**Online Appendix H:** The theoretical difference in search intensity for those ineligible for UI benefits

When an unemployed individual losing a job for no fault of her own searches for a new job, the expected payoff is a weighted average of the wage (if the search succeeds and she is employed) and the UI payment (if the search fails). This optimal search intensity is defined in equation (6) of the text.

For new entrants to the labor force, for those newly returning after leaving the labor force, of for those who have exhausted their UI support for the year, the expected payoff is different: it is the weighted average of the wage (if employed) or zero (if the search fails). This case is defined in equation (6') in the text. We can write the expected payoff of job search in this case as $P^R$. The optimal search intensity for this individual is $\bar{e}_1$.

$$P^R = \bar{e}_1 f(\theta_1)V(w_1) - ( \bar{e}_1^{\gamma} + g )$$

The first term is the expected value of the wage payoff should the search be successful. The second term is the search cost and is incurred whether or not the search succeeds. We can calculate the optimal search intensity for this individual through optimizing $P^R$ with respect to $\bar{e}_1$. The optimal search intensity is

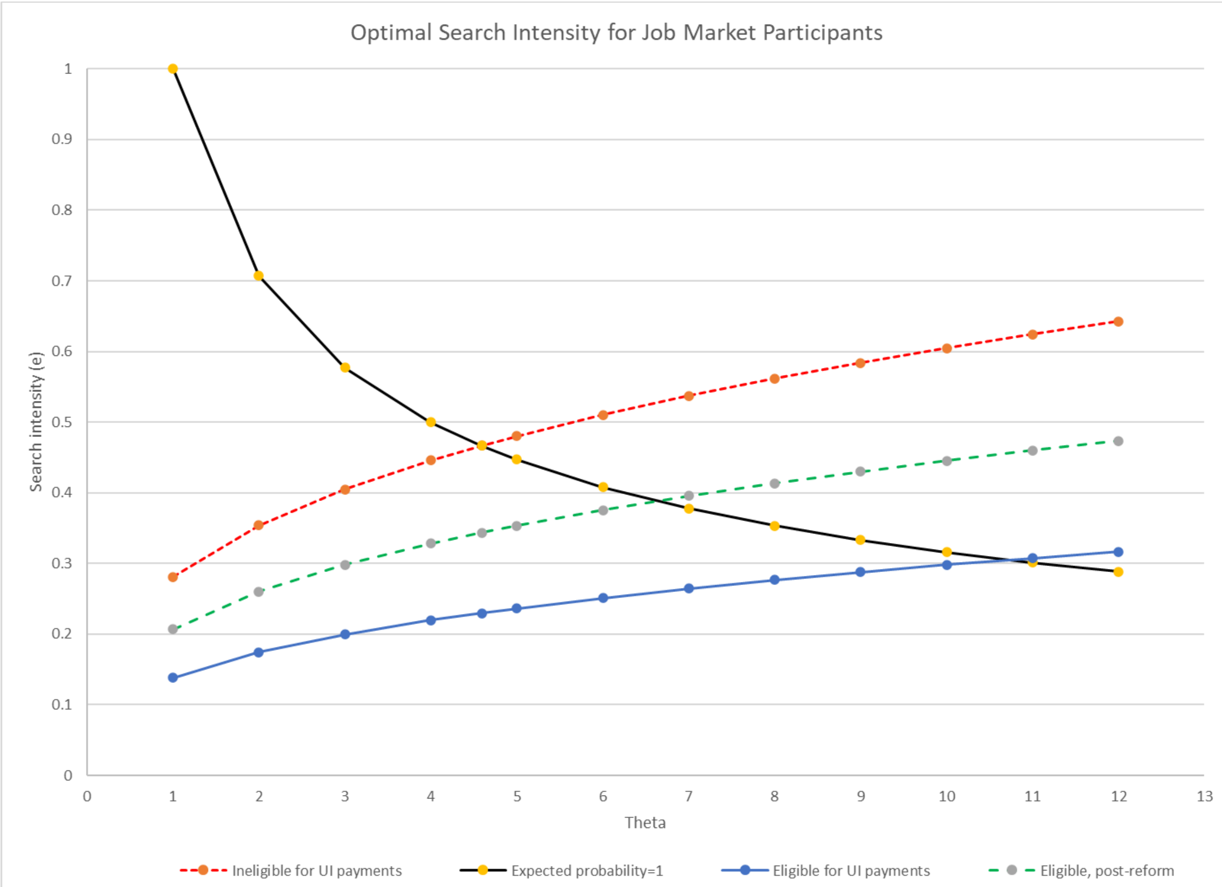
$$\bar{e}_1 = [ f(\theta_1)V(w_1)/\gamma ]^{(1/(\gamma-1))} \qquad \text{for } \bar{e}_1 f(\theta_1) < 1 \qquad (6')$$

and

$$\bar{e}_1 = 1/f(\theta_1) \qquad \text{otherwise}$$

The second equation is a corner solution: the searching individual cannot raise her probability of finding a job to greater than one.

I illustrate these realizations of search intensity in the following graph for the parameters used in the calibration model. The downward-sloping line illustrates the limit on $e_1$ (or $\bar{e}_1$) imposed by assuming that search intensity will be limited by the intensity necessary to achieve success with probability one. The three upward-sloping lines illustrate the optimal intensity if an interior maximum is observed.




