# The Effect of Transitional Employment on Search Duration: A Selectivity Approach

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*This paper presents an analysis of the impact of transitional employment (employment fully contained within a search spell) on search duration. Log-linear duration equations, which are derived from an accelerated time-life specification, are estimated separately for those who take and do not take a transitional job. Selectivity terms are included as additional regressors in the specification in order to control for the endogeneity of the decision to take a transitional job. The presence of right-censored search spells is controlled for and the standard errors are corrected to account for the inclusion of generated regressors. A searcher who takes a transitional job can expect to be searching for permanent employment almost eight months longer and has a substantially different escape pattern than a searcher who does not take a transitional job. (JEL J64, C41)*

## Introduction and Background

One difficult decision that job searchers face as their searches drag on and resources diminish is whether to take a job they do not view as permanent while continuing to search. Taking a nonpermanent or transitional job while continuing to search would alleviate part of the financial burden that accompanies unemployment. However, it would also leave less time and energy available to be devoted to finding a permanent job and may increase a searcher's permanent job acceptance cost [Burgess, 1992]. Taking a transitional job may also be strategic in that it allows a searcher the financial freedom to wait for even better permanent job offers and allows the searcher to avoid any negative stigma associated with unemployment.[1] This paper provides an analysis of the impact of transitional employment on the search duration and improves upon previous literature by controlling for the endogeneity of the decision to take a transitional job while allowing the search escape pattern to differ across search categories.[2] It is found that by taking a transitional job, a search spell is extended by almost eight months and the optimal hazard rate occurs much later for a transitional worker.

Throughout this paper an "unemployed searcher" is defined as one who begins searching while unemployed. An "employed searcher" is defined as one who begins searching while employed. Searchers in both of these categories may be observed with

having a transitional job sometime during their search spell. A job that begins and ends during a reported search spell is referred to as a "transitional job."

The early literature of search theory addressed the problem of explaining the behavior of the unemployed searcher only. The pioneering work in this area is attributed to Stigler [1961, 1962], followed later by Mortensen [1970] and Gronau [1971].[3]

Tobin's [1972] criticism of the search literature for requiring that all job searchers be unemployed spawned a new flood of contributions to that literature. New theoretical models incorporated the employed search (through an individual choice of either a specific search state [Burdett et al., 1984] or a particular level of search intensity that varies inversely) with the level of employment [Mortensen, 1977; Burdett, 1979; Yoon, 1981; Benhabib and Bull, 1983]. Empirical evidence of the extent to which individuals participate in an employed or on-the-job search was offered by Mattila [1974], Viscusi [1979], and Black [1981]. Kahn and Low [1982, 1984] provided empirical analyses of the determinants of individual search intensity.

Direct comparisons of the search outcomes of employed and unemployed searchers are few in number due to the scarcity of appropriate data. Few surveys ask search questions of employed respondents. These comparisons are also conflicting in their final conclusions. While Holzer [1987] reports that unemployed searchers are more likely than employed searchers to gain new employment, Blau and Robins [1990], using a different data set, report just the opposite. The outcome of this debate has implications for the theory of search unemployment. The theory implies that part of the observed unemployment rate is a result of the searcher holding out for a more desirable job offer. The level of true unemployment (that which reflects the job searcher's inability to find any job) is lower than the reported unemployment statistics suggest (see Clark and Summers [1979]). A necessary condition for search unemployment to be consistent with rational behavior is that searching for a job while unemployed is somehow more efficient than searching while employed. The result reported by Blau and Robins [1990] indirectly challenges the validity of search unemployment and suggests, *prima facie*, that the searcher should perhaps accept his first job offer, then continue to search while employed. The results presented in this paper indicate otherwise.

