TRAINING: HOW WILL IT HELP WOMEN IN THE NEXT CENTURY?

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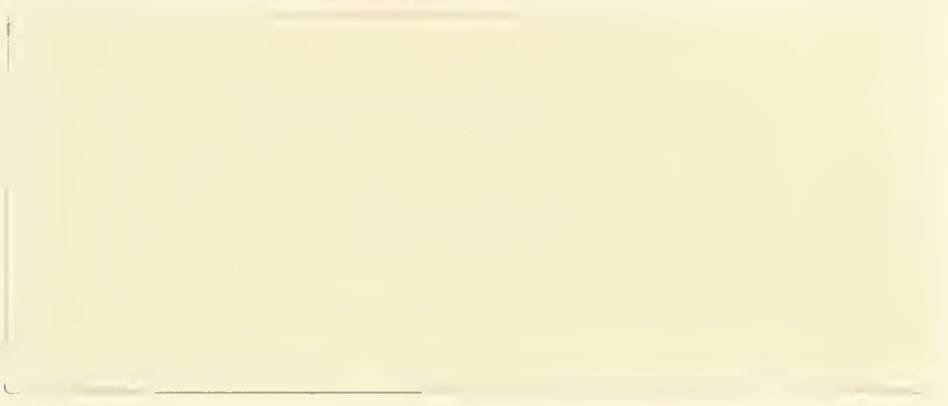

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I. Introduction

Even as the percentage of women in the labor force continues to increase in the United States, researchers continue their search for explanations of the persistent wage gap between males and females. In particular, labor economists have tried with cross sectional, time series, and more recently longitudinal studies, to differentiate between the impact of pure labor market discrimination and measures of individuals' productivity-related characteristics on this gap. Improved data have allowed researchers to analyze the effect of actual instead of potential experience on wages. However, measuring the impact of post school investments in training has been more difficult. Training can impact the wage differential between males and females in a variety of ways. For example, employers may provide less on-the-job training to women because they believe women are more likely to leave their employer. Consequently, women receive less training and their wages do not grow at the same rate as their male counterparts. On the other hand, women may respond to this lower investment by employers by acquiring additional training outside the firm, or switching employers until they find one willing to invest in them.

Clearly, having more detailed information on the training experiences of males and females would be useful in order to better understand the labor market experiences of females and males. This paper summarizes some of the recent findings on the impact of post school training on the labor market experiences of young males and females. By focusing on young workers it is possible to see how a relatively homogeneous group of males and females enters the labor market and then becomes more heterogeneous in their labor market experience. The paper summarizes male/female differences in the incidence of

training, the returns to training, the impact of training on employer and occupational mobility, and the impact of training on socio-economic mobility. It then concludes with some final observations on the role training may or may not play in advancing women in the labor market into the next decade.

II. Male/Female Differences in the Incidence of Training

One of the best sources of information on post-school training for recent new entrants into the labor market in the U.S. is the National Longitudinal Survey Youth Cohort (NLSY). This is a survey of a nationally representative sample of 12,686 males and females who were 14 to 21 years of age at the end of 1978. These youths have been interviewed in person every year since 1979 on all aspects of their lives. In particular, this survey contains detailed data on young people's education, jobs, military service, training programs, marital status, health, and attitudes on a wide range of issues.

In addition to asking about schooling, respondents in the NLSY were asked every year about the types of training they had received over the survey year (up to 3 spells), and the dates of training periods by source. Potential sources of training included business college, nurses programs, apprenticeships, vocational and technical institutes, barber and beauty schools, correspondence courses, and company training. Training received in formal regular schooling (including 2-year programs) is included in the schooling variables. The data on types of training received other than governmental training or schooling yield some of the most comprehensive information available in the U.S. on private sector training. The training data can be separated into three categories -- company provided on-the-job training

(ON-JT), off-the-job training from business courses, barber or beauty schools, nurses programs, technical and vocational institutions, or correspondence courses (OFF-JT), and apprenticeships.

