

Search, Matching, and Training

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1 Introduction

There is a long history of interest in human capital investment, both pre- and post-market labor market entry. In the latter case, it is common to speak of general and specific human capital, which are differentiated in terms of their productivity-enhancing effects across jobs (which may be defined by occupations, industries, or firms). The classic analysis of Becker (1964) considered these types of investments in competitive markets and concluded that workers should pay the full costs of general training, with the costs of specific training (that enhanced productivity only at the current employer) being shared in some way. Analysis of these investments in a noncompetitive setting is more recent. Acemoglu and Pischke (1999) consider how the predictions of the amount and type of human capital investment in a competitive labor market are altered when there exist imperfections in the form of search frictions. Frictions create an imperfect “lock in” between a worker and the firm, so that increases in general or specific human capital are generally borne by both the worker and the firm.

Wasmer (2006) presents a formal analysis of the problem in a framework with search frictions and firing costs. His model is stylized, as is the one we develop below, and is not taken to data. He assumes that human capital investments, be it of the general or specific kind, are made as soon as the employment contract between a worker and a firm begins. Investment does not explicitly involve time or learning by doing, which we believe is an important part of learning on the job. However, due to the simplicity of the investment technology, Wasmer is able to characterize worker and firm behavior in a general equilibrium setting, and he provides elegant characterizations of the states of the economy in which workers and firms will choose only general, only specific, or both kinds of human capital investment. The goal of our paper is to estimate a partial equilibrium version of this type of model with what we think is a better specification of the human capital production technology.

A major motivation for this research is related to recent observations regarding shifts in the Beveridge curve, which is the relationship between job vacancies and job searchers. While the un-

employment rate in the U.S. is markedly higher from 2008 and beyond, reported vacancies remain high. This mismatch phenomenon has been investigated through a variety of modeling frameworks (see, e.g., Cairo (2013), Lindenlaub (2013)), typically by allowing some shift in the demand for workers' skills. In our context, such a shift could be envisioned as a shift downward in the distribution of initial match productivities. Given the absence of individuals with the desired skill sets, the obvious question is why workers or firms do not engage in on-the-job investment so as to mitigate the mismatch in *endowments*. With our model, we can theoretically and empirically investigate the degree to which a decentralized labor market with search frictions is able to offset deterioration in the initial match productivity distribution. This will lead us to consider policies that could promote increased investment activities, which are described below.

In this paper we estimate a fairly general model of general and human capital investment within a partial equilibrium model of search. The estimated model enables us to determine the production technology for both types of human capital and to assess their value in the sense of productivity and the welfare of both workers and firms. In particular, we are able to determine the impact of primitive labor market parameters on the incentives to invest in both types of capital by workers and firms. For example, we know that the value of investment in firm-specific human capital will be a function of the expected duration of the job. This expected duration is a function of an exogenous separation rate, the rate of arrival of new offers while on the job, and the current level of match productivity. Increases in the exogenous rate of job loss and the rate of arrival of new offers decrease the value of firm specific human capital and the incentives to invest in it.

We also explore the effects of policy on human capital investment and productivity. A clear disincentive to invest in firm-specific human capital is the fact that the worker is free to leave the job at any moment in time. Incentives to invest in this type of human capital are increased if the worker-firm pair could credibly commit to long term contracts, and we explore the effects of such contracts on aggregate productivity and worker and firm welfare. Since our model is set in a stationary continuous time environment, we are not able to implement contracts of a fixed duration without destroying the optimality of stationary policies. In order to maintain this property, we implement stochastic policies, in which the length of the contract follows an exponential distribution with parameter $\xi > 0$.¹ In this way, the contract lapses at rate ξ , with the expected duration of the contract given by ξ^{-1} . Before the contract elapses, the worker is unable to accept offers from other firms (and these offers cannot be held onto until the expiration of the contract), so that the only way the worker-firm match is through an exogenous separation. Within our on-the-job search model, this essentially forces the worker to forego on-the-job search for a random period of time. This enhances the worker's and firm's incentive to engage in investment in both types of human capital, but clearly investments in firm-specific capital are especially greater. The costs of such policies are the efficiency gains that could of come from the worker moving to other firms in which her firm-specific productivity was greater than her firm-specific productivity at her current employer. Using model estimates, we will be able to determine the optimal ξ from the point of view of maximizing

