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Stay or Leave?

Externalization of the labor market

and its effect on gender earnings inequality in the U.S.

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B.A., Universität Mannheim, Germany, 2007

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An abstract of

A thesis submitted to the Faculty of the

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Abstract

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As jobs in the U.S. became less secure and traditional job ladders deteriorated, employees increasingly turned to the "external" labor market to build their career. This thesis explores the relationship between the increasing importance of the external labor market and the gender earnings gap.

Using the 1979-2001 waves of the Panel Study of Income Dynamics (PSID), I find that over time, switching employers affects men and women differently depending on whether individuals leave the previous employer voluntarily or involuntarily and whether changes occur in the primary or secondary labor market. Since 1979, gender earnings disparities have increased among individuals changing employers involuntarily. Even when voluntarily changing employers, women increasingly fall behind men. This effect however, is specific to voluntary changers in the secondary labor market. That is, gender disparities are actually dramatically narrowing among those who voluntarily leave their previous employer in the primary labor market.

While the causal mechanisms driving these trends are still unknown, the results speak to the fact the externalization of the labor market opened opportunities primarily to those who are already in good positions. Most importantly, this study advances our understanding of the gender earnings gap.

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Since the 1970s, jobs in the U.S. and in most other Western industrialized nations have become less secure (Cappelli 1999; Farber 2008; Osterman 1999) and many employees can no longer expect to work for the same company for 15 or 20 years. As traditional job ladders within big corporations deteriorated (Collinson and Collinson 1997; Grimshaw, Ward, Rubery, and Beynon 2001), advancement within companies became harder, pushing more employees to consider jobs with other companies. Thus, instead of being promoted by one employer, employees increasingly work their way up by moving to another employer (Arthur and Rousseau 1996; Kalleberg 1996).

It is unclear whether this new system of employment affects the labor market success of men and women differently (Morris and Western 1999: 642). Research shows that the gender earnings gap has gradually closed since the 1970s. At the same time, income differences between males and females continue to be significant today (Bernhardt, Morris, and Handcock 1995; Blau and Kahn 2007; Morris and Western 1999; Polachek and Robst 2001). This thesis explores the relationship between the increasing importance of the external labor market and the gender earnings gap. In other words, has the externalization of the labor market contributed to the closing of the gender gap or is it keeping the gap from closing?

Some scholars such as Becker (1957) and Arthur and Rousseau (1996) would argue that the externalization of the labor market reduces the gender earnings gap due to two processes. First, as more companies hire outside applicants, there is more competition between employers which is predicted to reduce gender discrimination among employers (Becker 1957). Second, easier access to external employers and hence, intentionally pursuing an "external labor market strategy" might afford women more

opportunities to catch up to men (Arthur and Rousseau 1996). In this regard, the externalization might be one of the processes closing the gender earnings gap.

Other scholars such as Brett and Stroh (1997), Dreher and Cox (2000) and Lam and Dreher (2004) argue that the opposite will occur, such that the externalization keeps the gender gap open for two reasons. First, when changing employers, social networks become increasingly important. However women tend to have less access to work related social networks (Lin 2001), which then poses a disadvantage for women. Second, decisions makers tend to know external job applicants less well than a supervisor would know internal applicants for a promotion. This causes hiring situations to be more ambivalent than promotion situation, which increases the likelihood of gender discrimination (Dovidio and Gaertner 2000). In this regard, the externalization of the labor market might be one of the factors preventing the gender earnings gap from closing completely.

This thesis arbitrates these two viewpoints by building on previous studies (Brett and Stroh 1997; Dreher and Cox 2000; Lam and Dreher 2004) that have examined the effect of staying vs. leaving on income. I advance this literature by addressing the consequences of the externalization in two ways. First, most of the studies that explicitly compare the effects of staying vs. leaving (Brett and Stroh 1997; Dreher and Cox 2000; Hamori and Kakarika 2009; Lam and Dreher 2004) focus on employees in the primary labor market ("good jobs") such as managers. It is unclear however if their findings will also apply to those working in the secondary labor market ("bad jobs"). Using a nationally representative sample of employees from the Panel Study of Income Dynamics (PSID), my analysis shows that the effect of changing employer, especially with regard to

gender differences greatly depends on whether such employer changes occur in the primary or secondary labor market.