Even more rare than comparisons of employed and unemployed searchers are analyses of how employment contained within the search spell, or transitional employment, affects job search outcomes. Blau [1992] presents some evidence that a searcher who remains unemployed experiences shorter search spells than those who take transitional jobs. However, the analysis neither adequately accounts for the endogeneity of the work decision nor satisfactorily controls for the initial condition of the search (employed versus unemployed). Blau [1992] does not make an empirical distinction between those who began searching while employed and those who took a job while continuing to search. Both groups are classified as employed searchers. Hotchkiss [1992] controls for the endogeneity of the search decision but confines the escape process (hazard rate) and the impact of individual characteristics on search duration to be the same for those who take and do not take a transitional job.

This paper improves upon earlier work by estimating separate duration equations for workers and nonworkers. This allows the parameters that control the search process to vary across groups. A log-normal assumption for duration spells is a simplification that allows taking advantage of the well-developed properties relating to conditional expectations of normally distributed random variables. An additional advantage of the log-normal specification is that the estimated hazard rate can vary across time. In addition to controlling for the initial search condition of employment versus unemployment, a selectivity term is included as a regressor in the duration equations in order to control for the decision to take a transitional job. This paper also contributes to the debate of whether or not it is optimal for searchers to accept their first job offer while continuing to search.

The following section provides the theoretical foundation for examining search duration. The third section describes the data and presents sample statistics. The empirical model specification and estimation results are found in the fourth section and the last section contains the conclusion with a discussion of policy implications.

## Theoretical Foundation

Standard search theory yields four main predictions related to search duration. These predictions are:
1)   a reduction of the cost of search increases expected duration;
2)   an increase in the searcher time horizon increases expected duration;
3)   an increase in the searcher skill level has an ambiguous effect on duration; and
4)   an increase in the searcher discount rate decreases expected duration.
These predictions are made while holding the demand side of the labor market constant.[4]

Having a transitional job while still searching could affect the search duration through either the cost or the (perceived) skill level of the searcher. Taking a transitional job both increases income during the search (thus reducing the monetary cost of the search) and reduces the time available for the search. Both of these consequences increase the expected search duration. Taking a transitional job may eliminate the stigma associated with unemployment, allows the person to accumulate more experience, and potentially increases the number of employer contacts through work, thus decreasing the expected search duration. The net effect on search duration by taking a transitional job, therefore, is ambiguous.

## Data

The sample used for this analysis is constructed from the baseline household survey of the Employment Opportunity Pilot Project. The purpose of the survey was to provide baseline data for an evaluation of the effectiveness of federally designed job search and training programs. About 30,000 families from 20 different geographic sites (representing 11 states) across the U.S. were interviewed. Surveys were conducted between April and October 1980 and contain information on labor market activity dating back to January 1979. More recent data sets, such as the National Longitudinal Survey, the Panel Study

of Income Dynamics, the Current Population Survey, or the Survey of Income and Program Participation,[5] do not allow an individual to be working and searching for work simultaneously. Those who have a job are not asked any questions about job searching. Monthly state unemployment rates were obtained from various issues of the *Employment and Earnings* publication, produced by the Department of Labor. State-level unemployment insurance (UI) formula parameters were obtained from unpublished tables produced by the Employment and Training Administration and are made available by UBA Legislative Specialists.

The sample of individuals to be analyzed contains those searching for a job. Within this sample, there are those who begin searching while unemployed and those who begin searching while employed. Among both groups of searchers, there are some who take transitional employment while still searching. A transitional job is identified when the beginning and ending dates of that job fall completely within a person's spell of searching.[6] Individuals are entered twice if they have two distinct search spells. About 16 percent of all individuals included have two search spells. Those with censored spells remain. If any part of the date (day, month, or year) related to the beginning or the end of the search is missing, the individual is not included. If any part of the date related to the beginning or the end of a UI spell or if a job spell is missing, the whole date is coded as missing. Individuals are classified as receiving UI during their search spell if their spell(s) of receiving UI overlap in any direction with the search spell.[7] Individuals who reported taking a transitional job, but for whom the hours worked per week on that job are missing, were also deleted from the duration equation estimations. Table 1 contains selected sample means for unemployed and employed searchers and for those who take and do not take a transitional job.