¹More elaborate policies could also be considered. For example, a stochastic contract length could be made conditional on the investments made in general and specific training by the worker and firm. The analysis of such policies is beyond the scope of the present paper.

steady state output levels. This optimal level (there may in principle be more than one) will not correspond to $\xi = 0$ (in which case OTJ search is essentially precluded) nor will it approach ∞ , which is the current situation in which there are no such constraints on individual mobility). This issue can only be addressed using the estimates of our partial equilibrium model of search and OTJ investment.

2 Modeling Framework

Individuals are characterized in terms of a (general) ability level a , with which they enter the labor market.² There are M values of ability, given by

$$0 < a_1 < \dots < a_M < \infty.$$

When an individual of type a_i encounters a firm, she draws a value of θ from the discrete distribution G over the K values of match productivity θ , which are given by

$$0 < \theta_1 < \dots < \theta_K < \infty.$$

The flow productivity of the match is given by $y(a_i, \theta_j) = a_i \theta_j$.

We consider the case in which both general ability and match productivity can be changed through investment on the job. The investment level, along with the wage, are determined cooperatively in a model with a surplus division rule. In every moment of time, the individual and firm can devote a proportion τ_a to training in general ability, in the hope of increasing a . Similarly, they can invest a proportion of time τ_θ in (totally) job specific training, in the hopes of increasing θ .

For simplicity, we assume that there is no depreciation in either a or θ at the current match. If investment in a is successful, the individual moves from the current level a_i to a_{i+1} , and the rate at which this occurs is given by

$$\varphi_a(i, \tau_a),$$

with $\varphi_a(i, \tau_a) \geq 0$, and $\varphi_a(i, 0) = 0$ for all i . For purposes of estimation, we further restrict the function φ_a so that

$$\varphi_a(i, \tau_a) = \varphi_a^0(i) \varphi_a^1(\tau_a),$$

where φ_a^1 is strictly concave in τ_a . The term $\varphi_a^0(i)$ can be thought of as TFP in a way, and it is natural to assume that $\varphi_a^0(M) = 0$, that is, no amount of training can result in an increase in general ability above its highest level.

There is an exactly analogous production technology for increasing match specific productivity, with the rate of increase from match value j to match value $j + 1$ given by

$$\varphi_\theta(j, \tau_\theta) = \varphi_\theta^0(j) \varphi_\theta^1(\tau_\theta),$$

²Flinn and Mullins (2013) examine pre-market entry education decisions in a search environment in which a hold-up problem exists. The distribution of a at the time of market entry may reflect initial endowments and investments in general human capital prior to market entry.

with φ_θ^1 strictly concave in τ_θ . There is no necessary restriction on the TFP terms, as above, except that $\varphi_\theta^0(K) = 0$.

The only costs of either type of training are foregone productivity, since total productivity is given by $(1 - \tau_a - \tau_\theta)y(a_i, \theta_j)$. The gain from an improvement in either accrues to both the worker and firm, although obviously, gains in general human capital increase the future value of labor market participation to the individual only. As noted by Wasmer (2006), this means that the individual's bargaining position in the current match is impacted by a change in a to a greater extent than it is due to a change in θ . Motives for investment in the two different types of human capital depend importantly on the worker's surplus share α , but also on all other primitive parameters characterizing the labor market environment.