Second, many studies of job mobility implicitly assume that the effect of changing employer is independent of time. That is, switching employer has the same effect on income in the 1980s as in the 2000s. Similar to Mouw and Kalleberg (forthcoming) I use the 1979-2001 waves of the PSID to examine if the returns to switching employer changed over time and if these trends differ for men and women. Results show that the effects of being on the external labor market, especially with regard to gender differences, have indeed changed since 1979.

More generally I find that the effect of changing employer on gender disparities depends on two important factors: whether individuals left the previous employer voluntarily or involuntarily and whether the change occurred in the primary or secondary labor market. Overall, the results support theories predicting an adverse effect of the externalization on the gender earnings gap. Since 1979, income *inequality* between males and females *increased* among individuals changing employers involuntarily. Even when voluntarily changing employers, women increasingly fell behind men. This effect however, is specific to voluntary changers in the secondary labor market. Hence, there is one major exception to the overall negative effect of the externalization. Consistent with the idea of the "boundaryless career" the results revealed that *gender differences* dramatically *declined* among men and women who voluntarily left their previous employer in the primary labor market.

These findings paint a more complicated picture of the development in the gender wage gap than aggregate trends suggest. Hence, this analysis might point to macro processes that have impacted gender disparities in earnings during the last 40 years.

1. Historical change in the labor market

This paper uses two different concepts to describe individuals' position in the labor market: First I distinguish between primary and secondary labor markets (dual labor market theory) and second, between internal and external labor markets. Dual labor market theory argues that there are at least two major market segments: a *primary and a secondary market* (Hudson 2006; Piore 1970). Jobs in each segment differ significantly in their quality such that jobs in the primary labor market are characterized by employment security, high wages, and career opportunities. In contrast, jobs in the secondary labor market are highly unstable, underpaid and provide little opportunities for upward mobility. While jobs in the primary labor market often require specific skills and extensive training, secondary labor market positions tend to require only minimum skills if any (Doeringer and Piore 1971).

Internal and external labor markets on the contrary, describe the (career) channels through which individuals move over time. Jobs in the internal labor market are accessed through mobility within an organization, while jobs on the external labor market are accessed through mobility between organizations. In internal labor markets mobility is based on performance as well as bureaucratic and organizational rules such as seniority (Doeringer and Piore 1971; Grimshaw, Ward, Rubery, and Beynon 2001; Lazear and

Oyer 2004), whereas mobility in the external labor market is perceived to be much more market driven and performance based (Lazear and Oyer 2004; Osterman 1984).

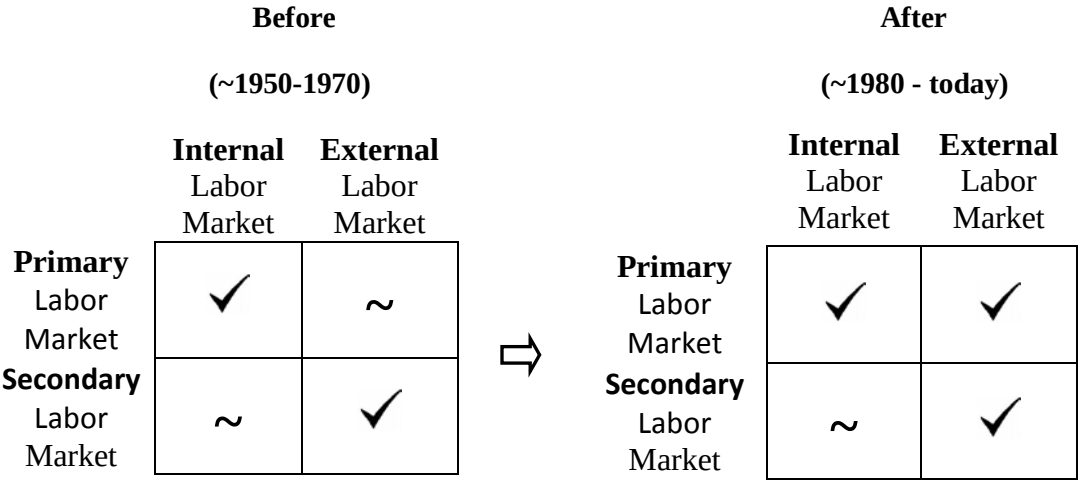
Most importantly, at the original formulation of dual labor market theory, jobs in the primary labor market were perceived to be "good" because they were tied to an internal labor market. Jobs in the secondary labor market in contrast, were perceived to be "bad" because they afforded no internal career opportunities and were only accessible over the external labor market (Sørensen and Kalleberg 1981). This association between the primary and internal labor market on the one hand and the secondary and external labor market on the other hand is illustrated in the left panel of Figure 1[1].

