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Male-female differences in search behaviour: An empirical analysis using displaced workers in the United States and in Germany

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I. Introduction

Much of the research examining differences in wages between men and women and the possible existence of labor market discrimination has focused on Gary Becker's (1971) canonical model of discrimination. In this model distaste on the part of employers for hiring minority workers results in the segregation of these workers into firms run by employers with less or no distaste for hiring minority workers. Wage differentials between men and women will only exist if the marginal employer dislikes hiring women. Thus, as long as there are enough nondiscriminatory employers in the market to employ all women, there will be no wage differential between men and women even if there are employers in the market who have distaste for hiring women. In addition, under certain conditions, the Becker model implies that competition should force discriminatory employers out of the labor market. This in turn implies that either the necessary conditions do not hold and that discrimination exists in labor markets, or that the observed male/female wage differentials are not due to labor market discrimination.

In contrast, Black (1995) has shown that in an equilibrium search model, where at least some employers have a distaste for hiring women, male/female wage differentials will exist even if the marginal employer has no distaste for hiring women. This is because the presence of discriminatory employers who will never hire minority workers, and who cannot be identified ex-ante, raise the cost of search for minority workers. All employers recognize this additional cost and offer minority workers lower wages. In addition, this higher search cost means that minority workers will have poorer matches with their employers than nonminority workers. Finally, Black shows that in his model

labor market discrimination can persist—there is no mechanism driving discriminatory employers out of the market.

Of course differential search behavior between men and women, and therefore differences in wages, can also arise if there are differences in the value of nonmarket time. We hypothesize that the primary source of the difference in the value of nonmarket time between men and women is women's comparative advantage in childbearing and childrearing. We further hypothesize that this difference should vary with age, initially rising as women reach prime childbearing and childrearing age, and then declining. This alternative model implies that wage differentials between men and women will vary with age and, assuming male and female workers face the same wage offer distribution, differences between men and women in the length of search should also vary with age.

In this paper we examine empirically differences in the search behavior of men and women to distinguish between differences due to discrimination and differences due to time varying differences in the value of nonmarket time. The empirical analysis is based on wage equations with a dummy variable for gender interacted with age, and other controls capturing further heterogeneity across individuals, and equations modeling the duration of search with a corresponding specification. The key parameters of interest are the coefficients of the gender variable and its interactions with age. We apply a differences in differences estimation approach to identify the parameters of interest. Our data samples contain workers who are displaced from their jobs due to their plant closing for the U.S. and West-Germany. Using these data we examine differences between men and women in wage change after displacement, in the probability of dropping out of the

labor market after displacement, and in the length of displacement. We also examine how the differences between men and women in these outcomes vary with age.

We focus on displaced workers because we argue that differential search behavior between male and female displaced workers will be less affected by factors outside the model, such as differential investment in human capital, than search behavior of new entrants to the market or individuals reentering the market after a prolonged absence. The comparison of search behavior for workers in Germany and the U.S. offers further insights into the importance of search differences in accounting for the male/female wage gap. Institutions are important factors of the wage setting framework and cross-country comparison can help to learn about the functioning. Different institutions may also create different potential for discrimination. Examples are the anti-discrimination legislation and the welfare state. Compared to Germany, the U.S. has a long tradition of anti-discrimination legislation that is enforced. Hence, the occurrence of employer discrimination may be less likely. One aspect of the welfare state is the protection of specific groups in form of benefits or job protection. This can lead to increased taste for discrimination on the side of the firm, if it leads to net costs for the firm.

Our data on displaced workers in Germany come from the Institut fűr Arbeitsmarkt- und Berufsforschung Sample (IABS) data, which is a panel data set consisting of 2 percent of all workers who are covered by the German social security system, and our sample covers the period 1980-2001.[1] Our data on displaced workers in the U.S. come from the 1979 National Longitudinal Survey of Youths (NLSY) data which is a panel data set consisting of a random sample of individuals who were 14-21

[1] We use a unique file that includes in addition to the standard variables in the scientific use file of the IABS, information on the closure of a firm. The orginal data set covers the period 1975 to 2001.

years old in 1979. Our NLSY data cover the period 1984-1998.[2] Both of these data sets are highly useful for our study because both identify worker displacement relatively soon after it occurs and both contain data over a long time period allowing us to follow workers for a number of periods after they are displaced. The data sets also complement each other. The NLSY data contains a rich set of covariates but no information on workers over the age of 40. The IABS data has a more limited set of covariates but a larger sample of workers and also contains data on older workers.

The paper is organized as follows. In the next section we review the relevant literature and discuss the relevant theories. In section III, we outline our model and the estimation approach. We describe our data in section IV. In section V we present our results. We summarize our results and present conclusions in section VI.

II. Economic Background

Differences in search behaviour between men and women have been investigated before in a search theoretical framework. Bowlus (1997) estimates a modified version of the Mortensen (1990) search model. She modifies the Mortensen model by incorporating, in addition to the employed state and the unemployed state, a third state, non-participation, in which no search occurs. She estimates this model using data from the NLSY on job search behaviour of workers who have recently completed their schooling. She finds that 20-30 percent of the male/female wage gap can be accounted for by differential search behaviour between men and women primarily due to women being more likely to exit out of employment into unemployment or nonemployment. The

[2] The NLSY data cover the period 1979-2000. However, the information that allows us to identify displaced workers was first collected in 1984.

remaining 70-80 percent of the wage differential is due to what she calls productivity differences. Her model does not include any theory on discrimination. Hence, the large unobserved differences she finds may be partly due to taste discrimination of firms or prejudice on the side of the firm.

Bowlus and Eckstein (2002) show that in an equilibrium search model one can distinguish between wage differences due to unobserved differences in individual characteristics and prejudice of the firms, discrimination, among otherwise equal workers. Their model is an extension of the Black (1995) model and their empirical analysis refers to black-white wage differentials using NLSY data.[3]

Black (1995) model of Employer Discrimination and Search

Black (1995) develops a model of employer discrimination in an equilibrium search model. In his model there are two types of workers, A and B, who have identical marginal products and value of nonmarket time. Workers receive utility from working both because the wages they receive and due to job satisfaction. There are also two types of employers, non-discriminatory employers and discriminatory employers who have a distaste for employing type B workers and therefore will never offer type B workers a job.

Black shows that his model produces the standard results from search theory—workers form a reservation utility level that is a function of their utility from home production and their cost of search. Workers then sequentially search over jobs until the utility level from a job exceeds their reservation utility level. Black goes on to show that

[3] Flabbi (2004) estimates a search equilibrium model with matching and bargaining applied to the gender wage gap using cross-sectional data from the CPS for 1995

the presence of discriminatory employers lowers the reservation utility level of type B workers. This is because searching over the jobs with discriminatory employers is costly but offers no benefits since discriminatory employers will never employ a type B worker. This in turn implies that type B workers will accept a job with a lower utility level due to both lower wages and due to lower job satisfaction. Black also shows that the wages of type B workers will be lower even if the marginal employer has no taste for discrimination. Since all employers know that type B workers have a lower reservation utility level, they will use their market power (which exists in an equilibrium search model) to offer type B workers a lower wage. Black also shows that an increase in the number of discriminatory employers has an ambiguous effect on the length of search for type B workers relative to type A workers. This is because, while the higher fraction of prejudiced employers makes it harder for type B workers to find a nonprejudiced employer who is willing to employ them and therefore leads to more search, it also reduces the reservation level of utility for these workers which leads to less search. Therefore, the overall effect is ambiguous.

