actual values are shaded. See the text for further discussion.

[b] Partial qualification is defined as ending UI receipt by the bonus qualification date.

[c] The take-up rate is defined as the percentage of workers who actually collected a bonus given that they stopped receiving UI benefits by the qualification date.

any of the differences between Illinois and the other two experiments in partial qualification rates. For example, the actual difference between the Illinois and Pennsylvania partial qualification rates is 13.7 percentage points (56.6 minus 42.9). If the Illinois claimants had been assigned to the Pennsylvania experiment, the simulations suggest that their partial qualification rates would have increased to 57.2 percent—similar to what was actually observed in Pennsylvania. Hence, none of the difference between the Illinois and Pennsylvania partial qualification rates is explained by differences between the two experiments in observed variables. Rather, the differences depend wholly on how observed variables map into the probability of partially qualifying in each of the two experiments.

The conclusion is slightly less negative if we ask what would have happened to the Pennsylvania claimants if they had been assigned to the Illinois experiment. If the Pennsylvania claimants had been assigned in Illinois, their partial qualification rate would have fallen to 46.1 percent—3.2 percentage points higher than was observed in Illinois. Hence, observed variables explain less than one-quarter of the total observed difference between partial qualification rates in Illinois and Pennsylvania (3.2 points out of the total 13.7-point difference)—the rest is unexplained. (A decomposition of this simulation, which we do not report, shows that this 3.2 percentage point difference can be explained roughly half and half by more favorable labor market conditions in Pennsylvania and by Pennsylvania claimants having characteristics that are more favorable to partially qualifying for a bonus.)

Comparison of the Illinois and Washington partial qualification rates gives similar results. The actual difference between the Illinois and Washington partial qualification rates is 12.8 percentage points (55.7 minus 42.9). If the Illinois claimants had been assigned to the Washington experiment, their partial qualification rates would have been 65 percent, which suggests that observables explain none of the differences in partial qualification between Illinois and Washington. On the other hand, if the Washington claimants had been assigned to the Illinois experiment, their qualification rates would have been 47.3 percent, which suggests that observables can explain only about one-third of the total difference between the partial qualification rates in Illinois and Washington (4.4 points out of the total 12.8-point difference).

Given that the Illinois experiment occurred during the early stages of a recovery (late 1984 and early 1985), whereas the Pennsylvania and Washington experiments occurred after the recovery had matured (1988–1989), it is tempting to suggest that relatively slack labor demand played an important role in lowering the Illinois qualification rates. However, given that we have tried to control for labor market conditions in the partial qualification models, this is purely a speculative and post hoc rationalization of the apparent difference between Illinois and the other two experiments in how partial qualification came about. (There may be deficiencies in the labor market controls we have included, but they are standard measures of the health of the labor market.)

Consider next the take-up rates shown in column 3 of Table 3.3: the observed take-up rate was 31.8 percent in Illinois, 18.6 percent in Pennsylvania, and 26.1 percent in Washington. Was the take-up rate lowest in Pennsylvania and highest in Illinois as a result of differences in observable characteristics of claimants and the labor market conditions they faced, or do the differences stem from factors that are not captured in the observed variables?

The take-up rate was lower in Pennsylvania than in Illinois and Washington for reasons that are not accounted for by observed variables. Far fewer Illinois claimants would have taken up a bonus if they had been in the Pennsylvania experiment (just 19.8 percent, instead of the actual 31.8 percent). Similarly, fewer of the Washington claimants would have taken up a bonus if they had been in the Pennsylvania experiment (17.3 percent, instead of the actual 26.1 percent). That is, given individual and labor market characteristics mapped into much lower take-up rates in Pennsylvania than in either Illinois or Washington, and differences among the three experiments in measurable characteristics of claimants or labor market conditions do not explain the differences in take-up behavior. As with the partial qualification rates, differences in the take-up rates depend on the "structure" of bonus take-up—that is, on how observables map into the probability of bonus take-up in each of the experiments—rather than on individual characteristics or measurable features of the labor market.