For low values of $\theta_1$ (and with all other parameters as set in the paper), the interior solution is observed. As $\theta_1$ rises, the individual's search intensity rises along the appropriate upward-sloping curve until it intersects with the "expected probability = 1" line. For still larger $\theta_1$ the individual's search intensity will be falling: the increased tightness of the labor market leads to less search intensity necessary to match with a job with probability one.

The blue solid line in the graph depicts the optimal search intensity in the benchmark case (individual eligible for UI payments, and UI payments relatively high). The limiting case of expected probability = 1 will be observed only for extremely high $\theta_1$ for those individuals. The green dashed line represents search intensity behavior for UI-eligible individuals when UI reform lowers the payout $C^u$ and the corner solution becomes binding at lower values of $\theta_1$ – although in the particular calibration of UI reform in the text, the solution is an interior solution.

The red dotted line illustrates the optimal search intensity for those who are searching but ineligible for UI payments either because they have been out of the labor force or because they exhausted their eligibility. The search intensity for these entrants ($\bar{e}_1$) will never rise above 0.43. There is no need for greater search intensity because the searcher cannot increase above one her probability of finding a job.

By comparing $\bar{e}_1$ (the red dotted line) to $e_1^*$ (either the blue solid line or green dashed line) we can demonstrate that $\bar{e}_1 \geq e_1^*$ so long as $V(C^u) > 0$. This is another manifestation of the moral-hazard effect of UI payments – so long as $C^u > 0$, workers eligible for UI payments will search with less intensity.

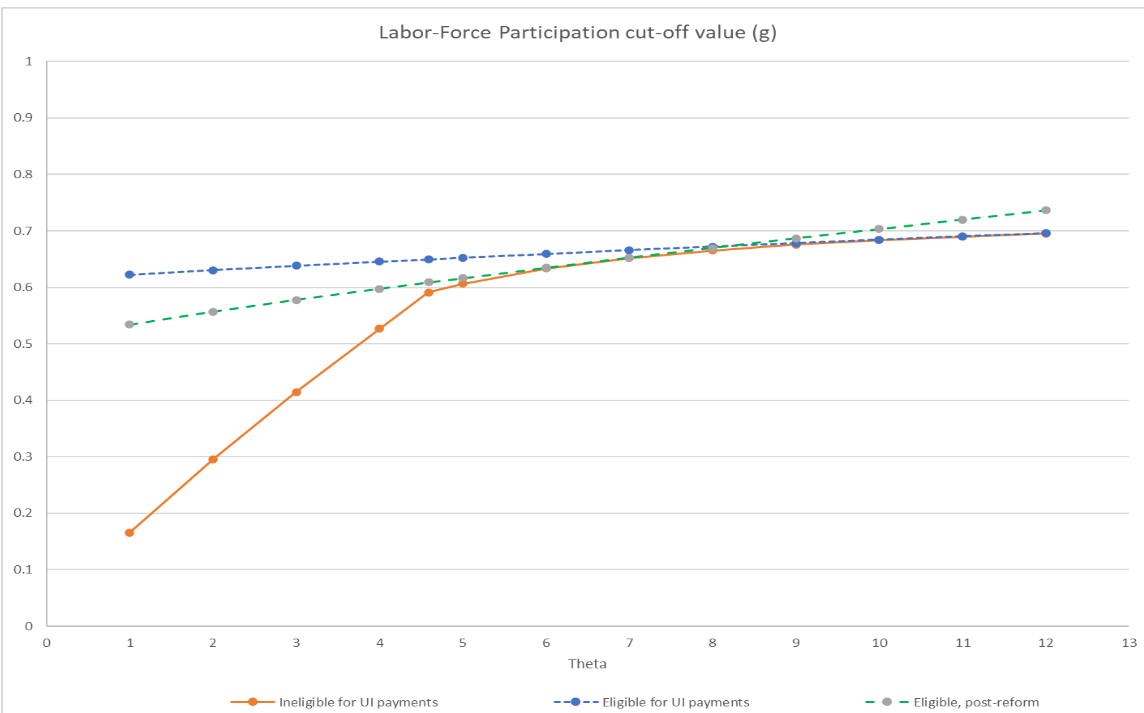
However, there is another dimension to consider. Those not eligible to collect UI payments can also choose not to search: in other words, the expected payout may not exceed the certain cost of searching. We can see this by comparing $g_1$ to $\bar{g}_1$ (the cutoff for labor force participation for this group).

$$\bar{g}_1 = (\gamma-1)\,[(f(\theta_1)V(w_1))/\gamma]^{(\gamma/(\gamma-1))} \qquad \text{for } \bar{e}_1\, f(\theta_1) < 1$$

or

$$= V(w_1) - (1/f(\theta_1))^{\gamma} \qquad \text{otherwise}$$

With the calibration of the model of this paper, $g_1 > \bar{g}_1$. Workers choose to leave the labor force when their idiosyncratic search cost g is greater than $g_1$.




The calculations illustrated in the previous graph indicate that the lack of UI payments when returning to the labor market creates a hurdle for those not in the labor force. Since for given $\theta_1$, $C^u{}_1$ and $w_1$ the values align $g_1 > \bar{g}_1$ in most cases, an individual with g higher than $g_1$ will have no interest in re-entering the labor force at those values since her value g is a fortiori higher than $\bar{g}_1$. Those who exit the labor force may choose to re-enter, but only if $\theta_1$ or $w_1$ rises sufficiently to raise expected payoff above search costs. $\theta_1$ is an indicator of the tightness of the labor market from the firm's point of view – as it rises a returning worker is more likely to be re-employed. As $w_1$ rises, the expected value of employment rises as well.