Table 1 uses data from the NLSY to show by the age of 25 the patterns of human capital accumulation for youths in the U.S. in the 1980s. Almost 25 percent of males and 15 percent of females still have not completed a high school degree by the age of twenty five. Approximately 22 percent of all 25 year olds have completed a four year university degree. The percentage of 25 year old males in 1988 who had received formal on-the-job training by the age of 25 is 14 percent and the percentage of 25 year old females in 1988 who had received formal ON-JT is 8 percent. Females are more likely to receive off-the-job training males. Finally, very few young workers in the United States participate in apprenticeship training. While a relatively high percentage of young workers in the U.S. go on to some form of further education after high school, approximately 60 percent of young workers receive no additional training after they complete their formal schooling[1]. In contrast, over 75 percent of German youths enter a formal apprenticeship and over 50 percent of British youths enter an apprenticeship or government training program.

It is possible to examine in even greater detail than is presented in Table 1 the patterns of post-school training in the NLSY using detailed information collected in the 1988 interview of the NLSY. The following discussion presents breakdowns on the incidence of

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[1]Note that since some individuals experience both on-the-job training and off-the-job training the percentage of youths who have experienced no post school training is higher than what would result from simply adding up the percent in ON-JT, OFF-JT and apprenticeships.

post-school training in 1988 for the NLSY respondents who were aged 23-29 at the 1988 survey and in the labor force, by educational status, union status, industry, occupation, firm size, and the duration of training.

Incidence of training by schooling. There is a strong positive correlation between schooling and company provided training. Approximately 15 percent of all college graduates in 1988 participated in company provided training programs that year. Only 5 percent of males and 7 percent of females who were a high school graduate or dropout participated in formal on-the-job training. The relationship between schooling and off-the-job training is a bit different, especially for females. Female high school dropouts are much more likely to receive off-the-job training than female college graduates (10 percent vs. 9 percent). However, for males, the more schooling, the more likely an individual is to have participated in some off-the-job training.

Incidence of training by union status. A higher percentage of union workers than nonunion workers are likely to receive on-the-job training, especially for women union members. However, this pattern reverses itself for off-the-job training with non union workers more likely to participate in off-the-job training programs than union workers. This differential pattern may be the result of union contracts containing specific policies on worker training while non union workers interested in acquiring additional skills must seek training outside the firm.

The incidence of training by industry and occupation. Almost one third of all young workers employed in finance, insurance and real estate, or in public administration received some form of training during 1988. That training was evenly divided between on-the-job

training and off-the-job training. Males in finance, insurance, and real estate were more likely to receive training than females (32% vs. 25%). Other industries with higher than average training levels included transportation, communication and public utilities, wholesale trade, and business and repair services. In these industries 16-20 percent of the young employees had received either on-the-job or off-the-job training during 1988. The industries with the lowest amount of formal company provided training included retail trade and personal, professional and related services. Finally, apprenticeships were concentrated in the construction industry. Unfortunately, the industries where most young workers are employed are not the industries with the highest levels of training. For example, only 9 percent of young males and 15 percent of young females were employed in either finance, insurance and real estate, or public administration. Those industries with the lowest levels of training (retail trade, personal, professional and related services) accounted for 28 percent of young male employment and 54 percent of young female employment.

There are four main occupations in which over 20 percent of the young employees in 1988 had received some form of training - professional and technical workers, managers, clerical workers, and sales workers. In addition, over one-fifth of women employed in crafts occupations had received some training (especially company provided training). Operatives and laborers were less likely to be engaged in any type of post-school training.

The average duration and hours of each training spell. Most training spells, especially those provided by firms, last less than four weeks. The amount of time spent in the training programs seems to fall into two categories. Thirty eight percent of all training spells for young males last 9 hours or less per week while over 50 percent of all females

training spells last less than 9 hours per week. At the same time over 37 percent of male training spells last 40 hours or more per week and 22 percent of female spells last over 40 hours per week. On-the-job training is more likely to be more hours per week than off-the-job training. This suggests a pattern of short intensive employer provided training and less intensive but spread out over a longer period of time off-the-job training.

In summary, most company provided formal on-the-job training in the United States is acquired by college graduates who are employed in finance, insurance and real estate. Even though there is no differential in high school graduation rates between males and females, and females seem to have has high if not higher educational qualifications than males when they enter the labor market, males still receive more formal on-the-job training than females. The industries with the lowest levels of training employ a disproportionate number of females. However, in industries such as finance, insurance and real estate (which employs more young females than young males) which have high levels of training, males still receive more training than females. Even if women participate in company provided training, their spells and intensity of training are shorter on average than their male counterparts. Finally, women are slightly more likely than men to have participated in off-the-job training programs, but this does not completely close the gap in training between males and females.