We first consider the case of no on-the-job search in order to fix ideas. In defining surplus, we use as the outside option of the worker the value of continued search in the unemployment state, given by $V_U(a)$, and for the firm, we will assume that the value of an unfilled vacancy is 0, produced through the standard free entry condition (FEC). Then we will write the problem as

$$\max_{w, \tau} (V_E(a, \theta; w, \tau_a, \tau_\theta) - V_U(a))^\alpha V_F(a, \theta; w, \tau_a, \tau_\theta)^{1-\alpha}.$$

We first consider the unemployment state. We will assume that the flow value of unemployment to an individual of type a is given by $b_0 a$. Then we can write

$$V_U(a_i) = \frac{b_0 a_i + \lambda_U \sum_{j=r^*(a_i)+1} p_j V_E(a_i, \theta_j)}{\rho + \lambda_E \tilde{G}(\theta_{r^*(a_i)})} \quad (1)$$

where the critical (index) value $r^*(a_i)$ is defined by

$$\begin{aligned} V_U(a_i) &\geq V_E(a_i, \theta_{r^*(a_i)}) \\ V_U(a_i) &< V_E(a_i, \theta_{r^*(a_i)+1}). \end{aligned}$$

An agent of general ability a_i will reject any match values of $\theta_{r^*(a_i)}$ or less, and accept any match values greater than this.

Given a wage of w and a training level of τ_a and τ_θ , the value of employment of type a_i at a match of θ_j is

$$V_E(a_i, \theta_j; w, \tau_a, \tau_\theta) = \frac{w + \varphi_a(i, \tau_a) V_E(a_{i+1}, \theta_j) + \varphi_\theta(j, \tau_\theta) V_E(a_i, \theta_{j+1}) + \eta V_U(a_i)}{\rho + \varphi_a(i, \tau_a) + \varphi_\theta(j, \tau_\theta) + \eta},$$

while the corresponding value to the firm is

$$V_F(a_i, \theta_j; w, \tau_a, \tau_\theta) = \frac{(1 - \tau_a - \tau_\theta) a_i \theta_j - w + \varphi_a(i, \tau_a) V_F(a_{i+1}, \theta_j) + \varphi_\theta(j, \tau_\theta) V_F(a_i, \theta_{j+1})}{\rho + \varphi_a(i, \tau_a) + \varphi_\theta(j, \tau_\theta) + \eta}.$$

Then the surplus division problem is given by

$$\begin{aligned}
(w^*(a_i, \theta_j), \tau_a^*(a_i, \theta_j), \tau_\theta^*(a_i, \theta_j)) &= \arg \max_{w, \tau_a, \tau_\theta} (V_E(a_i, \theta_j; w, \tau_a, \tau_\theta) - V_U(a_i))^\alpha \\
&\quad \times V_F(a_i, \theta_j; w, \tau_a, \tau_\theta)^{1-\alpha} \\
V_E(a_i, \theta_j) &= V_E(a_i, \theta_j; w^*(a_i, \theta_j), \tau_a^*(a_i, \theta_j), \tau_\theta^*(a_i, \theta_j)), \\
V_F(a_i, \theta_j) &= V_F(a_i, \theta_j; w^*(a_i, \theta_j), \tau_a^*(a_i, \theta_j), \tau_\theta^*(a_i, \theta_j)).
\end{aligned}$$

In particular, we have

$$\begin{aligned}
V_E(a_i, \theta_j) &= \max_{w, \tau_a, \tau_\theta} (\rho + \varphi_a(i, \tau_a) + \varphi_\theta(j, \tau_\theta) + \eta)^{-1} \\
&\times [w + \varphi_a(i, \tau_a)[V_E(a_{i+1}, \theta_j) - V_U(a_i)] + \varphi_\theta(j, \tau_\theta)[V_E(a_i, \theta_{j+1}) - V_U(a_i)] - \rho V_U(a_i)]^\alpha \\
&\times [(1 - \tau)a_i\theta_j - w + \varphi_a(i, \tau_a)V_F(a_{i+1}, \theta_j) + \varphi_\theta(j, \tau_\theta)V_F(a_i, \theta_{j+1})]^{1-\alpha}.
\end{aligned}$$