In terms of demographics, a searcher taking a transitional job is similar to a searcher not taking a transitional job. Those in the transitional job category, however, have almost twice the representation of employed searchers than in the no-transitional job category. In addition, employed searchers have more education and more labor market experience than unemployed searchers on average and are more likely to take a transitional job than unemployed searchers.[8] Women are under-represented (relative to the whole sample) in the employed and transitional job categories.[9] Employed searchers and those with transitional jobs are much more likely than their counterparts to have a right-censored search spell.

In terms of mean search duration within the searcher categories, those with transitional jobs have search spells that last almost three times longer than the spells of those who do not experience transitional employment. In addition, employed searcher spells last about one-third longer on average than unemployed searcher spells.

The percent of searchers receiving UI (19 percent for the whole sample) is lower than expected for the U.S. population. About 45 percent of the unemployed were covered by UI in 1979-80 [Burtless, 1983], which is two and a half times the percentage in the sample used here. This low percentage of UI receipt could be from the oversampling of low-income families and from assigning a missing observation to UI spells that lack any portion (day, month, or year) of the recorded dates for the spell.[10]

TABLE 1
Sample Means for Selected Variables

| Variables | Full Sample | Unemployed Searchers | Employed Searchers | Transitional Jobs | No Transitional Jobs |
|---|---|---|---|---|---|
| Age | 28.08 | 27.86 | 29.72 | 27.49 | 28.11 |
| Education | 11.49 | 11.35 | 12.50 | 11.97 | 11.47 |
| Experience | 8.20 | 7.86 | 10.70 | 8.52 | 8.18 |
| Female = 1 | 0.50 | 0.51 | 0.42 | 0.44 | 0.50 |
| Nonwhite = 1 | 0.34 | 0.34 | 0.30 | 0.33 | 0.34 |
| Received UI = 1 | 0.19 | 0.19 | 0.13 | 0.20 | 0.18 |
| Employed Searcher = 1 | 0.12 | — | — | 0.21 | 0.11 |
| Transitional Job = 1 | 0.05 | 0.04 | 0.08 | — | — |
| Duration (Number of Days) | 93.56 | 90.23 | 118.24 | 238.99 | 86.19 |
| Spell Right-Censored = 1 | 0.33 | 0.30 | 0.53 | 0.54 | 0.32 |
| Number of Observations | 8,016 | 7,063 | 953 | 387 | 7,629 |

Notes: Duration averages consist of both complete and incomplete spells. See Appendix for variable definitions.

## Empirical Analysis

If a person has a completed search spell length, $t$, the contribution to likelihood is $f(t)$, where $f(\cdot)$ is the probability density function of the random search duration, $T$. If a searcher is observed to have a spell that is right-censored (a spell that is not completed by the interview date), then the contribution to likelihood is (for a continuous distribution) Prob $(T \geq t) = [1 - F(t)]$, where $F(\cdot)$ is the cumulative distribution function of $T$. In order to describe the variation in $T$ conditional on a set of explanatory variables, $x$, a specific distribution is specified for $T$ as a function of a set of parameters, $\beta$. The following likelihood function is, then, constructed:

$$L_i(\beta \mid t_i, x_i) = \prod_{i=1}^{N_u} f(t_i \mid x_i, \beta) \prod_{i=1}^{N_c} \left[ 1 - F(t_i \mid x_i, \beta) \right] , \qquad (1)$$

where the first term is the contribution to likelihood made by the $N_u$ individuals who experienced complete spells and the second term is the contribution made by the $N_c$ individuals whose spells are censored. By not accounting for the possibility of right-censored spells, this results in a well-known problem of systematic underestimation of the spell length.

In the accelerated failure time model, if $T_0$ is a random time duration sampled from the baseline distribution for an individual whose covariates are all zero, then for non-zero covariates, $x$, the event time will be $T(x) = \exp(x'\beta)T_0$ (see Kalbfleisch and Prentice [1980] and Kiefer [1988]). This model specification allows writing the log duration as a linear function of the covariates, $\ln t = x'\beta + \sigma\varepsilon$.