III. The Impact of Training and Education on Wages

The previous section summarized the basic patterns of post school training for young workers. However, when we discuss deficiencies in the relative competitiveness and

competence of the U.S. workforce, most attention of policy makers is focused on the majority of workers who are not college graduates. Therefore, this section concentrates primarily on the impact of post high school education and training on wages for non college graduates. For the analysis of the impact of education and training on the wages of young workers a subsample of the 12,686 NLSY respondents was analyzed (see Lynch (1992a) for a more complete discussion of the results reported in this section). Using a constructed weekly event history of private sector training, employment, and schooling for this subsample it is possible to examine the patterns and outcomes of training for non-college graduates in the early 1980s.

In Lynch (1992a) log wages of young workers in 1983 are regressed on a function of tenure, work experience, schooling, training, and other factors. The additional factors in the wage equation include the local unemployment rate, the number of jobs held since finishing school, whether or not the respondent lives in an urban area, marital status, race, gender, coverage by a collective agreement, and health. The results presented in Lynch (1992a) show the significant role that training plays in wage determination. Even after controlling for industry and occupation the various training measures have a significant impact on wages. Periods of off-the-job training and apprenticeship training acquired before the current employer raise wages significantly. Weeks of on-the-job training and apprenticeship with the current employer also raise wages. Other variables that significantly raise wages include total work experience, years of school, living in an urban area, male, white, married and coverage by a collective agreement. Being disabled or living in an area with high local unemployment depresses wages significantly.

In order to have a better sense of how the different training variables affect wages relative to other factors such as tenure and schooling, Table 2 presents calculations of hourly wages for different characteristics of the sample. This table shows that training, especially company provided on-the-job training and apprenticeships, raises wages substantially. The impact of one more year of school or one more year of current tenure (keeping experience the same) raises wages to almost to the same amount as 6 months of off-the-job training. The return to additional schooling and tenure is even smaller relative to the return to 6 months of on-the-job training from the current employer. The latter raises wages by almost ten percent while off-the-job training obtained before the current job raises wages by almost 5 percent. These findings on the role of training obtained from "for-profit" proprietary institutions are important for the current debate on whether or not Graduate Student Loans and Pell grants should be continued to be granted to students in these institutions. Some cities have expressed concern about the ability of these institutions (see INTERFACE (1989)) to provide training to welfare recipients. However, it is shown in Lynch (1992a) that on average for non-college graduates, off-the-job training from proprietary institutions has a sizeable impact on wages.

Some other interesting findings contained in Lynch (1992a) concern the variables that are not significant. For example, spells of on-the-job training acquired before the current job have no impact on current wages. This suggests that ON-JT is not portable from employer to employer for young workers who are not college graduates. This may be because formal ON-JT for these workers is more firm specific than general.

Off-the-job training acquired before current employment has a significant and positive

impact on wages, while off-the-job training during current employment is not significant. This may be because young workers who are acquiring training from a proprietary institution are planning to use this training to move to another employer and career track, or the findings may reflect the sharing of costs of this training with the current employer through lower wages.

When the wage equation is estimated for all young males and females, females earn significantly less (approximately 16 percent) than males even after controlling for schooling, work experience, local demand conditions, marital status, union status, and health. When training is added into the wage equation this differential drops to approximately 15 percent, and when industry and occupation variables are added it falls further to 12 percent. When the sample is divided by race and gender some further differences between males and females in their training experience are revealed. Interestingly, the estimated coefficients on a spell of on-the-job training with a current employer, and a spell of off-the-job training before the current employer for white males and females are positive, significant, and identical. However, for young white males, a spell of off-the-job training while they are currently employed significantly lowers their wages, while for white females engaged in off-the-job training their wages are significantly higher. Therefore, the primary difference in the training experience of males and females seems to be the incidence of training rather than the wage gains associated with training.

