Breaking Down Barriers

Experiments into Policies That Might Incentivize Employers to Hire Ex-Offenders: Appendix

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Additional Details on Experimentation and Modeling

All instruments and procedures were approved by the RAND Institutional Review Board (IRB number IRB00000051). All survey participants were provided informed-consent forms and indicated acceptance in order to begin the survey.

The Experiment

Experiment Planning and Development

To elicit employers' hiring preferences, we use a modified-choice modeling framework allowing respondents to rank three alternative options: two types of hiring incentives that contained four relevant attributes at different levels, and an opt-out alternative. As recommended by Adamowicz, Louviere, and Swait (1998), the alternative to opt out was included to better resemble the actual hiring process and thus reduce the potential introduction of systematic bias (Haaijer, Kamakura, and Wedel, 2001). We chose a ranking system because we expected many respondents to opt out of hiring an ex-felon—which would reveal nothing of value to us. Instead, by allowing respondents to rank all the options, we can still value their preferences between A and B, even if they would rather not hire an ex-felon at all (choice C). We preferred a ranking approach over having respondents use a rating scale system because contingent rating evaluations rely on strong assumptions related to cardinality of rating scales or comparability of ratings across individuals, and have been shown to yield unreliable preference estimates (Calfee, Winston, and Stempski, 2001).

Building off previous literature of firms' preferences and current policies, we developed an initial list of attributes—previous employer assessments, tax incentive amounts, minimum number of hours worked for tax incentive eligibility, and drug testing—and levels for these attributes that included at least one actual level (e.g., no drug testing requirement) and hypothetical levels (e.g., must pass monthly drug tests for one year). We then revised the list of attributes and levels through prestudies and pretests, as suggested by Coast et al. (2012). Specifically, we conducted an expert interview with a human resources representative who had experience working at large international firms. This step led us to make two changes: We added a level to the number of hours (a hypothetical, lower number than in the Work Opportunity Tax Credit [WOTC]), and we changed an attribute (drug testing) to regulatory burden, with levels based on the firm or a government agency filing necessary paperwork. Regarding the latter, it was deemed unrealistic that applicants would be completing drug tests if not on probation or parole, and even if they were, drug-test results would not be provided as part of the application

process. We replaced rather than added the attribute in order to minimize the number of attributes and to test a feature of the WOTC rather than a hypothetical, new policy.

We then tested the instrument with a behavioral economist familiar with cognitive issues in surveys. Based on this testing, we changed some of the instrument language, reducing the amount of text in the narrative and using a ranking response rather than a single-choice response.

We then pilot tested the survey with the same human resources representative previously interviewed and a group of foremen at local construction companies. Participants were asked to fill in the paper version of the survey, which provided one example with the narrative, and to read through a list of levels for each attribute. We then discussed the design with the two parties separately. From these discussions, we concluded that:

- Human resource professionals and managers understood the exercise and believed it to characterize a real hiring situation.
- Participants did trade off the minimum number of hours they had to hire someone and the amount of money in the tax credit.
- Participants believed the paperwork attribute was a realistic offering (even though it does not actually exist).
- Participants suggested we missed two important features they normally consider—ability to get to work on time consistently (transportation) and a guarantee by temp agencies to replace an employee if the first one is deemed unsuitable.

This last point led us to design two choice experiments because we believed there were too many attributes for respondents to assess in just one. Furthermore, the attribute of a guarantee replacement worker is realistically offered in the context of an employment agency. Therefore, our two choice experiments differ in terms of the narrative—one is based on a government policy option, the other is a staffing agency service.

Attributes and Levels

For the tax incentive experiment (Experiment 1), the option set was introduced as a choice between two types of government hiring incentives that contained the relevant attributes (previous employer assessments, tax incentive, minimum hours employed, responsible party for forms) at different levels, along with an opt-out alternative. For the staffing agency experiment (Experiment 2), the option set was introduced as a choice between two types of employment agency services that contained the relevant attributes (previous employer assessments, guarantee replacement, transportation, cost discount) at different levels, along with an opt-out alternative.