Since the decision to take a transitional job is likely to be influenced by the searcher's perception of the impact that decision will have on search duration, it must be treated as endogenous to the determination of search duration. The linearity of the accelerated time-life model specification can be exploited to control for the endogeneity of the work decision by treating the problem as one of self-selection by those who take and do not take a transitional job. This self-selection is expressed by specifying separate duration equations for those who take and do not take a transitional job as follows:

$$\ln t_i = x_i'\beta_{TJ} + \sigma_{TJ}\varepsilon_i \text{ if } \hat{Y}_i = Z_i'\gamma + \eta_i > 0 \ ,$$

$$\text{and } \ln t_i = x_i'\beta_{NJ} + \sigma_{NJ}\varepsilon_i \text{ if } \hat{Y}_i = Z_i'\gamma + \eta_i \leq 0 \ ,$$

(2)

where $\hat{Y}_i$ is the net benefit to person $i$ of taking a transitional job, $\beta_{TJ}$ and $\sigma_{TJ}$ are parameters associated with duration determination of searchers who take a transitional job, and $\beta_{NJ}$ and $\sigma_{NJ}$ are parameters associated with duration determination of searchers who do not take a transitional job.

Self-selection into the transitional job and no-transitional job categories can be controlled for by adding a regressor to the linear duration model that accounts for the probability of the searcher taking (or not taking) a transitional job. If both error terms in (2) are normally distributed, the duration equations become:

$$\ln t_i = x_i'\beta_{TJ} + \delta_{TJ}\lambda_{TJ,i}^* + \sigma_{TJ}\varepsilon_i \text{ if } i \text{ took a transitional job,}$$

$$\text{and } \ln t_i = x_i'\beta_{NJ} + \delta_{NJ}\lambda_{NJ,i}^* + \sigma_{NJ}\varepsilon_i \text{ if } i \text{ took no transitional job} \ ,$$

where:

$$\lambda_{TJ,i}^* = \frac{\varphi(Z_i'\gamma^*/\sigma_\eta)}{\Phi(Z_i'\gamma^*/\sigma_\eta)} \ ,$$

$$\lambda_{NJ,i}^* = \frac{-\varphi(Z_i'\gamma^*/\sigma_\eta)}{1 - \Phi(Z_i'\gamma^*/\sigma_\eta)} \ ,$$

and where $\gamma^*$ is obtained from a probit estimation of the net benefit from taking a transitional job equation. $\sigma_\eta$ is assumed to be equal to 1. This is the standard Heckman [1979] specification of the self-selection problem.

The assumption of normality for the error term in the duration equation is a simplification that allows taking advantage of the ease of working with and manipulating conditional expectations for normally distributed random variables. The implication is that the search duration is assumed to be distributed log-normal. One advantage of this assumption is that the hazard rate is allowed to vary over time.[11] In addition, separate estimation of the likelihood function in (1) for those who take and do not take a transitional job will allow the escape pattern, as well as all other parameter estimates, to vary across transitional employment categories. Since this paper does not estimate a structural model of duration dependence, the analysis will not be complicated by issues of heterogeneity.[12]

Since the ultimate duration equations include a generated regressor (the selectivity terms), then the estimated standard errors for the coefficients are inconsistent and need to be corrected. An expression for the asymptotic distribution of the estimated parameters is derived in Tunali and Assaad [1992].[13] The parameter estimates resulting from estimating the duration equations are reported with their corrected standard errors.

*The Probability of Taking a Transitional Job*

Table 2 contains the maximum likelihood probit parameter estimates for the net benefit of taking a transitional job equation.[14] These parameter estimates are used to construct the self-selection terms included in the duration equations. Of the variables which are significant in predicting whether a searcher takes a transitional job, being a college graduate, having children, being an employed searcher, and exhausting UI benefits are among those characteristics that increase the probability of taking a transitional job. Older searchers, females, nonwhites, UI recipients, and those who started their search in 1980 (as opposed to 1979) are less likely to take a transitional job. Among the interactive terms, having a large amount of experience increases the chance of taking a transitional job for both females and college graduates, and being an employed searcher also increases the chance of taking a transitional job for females. These results are consistent with those suggested by the analysis performed by Blau [1992].