In conclusion, private sector training plays a significant role in the determination of wages and wage growth of the 75 percent of young workers in the U.S. who do not graduate from college. Specifically, when private sector training is divided into different types (on-

the-job training, off-the-job training, and apprenticeships) we see that all types of training raise wages significantly. In particular, for this sample of non-college graduates, off-the-job training from proprietary institutions can be useful for increasing wages. The impact of these training variables also seems to be larger than the impact of tenure on wages. Finally, while on-the-job training with the current employer increases wages with the current employer, this type of training seems to be quite firm specific since on-the-job training from a previous employer is never significant for current wages. Although training raises wages its impact on narrowing the male/female wage gap is somewhat limited. This is because women (and nonwhites) are much less likely to receive training within a firm either through an apprenticeship or other forms of on-the-job training. This differential pattern in the acquisition of training by race and gender may be a partial explanation of the persistent wage gap between males and females and whites and nonwhites.

IV. The Impact of Training and Education on Labor Mobility

The findings on the relationship between the various types of training and wages have several implications for the impact of training on mobility. One implication is that if company provided training is primarily firm specific then the probability of leaving an employer should decline if a young worker has experienced some on-the-job training. An additional implication is that if workers participate in off-the-job training programs they are more likely to leave the current employer. In this case, off-the-job training allows a young worker to change career paths and find a 'better match'. This part of the paper examines in detail the factors which influence the probability of new entrants leaving their first job,

including the differential effects of company provided training, apprenticeships, and training from 'for-profit' proprietary institutions.

For the analysis presented in this part of the paper a different sample is used to analyze mobility patterns than was used to examine the determinants of wages (see Lynch (1991) or for a more complete discussion and additional results see Lynch (1992b)). This sample uses more recent years of the NLSY. In Lynch (1992b) I have excluded the 1280 respondents in the military subsample from the analysis. However, I have also deleted any respondent who has completed school before the 1979 interview year. The final sample is a pooled sample of young workers who have left school and not returned to school for at least four years ('permanently' out of school). Therefore, this sample is made up of 5 waves of school leavers -- those who left in 1979, 1980, 1981, 1982 and 1983. In addition, the respondents had to have obtained a job in the first year after 'permanently' exiting school. This sample had many more college graduates in it given the age structure of the NLSY compared to the sample used for the wage study. However, it did not include anyone who completed school before 1979, which substantially reduced the sample size. In addition, there was no attempt to model the decision to leave school over the period (1979-1983). Obviously this was a period in which many young people may have delayed entry into the labor market given the high unemployment rate at that time. A dummy variables for year of entry into the labor market was included in the empirical analysis to capture part of this effect, but future theoretical and empirical work would benefit from a complete modeling of the schooling/employment/training decisions taken by young workers.

Lynch (1991) and (1992b) present estimates from a Cox proportional hazard with

time varying and time invariant covariates. This hazard is convenient for including time varying variables such as training, and has the following form:

$$(1) \qquad h(t;z(t)) = h_0(t)e^{z(t)B}$$

where $h_0(t)$ is an arbitrary and unspecified base-line hazard function, and z(t) is a vector of all fixed and time varying covariates. As discussed in Cox and Oakes (1984) the components of the vector z(t) can be divided into the following three categories of variables - treatments that vary with time; intrinsic properties of individuals/jobs that are time invariant; and exogenous time varying variables. The Cox model is also convenient for dealing with right censoring, and it is nonparametric in the sense that it involves an unspecified base-line hazard instead of making further distributional assumptions such as those required for the Weibull or Log-logistic hazard. However, this means that it will not be possible to measure whether or not there is negative or positive duration dependence in employment, but this is not a key focus of this paper. Another empirical approach might have been to have estimated a logit or probit model of the probability of leaving an employer over some specified (and arbitrary) time period. Unfortunately, when this empirical strategy is followed one must decide at what date you will include values of variables that are time varying - e.g. their value at the beginning of the period, the end, or sometime in the middle. Therefore, I have chosen to estimate the determinants of employer mobility with a hazard model.

The time invariant intrinsic characteristics of the individuals/jobs in Lynch (1992b)

that seemed to influence the probability of leaving an employer included being disabled, union status, race, and school level. Disabled respondents were more likely to leave their employer while being employed in a job covered by a collective agreement or being a college graduate significantly lowered the probability of leaving the first employer. Blacks were more likely to have shorter durations on their first job than whites and hispanics. There were significant differences in expected length of employment by school attainment. Those with a high school degree or less were more likely to leave their employer, whereas those with a college degree were less likely to leave.