The first order conditions for this problem can be manipulated to get the more or less standard wage setting equation,

$$\begin{aligned}
w^* &= \alpha[(1 - \tau_a^* - \tau_\theta^*)a_i\theta_j + \varphi_a(i, \tau_a^*)V_F(a_{i+1}, \theta_j) + \varphi_\theta(j, \tau_\theta^*)V_F(a_i, \theta_{j+1})] \\
&+ (1 - \alpha)[\rho V_U(a_i) - \varphi_a(i, \tau_a^*)(V_E(a_{i+1}, \theta_j) - V_U(a_i)) \\
&- \varphi_\theta(j, \tau_\theta^*)(V_E(a_i, \theta_{j+1}) - V_U(a_i))].
\end{aligned}$$

The first order conditions for the investment times τ_a and τ_θ are also easily derived, and are slightly more complex than the wage condition. The assumptions regarding the investment technologies φ_a and φ_θ have important implications for the investment rules, obviously. In particular, we will assume that

$$\varphi_a(i, \tau_a) = (M - i)^{\delta_a} \tau_a^{\omega_a},$$

where $\delta_a \in (0, 1)$ and $\omega_a \in (0, 1)$. We can see that this parameterization implies that the rate of movement to an ability level greater than a_M is 0, which also implies that there will be zero investment when $a = a_M$. Similarly, we have

$$\varphi_\theta(j, \tau_\theta) = (K - j)^{\delta_\theta} \tau_\theta^{\omega_\theta},$$

with both δ_θ and ω_θ restricted to lie in the open unit interval. The time flow constraint is

$$\begin{aligned}
1 &\geq \tau_a + \tau_\theta, \\
\tau_a &\geq 0 \\
\tau_\theta &\geq 0.
\end{aligned}$$

Depending on the parameters of the production technology, it is possible that optimal flow investment of either type is 0, that one type of investment is 0 while the other is strictly positive, and even that all time is spent in investment activity, whether it be in one kind of training or both. In

such a case, it is possible to produce the implication of negative flow wages, and we shall not explicitly assume these away by imposing a minimum wage requirement. In the case of internships, for example, which are supposed to be primarily investment activities, wage payments are low or zero. Including the worker's direct costs of employment, the effective wage rate may be negative. What is true is that no worker-firm pair will be willing to engage in such activity without the future expected payoffs being positive, which entail the worker actually becoming productive at the firm.

3 On-the-Job Search

In making job-specific investments, a key factor in the decision is the distribution of exit times from the job. For the case in which there is no OTJ search, the exit rate is simply η , and the investment time in match quality improvement is a nonincreasing function of η . When there exists OTJ search, one must take a position as to how an employer responds to an outside offer to one of her employees. In Flinn and Mabli (2009), two cases were considered. In the first, in which employers are not able to commit to wage offers, the outside option in the wage determination problem always remains the value of unemployed search, since this is the action available to the employee at any moment in time. This model produces an implication of efficient mobility, in that individuals will only leave a current employer if the match productivity at the new employer is at least as great as current match productivity (general productivity has the same value at all potential employers, which is why it is general productivity). An alternative assumption, utilized in Postel-Vinay and Robin (2002), Dey and Flinn (2005), and Cahuc et al. (2006), is to allow competing employers to engage in Bertrand competition for the employees services (this model assumes the possibility of commitment to the offered contract on the part of the firm). In this case, efficient mobility will also result, but the wage distribution will differ in the two cases, with employees able to capture more of the surplus (at the same value of the primitive parameters) in the case of Bertrand competition. We focus on the Bertrand competition case below.