III. Outline of our model and estimation strategy

We think of our model as an extension of the Black (1995) model by allowing the reservation wage, or the outside option, to vary with age. A crucial assumption in other places of the theoretical literatureof (e.g. Lazear, 1990) is that the reservation wage of women is higher than of comparable men because of a comparative advantage in having and raising children. This assumption goes back to Becker (1985) and is basically founded by empirical evidence that women specialise in child care and house production,

while men specialise in market work. Of course this again could be the result of discrimination in the market. To us no test of this assumption is known.

By allowing the reservation wage to vary with age we can distinguish the comparable advantage argument from the alternative hypothesis that it is young women who have if at all a comparative advantage. This hypothesis is based on the obvious that it is women close to the time of birth of a child who have a comparative advantage in raising the child. It is not so clear why the mother should have a comparative advantage over the (comparable) father in raising a child, say older than 1 year. Especially, evidence from the scandinavian countries shows that a significant portion of fathers take very active part in the education of their kids which is fostered by reserving part of the parental leave to fathers. In Norway for example 17 percent of fathers take more than 1 month of parental leave.

Core implication of our model is that the reservation utility of women should initially rise with age and then fall. The period with higher reservation utility should lead to longer job search, higher wages or larger increases in wages and better job matches.

Identification strategy

To sketch the estimation strategy we specify the following regression which is linear to keep the specification general:

$$y^{postdisplacement} - y^{predisplacement} = \beta_0 + \beta_1 Fem * f(age)^{predisplacement} + \beta_2 X^{predisplacement} + u^{**}$$

We regress the change in the dependent variable, which is the change in wage or the duration between the post displacement job and the pre displacement job, on a dummy variable for being female, FEM=1 and 0 otherwise interacted with age in the pre

displacement job, and other controls X measured at the pre displacement job. X includes work experience, tenure, education, occupation and industry.

If β_1 is equal to zero except in the reference age group, then there is a constant gap between men and women. If β_1 is negative then the gap is increasing in age and otherwise decreasing. Our hypothesis is that if the discrimination hypothesis holds then we should find a constant effect in age on wages. If the comparative advantage hypothesis holds then we should find strong effects /penalty for young women but not for older ones.

Estimation of the regression in changes takes account of unobserved heterogeneity that causes otherwise often endogeneity problems in wage regressions. By selection on displaced workers we take account of labour supply effects since we argue that those workers are before displacement all in work and the exogenous event of displacement creates variation in search and entry wages which are not affected by the participation decision controlling for pre-displacement factors, including age before displacement.

Evidence of Gender Differences in Search

The previous literature has looked at gender differences in search and entry wages in various context, yet evidence is ambiguous which may be partly caused by small sample size problems. Additionally, none has looked at variation in age. First, the school to work transition has been analysed (Bowlus, 1997). Second, the job to job transition process has been examined in connection with job loss (Azmat, et al. 2004), or worker displacement ((Jenkins and Montmarquette 1979; Podgursky and Swam, 1984; Madden 1987).

Much of the early literature on displaced workers that also examines differences between men and women finds that wage losses associated with displacement are larger for men than for women (Jenkins and Montmarquette 1979; Podgursky and Swam, 1984; Madden 1987). In a study particularly related to our work, Crossley, et al. (1994) use cross-sectional data on workers displaced from 21 establishments in Ontario, Canada in 1982 and also find that women experience larger wage losses than men and that the differences is an increasing function of tenure. However, since men and women have similar wages prior to displacement, they conclude that labor market discrimination cannot account for the observed differences. Instead they hypothesize that the differences in wage changes must be due to differential search behaviour possible due to women being less geographically mobile than men.

More recently Abbring, et al. (2002) find that among U.S. workers women experience longer spells between jobs than men after displacement but that wage changes between jobs are not significantly different between men and women. This latter result is in contrast to the Crossely, et al. results.

IV. The Data

The U.S. Data

Our data on U.S. workers come from the NLSY. This is a panel data set on individuals who were between 14 and 22 years old in 1979 when the survey began. They were interviewed every year between 1979 and 1994 and every two years after 1994.

Data from each interview contain information on up to five jobs that an individual has held since the last interview along with information that allows jobs to be linked across interviews. For every job we know the date an individual started the job, as well as the number of weeks they have worked at the job up to the date of the interview. For jobs that an individual is no longer working at there is information on why they left the job, the date they left the job, and the total number of weeks they worked at the job. In order to focus on the search behavior of individuals who have left school, we only consider workers who indicate they were not enrolled in school at anytime since the last interview. We then identify a worker as being displaced from a job when they indicate they are no longer working at a job because their plant closed, and when the data indicate they are not working for the same employer in the subsequent interview. Since the information on plant closing is not available prior to 1984, we can only identify displacement starting with the 1984 interview.[4] In order to limit possible problems with recall bias, and to match the timing of the data on German workers, we only identify displacement through the 1994 survey.[5] To limit ourselves to workers with reasonable

[4] Prior to 1984 these individuals were classified as laid off.

[5] To further reduce possible problems with recall bias between 1984 and 1994 we only keep workers who were interviewed in the year prior to displacement. After the 1994 survey the next round of the NLSY was conducted in 1996. Therefore, displacement in the 1996 survey could have occurred as much as two years

strong attachment to the labor market, we only consider workers who are displaced from a job where they usually worked 17 or more hours a week. Finally we throw out workers who have hourly wages below $1.50 in 1993 dollars, or who have missing values for usual hours worked per day.

We identify a worker's post displacement job as the first job we find where the worker usually works more than 20 hours a week and have worked at the job for more than nine weeks.[6] When searching for the post displacement job we use data through the 1998 interview so for every worker we have at least four years of data after displacement. We measure the length of displacement as the number of weeks between the date they stopped working at the displacement job and the date they started at their post-displacement job.[7] We consider workers who never find a job as being censored and we measure their length of displacement as the difference between the date of displacement and June 30, 1998.[8]

In our final data set we have 878 displacement events. Since the same person can experience multiple displacements over the period of our data and appear in the data more than once, we adjust all of the standard errors in our subsequent analysis to reflect this clustering. Table 1 presents summary statistics for the main variables we use in the analysis. In these data age, weeks of tenure, years of schooling and wages at

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prior to the interview, in contrast to earlier surveys when displacement would have occurred at most one year prior to the survey.

[6] Prior to 1988 the NLSY did not collect any wage, industry or occupation information on jobs where an individual worked fewer than 20 hours a week or had worked fewer than 10 weeks of tenure. In order to be consistent, we imposed this restriction in every year.

[7] Given the structure of the data, workers who have more than one job when they are displaced will have a negative length of displacement. We drop these workers from the analysis.