In the past 40 years however, fierce global competition, fast technological advances and state deregulation forced many companies to restructure in order to remain competitive. Opening internal positions to external applicants (Grimshaw, Ward, Rubery, and Beynon 2001), downsizing (Davis, Diekmann, and Tiensley 1994), de-layering of hierarchies (Collinson and Collinson 1997; Grimshaw, Ward, Rubery, and Beynon 2001; McGovern, Hope-Haily, and Stiles 1998), formation of smaller companies in the technology sector (Neumark and Reed 2004) and the adoption of non-standard and contingent work arrangements (Cappelli 1999; Kalleberg 2001; Neumark and Reed 2004; Osterman 1999) resulted in a gradual decline of life-time commitment between companies and their employees, especially in the primary labor market. In this sense the association between "good" jobs and internal labor markets has been gradually decoupled. "Good" jobs are increasingly accessed through the external labor market

[1] Checkmarks signify a strong association, while the "~" signifies that these combinations exist but are generally not perceived to be typical.

(Farber 1997; Neumark, Polsky, and Hansen 1999) and more individuals build their careers by working for different employers (Kalleberg 1996), which is illustrated by the additional check mark in the right panel of Figure 1. Moreover, when looking at the secondary labor market, employer changes have become even more frequent than before (Jaeger and Stevens 1999). As job changers in the primary labor market should have more opportunities to facilitate the external labor market for upward mobility (e.g. because there are occupational internal labor markets (Althauser and Kalleberg 1981) than job changers in the secondary labor market, I distinguish these groups in my analysis.

Figure 1. The externalization of the labor market



2. Leaving the employer voluntarily or involuntarily

In addition to looking at whether employer changes occur in the primary or secondary labor market, I also distinguish between the conditions under which individuals left their previous employer. That is, I differentiate between those who quit and hence changed

employers voluntarily and those who were fired or laid-off[2] and hence changed involuntarily.

As different processes cause voluntary and involuntary job separation (Breen 1992; Hachen 1990), they tend to affect income differently as well (Fuller 2008; Mincer 1986). Even though leaving one's employer voluntarily might be due to dissatisfaction or anticipation of negative events and hence is not completely voluntary, individuals arguably still have more control over the situation than those who are eventually fired or laid-off. Voluntary job separations are more likely than involuntary job separations to be linked to intentional career moves, which tend to result in upward mobility (Topel and Ward 1992).

In contrast, involuntary moves are less likely to lead to upward movement. That is, if they are tied to a larger wave of layoffs and industrial restructuring then it will be harder for the individual to find a new job. Likewise, being fired is not only a negative signal to future employers but also it puts individuals under pressure to quickly find a new job; particularly in the U.S. where unemployment benefits are very limited. This pressure depresses asking wages, causing individuals to accept job offers with lower wages (Jones 1988).