The variables included in the probit estimation are those that resulted in the highest correlation between the actual transitional job dummy variable and the predicted probability of taking a transitional job.[15] The predicted probabilities for the sample ranges from 0.0006 to 0.36, which is not surprising since only about 5 percent of the sample actually took a transitional job.

*The Search Duration*

Table 3 contains the selectivity-corrected duration estimates for those who took and did not take a transitional job. For both groups, having an education, being female, and having more labor market experience act to reduce an individual's search duration. In addition, receiving unemployment insurance, and being older, nonwhite, or an employed searcher all have the effect of lengthening an individual's search spell. The positive coefficient on the number of search methods is a bit of a puzzle. However, imagine that a respondent who has been searching for a considerable amount of time without success might embellish on the effort he has exerted, perhaps to enhance self-esteem. These results coincide with results reported in other empirical analyses of determinants of search

duration (see, for example, Lancaster [1979], Burdett et al. [1985], and Blau and Robins [1986]).

TABLE 2
Maximum Likelihood Probit Estimates

| Variable | Estimate | Standard Error |
|---|---|---|
| Intercept | -1.5103* | 0.1837 |
| Age | -0.0080** | 0.0039 |
| College = 1 | 0.5856* | 0.1365 |
| Female = 1 | -0.3054* | 0.0689 |
| Nonwhite = 1 | -0.1297*** | 0.0746 |
| Single = 1 | 0.0427 | 0.0574 |
| Children = 1 | 0.1334** | 0.0569 |
| Nonwage Income > $1,000 = 1 | -0.2302 | 0.2634 |
| Unemployment Rate at Start | 0.0412*** | 0.0219 |
| UI Recipient = 1 | -0.2441** | 0.0977 |
| Experience > 8 Years (EXP) = 1 | -0.0650 | 0.0741 |
| Driver's License = 1 | -0.1057*** | 0.0640 |
| Disability = 1 | -0.0590 | 0.0968 |
| Employed Searcher (EMP) = 1 | 0.2046*** | 0.1075 |
| UI x Exhausted Benefits = 1 | 0.5958* | 0.1171 |
| Female x EXP | 0.0179* | 0.0059 |
| Nonwhite x EXP | 0.0064 | 0.0057 |
| College x EXP | -0.0207*** | 0.0118 |
| Female x EMP | 0.2629** | 0.1333 |
| Nonwhite x EMP | 0.2150 | 0.1408 |
| College x EMP | -0.3160 | 0.1927 |
| Started Search in 1980 = 1 | -0.4005* | 0.0575 |
| Log-Likelihood | -1,468.52 | |
| Number of Observations | 8,016 | |

Notes: Dependent variable equals 1 if an individual took a transitional job. EMP denotes employment and EXP denotes experience. *, **, and *** denote significance at the 1, 5, and 10 percent levels, respectively. See Appendix for variable definitions.