[8] Fewer than five percent of our workers are censored. Therefore, while this is a rather arbitrary date, none of the results are sensitive to this choice. Also, while there is significant attrition from the sample, we do not consider a worker as being censored if they do not appear in a subsequent interview. This is because workers frequently reappear in the survey after missing one or more interviews.

displacement are all measured in the interview year where displacement occurs. Because weeks of experience and marital status could be affected be the timing of displacement relative to the timing of the interview, we measure these variables in the interview prior to displacement. We measure weeks of experience for workers by summing the variable measuring the number of weeks worked since the previous interview, over all interviews up to the current interview.[9] In order to match the data on German workers our primary wage measure in this analysis is the log of daily wages. We construct daily wage by multiplying hour wage by the usual hours worked per day in the job.

Looking at Table 1 we see that 42 percent of our displacement events involve women. We also see that this is a fairly young sample since workers are only 27 years old at displacement on average and that at displacement workers have slightly over six years of labor market experience and have worked for the displacement firm for a little over two years. Table 1 also shows that only four percent of our workers never find an post-displacement job and are therefore considered as censored and that, for those who do find a job after displacement, the average length between jobs is about 30 weeks. Finally, we see for those who do get a job after displacement experience, the daily wage in the post displacement job is 0.03 less, on average, than the daily wage in the displacement job.

Comparing the numbers in columns 2 and 3 in Table 1 we see that men and women are about the same age at displacement, but that women have more years of education and are much more likely to be married. In addition, women tend to have fewer weeks of experience but slightly longer tenure at the displacement firm. Table 1

[9] This will measure actual weeks worked for workers who enter the labor market prior after 1978. For the handful of workers who start working prior to 1978 this variable will measure total experience in the market since 1978.

also shows that women are slightly more likely to be censored than men. Finally, we see that, conditional on finding a job, women have almost twice as many weeks between jobs as men but they experience a similar change in wages between the displacement and post-displacement job.

Table 2 presents the percent of displacements in our sample by year. Given the performance of the U.S. economy over this period, it is not too surprising to see that displacements are more likely to occur earlier in the period. Comparing the distribution of displacements for men and women we see that both men and women are more likely to experience displacement earlier in the period, and that there is not any notable difference in the timing of displacement by sex.

Table 3 presents more detailed information on the length of displacement. The numbers in this table include both censored and uncensored spells. However, since all censored spells are observed for at least four years, all censored observations have a length of displacement that is greater than 104 weeks and will therefore appear in the "More than 104 weeks" row. Table 3 shows that about 20 percent of the time displaced workers get a new job within a week, but that men are six percentage points more likely than women to obtain a job this quickly. Table 3 also shows that over 10 percent of our sample does not obtain a new job within two years of being displaced and that women are more than twice as likely as men to experience a gap of two year or longer between jobs. Overall, table 3 shows that men are more likely to have a new job within 22 weeks of being displaced while women are more likely to go more than 22 weeks between jobs.

This difference in the length of displacement is further illustrated in Figure 1 which presents the Kaplan-Meyer survival function estimates for men and women. In

this figure the survival function for women lies completely above the survival function for men indicating that women experience longer spells between jobs.

The German Data

We focus on West-Germany and extract a sample of displaced workers with completed education from the IAB employment sample (IABS)[10] for the period 1975 to 2001. We base our empirical analysis on a wage sample with information on the pre displacement wage as well as the post displacement wage, and focus on the period 1984 to 1997 (??) to cover exactly the same period as with the NLSY data. Our sample contains detailed work history variables as well as job characteristics. Flow variables are generated from the entire data source starting in 1975 ensuring best measures of work experience, for example.

The IAB is an administrative event history data set. The IABS is a 1 percent random sample drawn from the event history data file of the social security insurance scheme, the employment statistics, collected by the German Federal Bureau of Labour. The fact that the data was collected for administrative purposes is an obvious advantage and makes the data on wages and work histories particularly reliable. The IABS contains all workers in West-Germany who have had at least one employment spell eligible to the social security insurance scheme. As a result, included are all dependent employees in the private sector, i.e. about 80 percent of total employment in West-Germany. Not included

[10] IABS abbreviates ***I****nstitut fur* ***A****rbeitsmarkt und* ***B****erufsforschung* **S**ample.

are: civil servants, self-employed, unpaid family workers and people who are not eligible for benefits from the social security system[11]

The event history data includes information on every change in working status distinguished into full-time work, part-time work, interruptions and unemployment. Interruptions indicate that the employer-employee relationship is on hold, yet the contract still valid. In this case no wage payments are made. Unemployment is reported in case of receipt of unemployment insurance or unemployment assistance. Every other status that does not fall into either of these categories results in a gap of the individual record of spells reported in the data. As a result interruptions reported for young workers can be used to identify maternity – or parental - leave for young females. For male young workers national service is measured by the same variable. Parental leave, as pointed out, is very exceptional for males. More generally, interruptions may be reported if a worker is absent for a longer period of time due to health problems, for example. We assume that this does not apply in a significant number of cases to young females.

The IABS does contain a variable number of children that is generated on the basis of the tax cards. However, the quality of the variable is very poor for females, in particular, as it has also been admitted by the data producer. Hence, we refrain from using this variable.[12]

We identify displaced workers through the closer of a firm. By contrast to the NLSY, the data do not allow to identify the reason for job change. However, lay offs can

[11] For more details see Bender, et al. (1996).

[12] Calculation of mean number of children on the basis of this variable shows that it underestimates the number in an implausible way.

be dentified by the closure of firms variable. This variable is generated by the IAB from the exact firm size variable (which has been deleted from the scientific use file) and has been collapsed into a a variable that contains the year of firm birth and firm closure, always measured in June of the respective year. This information is available for every year from 1975 to 2001. Furthermore, one can identify lay offs by transitions from job to unemployment from the individual records.

The sample selection

From the IABS we select workers who have been displaced at least once. It turns out that for approximately 10 percent of workers in our sample we observe more than one displacement. All wages are for jobs at least half of full time hours (that is 37 hours) or full time. This applies both to the pre displacement job as well as to the post displacement job. We keep only workers for whom we observe at least 4 years of data after the displacement event. Hence 1994 is the last year of displacement in our data. Workers spells are censored if they never find a job in our sample period. We measure the length of displacement as the difference of 2001 and of the last year observed in the data.

To avoid problems due to early retirement, we exclude workers older than 50 years old. The IABS does not contain years of schooling. Instead, we group individuals into the three main educational levels according to the German education system: unskilled and lowly skilled, the skilled, and graduates. Skilled workers are defined as those who have undertaken vocational training within the German dual system apprenticeship programme and 10 years of schooling (intermediate schooling degree).

This is a vocational training programme that combines school and work-based educational programmes. This has been the main route into the labour market in Germany, in particular, since the 70's. 60-70 percent fall into this category. Unskilled and lowly skilled workers are defined as those having no additional training at all, or having shorter education than the skilled, that is less than 2 years of vocational training or college in addition to 10 years of schooling[13] Graduates are those with 13 or 12 years of schooling and who achieved a technical college degree, 3 to 4 years, or a university degree, 4-6 years. Graduates are underrepresented in our sample, mainly because we do not cover the private sector and self-employed.