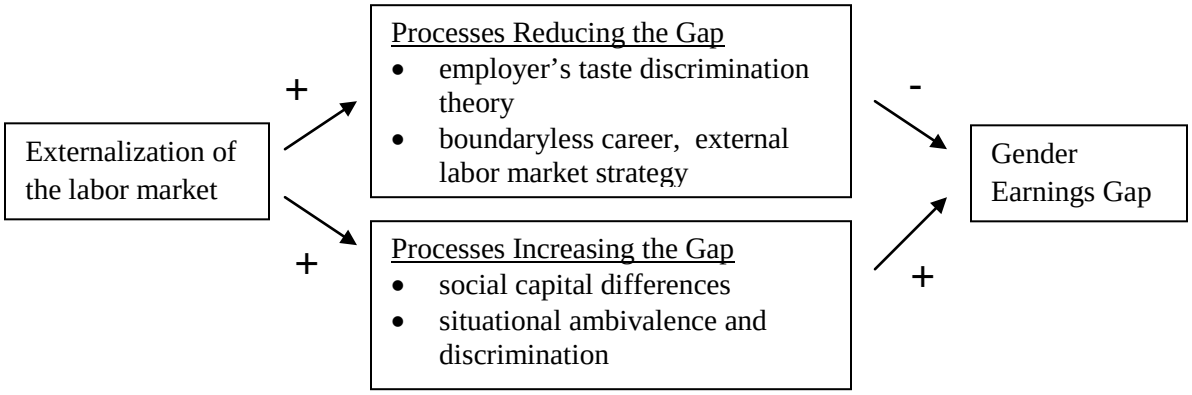
3. The effect on gender earnings inequality - Theory and hypotheses

The management and economic literatures associate the externalization of the labor market with new opportunities which allowed previously disadvantaged groups to catch up (Arthur and Rousseau 1996; Becker 1957). In the sociological literature, the

[2] The PSID reports both together not allowing for a more fine grained analysis.

shortening of tenure and higher frequency of employer changes are often associated with adverse effects on the employees and increasing insecurity (Cappelli 1999; Kalleberg 1996; Kalleberg, Reskin, and Hudson 2000; Osterman 1999).

Figure 2. The externalization of the labor market and gender inequality



Hence the central question, as illustrated in Figure 2, is: How does the externalization of the labor market affect gender earnings inequality in the U.S? I will focus on the gender income gap as one possible dimension of inequality that might be affected by the externalization (see Kronberg (2010) for effect of externalization on racial earnings inequality). The following two sections outline different types of processes, which might narrow or widen the gender earnings gap, in more detail. I am assuming that all of these processes occur at the same time. As some become more salient than others under certain conditions the net effect of changing employer on the gender gap should become positive or negative.

3.1. Decrease of gender earnings inequality

Labor economists such as Lazear and Oyer (2004) assume the external labor market to be more competitive than the internal labor market for two reasons: First, the external labor market is assumed to be less regulated by bureaucratic and organizational rules for

advancement such as seniority (Lazear and Oyer 2004). Second, there is more competition as multiple employers compete for multiple employees in the external labor market, whereas in firm internal labor markets multiple employees tend to compete for only one promotion. Applying Becker's taste theory of discrimination (1957), the gender earnings gap should decrease with increasing importance of the competitive external labor market. That is, employers' discrimination is expected to no longer pay off and hence decrease when competition between companies is on the rise.

Similarly, Arthur and Rousseau (1996) argue that the externalization gives rise to "boundaryless careers" which enable employees who are unsatisfied with their current employment to find a better employer easier. One might argue that the emergence and institutionalization of the external labor market significantly decreases transaction costs that accumulate when changing employers, making it easier to use the external labor market. This might afford individuals more opportunities outside of their company, while at the same time putting pressure on their current employer to offer better work conditions. Capitalizing on these opportunities by pursuing an external labor market strategy might afford women more opportunities to catch up to men.

Reviewing the taste discrimination and "boundaryless career" literature, it suggests that females might gain relatively more from changing employers than men, which leads me to the first hypothesis:

Hypothesis 1: The externalization of the labor market should narrow the gender wage gap.

3.2. Increase of gender earnings inequality

While there are several processes that might lead to a narrowing of the gender earnings gap there is also evidence suggesting that men might benefit more from the external labor market strategy than women, causing a widening of the gender gap. Such an unequal outcome could be facilitated by differences in social capital or situational components in the hiring situation.