In each experiment, the respondent was asked to rank the alternative rendering the greatest profit. By ranking policy preferences, the respondent implicitly makes trade-offs among the attributes associated with each policy. The impact from each attribute on the choice of policy is then measured by altering the level of each attribute for policies A and B.

When we chose the attributes and their levels, our objective was to include realistic information that would be typically discussed or learned during a job interview. We considered that many respondents were in "Ban the Box" (BTB) jurisdictions and would not know for certain that the candidates had criminal records until the interview stage, so the language of the narratives asks respondents whom they would forward "to the next recruitment stage." (See the last section for the narrative text of both experiments.)

Table A.1 displays the attributes and their levels for the tax incentive modified-choice experiment presented to respondents. We selected tax incentive levels that would have an impact on the choice made but not determine it completely. The levels are also meant to be realistic and reflect the WOTC. Because we want to quantify the value of policy features (information and paperwork) in terms of tax incentives, we designed the experiment to have enough variation in the wage alternatives. Regarding the minimum number of hours, levels 1 (120 hours) and 2 (400 hours) are the actual levels of the WOTC, whereas level 0 (80 hours) is hypothetical. The minimum number of hours worked can be, but is not always, related to the amount of the incentive because the greater the minimum number of hours a firm must employ someone, the greater amount they may require. Regarding the party responsible for filling out paperwork, we offer two realistic options: the status quo in which the firm has to do the work (which would often be done by their accounting firm, especially for large firms), or an alternative in which a government workforce agency prepares and submits the forms. To our knowledge, there is no specific empirical evidence on the disutility of red tape associated with the WOTC. Finally, as discussed earlier, one attribute is particularly important with respect to hiring workers with a limited work history: previous employers' assessments. One finding of BTB research is that removing information led to worse outcomes for young minority males. To our knowledge, there is no specific empirical evidence on the value of previous employers' assessments. All attributes are ordinal except for post-conviction certification requirements—and possibly the minimum hours worked—in which we cannot know preferences for levels 1 and 2.

These attributes and levels of Experiment 1 were displayed to respondents as shown in Figure A.1. The first three attributes are the same between the two candidates, but the last attribute (who prepares the forms) differs. Respondents dragged their preferences (e.g., "I would choose Agency A," "I would choose Agency B") in the left-hand box to the empty box on the right-hand side. If they did not select all from the list and click submit, an alert notified the respondent that their answer was incomplete.

Table A.1. Description of Experiment 1 Attributes and Levels

Attribute	Description	Levels
Post-conviction certification requirements	Government employment agency document declaring that an individual is rehabilitated, based on employers' assessments within the past year (if incarcerated, corrections officers provide an assessment of work performed)	1. Provide consistent work history and verifiable positive employment references 2. Demonstrate adherence to company rules or code of safe practices 3. Provide consistent work history and verifiable positive employment references AND demonstrate adherence to company rules or code of safe practices
Amount of incentive payment	Reimbursement to employers for hiring ex-felons (in their first year). The financial payment is based on wages earned with the company.	1. Employer gets back 25% of wages paid to this worker in their first year with the company (maximum $2,500 back) 2. Employer gets back 40% of wages paid to this worker in their first year with the company (maximum $5,000 back)
Minimum number of employed hours required for employer to earn tax credit	Minimum number of hours an individual must work for an employer to be eligible for reimbursement (payment based on wages earned in the first year of employment with the company)	1. Works at least 80 hours 2. Works at least 120 hours 3. Works at least 400 hours
Who prepares the forms?	Forms must be prepared and submitted to an agency for employers to receive the financial incentive, including IRS Form, Employment & Training Form, Pre-Screening Notice, Certification Request, and New Hire Eligibility/Verification Form	1. Company prepares and submits forms 2. Government employment agency prepares and submits forms

Figure A.1. Illustration of Experiment 1

Imagine you are recruiting for an entry-level position in your company, and your state has a new employment program for people with felony criminal convictions.
Government employment agencies may:

- provide companies with an incentive for hiring a candidate with a felony criminal record for at least some number of hours,
- certify employability, and
- help you prepare necessary forms to obtain the incentive (e.g., IRS forms, verification forms).