For approximately 50 percent of the sample we can generate precise actual experience. We generate that by accumulating the duration of each work spell, given by the starting and ending date in the original data. For those workers observed from the beginning of their work history this gives the exact work experience. We assume that graduates are not older than 23 in 1975, and everybody else is not older than 16 in 1975. Especially, for the latter group is a percise procedure. For the older workers for which we do not observe work histories from the beginning, we generate actual work expereince for the period 1975 to 2001 as they appear in the data. As a correction of the initial value in 1975 we take the age in the first spell minus 6 years of pre-school periods minus years of education. Here we assume 9 years for the unskilled/low skilled educational level, 11 years for the medium level and 16 years for graduate education. Furthermore, we

[13]Unfortunately, we cannot distinguish in the data whether individuals graduate after 9 or 10 years of schooling from the Hauptschule or Realschule.

distinguish whether someone worked in full time work defined as more than 37 hours of work, or in part time work working more than half hours of full time.

Table 7 for West Germany shows the main descriptives for the entire sample, as well as seaparatly for men and women. 36 percent of individuals in our sample are women. On average workers are 33 years old, the youngest in our sample are 16 and the oldest are 50, since we exclude older workers. There are more young women, younger than 23, in the sample which may be due to military or social service which is compulsory for men and that decreases their likelihood to be reported in work. The data confirm the typical finding that men work more continuously than women. Men's work experience is approximately 30 percent higher than women's. Men and women are equally distributed across education levels. Measuring the male-female wage differential in the last observation before displacement, it is approximately 41 percent in terms of differences in mean logarithmic wages only in full time work. Including part time work as we defined it increases even higher to 46 percent. These overestimate the exact differences, 25 and 29 percent. 89 percent both of men and women find a job, this includes also those searching for job longer than 104 weeks. Excluding those with very long search time, more than 104 weeks, 86 percent of men and 84 percent of women find a job.

Women search three weeks longer than men. Looking at the differences in wages before and after displacement, on average men experience 7 percent real wage growth compared to 10 percent for women. This is consistent with the longer search time. As a measure of the quality of the new match we calculate the average tenure in the first post

displacement job, which includes censored observations. It shows that men end in better matches.

Furthermore, we find the typical segregation of women and men between part and full time jobs. Virtually all men work full time, while 81 percent of women do before the displacement. A substantial fraction of women changes to part time work afterwards. Since we look at workers highly attached to the labour market and exclude those working less than 18.5 hours per week, it seems consistent that we find a bit lower fractions of part time workers than aggregate statistics show for Germany. They show about 29 percent of women working part time.

Table 8 shows the distribution of the displacement observations in our sample across years. Compared to the U.S. the likelihood of being displaced is lower in Germany. From table 9 the distribution looks not too different to U.S: data, particularly, when we take together the siplacement spells lasting 1 week to 20 weeks.

These initial statistics provide somewhat mixed support for the Black (1995) model of discrimination and the alternative model hypothesizing that women have better non-market opportunities than men. First, we find that women and men experience similar changes in wages after displacement. While the model of discrimination predicts that women should experience smaller wage changes, the alternative model predicts that women should experience larger wage changes than men. Both predictions are not consistent with the U.S. numbers. For Germany we find 3 percent gender gap. Both models predict that women should experience a longer length of displacement than men, which is something we do observe in the data. This might be purely descriptive though since we obviously have not controlled for differences in characteristics, such as

education and marital status, which might affect search behavior, nor have we examined how differences in wage changes and displacement length vary with age. We present the results of this analysis in the next section.

We feel these data have a number of characteristics that make them ideal for studying differences in search behavior between men and women. First, they allow us to identify search that occurs after an exogenous job loss. We feel that by focusing on the differences in search behavior between men and women after an exogeneous job loss our results will be less sensitive to unobserved factors, such as differential investment in human capital, that could affect the search behavior of individuals who are initially entering the labor market or who are returning to the labor market after a prolonged absence. Our assumption is that unobserved differences will be captured in the characteristics of the previous job and that by focusing on changes we will control for these unobserved differences. Second, these data also contain a rich set of covariates that we can use to control for any remaining differences in search between men and women. Third, the frequency of the NLSY data should minimize the effect of recall bias that is present in other data sources on displaced workers. Finally, the length of both data sources ensures that we are able to follow workers for a long period after displacement and thereby minimize the effects of censoring.

We should mention that recent research has called into question our assumption that job loss due to displacement is truly exogeneous to worker ability (Bowlus and Vilhuber, 2002 and Lengermann and Vilhuber, 2002). Two possibilities are that more able workers leave the plant prior to its closing or that plants containing the least able workers on average are more likely to close. However, since we are focusing on

differences between men and women (essentially a differences-in-differences strategy) this possibly endogenous relationship between displacement and worker ability should not affect our results.

While we think these data have a number of strengths, they also have some obvious weaknesses; the main one being the variation in age in the NLSY. First, because these workers are between 14 and 22 years old in 1979, the range of age at displacement is limited, varying between 19 and 37 years old. Therefore, we do not have observations on workers much beyond prime child bearing and child rearing ages, making it difficult to assess the hypothesis that differences in child bearing and child rearing responsibilities that vary with age can account for the observed differences in search behavior between men and women. This is one of the primary reasons we also analyze the data on Germany workers where we have observations on older workers. Second, because in the NLSY we follow a cohort of workers of about the same age, the main source of variation in age is due to the timing of displacement—older displaced workers are those who are displaced later in the sample period. However, the fact that we are focusing on differences between men and women should again help mitigate this problem. To further help control for possible year effects we will also include dummy variables for the year of displacement in all of our regressions.

V. Empirical Examination of Men's and Women's Search Behavior

Results for the U.S.

Wage Changes

We begin our analysis comparing men's and women's search behavior by estimating a model of the change in wages between the displacement job and the post displacement job. As we mentioned in the previous section, our wage measure will be the daily wage of the worker. The dependent variable in our regression will be the difference in the log daily wage at the post-displacement job and the log daily wage at the displacement job.

We will start by assuming that changes in wages are a function of a fairly standard set of worker characteristics: age, sex, race (measured as white non-Hispanic vs. nonwhite), a quadratic in experience and tenure, education (years of schooling completed), marital status and one-digit industry (nine categories). We also include dummy variables for year of displacement. All of these control variables are measured either at displacement or in the year prior to displacement. Because we are interested in seeing how wage changes differ between men and women by age we group workers into three groups, workers between 19 and 22 years old, workers between 23 and 32 years old, and workers older than 32 and control for age in our regressions using the corresponding dummy variables.[14] Table 1 shows the distribution of observations by the age categories.

The results from our estimation are presented in Table 4. The results from the basic regression are presented in column (1). In order to see how wage changes vary by sex and age, column (2) contains the results from estimating the model including a

[14] We estimated our models using the continuous measure of age along with age squared and the results are identical. We present the results using the dummy variables for illustrative purposes.

complete interaction between the female and age dummy variables. In column (3) we present results controlling for a worker's occupation at displacement (nine categories). It is an open question whether to include occupation in a wage regression because a worker's occupation could be the result of past discrimination. We have chosen to estimate our model both including and excluding occupation and see if it makes any difference. Finally, in column (4) we present results where we control for whether a worker changes occupation or industry between the displacement and post-displacement job.[15] Again, we feel it is unclear whether these variables should be included in the regression since one effect of discrimination may be that women are more likely to change industry or occupation before finding a job. We present both sets of results in order to see whether including these variables makes any difference.[16] Because we are concerned about comparing wages across jobs for workers who are out of the labor market for an extended period of time, we limit this regression to workers who obtained a job within two years after displacement. Including all workers who ever find a job has no effect on our coefficient estimates but results in larger standard errors.