While neoclassical theory often views the external labor market as more competitive and market based (Lazear and Oyer 2004), the importance of "word of mouth" often makes labor markets very "sticky". In this regard, literature points to the increasing importance of social capital for successful career attainment in the external labor market (Elliott 1999; Fernandez, Castilla, and Moore 2000; Munch, Miller-McPherson, and Smith-Lovin 1997; Petersen, Saporta, and Seidel 2000). Social capital describes the number and kinds of potential contacts individuals use to not only obtain information about possible job vacancies but also to disseminate information about them e.g. by getting recommendations (Granovetter 1995). Social networks provide access to information which then increases the likelihood of not only applying successfully but also of bargaining for higher wages and salaries (Brodt 1994; Fernandez, Castilla, and Moore 2000; Seidel, Polzer, and Stewart 2000).

The increasing importance of social capital could be problematic for women's career attainment however, as women tend to differ from men with regard to their social networks. Moore (1990) demonstrates that females tend to have more ties to kin and neighbors while males tend to have more ties to non-kin and work related, instrumental contacts (Ibarra 1992; Lin 2001), which allows men to access more information from

outside their immediate environment (Brodt 1994; Granovetter 1972). Some of these social capital differences are explained by women's overall participation and attachment to the labor market. However, even when comparing men and women in similar positions, "women's networks are less central to work organizations, are less influential, and provide less work-related help than the networks of men" (McDonald, Lin, and Ao 2009: 388).

As women tend to be at a disadvantage with regard to social capital, it also puts them at a disadvantage in a labor market environment in which social capital becomes increasingly important. It not only reduces the likelihood of finding and successfully applying for a better position, it also limits the number of alternative offers that can be used to generate leverage during salary and wage negations. Once hired, missing "inside information" often negatively affects the outcome of wage and salary negotiation (Brodt 1994; Seidel, Polzer, and Stewart 2000). Additionally, gender segregated networks also channel women into lower-paid female-dominated occupations (Hanson and Pratt 1991).

Next to differences in social capital, different situational components in the hiring process might make hiring situations more vulnerable to discrimination. That is, decision makers in internal labor markets tend to have more access to performance data of candidates as candidates are already employees. On the contrary, decision makers on the external labor market might not have the same information at hand. Hence, the situation of decision making might be more ambivalent in the external labor market. Dovidio and Gaertner (2000) showed in a series of experiments that this kind of ambivalence in qualification increases the likelihood of discrimination by the employer. In situations in which the applicant was neither clearly qualified nor clearly unqualified, employers were

more likely to discriminate. In this case, discrimination might be due to statistical or taste discrimination. On a larger scale, this would make women more vulnerable to discrimination, resulting in a widening of the gender gap.

In support of the processes related to social capital and situational components, Brett and Stroh (1997) found that "the difference in [cash] compensation between male leavers and male stayers [is] greater than the difference between females leavers and females stayers" (p. 338). These findings were replicated by Dreher and Cox (2000) who used a sample of MBA graduates. Lam and Dreher (2004) also supported the findings of Brett and Stroh (1997) and demonstrated that income differences between male and female "movers" increase over time.

In summary, social capital and social psychology literature on discrimination suggests that men might benefit more from changing employer than women, which leads me to the second hypothesis.

Hypothesis 2: The externalization of the labor market should increase the gender earnings inequality.

4. Data, measures and analytic strategy

4.1. Data

In order to test these hypotheses, I use data that follows the same individuals over up to 22 years. This allows me to not only rule out most individual heterogeneity but also to link changes in individual's income directly to their job mobility, which would not be possible with cross-sectional data such as the CPS.

The data for my study are drawn from the Panel Study of Income Dynamic (PSID), which is an ongoing, representative sample of individuals in the U.S. (Hill 1992). Data collection started in 1968 with a nationally-representative sample of approximately 4,800 households. Respondents were re-interviewed every year until 1997, when the interview schedule changed to biennial interviews. My analyses begin in 1979, the first year in which employment data of wives and female partners became consistently available[3]. My sample ends in 2001 as the 1970 census classification for occupations and industries was discontinued after 2001, making a longitudinal study beyond 2001 very difficult. I exclude self-employed because I want to contrast the effect of staying with leaving an *employer* on income, which is information not available for self-employed. Consistent with the literature on wages, I only examine workers who are employed full-time, because the structure of wages and employment relations is different in part-time jobs compared to full-time jobs (Blau and Kahn 2000). Focusing on full-time employment also allows me to compare my results with other studies that examine the effects of the externalization on workers (Brett and Stroh 1997; Dreher and Cox 2000; Lam and Dreher 2004). Moreover, my sub-sample contains only non-Hispanic Whites and African Americans, the only two race/ethnic groups for whom data was collected consistently with sufficient numbers from 1979 – 2001[4]. Finally, I limit my sample to the working-age population (age 18-65).