## TABLE 3
### Separate, Selectivity-Corrected Duration Equation Estimates

| Variables | Transitional Job | | No Transitional Job | |
|---|---|---|---|---|
| Intercept | 4.2996* | (0.9006) | 1.8992* | (0.1333) |
| Age | 0.0257*** | (0.0134) | 0.0144* | (0.0029) |
| Education | -0.0469*** | (0.0274) | -0.0230* | (0.0065) |
| Female = 1 | -0.0334 | (0.1394) | -0.0558 | (0.0363) |
| Nonwhite = 1 | 0.3354** | (0.1364) | 0.2056* | (0.0356) |
| Single = 1 | -0.0618 | (0.1439) | 0.1054* | (0.0350) |
| Number of Children < 14 Years of Age | -0.0172 | (0.0531) | 0.0164 | (0.0129) |
| Nonwage Income ($0) | 0.2725 | (0.3069) | -0.0174 | (0.0427) |
| Unemployment Rate at End | 0.2278* | (0.0466) | 0.2418* | (0.0116) |
| UI Recipient = 1 | 0.5204* | (0.1766) | 0.7406* | (0.0448) |
| Experience | -0.0253*** | (0.0155) | -0.0020 | (0.0033) |
| Driver's License = 1 | 0.1158 | (0.1674) | -0.0614 | (0.0423) |
| Disability = 1 | 0.2693 | (0.2518) | 0.0965*** | (0.0584) |
| Number of Search Methods Used | 0.0434 | (0.0658) | 0.1597* | (0.0172) |
| EMP = 1 | 0.4136** | (0.1974) | 0.5276* | (0.0609) |
| $\lambda^* = \varphi(Z_i'\gamma^*/\sigma_\eta)/\Phi(Z_i'\gamma^*/\sigma_\eta)$ | -0.2278 | (0.3065) | — | — |
| $\lambda^* = -\varphi(Z_i'\gamma^*/\sigma_\eta)/[1 - \Phi(Z_i'\gamma^*/\sigma_\eta)]$ | — | — | -1.2615* | (0.3265) |
| Sigma | 0.9672 | | 1.1798 | |
| Log-Likelihood | -338.86 | | -9,737.44 | |
| Number of Observations | 387 | | 7,629 | |

Notes: *, **, and *** denote significance at the 1, 5, and 10 percent levels, respectively. The standard errors (in parentheses) have been corrected to account for the generated regressor ($\lambda^*$) in each estimation. See Appendix for variable definitions.

    The relative size of a coefficient across samples indicates whether a characteristic impacts the search process of those who take and do not take a transitional job with a different magnitude (or direction). Comparing the explanatory variables that are significantly different from zero for both samples, being older and nonwhite are more detrimental, in terms of lengthening a search spell, for those who take transitional jobs than for those who do not. Education has more impact on shortening a spell for a

transitional worker than for a nontransitional worker. A high unemployment rate is not as detrimental for transitional workers. Receiving UI does not lengthen a transitional worker's spell as much as it does for those not taking a transitional job. This, presumably, is because some of the impact that UI has on reducing search costs is overwhelmed by the cost reduction through transitional employment. Additionally, an employed searcher in the transitional job sample does not have as long a search spell as an employed searcher who does not take a transitional job.[16]

Comparing some other estimates, job market experience has a greater positive impact on reducing duration for transitional workers. Also, being single lengthens the search spells of those not taking a transitional job while not significantly impacting the search duration of transitional workers.

Although many characteristics seem to affect search spells in favor of those who take a transitional job, there is no ignoring the fact that, overall, those who take a transitional job will be searching longer on average than those who do not take a transitional job. The conditional expected duration of searchers who take a transitional job is 10.3 months and the conditional expected duration of searchers who do not take a transitional job is 2.4 months. The unconditional search duration for all workers is only 2.5 months since the probability of any one person taking a transitional job is so low.[17] Comparing the amount of time by which taking a transitional job increases a person's search spell with the amount of time by which other variables increase or decrease the search spell places this almost eight-month differential into some perspective.[18] Among those variables that have the strongest impact on search duration, receiving UI lengthens a person's search spell by 7.2 weeks. Those who start their search while they are already employed search 6.5 weeks longer than unemployed searchers.

Given this fairly great difference in search durations between those who take and do not take a transitional job, it might be expected that the escape patterns, or hazard rates, would differ substantially across transitional job categories. Figure 1 illustrates the hazard functions for a random person drawn from the samples of those who take and do not take