Of the time varying 'exogenous' covariates the local unemployment rate was significant implying that those who lived in high unemployment areas were less likely to leave their employer. The hurdle for youths in high unemployment areas seems to be getting a job rather than keeping one. The number of children seemed to have no significant effect on the expected duration of the first job. Finally, those workers who were married were more likely to remain with their first employer.

With regards to the training variables, those young people who had some formal ON-JT were much less likely to leave their employer while those who participated in some form of OFF-JT were more likely to leave. This seems to suggest that ON-JT is more firm specific while OFF-JT is more 'general'. These findings are consistent with the results on training and wages.

There was no significant effect by gender on the length of time with the first employer. This suggests that employers who do not invest in training women employees because they believe they are more likely to leave their job than males should reconsider

their training strategies. This analysis does not distinguish between leaving an employer for another employer versus leaving the labor force. Women are still more likely than men to leave the labor force, but from the point of view of a firm making a training investment, it does not matter where an individual goes who they have invested in. The return on the training investment is lost irrespective of where the employee ends up. In addition, the decision to remain in the labor force is not necessarily independent from investment decisions firms make in women employees.

When the sample is divided by gender there are many differences across males and females in the factors which influence their probability of leaving an employer. Children have no effect on males, while they increase the probability of leaving an employer significantly for females. What is even more interesting perhaps is the fact that none of the training variables are significant in the hazard estimated for males alone, while two out of the three training variables are significant in the hazard estimated for females. On-the-job training significantly lowers the probability of women leaving an employer while off-the-job training raises the probability of leaving an employer. Again, employer fears of investing in women employees and then losing them seem to be unfounded, especially for young workers in their early years in the labor market.

In summary, evidence presented in the previous section of this paper indicated that on-the-job training for young workers in the U.S. appeared to be quite firm specific whereas off-the-job training appeared more general. The results presented in Lynch (1992b) and summarized here seem to reinforce those conclusions. Those with on-the-job training are more likely to remain longer with their employer which would be consistent with firm

specific training. Those who obtain off-the-job training are more likely to leave their employer and this would be consistent with off-the-job training being more general. However, when the sample is divided by gender it is shown in Lynch (1991) and (1992b) that the training variables are only significant for females.

V. Training and Occupational Mobility

Training may alter not only the probability of leaving an employer but also the probability of changing an occupation. There has been relatively little analysis by economists of the factors that influence occupational change. Notable exceptions include Boskin (1974), Schmidt and Strauss (1975), and most recently, Shaw (1984) and (1987). Measuring occupational change in a longitudinal survey can be difficult because of spurious occupational changes introduced into the sample because of the way a respondent answers questions about their job year to year. Therefore, in the following analysis I focus on occupational changes that occur at the single digit 1980 Census Occupational Classification System level. These are substantial changes that are less likely to be driven by minor changes in the description of the job. A major disadvantage of this approach, however, is that it may take much longer to make these kinds of occupational changes. As a result, one misses the important occupational changes that take place at the two or three digit level. Therefore, this under-reporting of smaller occupational changes should be kept in mind in evaluating the following empirical results.

The sample used for this analysis is similar to the one used in Lynch (1991) and (1992b) except that one more year of entrants into the labor market is included - those who

finished school in 1984. The respondents are followed for only three years instead of four, but this sample is a bit larger than the sample used in Lynch (1991) and (1992b) for the probability of leaving an employer.[2] Table 3 summarizes the percent of the sample who change occupations and/or employers in the first three years after completing school. Males are more likely to change employers and occupations than females. Only 18 percent of the males and 26 percent of the females are in the same occupation and with the same employer three years after finishing school. Approximately 55 percent of the males and 42 percent of the females change occupations, even at a 1-digit Census level in the first three years after school. As one can see in Table 3, the youth labor market in the U.S. is characterized by a great deal of change in the early years.