Now imagine there are two similar candidates of interest, and you're deciding which one will continue to the next recruitment stage.
Both have the same technical skills and work experience needed for the job, as well as one nonviolent felony in their criminal history.
The candidates are associated with different agencies as shown below.

If you are unsure about the meaning of any phrase, you can scroll over the "i" icon with your mouse for more information.

Question	Agency A	Agency B
Post-conviction certification requirements [i]	Provide consistent work history and verifiable positive employment references	Provide consistent work history and verifiable positive employment references
Incentive payment [i]	You get back 25% of wages you pay this worker in their 1st year with your company (maximum $2,500 back)	You get back 25% of wages you pay this worker in their 1st year with your company (maximum $2,500 back)
Minimum hours to earn payment [i]	Works at least 80 hours	Works at least 80 hours
Who prepares incentive forms? [i]	Your company prepares and submits forms	Government employment agency prepares and submits forms

Please rank the choices, with your top choice in the first position.
Drag items from the left-hand list into the right-hand list to order them.

I would choose Agency A. I would choose Agency B. I would not choose either of these agencies.	

Regarding the staffing agency modified-choice experiment (Experiment 2), Table A.2 displays the attributes and their levels presented to respondents. Similar to Experiment 1, we include the attribute regarding previous employers' assessment. The offer of transportation to and from the job in a timely manner is a binary attribute. A statement of guarantee to replace the employee is based on actual offers from employment agencies to not bill the company and to send a replacement. Agencies tend to be vague about how long before a replacement will arrive, however, so we specify immediately (level 1) or within a business week (level 2). To our knowledge, there is no specific empirical evidence on the value to employers of consistent transportation or a guarantee of replacement specifically of workers with criminal records. Given employers' reluctance to hire people with criminal records, it could be important to know just how valuable it is for ex-felon job candidates to secure transportation and use a temp agency with a replacement guarantee (and if so, how swift the replacement must be). As with tax levels, the amounts of the discount were selected to have a meaningful impact on choice, but they are large—a 25-percent or 50-percent discount on the hiring fee—so the cost should not be the only factor determining which policy is chosen.

Table A.2. Description of Experiment 2 Attributes and Levels

Attribute	Description	Levels
Post-conviction certification requirements	Private employment agency document declaring that an individual is rehabilitated, based on employers' assessments within the past year (if incarcerated, corrections officers provide an assessment of work performed)	1. Provide consistent work history and verifiable positive employment references 2. Demonstrate adherence to company rules or code of safe practices 3. Provide consistent work history and verifiable positive employment references AND demonstrate adherence to company rules or code of safe practices
Transportation provided	Transportation to and from the job in a timely manner is provided by the private employment agency	1. No 2. Yes
Guarantee statement	Statement issued by a private employment agency to guarantee satisfactory completion of tasks	1. No guarantee 2. If not a good fit: not billed and replacement sent within 5 days 3. If not a good fit: not billed and replacement sent same or next day
Cost discount	Reduction in fee paid to the private employment agency for recruitment expenses and statutory mandated costs (e.g., unemployment benefits)	1. 25% of employee's hourly rate (typically, $200 off per month worked) 2. 50% of employee's hourly rate (typically, $400 off per month worked)

These attributes and levels of Experiment 2 were displayed to respondents as shown in Figure A.2. The first three attributes are the same between the two candidates, but the last attribute (cost discount) differs. Respondents dragged their preferences (e.g., "I would choose Agency A," "I would choose Agency B") from the left-hand box to the empty box on the right-hand side. If they did not select all from the list and click submit, they were alerted that their answer was incomplete.

Figure A.2. Illustration of Experiment 2

Imagine you are currently using two private employment agencies to recruit for an entry-level position in your company.
Employment agencies may:

- certify employability,
- provide a guarantee (e.g., send replacement if needed),
- offer the worker transportation to get to the job, and
- offer discounts for hiring someone with a criminal record.