The results in column (1) of Table 4 show no significant differences in the changes in wages after displacement between men and women. In fact the only coefficients in this regression that are significant at the five percent level or better are the coefficients on tenure, which shows that worker's with longer tenure experience smaller

[15] For both jobs we group workers into the same industry and occupation categories and say they have switched industries if their post-displacement industry or occupation is different from their industry or occupation at displacement.

[16] Along these same lines, we also included length of displacement in the regression despite of the fact that this variable may be endogenous. The coefficient of length of displacement was essentially zero and insignificant in these regressions and including this variable had no effect on our estimates of the other coefficients in the model. Therefore, we do not present these results.

wage changes, and the coefficient on nonwhite, which shows that nonwhite workers experience larger wage changes relative to white workers.

The results in column (2) show that there are large differences in the relative wage changes between men and women with age. The coefficient on the female dummy shows that among the youngest workers the change in women's wages is 12 percent smaller than the change in men's wages. In contrast the coefficient on the interaction between female and the middle age category shows that the change in the wages of women in this group is 15 percent larger than the change in wages of men in this group, while the coefficient of the interaction between female and the oldest age category shows that women in this group experience 7 percent larger changes in wages after displacement. This finding that the change in women's wages relative to men varies with age is not consistent with the Black (1995) model of discrimination. These results appear much more consistent with a model where the value of a women's non-market time varies with age. Having said that, we currently do not have a very good story for why the value of young women's non-market time should be less than the value of young men's non-market time. However, the estimated decline in the value of women's non-market time between the middle age group and the older age group is consistent with a model where women's non-market time is a function of having and raising children.

The results in column (3) show that whether or not we include occupation has very little impact on our estimates. The results in column (4) do show that changing industry is negatively correlated with the change in wages, which is consistent with the findings in Neal (1995). However, our basic results are unaffected by whether or not we control for workers' changing occupation or industry.

Dropping out of the Labor Market

Next we present estimates from a probit model estimating whether a worker stays in the labor market after displacement. The dependent variable in this regression equals one if a worker obtains a new job within two years of being displaced. The results from estimating this model are presented in Table 5. Column (1) presents results from the basic model with no interactions, while column (2) presents results from estimating the model including interactions between female and age. Column (3) contains the results including occupational controls in the model.

The results in column (1) show that women are significantly less likely relative to men to find a job within two years of being displaced, or conversely that they are significantly more likely to drop out of the labor market.[17] The results in column (2) show that this is true only for women in the youngest age category. Women in the middle age group are no more likely to drop out of the labor market than men, while women in the oldest age category are actually significantly less likely to drop out of the labor market than men in the oldest age category.

Length of Displacement

In this section we present our results from estimating a model of the length of displacement. Since our dependent variable is the length or duration between jobs a hazard model seems like the obvious choice. A hazard model also allows us to deal with censoring in a fairly straightforward fashion. The main issue when estimating a hazard model is, what should we assume about the distribution of the base line hazard function? The three parametric models we tried are the Weibull model, which implies a monotonic

[17] Recall that our definition of a post-displacement job is one where the worker usually works more than 20 hours a week, so workers who dropout include workers who have jobs with few hours.

hazard function that is either exponentially increasing or decreasing in time, the log normal model, which implies a nonmonotonic hazard function, and the generalized gamma model, which allows for a very flexible hazard function and which includes the Weibull and log normal distributions as special cases. Figure 1, which plots the estimated survival function for both men and women, shows that the estimated hazard function does not resemble either the Weibull or log normal distributions. A series of likelihood tests based on estimating the three models showed that the Gamma distribution provides the best fit with the data.

We also estimated the model using the Cox proportional likelihood method. The advantage of this method is that one does not need to specify the exact parametric form of the underlying hazard function; one only needs to assume that the hazard function is proportional over time. The disadvantage of this model is that it is sensitive to how one handles observations that fail at the same time (something that is not allowed in the formal definition of the model), and, since the model can only be estimated as a proportional model, the coefficients are more difficult to interpret. In the end, since the estimates of our parameters are very similar across the choice of the form of the underlying hazard function and when we estimate the Cox model, in Table 6 we present the results from our estimation of the generalized Gamma model.[18] The coefficients in this table show the affect the variable has on the duration of displacement.

Table 6 has the same structure as our previous tables. The results in column (1) are from the model with no interactions, the results in column (2) are from a model including interactions between age and sex, while the results in column (3) are from the

[18] We also estimated an ordered probit model where the dependent variable was the length of displacement divided into the same categories we used in Table 3. The results from estimating the ordered probit model are similar to the results from estimating the hazard model and can be found in Table A1.

model including controls for occupation. The estimates in column (1) show that women experience a significantly longer duration between jobs than men. However, the estimates in column (2) show that this is true only for the youngest women. For the middle and older group of workers there is no significant difference in the length of duration between jobs. The results in column (3) show that these results are not affected when we control for occupation.

Results for Germany

Wage changes

In table 10 only wages in full time work are used. But estimations show that results are almost exactly the same if we include those in part time. The main variables we are interested in and which are included in X is a spline in age, and a spline in age correlated with a female dummy variable. We include controls like in the regressions for the U.S. , except that we exclude a variable for being foreign[19] and we exclude a variable for being married, since that is inconsistently coded in the German data.

A main result is that young workers experience a real wage gain between 4 and 6 percent and that the gain decreases in age. This result is robust to inclusion of a large range of individual and work place characteristics. Intuition for this finding is that young displaced workers with new human capital move and find a new better match, which gives them a wage gain. Older workers carry in addition to more experience also older human capital which makes them less productive or attractive to other employers and,

[19] In the U.S. sample regression the variable controls for being a foreigner, being an immigrant. In the German context using the nationality by passport does not control for the same, since it is much harder to obtain the German citizenship which is why many second generation immigrants have no German citizenship although they were born in Germany and have been living in Germany ever since.

hence, they receive lower wages. This result does also not change when we allow for differences in the age effects across gender.

Furthermore, we find that among the youngest group of workers no wage differentials exist, holding other factors constant. Women between 32 and 40 nevertheless gain more, 2.3 percentage points, in terms of wage growth compared to the ones below 23. For women older than 40, where we would this to hold as well, the coefficient is around 1.8 but not significant. These results are consistent with the hypothesis that women have a comparative advantage (in non market work) that declines with age. Since firms cannot discriminate by law they have to pay young men and women the same, although they would like to pay women less since they carry a higher risk of drop out. Older women carrying a lower risk, on the other hand, should be paid like men. We find that they earn slightly higher, and this difference is significant.