**FIGURE 1**
**Hazard Functions**
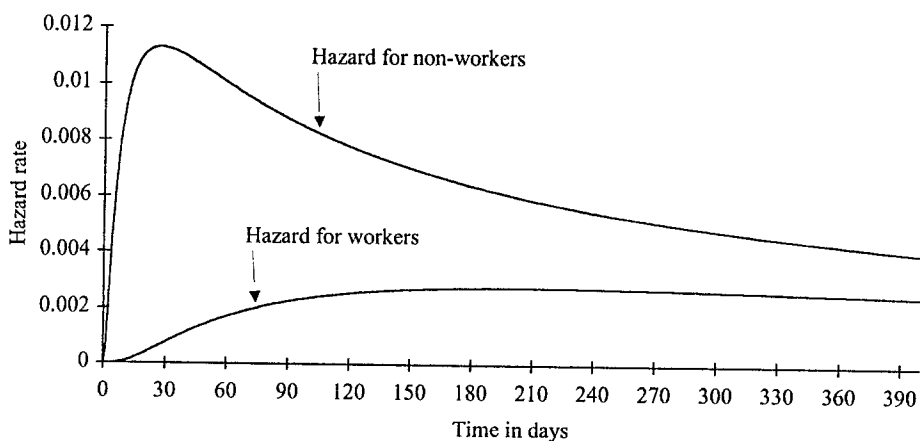
a transitional job. The optimal escape probability occurs at 27 days for nonworkers and 209 days (about seven months) for those who take a transitional job. It is also of interest to note that the probability of escape for those who do not take a transitional job declines rather rapidly after the optimum, but the probability of escape for those who do take a transitional job decreases at a much slower rate.[19]

## Concluding Remarks and Policy Implications

This paper provides a comprehensive analysis of the impact of taking a transitional job on the duration of a search spell. A log-linear duration (accelerated time-life) model is estimated *via* maximum likelihood in order to account for the censoring of search spells. The results indicate that a person who takes a transitional job while searching can expect the search spell to last almost eight months longer than someone not taking a transitional job. This suggests that, in the interest of keeping the search spell to a minimum, taking a transitional job is not the best strategy. It is possible that searchers take a transitional job out of a desire to either learn more about their own preferences or learn more about the characteristics of that job. However, without comparing search outcomes (wage gains), it cannot be stated exactly how useful this information is.

Examining the escape process for those who take and do not take transitional jobs provides a strong case for making UI, or some other support system, widely available shortly after a job loss. The escape rate rises rather quickly for those who do not take a transitional job and remains substantially higher during the first six months of the search. After that period, the escape rate is still higher for those not taking a transitional job but may not be that much higher than the escape rate of those taking a transitional job to warrant the additional cost of extending UI benefits.

When comparing the separate duration equation estimates for those who take and do not take a transitional job, this suggests that the mechanism through which individual characteristics affect search duration differs across the transitional work category. In addition, the differences appear to frequently work in favor of those who experience transitional employment. Many of the variables either reduce duration by a greater amount or do not lengthen duration as much for those taking a transitional job than for those who do not take a transitional job. This implies that taking a transitional job will lengthen a search, but the impact of other variables on duration is not adversely affected by that choice.

## APPENDIX
### Variable Definitions

| | |
|---|---|
| Age | Age of the searcher in years. |
| Education | Number of years of schooling completed by the searcher. |
| Female | A dummy variable equal to 1 if searcher is female, 0 otherwise. |

## APPENDIX (CONT.)

| | |
|---|---|
| Nonwhite | A dummy variable equal to 1 if searcher is a race other than white, 0 otherwise. |
| Single | A dummy variable equal to 1 if searcher is single, 0 otherwise. |
| Children | A dummy variable equal to 1 if searcher has any children, 0 otherwise. |
| Number of Children <14 Years of Age | Number of children in the searcher's family that are less than 14 years of age. |
| Nonwage Income >$1000 | A dummy variable equal to 1 if searcher has nonwage income that exceeds $1,000, 0 otherwise ($1,000 is the average nonwage income for the sample.) |
| Nonwage Income | Total family income from all nonwage sources. |
| Unemployment Rate at Start | Rate corresponding to the searcher's state in the month that the searcher began his job search. |
| Unemployment Rate at End | Rate corresponding to the searcher's state in the month that the searcher ended the job search. |
| UI Recipient | A dummy variable equal to 1 if the searcher received unemployment insurance, 0 otherwise. |
| Exhausted Benefits | A dummy variable equal to 1 if the searcher exhausted his UI benefits during the search, 0 otherwise. |
| Experience >8 Years | A dummy variable equal to 1 if the searcher has spent more than 8 years in the labor force, 0 otherwise. (Eight years is the average experience for the sample.) |
| Experience | Number of years that searcher has been in the labor force since 18 years of age. |
| Driver's License | A dummy variable equal to 1 if searcher has a driver's license, 0 otherwise. |
| Disability | A dummy variable equal to 1 if searcher has a work-limiting disability, 0 otherwise. |
| Number of Search Methods | Number of methods a job searcher used to look for a job. Methods counted are job agency, direct contact with employers, friends, and newspaper ads. |
| Employed Searcher | A dummy variable equal to 1 if searcher is already employed, 0 otherwise. |