Now imagine there are two similar candidates of interest, and you're deciding which one will continue to the next recruitment stage.
Both have the same technical skills and work experience needed for the job, as well as one nonviolent felony in their criminal history.
The candidates are associated with different agencies as shown below.

If you are unsure about the meaning of any phrase, you can scroll over the "i" icon with your mouse for more information.

Question	Agency A	Agency B
Post-conviction certification requirements [i]	Provide consistent work history and verifiable positive employment references	Provide consistent work history and verifiable positive employment references
Transportation provided [i]	No	No
Guarantee statement [i]	No guarantee	No guarantee
Cost discount [i]	25% of employee's hourly rate (typically, $200 off per month worked)	50% of employee's hourly rate (typically, $400 off per month worked)

Please rank your choices, with your top choice in the first position.
Drag items from the left-hand list into the right-hand list to order them.

I would choose Agency A. I would choose Agency B. I would not choose either of these agencies.	

Experimental Design and Identification

We initially generated all possible combinations of levels and alternatives (1,296 choice sets each for Experiment 1 and for Experiment 2). Determining the number of choice sets to present to each respondent is largely a subjective decision, and the optimal number of choice sets to present is debatable. Too many choice sets may result in "tired" respondents (possibly giving habitual or routine response), while too few choice sets may create biased responses, given that

the choice may be considered complex and time consuming (Carlsson and Martinsson, 2008; Hensher, Stopher, and Louviere, 2001).

We assumed that respondents could complete six questions per experiment, and decided to include some strictly dominated strategies to validate that respondents were paying attention and understood the exercise. Approximately 10 percent of respondents received one question (out of six) that included a strictly dominated alternative.

We selected 36 choice sets from the full factorial using the mix-and-match method (Aizaki, 2012). For each question, respondents find that at least one of the attributes differs, up to all four attributes differing. On average, 1.33 attributes are the same and 2.67 of the attributes differ per question. This study uses a block design of six blocks, with respondents randomly assigned to a block.

For identification, we tested that the levels between attributes were not correlated with one another (orthogonality) and that each level within an attribute appeared an equal number of times (balance). We tested orthogonality and balance for the full array and within each block. For each experiment, the final experimental design consists of a balanced and orthogonal array arranged into six blocks and in which respondents, randomly assigned to one of those six blocks, answer six questions.

Empirical Approach: Modified-Choice Modeling

The theoretical basis for the attribute-based choice method is derived from Lancastrian consumer theory (Lancaster, 1966), which assumes that utilities for goods can be decomposed into separate utilities for their underlying component characteristics (i.e., attributes). Combined with random utility theory (see McFadden, 1974; Hanemann and Kanninen, 1999), which posits that individuals behave rationally and will select the alternative yielding the highest utility, the probability that a respondent will select a given option in the choice experiment will be greater if the utility provided by the attributes of that option exceed the utility provided by the attributes of the alternative options.

For our empirical approach, we first model the choice of the option most preferred relative to all other options using a conditional logit model (McFadden, 1974). For this model, we represent the utility (U_{ij}) an individual i receives from a given choice j as a linear function of the choice attributes:

$$U_{ij} = Z_{ij}\alpha + \epsilon_i,$$

where Z_{ij} is a vector of attribute levels characterizing choice j, ϵ_i is a random error term, and α is a vector of preference weights reflecting the relative contribution of each attribute level to the utility received by respondents. A respondent's choice among the available options (including the status-quo or opt-out alternative) is represented as a function of the characteristics of the alternatives, in contrast to the multinomial logit framework, where choice is modeled as a

function of respondent characteristics (Hoffman and Duncan, 1988). Assuming that the error terms follow an extreme value distribution and are independent across alternatives (IIA), the probability that individual *i* chooses alternative *j* as the top-ranked preference (P_{ij}) can be represented as:

$$P_{ij} = \frac{exp\,(Z_{ij}\alpha)}{\sum_{k=1}^{J} exp\,(Z_{ik}\alpha)},$$

where Z_{ik} is a vector of characteristics for the *k*th alternative in individual *i*'s choice set and *J* is the number of alternatives available in a given choice set.