We also estimated the regressions for a sample including full time and part time workers. The main results stay the same. The new results are that for changers from full to part time we find a large loss, 25 percent, and for workers who remain in part time work before and after displacment we find a small gain, 4 percent.[20]

Dropping out of the labor market

We estimate the partial effects of various controls on the likelihood to find a job after displacement. A job is now defined as a full time or part time job. Those who search longer than 104 weeks are defined as not finding a job.

[20] There are no workers changing from part time work to full time work around displacement.

We find that the probability to find a job decreases with age, increases with experience and is highest for the skilled. We also find a decrease in age when we allow the coefficients in the age spline to differ between men and women. Nevertheless, while young women, younger than 23 are more likely to find a job by 2.3 percentage points, women older than 32 are significantly less likely to find a job. Differences are between 2.6 and 3.1 percentage points. The result for the youngest group may be driven by the fact that young men drop often out of work because of military service, and after that they may change employer.

VI. Conclusion

We report results for the U.S. and West Germany to test whether part of the wage differential between men and women is due to discrimination generally, or whether it is more particularly because of a wage disadvantage of young women. We use two large and high quality data sources for our empirical analysis: the NLSY79 and the IABS 1975-2001. Both offer many advantages for this type of analysis. In our estimation approach, we are carefully dealing with endogenous labour supply and unobserved heterogeneity problems that are prone to bias estimation results of male female wage differentials. By selecting samples of displaced workers we control for labour supply, assuming that these are highly attached workers. Looking at wage changes from before to after displacement and holding differences in characteristics before the event constant, we deal with unobserved heterogeneity problems.

Our main estimation results so far indicate that for the U.S. we cannot find any dependence of the wage differential on age. This may partly be due to the fact that the NLSY only includes few workers older than 32. Results for the West Germany are on the other hand very compelling suggesting that the differential is not constant in age, also after taking account of differences, such as in work experience - which is actual work experience- tenure and education. We find that the gap decreases in age.

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Table 1: Summary Statistics – U.S.

	Entire Sample (1)	Men (2)	Women (3)
Female	0.42	---	---
Age	27.3	27.3	27.2
Less than 22 years old	0.25	0.26	0.24
Between 23 and 32 years old	0.64	0.62	0.66
Older than 32	0.11	0.12	0.10
Weeks of experience	321.1	334.9	302.2
Weeks of tenure	112.5	109.5	116.4
Nonwhite	0.44	0.46	0.41
Years of schooling completed	12.0	11.9	12.2
Married	0.56	0.49	0.65
Hourly wage at displacement	8.51	9.37	7.34
Daily wage at displacement	72.01	82.75	57.29
Daily wage one year prior to displacement	71.60	80.66	59.19
Daily wage two years prior to displacement	68.95	76.99	57.99
Log daily wage at displacement	4.10	4.24	3.90
Proportion with post-displacement job	0.96	0.97	0.96
Length of displacement in weeks*	29.28	21.18	40.53
Hourly wage at post-displacement job*	8.51	9.27	7.49
Daily wage at post-displacement job*	70.65	80.63	57.25
Log daily wage at post-displacement job*	4.07	4.22	3.88
Full-time at displacement job	0.85	0.91	0.77
Full-time at post-displacement job*	0.76	0.86	0.62
Number of Observations	878	508	370

Note: * these means only include non-censored observations

Table 2: Distribution of Displacement by Year-U.S.

Year	Entire Sample (1)	Men (2)	Women (3)
1983	8.20	8.66	7.57
1984	10.82	9.84	12.16
1985	11.39	10.63	12.43
1986	10.71	10.63	10.81
1987	9.00	9.84	7.84
1988	7.86	7.28	8.65
1989	10.25	10.24	10.27
1990	7.74	7.09	8.65
1991	6.61	6.30	7.03
1992	6.95	7.09	6.76
1993	6.61	7.87	4.86
1994	3.87	4.53	2.97

Note: Displacement is measured in weeks

Table 3: Distribution of Displacement by Length of Displacement – U.S.

Length of Displacement	Entire Sample (1)	Men (2)	Women (3)
One week	19.13	21.85	15.41
2-20 weeks	45.44	47.83	42.16
21-32 weeks	9.45	8.86	10.27
33-52 weeks	7.40	6.50	8.65
52-104 weeks	8.31	8.07	8.65
More than 104 weeks	10.25	6.89	14.86

Figure 1: Kaplan-Meier survival estimates, by sex (U.S.)

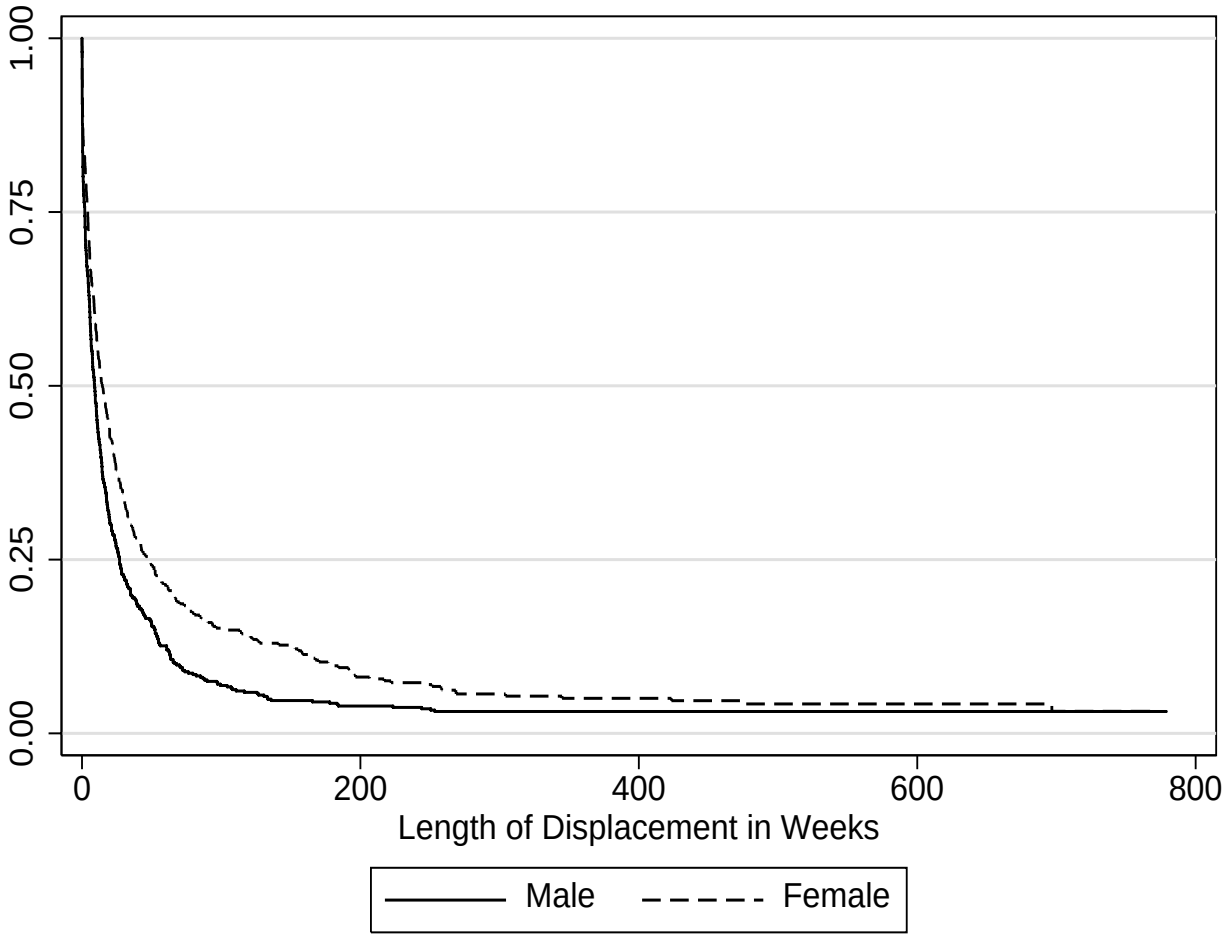

Table 4: Regression of Change in Log Daily Wage – U.S.