Another way to see the point is to note that the Pennsylvania claimants would have had a much higher take-up rate either in Illinois (42.5 percent) or in Washington (25.3 percent) than they actually did (18.6 percent). The simulated take-up rate for Illinois (42.5 percent) is well

above the actual take-up rate in Illinois (31.8 percent), and the simulated rate for Washington (25.3 percent) is very close to the actual take-up rate in Washington (26.3 percent), indicating again that the differences among the three experiments in take-up behavior cannot be explained by measurable characteristics of claimants or labor market conditions. It is clear that something about the Pennsylvania experiment—other than claimants' characteristics and the state of the labor market, at least to the extent that we have been able to control for these variables—resulted in lower take-up rates in Pennsylvania than in either Illinois or Washington.

Our inability to explain the large difference between the bonus take-up rates in Pennsylvania on the one hand, and Illinois and Washington on the other, suggests again the difficulty in predicting and understanding participation in a bonus program. It is difficult to quantify, or even to characterize descriptively, differences in a program's implementation from state to state and site to site. Yet differences in implementation of the three experiments would seem to be the most likely source of the large gap between the take-up rates of Pennsylvania and the other two experiments.

Anecdotal evidence on the Illinois experiment illustrates the potential importance to program participation of variables that are intangible and hard to quantify. In the Illinois experiment, each claimant who was assigned to a treatment was asked to sign a form indicating willingness to participate in the experiment. At one of the experimental sites, the treatment was administered by a woman who was reported to be enthusiastic about the reemployment bonus and readily trusted by the experimental claimants. (She was described to one of us as "grandmotherly.") At this site, the rates of willingness to participate and bonus take-up were higher than the average for the experiment as a whole, even after adjusting for measurable correlates of willingness to participate and bonus take-up. This sort of evidence is a reminder that a bonus treatment—like any treatment—includes more than a financial incentive. It also includes the way the incentive is presented and the attitude and trustworthiness of those who are assigned the job of administering the treatment.

DISCUSSION AND SUMMARY

This chapter has attempted to sort out differences among the Illinois, Pennsylvania, and Washington reemployment bonus experiments in what we have referred to generally as "participation." By participation in the bonus experiments, we mean three things: qualifying (in this case, partially) for a bonus, actually receiving a bonus, and collecting a bonus given partial qualification for a bonus (bonus take-up). These three concepts of participation are related by a simple identity: the probability of a worker receiving a bonus is the product of the probability that she partially qualifies and the probability that she collects a bonus given that she partially qualified. Table 3.1 shows each of these as empirical probabilities (expressed as percentages) of claimants qualifying for a bonus (column 2), receiving a bonus (column 3), and taking up a bonus (column 4).

Table 3.1 and the discussion on pp. 78–84 showed that the partial qualification rate in Illinois (43 percent) was much lower than in either Pennsylvania (57 percent) or Washington (56 percent). Ultimately, however, nearly as high a percentage of claimants received a bonus in Illinois (13.6 percent) as in Washington (14.6 percent), whereas only 10.6 percent of the Pennsylvania claimants received a bonus. The simple explanation is that the bonus take-up rate was higher in Illinois (31.8 percent) than in either Pennsylvania (where it was just 18.6 percent) or Washington (where it was 26.1 percent). At a rather superficial level, then, we were able to explain the bonus receipt rate.

But we are much less successful in quantifying the large differences across the experiments in the partial qualification and take-up rates that underlie the bonus receipt rate. The qualification models suggest, not surprisingly, that the correlates of partial qualification are similar to the correlates of short spells of unemployment (see Table 3.2). For example, younger workers and white workers are more likely than older workers and ethnic minorities to qualify for a bonus. Also, not surprisingly, higher bonus amounts and longer qualification periods tend to increase the probability of qualifying for a bonus. The bonus receipt models offer similar findings.