To incorporate the additional statistical information obtained from asking respondents to rank their options in order of preference, we also employ a rank-ordered logit model (Beggs, Cardell, and Hausman, 1981; Hausman and Ruud, 1987). The rank-ordered logit model can be viewed as a sequence of conditional logit models, where for each choice set the top-ranked option is first chosen as preferred relative to all alternatives, and the second-ranked option is then chosen as preferred relative to all remaining items. Based on the IIA assumption, the probability for individual *i* of a complete ranking $R_i=(r_{i1},\ldots,r_{iJ})$ is thus the product of these conditional logit probabilities, which can be expressed as:

$$\pi(R_i) = \prod_{j=1}^{J-1} \frac{\exp\,(Z_{ir_{ij}}\alpha)}{\sum_{m=j}^{J} \exp\,(Z_{ir_{im}}\alpha)},$$

where $Z_{ir_{ij}}$ is the vector of attributes for the alternative ranked *j* in the ordering for individual *i*. Given the smaller asymptotic variance of the rank-ordered logit relative to the conditional logit, the rank-ordered model has been shown to improve efficiency of parameter estimation (Beresteanu and Zincenko, 2016). As respondents' complete rankings consist of only three choices in our experiments, we anticipate that the rank-ordered logit will produce efficiency gains without introducing substantial bias in the parameter estimates (Beresteanu and Zincenko, 2016; Chapman and Staelin, 1982; Hausman and Ruud, 1987).

For all analyses, the survey data is first transformed so that each respondent's record yields three observations, each observation representing an alternative facing the respondent in a given choice set. For the conditional logit, the dependent variable takes a value of 1 for the top-ranked option (and of 0 otherwise). For the rank-ordered logit, the dependent variable corresponds to the rank that the respondent assigned to each alternative with higher values representing higher-ranked options. Model coefficients are estimated using maximum likelihood with robust standard errors clustered at the respondent level.

Sample and Data

Sample Selection

Our recruitment sample was drawn from a listing of employees purchased from Hoover's, Inc., a business research company with information on firms across the country. To obtain a

nationally representative sample of employers, we used Bureau of Labor Statistics data from the first quarter in the Quarterly Census of Employment and Wages (Bureau of Labor Statistics, 2016) to first stratify the Hoover's sample on industry and establishment size. Within these strata, we then randomly selected employees designated by Hoover's as working in managerial positions to contact for the survey. Given the known challenges with obtaining quality contact details in firms and the uncertainty of how participants would respond, we conducted a pilot with 953 potential participants and followed this with the main study of 2,203 participants. In total, a representative sample (according to Hoover's data) of 3,156 participant employees was drawn from the Hoover's listing.[1] We received 107 completed responses, yielding a response rate of 3.4 percent. Table A.3 presents the characteristics of our sample.

Our final sample of employers is largely representative of the current U.S. Census of businesses in terms of establishment sizes by industry sector (using the two-digit levels of the North American Industry Classification System [Office of Management and Budget, 2012]). However, as shown in Table A.4, our sample may be overrepresentative of the "other services" industry across all establishment size categories, and may be underrepresentative of midsized firms in the "professional and business services" industry and small to midsized firms in the "trade, transportation, and utilities" industry. That said, one possibility for these discrepancies may be that respondents were unsure how to categorize their firm's industry and used "other services" as a catchall category.

[1] Approximately 20 percent of listings were invalid and bounced back. We received credit for bouncebacks and re-sent survey links to new selections from the same strata. When we received bounceback emails, we sent new recruitment emails to employees from the relevant strata. We received 844 final bouncebacks, and therefore sent 3,156 from the original 4,000.