	(1)	(2)	(3)	(4)
Female x	-0.01	-0.12	-0.18	-0.18
	(0.047)	(0.095)	(0.100)	(0.100)
Between 23 and 32 years old	---	0.15	0.16	0.16
		(0.113)	(0.112)	(0.112)
Older than 32	---	0.07	0.10	0.07
		(0.145)	(0.140)	(0.143)
Between 23 and 32 years old	0.06	-0.01	-0.01	-0.01
	(0.065)	(0.073)	(0.072)	(0.072)
Older than 32	0.10	0.08	0.05	0.04
	(0.096)	(0.107)	(0.107)	(0.107)
Experiencex1000	-0.0004	-0.06	0.16	0.16
	(0.490)	(0.494)	(0.494)	(0.493)
Experience Squaredx10000	0.00004	0.0006	0.001	0.001
	(0.005)	(0.005)	(0.006)	(0.006)
Tenurex100	-0.08	-0.08	-0.08	-0.08
	(0.040)	(0.040)	(0.040)	(0.040)
Tenure Squaredx1000	0.0007	0.0006	0.006	0.007
	(0.0007)	(0.0007)	(0.007)	(0.007)
Nonwhite	0.14	0.14	0.14	0.14
	(0.043)	(0.043)	(0.043)	(0.042)
Years of schooling completed	-0.02	-0.02	-0.03	-0.03
	(0.011)	(0.012)	(0.013)	(0.013)
Married	0.03	0.03	0.02	0.02
	(0.046)	(0.046)	(0.047)	(0.047)
Change industry	---	---	---	-0.07
				(0.047)
Change occupation	---	---	---	0.03
				(0.045)
Year dummies	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes
Occupation dummies	No	No	Yes	Yes
Constant	-0.02	0.002	0.15	0.18
	(0.201)	(0.203)	(0.247)	(0.235)
Adj. R-squared	0.053	0.056	0.071	0.074
Number of Observations	760	760	760	760

Note: Standard errors in parenthesis. All standard errors have been corrected for clustering.

Table 5: Probit Estimation of the probability of obtaining a post-displacement job within two years after displacement – U.S.

	(1)	(2)	(3)
Female x	-0.07 (0.022)	-0.11 (0.043)	-0.08 (0.040)
Between 23 and 32 years old	---	0.04 (0.033)	0.04 (0.030)
Older than 32	---	0.06 (0.021)	0.05 (0.024)
Between 23 and 32 years old	0.004 (0.026)	-0.02 (0.033)	-0.02 (0.031)
Older than 32	-0.05 (0.057)	-0.12 (0.085)	-0.09 (0.076)
Experiencex100	0.04 (0.019)	0.04 (0.020)	0.04 (0.019)
Experience Squaredx1000	0.0001 (0.0003)	0.0001 (0.0003)	0.0001 (0.0002)
Tenurex100	-0.02 (0.018)	-0.03 (0.017)	-0.02 (0.017)
Tenure Squaredx1000	0.0001 (0.0003)	0.0002 (0.0003)	0.0001 (0.0003)
Nonwhite	0.03 (0.018)	0.03 (0.017)	0.03 (0.016)
Years of schooling completed	0.01 (0.005)	0.01 (0.005)	0.01 (0.005)
Married	0.02 (0.020)	0.02 (0.019)	0.02 (0.018)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Occupation dummies	No	No	Yes
R-squared	0.121	0.125	0.143
Number of Observations	878	878	878

Note: Marginal effects are reported. Standard errors are in parenthesis. All standard errors have been corrected for clustering

Table 6: Hazard Estimation of the Length of Displacement – U.S.

	(1)	(2)	(3)
Female x	0.53 (0.154)	0.65 (0.291)	0.59 (0.315)
Between 23 and 32 years old	---	-0.18 (0.330)	-0.22 (0.332)
Older than 32	---	-0.06 (0.535)	-0.13 (0.541)
Between 23 and 32 years old	0.21 (0.214)	0.29 (0.253)	0.313 (0.257)
Older than 32	0.56 (0.351)	0.59 (0.412)	0.569 (0.421)
Experiencex100	-0.41 (0.165)	-0.41 (0.165)	-0.41 (0.165)
Experience Squaredx1000	-0.001 (0.002)	0.001 (0.002)	0.002 (0.002)
Tenurex100	0.12 (0.150)	0.12 (0.151)	0.11 (0.152)
Tenure Squaredx1000	0.0006 (0.003)	0.0006 (0.003)	-0.0007 (0.002)
Nonwhite	-0.12 (0.146)	-0.12 (0.146)	-0.14 (0.145)
Years of schooling completed	-0.08 (0.036)	-0.08 (0.036)	-0.07 (0.040)
Married	-0.13 (0.150)	-0.13 (0.150)	-0.16 (0.152)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Occupation dummies	No	No	Yes
Number of Observations	878	878	878

Note: Standard errors are in parenthesis. All standard errors have been corrected for clustering

Table 7: Summary Statistics for Sample of displaced workers – West Germany

Variable	Entire Sample	Men	Women
1 if Female	.36	0	1
Age prior to displacement	33.2	33.8	32.2
Age younger than 23 prior to displacement	.11	.08	.15
Age between 23 and 32 prior to displacement	.39	.38	.40
Age between 32 and 40 prior to displacement	.23	.25	.21
Age older than 40 before displacement	.25	.26	.23
weeks of full time experience prior to displacement	349.9	382.0	295.1
Weeks of tenure in job displaced from	208.7	221.68	186.4
1 if low skilled/unskilled	.36	.35	.38
1 if skilled	.61	.62	.60
1 if graduate	.02	.02	.01
pre displacement log real wage (full time jobs)	4.62	4.75	4.34
Pre displacement log real wage (full time) two years before	4.62	4.75	4.34
Pre displacement log real wage (full time) three years before	4.63	4.77	4.36
Pre displacement log real wage (full and part time jobs)	4.57	4.74	4.28
post displacement job observed	0.89	.89	.89
length of displacement in weeks *	19.69	17.9	22.4
post displacement log real wage (full time jobs)*	4.69	4.82	4.44
second post displacement log wage (full time)*	4.74	4.85	4.50
Third post displacement log wage (full time)*	4.78	4.88	4.54
Post displacement log real wage (full or part time jobs)*	4.63	4.81	4.37
Full time job prior to displacement	.92	.98	.81
Full-time job in first post displacement job*	.89	.97	.74
1 if changing occupation (3-digit) after displacement*	.27	.28	.25
1 if changing industry (2 digit)*	.28	.29	.27
Tenure in post displacement job (quality match in weeks*	280.5	301.8	243.7
Number of displacement observations	64,076	40,445	23,631

Note: Wages are daily wages. *These means only include non-censored observations; that are 57593 observations in total, 34609 for men and 19843 for women.