The bonus take-up estimates differ in some ways from the partial qualification and receipt estimates. The probability of collecting a

bonus conditional on qualifying is influenced again by ethnicity (with racial minorities less likely to take up a bonus) and the bonus amount (with larger bonuses more likely to be collected), but several additional relationships also emerge. Women, nonmanufacturing workers, and workers who do not expect to be recalled are more likely to take up a bonus. Workers with higher weekly benefit amounts are more likely to take up a bonus. Those who face a longer qualification period are only slightly more likely than others to take up a bonus.

Nevertheless, it would be an understatement to say that puzzles remain in explaining differences in partial qualification, receipt, and take-up among the three experiments. In the last section, we use estimated models of partial qualification, receipt, and take-up to simulate the percentages of claimants who would have partially qualified for, received, and taken up a bonus if they had been assigned to one of the other experiments (see Table 3.3). Such simulations can suggest the extent to which differences among the experiments in observed participation are accounted for by observable differences in the characteristics of claimants (or in the labor market conditions they faced). We find that measurable differences in claimants' characteristics or labor market conditions explain very little of the differences across the three experiments in partial qualification and bonus take-up behavior. Instead, the differences depend on the "structure" of partial qualification and bonus take-up—that is, on how claimants' characteristics map into the probability of partial qualification or bonus take-up in each of the experiments

We are left with rather ad hoc explanations of the differences in participation across the three experiments. Perhaps partial qualification for the bonus was lower in Illinois than in Pennsylvania or Washington because the Illinois experiment took place during the early part of the 1980s recovery (whereas the Pennsylvania and Washington experiments occurred after the recovery had matured) or because of some other difficult-to-quantify feature of the labor market in Illinois. Perhaps the bonus offer was presented to claimants differently (and less attractively) in Pennsylvania than in Illinois or Washington. In fact, there is no convincing quantitative evidence for or against either of these views. The conclusion is that the estimated models of partial qualification and take-up offer little help in explaining the differences

among the three experiments in the observed partial qualification and take-up rates.

Notes

1. The figures for the control group in Pennsylvania ("Control/short qual. period" and "Control/long qual. period") were obtained by observing the number of claimants in the Pennsylvania control group who stopped receiving UI benefits within 6 weeks and 12 weeks, respectively. A similar approach yielded the figures for the Washington control group.
2. Two types of administrative data were used in the analysis: UI claims records, which provide data on the timing and amounts of UI benefits paid to claimants; and wage records, which provide data on each worker's quarterly earnings in UI-covered employment in the state where the worker claimed UI benefits. Because the wage records are quarterly, they do not provide information on the exact timing of reemployment or whether employment was continuous during the required four months. Also, because wage records provide information only on UI-covered employment in the state where each worker claimed benefits, they miss reemployment in jobs that are in another state or are not covered by UI.

   Note that the partial qualification measure used in this chapter differs from the full qualification concept that is used elsewhere in this volume (especially Chapter 6). As a result, the bonus take-up rates that are calculated in this chapter cannot be compared with those derived in Chapter 6. In Chapter 6, the take-up rate is defined as the proportion of UI claimants who received a bonus given that they 1) were eligible for UI benefits, 2) became reemployed and stopped receiving UI benefits by the qualification date, and 3) remained employed for four months. In other words, the bonus take-up rate is the proportion of claimants who fully qualified for the bonus who then collected a bonus. Conceptually, this latter definition is the correct definition of the bonus take-up rate.
3. Pooling of the three experiments was rejected for the bonus take-up rate models as it was for the models of partial qualification and bonus receipt.
4. A possible problem with this interpretation is that the regressions already control for base period earnings. But base period earnings and the weekly benefit amount are systematically related and may be collinear. Indeed, the coefficients on base period earnings are essentially zero in Illinois and Washington (in Pennsylvania the coefficient is positive), so it is tempting to suggest that the weekly benefit amount variable is capturing most of the effect of higher earnings capacity on bonus take-up.
5. The employment level used is a three-month moving average of employment in the local area where the worker filed for UI benefits.

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