Table A.3. Summary Statistics of Analytical Sample

Sample Element	Mean (Std. Dev.)	Number of Completed Responses
Job Title		
General manager, managing director	0.28 (0.45)	107
Vice president, president, owner, CEO	0.29 (0.46)	107
Human resource, recruitment manager	0.21 (0.41)	107
Tenure		
<3 months	0.01 (0.10)	107
>3 months	0.99 (0.97)	107
3 months–5 years	0.25 (0.44)	96[a]
5 years +	0.74 (0.44)	96[a]
Establishment size		
<100	0.61 (0.49)	107
100–499	0.20 (0.40)	107
500+	0.20 (0.40)	107
Industry		
Natural resources and mining	0.02 (0.14)	107
Construction	0.07 (0.25)	107
Manufacturing	0.11 (0.32)	107
Education and health services	0.19 (0.39)	107
Leisure and hospitality	0.07 (0.26)	107
Professional and business services	0.18 (0.38)	107
Trade, transportation, and utilities	0.03 (0.17)	107
Other services	0.26 (0.44)	107
Have hired someone with a criminal record in the past year		
No, and legally can	0.48 (0.50)	107
No, and legally cannot	0.10 (0.31)	107
Yes	0.24 (0.43)	107
I do not know	0.18 (0.38)	107

[a] Sample size differs for these characteristics as more detailed questions on tenure were not asked of the pilot sample.

Table A.4. Difference Between Respondent Sample and Census Data (in percentage points), by Industry and Establishment Size

	Establishment Size		
Industry	**0–99 Employees**	**100–499 Employees**	**500+ Employees**
Construction	1.3% (0.46)	–0.3% (0.79)	0.6% (0.35)
Education and health services	3.5% (0.12)	–0.4% (0.80)	0.8% (0.73)
Financial activities	–4.3% (0.06)	–3.3% (0.06)	–0.4% (0.82)
Information	–0.5% (0.66)	–0.3% (0.78)	–1.7% (0.17)
Leisure and hospitality	–0.4% (0.83)	1.8% (0.06)	1.3% (0.06)
Manufacturing	2.2% (0.22)	–1.7% (0.40)	–2.1% (0.33)
Natural resources and mining	0.1% (0.93)	0.3% (0.68)	–0.6% (0.44)
Other services	16.9%*** (0.00)	6.2%*** (0.00)	0.9%*** (0.00)
Professional and business services	4.0% (0.17)	–5.3%** (0.02)	–2.8% (0.21)
Trade, transportation, and utilities	–8.8%*** (0.00)	–4.4%** (0.04)	–2.5% (0.10)

P-values in parentheses for difference in our sample proportion to the national distribution documented in the Bureau of Labor Statistics first-quarter data of the Quarterly Census of Employment and Wages (2016).
**p<0.05, ***p<0.01.

Survey Implementation

We implemented the questionnaire using MMIC (Multimode Interviewing Capability), a RAND-developed online environment for survey research. During the pilot, we mailed introduction letters to all potential participants. One to two weeks later, depending on the postal delivery, an email with a unique link was sent to potential participants requesting that they take part in an online survey lasting approximately 10–15 minutes. Respondents were offered $15 for completing the survey, which they could accept as an Amazon egift code or donate to one of three charities (Cancer Research Institute, Children's Defense Fund, or Goodwill). During the pilot, we learned that the letters did not have a meaningful enough impact on response rates to warrant the cost, so we did not mail introduction letters for the main study. Email reminders were sent twice per week for seven weeks to nonrespondents of the pilot and twice per week for three weeks to nonrespondents of the main study.

Robustness Checks: Respondents

We initially included screener questions because we could not be certain that the Hoover's database was accurate in terms of job titles or responsibilities of people involved in hiring,[2] and we wanted respondents to be individuals who could legally hire people with criminal records. The pilot revealed that the job titles—recruiter, manager, owner—were accurate and relevant, as all respondents chose the job titles expected; an open-ended response was permitted and no one provided a title different from that listed in Hoover's. However, we chose not to screen for the main study and included the question regarding whether one could hire people with criminal records instead as a background question.

To provide a check that employers understood the experimental choice scenarios and were exerting appropriate effort when ranking applicants, we included a few strictly dominated scenarios in the experiment (i.e., scenarios in which one ex-offender candidate rates higher or as more preferred on all four attributes). In 85 percent of the strictly dominated scenarios, respondents selected the strictly preferred applicant, suggesting respondents were indeed paying attention and understood the exercise.