Table 8: Distribution of Displacement by Year – West Germany

Year	Entire Sample	Men	Women
1980	4.58	4.58	4.58
1981	6.16	6.29	5.94
1982	6.10	6.08	6.12
1983	5.54	5.67	5.33
1984	5.69	5.89	5.33
1985	5.69	5.92	5.32
1986	6.14	6.16	6.11
1987	5.27	5.29	5.32
1988	5.53	5.43	5.71
1989	5.61	5.53	5.76
1990	5.96	5.60	6.59
1991	6.20	5.97	6.58
1992	6.63	6.46	6.93
1993	6.60	6.43	6.90
1994	6.20	6.29	6.04
1995	5.82	6.0	5.51
1996	6.27	6.42	6.0

Table 9: Distribution of Displacement by length of displacement – West Germany

Length of displacement	Entire Sample	Men	Women
1 -20 weeks	75.75	76.03	75.27
21-32 weeks	2.93	3.22	2.44
33-52 weeks	2.74	2.81	2.61
52-104 weeks	3.49	3.42	3.61
More than 104 weeks	15.09	14.51	16.07

Table 10: Regression of Change in log daily wage for full time work - West Germany

Variable	(1)	(2)	(3)	(4)
Female*	.007 (.003)**	-.005 (.009)	-.006 (.009)	-.001 (.009)
..between 23 and 32 years old		.01 (.01)	.01 (.01)	.01 (.01)
..between 32 and 40		.023 (.012)*	.023 (. 012)*	.022 (.012)
..older than 40		.018 (.012)	.018 (.012)	.017 (.012)
Between 23 and 32	-.008 (.005)**	-.014 (.007)*	-.013 (.007)*	-.012 (.007)*
Between 32 and 40	-.008 (.006)**	-.017 (.008)**	-.017 (.008)**	-.017 (.008)**
Older than 40	-.015 (.006)**	-.023 (.008)**	-.023 (.008)**	-.023 (.008)**
Experience*1000	-.2 (.00)**	-.2 (.00)**	-.2 (.00)**	-.2 (.00)**
Experience squared*1000	.0001 (.00)**	.0001 (.00)**	.0001 (.00)**	.0001 (.00)**
Tenure*1000	.02 (.00)	.02 (.00)	.02 (.00)	.03 (.00)
Tenure squared*1000	.000 (.00)	.000 (.00)	.000 (.00)	.000 (.00)
Unskilled	.005 (.003)*	.005 (.003)	.005 (.003)	.002 (.003)
Graduate	-.02 (.012)**	-.02 (.012)**	-.03 (.012)**	-.93 (.012)
Change industry				.036 (.004) **
Change occupation				.027 (.004)**
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes
Occupation Dummies	No	No	Yes	Yes
Constant	.059 (.009)**	.066 (.01)**	.066 (.01)**	.038 (.03)**
Adj. Rsquared	.013	.013	.013	.01
Number of Observations	50921	50921	50921	50921

Note: The reference group are men younger than 23 years old, skilled (with 10 years of schooling and a 2-3 year apprenticeship training). The dependent variable is the logarithmic post displacement wage minus the logarithmic pre displacement wage. Robust standard errors corrected for clustering are reported in parentheses. ** (*) significant at 5 (10) percent significance level.

Table 11: Probit Estimation of the probability of obtaining a post displacement job (full time or part time) with 104 weeks after displacement - West Germany

Variable	**(1)**	**(2)**	**(3)**
Female*	-.002 (.003)	.025 (.008)**	.026 (.008)**
..between 23 and 32 years old		-.013 (.010)	-.027 (.010)
..between 32 and 40		-.026 (.010)**	-.033 (.012)**
..older than 40		-.031 (.012)**	-.05(.012)**
Between 23 and 32	-.06 (.005)**	-.047 (.012)**	-.048 (.007)**
Between 32 and 40	-.10 (.007)**	-.083 (.009)**	-.082 (.009)**
Older than 40	-.15 (.007)**	-.13 (.009)**	-.124 (.009)**
Experience*1000	.22 (.00) **	.22 (.00) **	.22 (.00) **
Experience squared*1000	.0001 (.00)**	.0001 (.00)**	.0001 (.00)**
Tenure*1000	-.02 (.00)	-.02 (.00)	-.02 (.00)
Tenure squared*1000	.00 (.00)	.00 (.00)	.00 (.00)
Unskilled	-.019 (.002)**	-.018 (.002)**	-.018 (.002)**
Graduate	-.06 (.011)**	-.06 (.011)**	-.06 (.011)**
Year Dummies	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes
Occupation Dummies	No	No	Yes
Pseudo Rsquared	.0244	.0248	.0262
Number of Observations	63172	63172	63172

Note: The reference group are men younger than 23 years old, German, skilled (with 10 years of schooling and a 2-3 year apprenticeship training). The dependent variable is the binary variable which is equal to one if a job after displacement is observed and equal to zero if not. Marginal effects are reported. Robust standard errors corrected for clustering are reported in parentheses.** significant at 5 percent significance level.

Appendix:

Table A1: Ordered probit estimation of the length of displacement – U.S.

	(1)	(2)	(3)
Female x	0.28 (0.081)	0.31 (0.157)	0.26 (0.166)
Between 23 and 32 years old	---	-0.05 (0.176)	-0.08 (0.177)
Older than 32	---	0.02 (0.284)	-0.02 (0.288)
Between 23 and 32 years old	0.13 (0.105)	0.15 (0.127)	0.18 (0.130)
Older than 32	0.26 (0.180)	0.25 (0.215)	0.25 (0.217)
Experiencex100	-0.23 (0.085)	-0.23 (0.086)	-0.24 (0.085)
Experience Squaredx1000	0.001 (0.001)	0.001 (0.001)	0.002 (0.001)
Tenurex100	0.04 (0.076)	0.04 (0.077)	0.03 (0.079)
Tenure Squaredx1000	0.0005 (0.0014)	0.0005 (0.0014)	0.0006 (0.0014)
Nonwhite	-0.02 (0.077)	-0.02 (0.074)	-0.04 (0.077)
Years of schooling completed	-0.05 (0.019)	-0.05 (0.019)	-0.04 (0.021)
Married	-0.11 (0.079)	-0.12 (0.079)	-0.14 (0.080)
Year dummies	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes
Occupation dummies	No	No	Yes
R-squared	0.030	0.031	0.035
Number of Observations	878	878	878

Note: Length of displacement is divided into six groups: less than one week, 2-20 weeks, 21-32 weeks, 33-52 weeks, 53-104 weeks, more than 104 weeks. Standard errors in parenthesis. All standard errors are corrected for clustering.