In either case, a_i has no impact on mobility decisions, since it assumes the same value across all employers. In the Bertrand competition case (as in Dey and Flinn, 2005, for example), the losing firm in the competition for the services of the worker is willing to offer all of the match surplus in its (futile) attempt to retain the worker. We denote the total value of the surplus of the losing firm as $Q(a_i, \theta_j)$. The total amount that the winning employer can possibly offer the employee to stay at the firm $Q(a_i, \theta_{j'})$. Then the individual will accept the winning firm's offer as long as $Q(a_i, \theta_{j'}) > Q(a_i, \theta_j)$. Since Q is strictly increasing in θ , this means that the worker will be employed at the firm with match value $\theta_{j'}$ if and only if $j' > j$. The impact of this on investment decisions is interesting, since by increasing investments in θ the worker-firm pair can lengthen the expected duration of the match, while investments in a have no impact on mobility decisions. If we were to only consider the impact of investment decisions on match productivity, and not on match productivity and mobility, it may easily lead us to believe that observed investments are inefficient. The differential impacts of changes in a and θ on the welfare of workers and firms leads to important asymmetries in their valuation of these investment options.

To see these effects more formally, we first consider the case in which a worker with a current match value of θ_j has previously worked at a job with a match value of θ_k , $k \leq j$, and where there was no intervening unemployment spell. In this case, we write the worker's value given wage w and training time τ as

$$V_E(a_i, \theta_j, \theta_k; w, \tau_a, \tau_\theta) = \frac{N_E(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_k)}{D(\tau_a, \tau_\theta, a_i, \theta_j, \theta_k)},$$

where

$$\begin{aligned} N_E(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_k) &= w + \lambda_E \left[\sum_{s=k+1}^j p_s V_E(a_i, \theta_j, \theta_s) + \sum_{s=j+1} p_s V_E(a_i, \theta_s, \theta_j) \right] \\ &+ \varphi_a(i, \tau_a) V_E(a_{i+1}, \theta_j, \theta_k) + \varphi_\theta(j, \tau_\theta) V_E(a_i, \theta_{j+1}, \theta_k) + \eta V_U(a_i), \\ D(\tau_a, \tau_\theta, a_i, \theta_j, \theta_k) &= \rho + \lambda_E \tilde{G}(\theta_k) + \varphi_a(i, \tau_a) + \varphi_\theta(j, \tau_\theta) + \eta, \end{aligned}$$

and where θ_k represents the match value at the “outside option” employer. The value to the firm is given by

$$V_F(a_i, \theta_j, \theta_k; w, \tau_a, \tau_\theta) = \frac{N_F(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_k)}{D(\tau_a, \tau_\theta, a_i, \theta_j, \theta_k)},$$

where

$$\begin{aligned} N_F(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_k) &= a_i \theta_j (1 - \tau_a - \tau_\theta) - w + \varphi_a(i, \tau_a) V_F(a_{i+1}, \theta_j, \theta_k) \\ &+ \varphi_\theta(j, \tau_\theta) V_F(a_i, \theta_{j+1}, \theta_k) + \lambda_E \sum_{s=k+1}^j p_s V_F(a_i, \theta_j, \theta_s). \end{aligned}$$

Now the surplus division problem is

$$\begin{aligned} \max_{w, \tau_a, \tau_\theta} & D(\tau_a, \tau_\theta, a_i, \theta_j, \theta_k)^{-1} [N_E(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_k) - Q(a_i, \theta_k)]^\alpha \\ & \times N_F(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_k)^{1-\alpha}, \end{aligned}$$

which is only slightly more involved than the problem without OTJ search, but the generalization yields another fairly complex dependency between the current value of the match and the training time decisions. It seems clear that the value of match-specific investment to the employer in the case of OTJ search is even higher than in the no OTJ case, since it also increases (in expected value) the duration of the match, and this value always exceeds the value of an unfilled vacancy, which is 0. The value of either type of training is also enhanced from the point of view of the worker, since in addition to increasing her value at her current employer, higher values of a or θ enhances her future bargaining position during the current employment spell. Once the employment spell ends (an employment spell is a sequence of jobs with no intervening unemployment spell), the bargaining advantage from the match history ends, including gains accumulated through investment in match-specific productivity. On the other hand, the value of previous investments in general productivity

is retained throughout the worker's life, which is what makes this type of human capital particularly valuable from the worker's perspective, which accounts for her disproportionate costs of funding these investments.