Results

Tables A.5 and A.6 present regression results from the logit models described previously. The findings discussed earlier were based on predicted probabilities using the coefficient estimates from the conditional logit models for ease of interpretation, but the results from the rank-ordered logit models are qualitatively similar.

Experiment 1: Tax Incentives

Table A.5 presents our regression results for the first modified-choice experiment presented to respondents (Experiment 1). The first column of the table presents results from the conditional logit model used in our discussion of findings, while the second column presents results from the rank-ordered logit model as a sensitivity check. For the conditional logit model, positive coefficients indicate that respondents were on average more likely to rank policy options with that attribute level *as their top choice* relative to the reference attribute level; negative coefficients indicate they were less likely to do so. For example, the coefficient for the administrative burden of paperwork is positive, indicating that if a government agency completes the form, it would increase the probability that employers consider hiring a nonviolent ex-

[2] When we were randomly selecting survey participants, we noticed that the firms listed for contacts working in establishments with fewer than five employees did not seem accurate. To verify this, we randomly selected ten contacts across industries of fewer than employees (as labeled in the Hoover's database) and called the listing asking about firm size. Of the four that answered, one was a small firm and the other three were not. Given the margin of error, we chose 2–99 as the smallest establishment size in the Hoover's database and we included a question in the survey regarding company size.

offender. For the rank-ordered logit model, positive coefficients indicate that respondents were on average more likely to rank policy options with that attribute level *more highly* relative to the reference attribute level; negative coefficients indicate they were less likely to do so.

The magnitudes of the coefficient estimates are used to determine the predicted probabilities that an employer will select a job candidate based on the given policy package. Specifically, for each policy feature, we compute the predicted probabilities that a candidate would be selected with a change in that policy feature from the baseline (i.e., a policy package where the government agency fills out the paperwork and all other policy features are the baseline: 25-percent wage discount, a minimum of 120 hours worked, and a post-conviction certification only verifying previous code of conduct or safety). The predicted probabilities are provided in the main body of the report.

Table A.5. Regression Results for Experiment 1

Attribute	Conditional Logit	Rank-Ordered Logit
Certificate attributes (ref: Provide consistent work history and verifiable employment references)		
Demonstrate adherence to company rules/code of safe practices	–0.532*** (0.155)	–0.523*** (0.123)
Provide consistent work history and references and demonstrate adherence	0.530*** (0.135)	0.344*** (0.129)
Incentive payment (ref: 25% of employee wage)		
Incentive payment of 40% of employee wage	0.843*** (0.152)	0.701*** (0.126)
Minimum hours employee must work for incentive (ref: 80 hours)		
120 hours	–0.227 (0.165)	–0.133 (0.114)
400 hours	–0.098 (0.163)	–0.142 (0.134)
Administrative burden attributes (ref: Own company prepares forms)		
Government agency prepares and submits forms	0.634*** (0.141)	0.464*** (0.116
Indicator for opt-out option	–0.435 (0.266)	–1.322*** (0.245)
Number of observations	1,917	1,658
Number of respondents	107	107

Coefficient estimates for conditional logit or rank-ordered logit regression models. Robust standard errors (in parentheses) clustered at the respondent level.
**p<0.05, ***p<0.01.

Experiment 2: Employment Agency Cost Discounts

Table A.6 presents our regression results for the second modified-choice experiment (Experiment 2) regarding a staffing agency discount. The first column presents results from the conditional logit model used in our discussion of findings, while the second column presents results from the rank-ordered logit model as a sensitivity check. As described for the previous experiment results, positive coefficients indicate that respondents were on average more likely to rank policy options with that attribute level:

- as their top choice relative to the reference attribute level (conditional logit model)
- more highly relative to the reference attribute level (rank-ordered model).

Negative coefficients indicate that respondents were, on average, less likely to do so.