Table 4 presents empirical results from a logit model on the determinants of the probability of changing a single digit occupation over the first three years in the labor market for young workers. In sharp contrast to the findings on employer mobility, there is now a strong gender difference in the probability of changing occupations. Males are much more likely to change occupations, even at a single digit level than females. The schooling variables also have a different impact on males and females. Females who are only high school graduates are much less likely to change their occupation, while this variable is insignificant for males. On the other hand, males who are college graduates are much less likely to change occupation, while this variable is insignificant for females. Perhaps most

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[2]The following analysis was repeated for the sample of youths used in Lynch (1991) and (1992b). The estimated coefficients were similar to those reported in this paper, however, the standard errors were a bit larger on some of the variables. This reflects the smaller cell sizes, especially on the training variables.

interesting is that on-the-job training does not have any effect on occupational mobility but off-the-job training increases the probability of changing occupations. This latter effect is especially strong for females. The findings on on-the-job training are not so surprising given that the occupational change studied here is across single digit Census levels. On-the-job training is more likely to be important in movements at the two or three digit level so the aggregation of occupational change here is masking the role of ON-JT. Off-the-job training is more likely to be used by individuals to move out of dead end jobs and occupations, and therefore, it is significant even for this level of aggregation of occupational change. As found in Shaw (1987), it appears that more general off-the-job training increases the probability of occupational change due to the reduction of the human capital cost of movement.

Shaw (1987) also estimated a more detailed multinomial logit choice model of occupational change in which she allowed for four choices: change employer and occupation, change only occupation, change only employer, or no change. (Note that in her analysis she examined occupational changes that occurred at the 3-digit Census level rather than at the 1-digit level as I have done.) I have estimated a variant of this multinomial logit choice model for this sample and these results are reported in Table 5. Males are much more likely to change occupations than females either with their current employer or by moving to another employer. Tenure and experience have little impact on the probability of moving across a single digit occupation within an employer, but they strongly lower the probability of changing employers. There is some evidence that on-the-job training lowers the probability of changing an employer and remaining in the same occupation, but this

effect is not well determined. One problem with this empirical approach is that we are missing information on the timing of training spells and occupational and mobility changes. In addition, the cell sizes become very small for some of the choice categories. As a result, many of the explanatory variables are not well determined.

Another way to examine the impact of training on occupational mobility is to analyze the role of training on movements up the Duncan index of socio-economic status. While earnings are a major component of this index, this index also captures some sense of the career path of different occupations that may not necessarily be reflected in starting wages for that occupation. Table 6 presents results of a logit model on the probability of moving up 10 points or more in the Duncan index over the first three years in the labor market. This is a substantial rise but 30 percent of the entire sample achieve this increase. When the sample is divided by gender, 32 percent of the males and 29 percent of the females end up in occupations 10 points higher on the Duncan index after three years in the labor market. While there does not appear to be any statistically significant difference in the probability of males or females in moving up the socio-economic status ladder there are some differences in the impact of training on this mobility when the sample is divided by gender. Specifically, off-the-job training has a significant impact on the probability of making such a large gain in the Duncan index, but only for males.[3]

In summary, training has an important impact on occupational mobility. Off-the-job

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[3]When the sample is restricted to only non-college graduates on-the-job training also becomes positively significant in this logit model. Again, it is only significant for males and not for females. In addition, males are now significantly more likely to move up the Duncan index, controlling for all other factors.

training appears to increase the probability of switching occupations and this effect is quite especially strong for women. However, when we examine another dimension of occupational change - movements up the socio-economic status ladder, we see a different pattern by gender. In particular, training is more useful for males in making large jumps in job status than it is for females.

VI. Summary and Conclusions

By the age of 25 only 22 percent of U.S. youths have completed a college degree and almost 60 percent have not received any form of post-school training even including very short training spells of less than four weeks. If they have received some form of post school training, it is most likely to have been provided by a for-profit proprietary institution. Unfortunately, only 14 percent of employed males and 8 percent of employed females had received any formal company training by the age of 25.

This difference in the incidence of training by gender seems to be one of the major differences in the training experience of young males and females in the United States since the wage gains associated with training are very similar for males and females. Off-the-job training seems to increase the probability of women in changing employers and occupations and on-the-job training seems to reduce the probability that they will leave their current employer. This suggests that employer concerns that they will not be able to capture the returns on the human capital investments they make in their female employees may be unfounded. Although off-the-job training promotes employer and occupational mobility for young women, training in general does not seem to result in large movements up the socio-

economic ladder for them. Instead, training does seem to have this effect for males. This suggests that while training may have a similar impact on early wages for males and females, this similarity may diminish with time.