The value of unemployed search is defined exactly as in (1). In terms of the surplus division problem in the case in which the individual's last state was unemployment, we simply replace the outside option match value θ_k with $\theta_{r^*(a_i)}$ wherever that term appears in defining V_F and V_E , and then we write

$$V_U(a_i) = \max_{w, \tau_a, \tau_\theta} D(\tau_a, \tau_\theta, a_i, \theta_j, \theta_{r^*(a_i)})^{-1} [N_E(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_{r^*(a_i)}) - V_U(a_i)]^\alpha \\ \times N_F(w, \tau_a, \tau_\theta, a_i, \theta_j, \theta_{r^*(a_i)})^{1-\alpha}.$$

That completes the description of the model in the OTJ search case.

4 Data

We use observations from the 1997 cohort of the National Longitudinal Survey of Youth (NLSY97). The NLSY97 consists of a core nationally representative sample of individuals born between 1980-1984 and an over-sample of Hispanic, Black and poor white individuals. In our analysis, we exclude the latter subsample and focus only on the core representative one, which consists of 6,748 respondents. We also exclude individuals who serve in the military. For the remaining sample, we start following a respondent after he/she completes schooling as the decision model starts at the time of entry into the labor force and schooling is exogenous.

We construct weekly data on the labor market behavior and training status of each sample member by combining information from the employment and training rosters of the NSLY97. The employment rosters provide detailed data on wages, job-to-job transitions as well as job specific characteristics. The training rosters consist of the training spells that an agent goes through in each survey year. We construct weekly training data by using information on the start/end dates for each training spell and matching this with weekly employment data from the employment roster. If a respondent is observed to be working in a particular job and also observed to be participating in training in a given week, then the training spell is taken to be associated with that job and no assumptions are made regarding the specificity of human capital acquired during that episode.

Table 1 shows the proportion of individuals who are employed and who are participating in some form of training at a particular week between the 1997-2011 sample period. The total proportion of individuals who are observed to be participating in some kind of training program during one of their employment spells is approximately 7 percent. A further look into the training roster reveals that there is a large variation in the type of these training programs undertaken and the program characteristics. Table 2 shows the type of training program for each training spell observed.

Here we distinguish between training spells observed in the first year of a worker's tenure at a firm and those observed after the first year. As can be seen in the table, we make this distinction mainly because of the fact that the type of training workers undertake seems to change considerably by their job tenure. Training seems to be run by an employer mostly for workers who have a longer duration of job tenure. For example, only 9 percent of training programs observed at first year at a job are run by an employer, whereas this is about 25 percent for the later years. The type of training respondents participated in (for all those who report to have attended a training program since the date of their previous interview). One of the important patterns that emerge is that the kind of training a worker undertakes is considerably different at different stages of his/her tenure in a job. For example, the among individuals who are employed, approximately and participating in a training program, approximately 40 percent of the training programs are classified as 'vocational, technical or trade' and only 8 percent are characterized as a formal training provided by an employer together with 9 percent of seminars or training programs run by the current firm.

While the information on the type of training program is suggestive about the extent to which skills acquired in these training episodes are general or firm-specific and helps in the formulation of the model, we do not use it in the estimation. It would be ideal to know the exact nature of the training such as whether it teaches general or firm-specific skills to its participants, who pays for it (worker, firm, government, etc.), there is no straightforward mapping between the model and data skill/job classifications. Hence, despite the fact that the model allows for general and specific human capital, in the data we refrain from arbitrary empirical distinctions between the two. Instead, we only use moments that rely on total amount of training defined in a broad enough manner to cover *any* form of skill acquisition on-the-job. The model equilibrium imposes strong theoretical restrictions on the way general vs. firm-specific human capital is related to job turnover, occurrence and timing of training as well as wage profiles. For identification, we exploit these restrictions and rely on the moments that pertain to the relationship between the employment/wage profiles and total amount of training.