Table A.6. Regression Results for Experiment 2

Attribute	Conditional Logit	Rank-Ordered Logit
Certificate attributes (ref: Provide consistent work history and verifiable employment references)		
Demonstrate adherence to company rules or code of safe practices	–0.240 (0.164)	–0.262** (0.130)
Provide consistent work history and references and demonstrate adherence	0.692*** (0.143)	0.493*** (0.124)
Transportation attributes (ref: No transportation provided)		
Transportation to and from job provided by employment agency	0.580*** (0.172)	0.539*** (0.133)
Guarantee attributes (ref: No guarantee)		
If not a good fit: not billed and replacement sent within 5 days	1.255*** (0.186)	0.773*** (0.159)
If not a good fit: not billed and replacement sent within 1 day	1.499*** (0.208)	0.942*** (0.168)
Cost discount (ref: 25% wage discount)		
50% wage discount	0.713*** (0.139)	0.483*** (0.108)
Indicator for opt-out option	0.739*** (0.279)	–0.501** (0.215)
Number of observations	1,920	1,721
Number of respondents	107	107

Coefficient estimates for conditional logit or rank-ordered logit regression models. Robust standard errors (in parentheses) clustered at the respondent level.
**p<0.05, ***p<0.01.

The magnitudes of the coefficient estimates are used to determine the predicted probabilities that an employer will select a given policy package. Specifically, for each policy feature, we compute the predicted probabilities of a policy feature that has the baseline value for all other

policy features (i.e., a policy providing transportation with a 25-percent wage discount, no guarantee replacement, and a post-conviction certification only verifying previous code of conduct or safety). These predicted probabilities are provided in the main body of the report.

Follow-Up Survey Questions

We asked two follow-up questions to directly assess employers' concerns about hiring workers with criminal records. One question asked respondents whether they agreed with the following statement: "People with felony records will get more job offers if they can provide detailed information about their previous work performance." Most respondents answered that they agreed or strongly agreed (47.6 percent and 41.0 percent, respectively), with very few stating they disagreed or strongly disagreed (1.9 percent and 2.9 percent, respectively), and the remainder replying that they were neutral (6.7 percent).

The other follow-up question asked respondents to rank from most to least important the following potential issues of consideration in hiring someone with at least one felony conviction:

- time since the last felony conviction
- any violent felony conviction
- how they will interact with other staff
- how they will interact with clients/customers
- workplace liability issues
- ability to get to the job on time
- whether they have the skills to get the job done.

This list was developed to ensure some overlap with the items we were testing in the experiment, drawing from prior surveys or interviews of employers (Albright and Denq, 1996; Giguere and Dundes, 2002; Holzer, Raphael, and Stoll, 2004; Graffam, Shinkfield, and Hardcastle, 2008; Lukies, Graffam, and Shinkfield, 2011; Lageson, Vuolo, and Uggen, 2015) and the experiments' pretest interviews with human resources professionals and construction supervisors. We focused our list on those items noted as being important considerations in employer decisions to hire ex-offenders. Table A.7 presents the proportion of respondents ranking each issue by order in which it was ranked.

Table A.7. Employer Rankings of Primary Issues in Hiring Workers with Criminal Records

Issue	First	Second	Third	Fourth	Fifth	Sixth	Seventh
Time since last felony conviction	3.9%	18.1%	23.9%	4.4%	7.9%	19.5%	22.0%
Any violent felony conviction	54.8%	24.5%	4.4%	5.6%	3.4%	4.6%	1.2%
How they will interact with staff	0.0%	7.5%	18.5%	23.3%	23.6%	21.8%	7.3%
How they will interact with clients	1.9%	8.5%	10.9%	22.2%	30.3%	16.1%	9.8%
Workplace liability issues	13.5%	16.0%	18.5%	11.1%	12.4%	8.1%	23.2%
Ability to get the job done on time	0.0%	6.5%	6.5%	14.4%	19.1%	17.2%	34.2%
Skills to get the job done	26.0%	17.4%	17.4%	18.9%	3.4%	12.6%	2.4%
Number of observations	104	94	92	90	89	87	82

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