Women have made substantial improvements in their productivity-related characteristics relative to males over the past twenty years. Not only is the labor force participation rate of women increasing, but the average number of years in the labor market for women has been increasing. The percent of women enrolled in college has jumped from almost two-thirds the rate of males in the mid 1960s, to a rate higher than the male rate by the late 1980s. However, a gender gap in post-school training still remains and this will have an important impact on the career development of women in the labor market.

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Table 1: Schooling and Training in the United States by the Age of 25

Males

76%	High School graduates
22%	4 year college graduates
15%	2 year college
14%	formal company training
30%	off-the-job training
3%	apprenticeships
58%	NO post school training

Females

86%	High School graduates
22%	4 year college graduates
20%	2 year college programs
8%	formal company training
33%	off-the-job training
1/2%	apprenticeships
60%	NO post school training

Table 2: Predicted Hourly Wages By Selected Characteristics (1983 wages)

Case 1.) White male, average characteristics:

no training	$5.47
24 wks during previous job OFF-JT	5.74
24 wks current employer ON-JT	5.96
24 wks previous employer apprenticeship	6.17
24 wks current employer apprenticeship	5.74
1 additional year of school	5.64
1 additional year of tenure	5.65

Case 2.) White female, average characteristics:

no training	$4.71
24 wks during previous job OFF-JT	4.94
24 wks current employer ON-JT	5.14
24 wks previous employer apprenticeship	5.31
24 wks current employer apprenticeship	4.94
1 additional year of school	4.85
1 additional year of tenure	4.88

*using the estimated coefficients from estimated log wage equations in Lynch (1992a). Average characteristics are: single, high school graduate, 99 weeks of tenure on the job, 193 weeks of work experience, local unemployment rate of 10.01%, living in the inner city, healthy, not covered by a collective agreement, and 2 jobs since finishing school.

Table 3: Percent of Sample Changing Occupations and/or Employers

	Males	Females
Same employer, same occupation	18%	26%
Same employer, change occupation	10.5%	8%
Change employer, change occupation	45%	34%
Change employer, same occupation	26%	32%
Sample size	1355	1363

Table 4: Logit Estimation of the Probability of Changing Occupation (T-Statistics in ())

Variable	All	Males	Females
Constant	.95	1.65	.87
	(3.94)	(4.70)	(2.53)
SMSA	.05	.24	-.13
	(0.56)	(1.88)	(-1.03)
Disabled	.09	-.23	.25
	(0.42)	(-0.67)	(0.89)
Married	-.12	-.13	-.98
	(-1.29)	(-0.83)	(-0.78)
Child	.04	.06	.07
	(0.49)	(0.51)	(0.61)
Union	-.21	-.04	-.55
	(-1.80)	(-0.29)	(-3.01)
Black	-.40	-.05	-.04
	(-0.38)	(-0.36)	(-0.26)
Hispanic	-.02	-.07	.04
	(-0.17)	(-0.42)	(0.22)
Male	.55		
	(6.70)		
Medium Unemployment	-.03	.02	-.06
	(-0.30)	(0.15)	(-0.46)
High Unemployment	-.12	-.002	-.20
	(-1.06)	(-0.01)	(-1.24)
Less than High School	-.14	-0.16	-.44
	(-0.88)	(-0.76)	(-0.16)
High School	-.08	.10	-.29
	(-0.75)	(0.63)	(-1.95)
College	-.30	-.70	.003
	(-2.22)	(-3.44)	(0.01)
Tenure (wks)	-.005	-.005	-.004
	(-5.36)	(-3.70)	(-3.37)
Experience (wks)	-.004	-.005	-.004
	(-2.68)	(-2.26)	(-1.97)
ON-JT	.07	.30	-.16
	(0.41)	(1.17)	(-0.58)
OFF-JT	.23	.16	.29
	(2.01)	(0.94)	(1.86)
Apprentice	-.26	-.43	-.14
	(-0.70)	(-1.07)	(-0.15)
Log Likelihood	-1795.2	-882.33	-891.57
N=	2718	1355	1363

*Estimation includes dummy variables for year of entry into the labor market.