Figure 1 displays information about the timing of training for individuals who are employed and whose number of training spells at their current job is at least one. It shows that most training takes place at the beginning of a worker's job spell.

In order to have an idea about the return to investment in human capital in the form of job training as well as the extent to which the cost of training is shifted to the worker in the form of a wage reduction, we now look at the wage profiles. In Figures 3-4, we look at the wage profiles of workers by whether they have participated in training. The wages of those who went through training are slightly higher than the group without training and with a steeper slope, especially for females. However, these graphs are difficult to interpret due to the selectivity of training in terms of worker-specific as well as firm/worker match specific characteristics. One purpose of estimating our model is to account for this heterogeneity and selectivity in learning about the returns to training, the ability of the firm/worker pair to share its cost, and the extent to which these returns

and costs are reflected on worker wages. These numbers are aimed to provide a welfare measure for the extent to which mismatch inefficiencies may be alleviated with the possibility of training as a way to improve a match without incurring the direct and opportunity costs of continuing to search in the labor market.

Table 1: **Proportion of Employed Individuals by Number of Training Spells**

	Percentage
0	92.4 %
≥ 1	7.6 %

Table 2: **Type of Training Programs Participated in the First Year of Job**

	Percentage
Vocational, technical, or trade	43.8
Formal company training run by employer	9.8
Seminar or training program at work	2.8
Seminar or training program outside of work	4.1
Other	40.0

Table 3: **Type of Training Programs Participated in Second or Later Years**

	Percentage
Vocational, technical, or trade	26.5
Formal company training run by employer	21.6
Seminar or training program at work	6.5
Seminar or training program outside of work	4.9
Other	40.0