## Footnotes

1. Ma and Weiss [1993], however, suggest that employers may attach a negative stigma to having a transitional (low-skill) job.

2. The term "duration" in this analysis refers to the duration of a search spell, not unemployment duration.

3. Lippman and McCall [1976] provide a good review of the development of the early search theory.

4. Fine expositions and surveys of standard search theory can be found in Mortensen [1986] and Devine and Kiefer [1991].

5. See Hotchkiss [1990] for more information on these data sources.

6. Defining these jobs as transitional is based on the assumption that if a person continues to search after taking a job, then that person considers the job as temporary.

7. Rather than actual UI receipt, it might be preferred to control for UI eligibility, which would be a function of the circumstances surrounding a searcher's termination at his last job. Pre-search job information, however, is missing more often than not, making determination of eligibility less reliable than UI receipt.

8. The fact that those with transitional jobs have more education and labor market experience may indicate that these searchers feel and are, in fact, overqualified for the jobs they have received. Thus, they continue searching, which places them in the transitional category. While it is impossible to determine from these data, it is conceivable that taking a job for which the searcher is overqualified is more of a contributing factor to longer search duration than merely taking a transitional job.

9. This is consistent with the findings of Blau [1992].

10. Recording a UI spell date as missing will result in treating that spell of UI as invalid (nonexistent) and is not expected to bias the results, since it is not likely that portions of UI spell dates were left out by the interviewers in any systematic way.

11. The time variation, however, does take a specific form (for example, the hazard rises, then falls).

12. See Lancaster [1985] and Valletta [1991] regarding implications of ignoring heterogeneity.

13. The corrected variance-covariance matrix for the parameter coefficients takes the following form:

$$\left\{ V_1 + V_1 V_3 V_2 V_3' V_1 \right\} \, ,$$

where $V_1$ is the estimated variance-covariance from the duration equation estimation, $V_2$ is the estimated variance-covariance matrix from the step-one probit estimation, and $V_3$ is the second derivative of the likelihood function in (1) with respect to the coefficients in the instrumenting equation (obtained through differentiation of the generated regressor).

14. For a complete description of all the variables used in the estimations in this paper, see the Appendix.

15. The variables included in the probit estimation but excluded from the duration estimation are College = 1, Children = 1, Nonwage Income > $1000 = 1, Unemployment Rate at the Beginning of the Search Spell, UI x Exhausted Benefits = 1, Started Search in 1980 = 1, and the interactive terms. These are measures of variables that are expected to influence whether the searcher takes a transitional job but will not affect the duration of search.

16. All of these differences in the parameter coefficients are significant at the 1 percent confidence level. In addition, a Wald test (see Honda [1982]) of the equality of all parameter estimates in the two equations is rejected at the 10 percent significance level.

17. Expressions for conditional and unconditional expectations for models of censored data can be found in Maddala [1983, pp. 159-62].

18. Determining how each variable affects the search duration is a simple matter of calculating the partial derivative of the unconditional expectation of search duration with respect to that variable.

19. It is possible that taking a transitional job reflects strategic behavior where the return (perhaps in terms of higher wage gains) is at least as large as the cost (in terms of a longer search) [Moore, 1977, chapter II]. Unfortunately, the data are very poor regarding pre- and post-search job information as few variables are significant in explaining pre- to post-search wage gains.

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