Table 5: Multinomial Logit Estimation of Changing Employer and/or Occupation (T-Statistics in ())

Variable	Same er, change occ		ALL Change er, Change occ		Change er, same occ	
Constant	-.74	(-1.07)	7.50	(10.39)	6.64	(8.98)
SMSA	.15	(0.82)	-.14	(-0.64)	-.13	(-0.59)
Disabled	.06	(0.14)	1.07	(1.99)	.99	(1.76)
Married	-.05	(-0.27)	-.01	(-0.04)	.17	(0.72)
Child	.07	(0.47)	.15	(0.80)	.14	(0.72)
Union	-.01	(-0.08)	-.47	(-1.91)	-.25	(-0.95)
Black	-.01	(-0.05)	-.13	(-0.51)	-.09	(-0.36)
Hispanic	-.11	(-0.51)	-.25	(-0.88)	-.29	(-0.98)
Male	.68	(4.26)	.56	(2.88)	.05	(0.26)
Med U Rate	-.15	(-0.76)	.08	(0.37)	.09	(0.38)
High U Rate	-.05	(-0.21)	-.79	(-2.85)	-.72	(-2.49)
LTHS	-.28	(-0.81)	.08	(0.21)	.28	(0.67)
HS	-.20	(-0.97)	.24	(0.98)	.37	(1.42)
College	-.42	(-1.79)	.009	(0.03)	.36	(1.12)
Tenure	.009	(0.25)	-.10	(-19.24)	-.11	(-20.34)
Experience	-.008	(-0.17)	.03	(5.55)	.03	(6.75)
ON-JT	-.30	(-0.92)	-.29	(-0.71)	-.67	(-1.51)
OFF-JT	-.27	(-1.05)	.17	(0.64)	-.19	(-0.69)
Apprentice	.51	(0.63)	-.86	(-0.91)	-.46	(-0.48)

Log Likelihood = -2155.1

*Relative to those who had same employer and same occupation after 3 years. Estimation includes dummy variables for year of entry into labor market.

Table 6: **Logit Estimation of the Probability of Moving Up 10 points in the Duncan Index**

Variable	All	Males	Females
Constant	-.15	-.03	-.13
	(0.62)	(-0.09)	(-0.36)
SMSA	-.05	.04	-.15
	(-0.57)	(0.32)	(-1.11)
Disabled	-.08	-.18	-.003
	(-0.35)	(-0.48)	(-0.01)
Married	-.08	-.27	-.05
	(-0.74)	(-1.51)	(-0.41)
Children	.15	.16	.20
	(1.78)	(1.15)	(1.65)
Union	-.20	-.12	-.37
	(-1.60)	(-0.73)	(-1.84)
Black	-.16	-.27	-.10
	(-1.41)	(-1.74)	(-0.55)
Hispanic	.12	.16	.02
	(0.97)	(0.98)	(0.13)
Male	.13		
	(1.44)		
Medium U Rate	-.03	-.17	.12
	(-0.30)	(-1.22)	(0.81)
High U Rate	-.31	-.41	-.24
	(-2.56)	(-2.33)	(-1.37)
LTHS	-.21	-.03	-.60
	(-1.23)	(-0.16)	(-1.93)
High School	-.09	-.03	-.21
	(-0.80)	(-0.20)	(-1.35)
College	-.35	-.45	-.29
	(-2.42)	(-2.04)	(-1.52)
Tenure	-.002	-.0004	-.003
	(-1.78)	(-0.29)	(-2.02)
Experience	-.002	-.003	-.0006
	(-1.78)	(-1.22)	(-0.28)
ON-JT	.10	.28	-.08
	(0.51)	(1.06)	(-0.28)
OFF-JT	.24	.36	.18
	(2.06)	(2.06)	(1.07)
Apprentice	-.63	-.75	-.32
	(-1.36)	(-1.48)	(-0.28)
Log Likelihood	-1642.4	-828.17	-801.62
N=	2718	1355	1363

*Estimation includes dummy variables for year of entry into the labor market.