Figure 1: **Proportion of Training by Tenure at Firm**

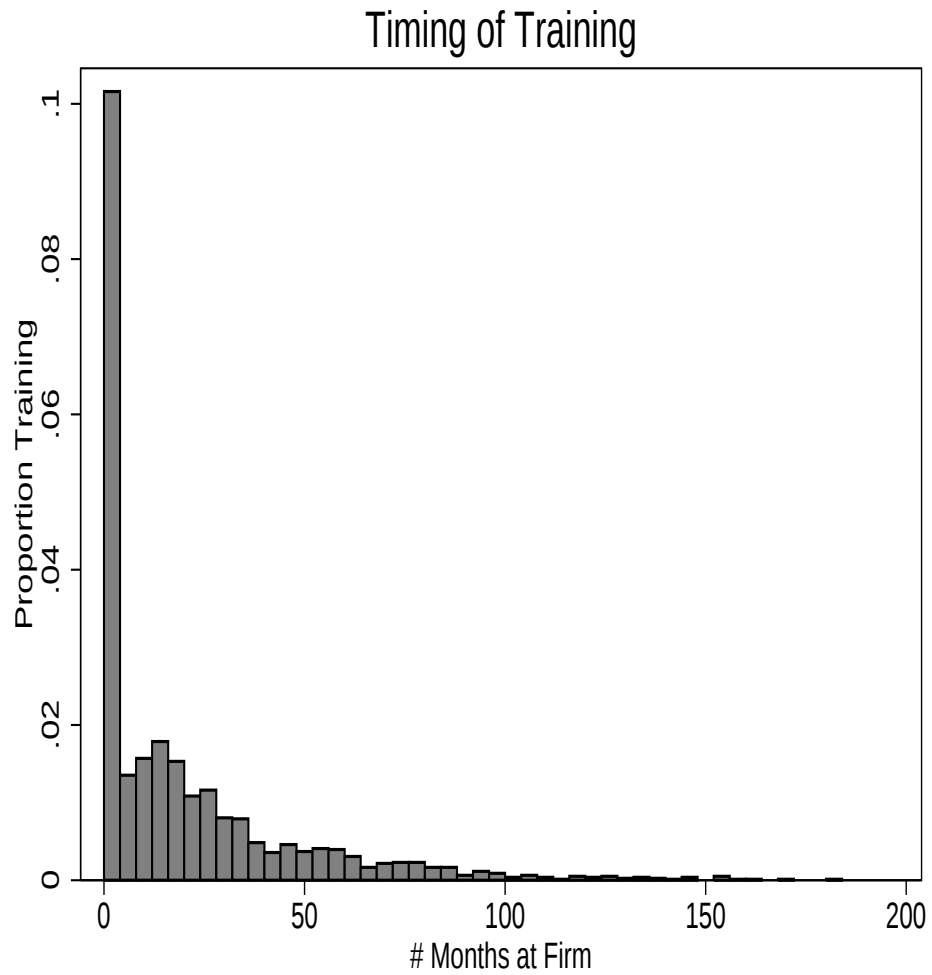


Figure 2: **Proportion of Training by Survey Year**

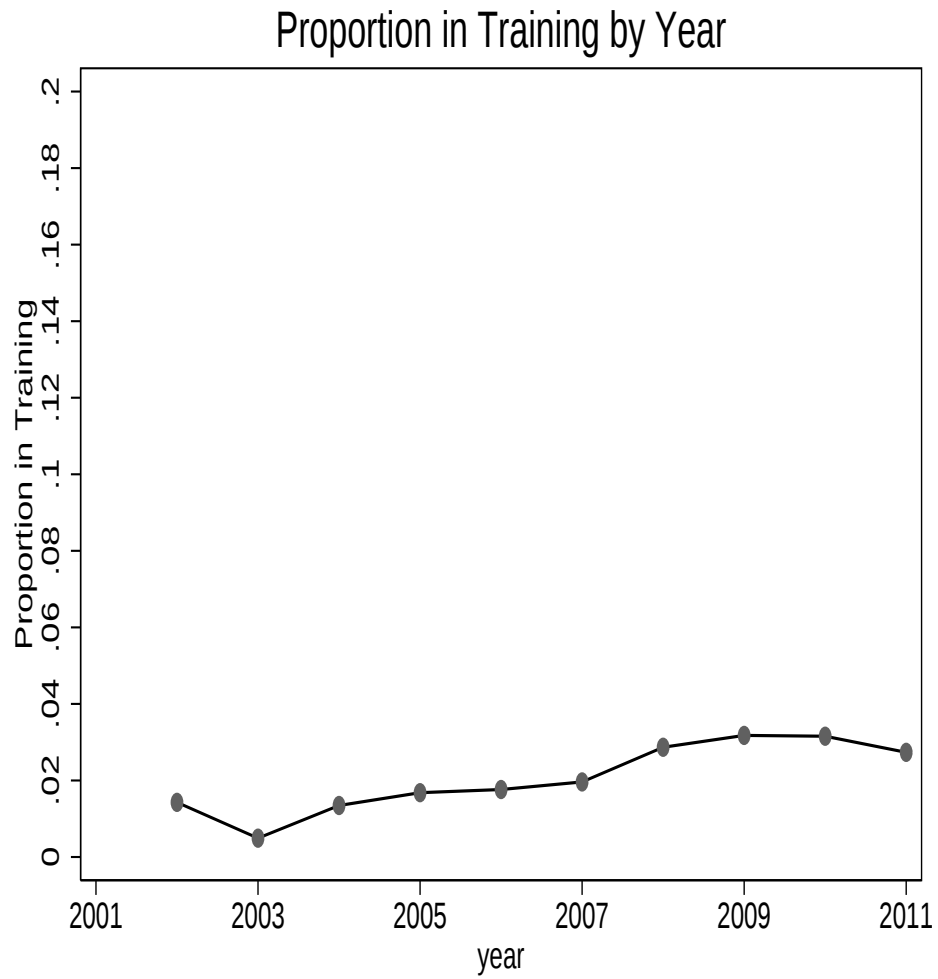


Figure 3: **Wage Profiles by Training Status - Males**



Figure 4: **Wage Profiles by Training Status - Females**