One drawback of the PSID is that employers are not uniquely identified, meaning I have to infer employer changes from the tenure data, which is not always internally

[3] The very first year in which employment data of wives were collected was actually 1976, but as hourly wages were only recorded in two digits in 1976 instead of three digits (from 1979 on), I excluded that year.
[4] The PSID added a Latino sample in 1990, but dropped it in 1995.

consistent in the PSID (Brown and Light 1992). However this is out-weighed by several advantages of using the PSID over other, similar longitudinal panel studies such as the National Longitudinal Study of Youth (NLSY) or the Study of Income and Program Participation (SIPP). Unlike the NLSY, the PSID samples multiple cohorts at a time, and unlike the SIPP, the PSID started data collection relatively early and did not discontinue the core sample since then. These features allow me to analyze historical developments, without confounding them with age effects.

4.2. Measures

Dependent Variable

Similar to previous research on the effects of job mobility (Dreher and Cox 2000; Fuller 2008; Lam and Dreher 2004; Mincer 1986; Topel and Ward 1992) I use the natural logarithm (ln) of respondents' weekly income from salary and wages at their most current main job in constant dollars[5] as a measure of labor market success. For each year in which respondents do not work, I code the wage as missing. Moreover, similar to Mouw and Kalleberg (forthcoming) I exclude outliers with either extremely low wages (less than $200 per week or $5 per hour) or extremely high wages (over $16,000 per week or $400 per hour). Finally, Table 1 provides an overview of all variables in the analysis.

*** Table 1 about here ***

Key Explanatory Variables

Demographic variables

Gender is a self-reported measure indicating male or female. **Race.** I categorize respondents' first mentioned race into two groups: Black and White. Hispanics and

[5] I adjusted wages for inflation by diving them by the consumer price index.

individuals who did not identify as African American or Caucasian are excluded from the sample. Using the 1979-2001 waves of the PSID, my sample contains 8,884 person-years for black males, 4,869 person-years for black females, 26,512 person-years for white males and finally 7,245 person-years for white females.

Labor Market Variables.

I use three variables to measure respondents' labor market position and behavior: a dummy for secondary (vs. primary) labor market, a dummy for external (vs. internal) labor market and a dummy for voluntary (vs. involuntary) changes. The variable **secondary vs. primary** labor market is constructed using Boston's (1990) classification scheme. He coded occupations according to the degree to which specific skills and training were required for jobs belonging to that occupation (see Tables 2 and 3). The advantage of his coding scheme is primarily that it does not confound characteristics of the internal labor market (e.g. firm size and presence of job ladders) with characteristics of the primary labor market (Hudson 2006). Using Boston's classification, 55% of the employees in my sample work in the primary labor market.

*** Tables 2 and 3 about here ***

Similar to the operationalization used by Brett and Stroh (1997) as well as Dreher and Cox (2000), the variable **external labor vs. internal market** indicates whether individuals changed employer in the previous year[6]. Figure 3 shows the mean tenure of full-time employed men and women since 1979. After dramatic labor market disturbances following the oil crisis in the early 1980s, mean tenure has continuously

[6] I coded individuals as leavers when their tenure with the current main employer was 12 months or less or if they stated that they have quit or were fired/laid off from their employer in the previous year.

fallen for men, whereas it is still increasing for women, which is most likely due to the increasing labor force attachment of (white) women (Farber 2008).

*** Figure 3 about here ***

Finally, I code changes as **voluntary (vs. involuntary)** when individuals quit their job. Job changes are considered to be involuntary when they were fired, laid off or their company folded. In this data, 72% of all individuals who started with a new employer quit the previous employer voluntarily, which is consistent with the findings of Dwyer (2004), who also used the PSID.

Control variables

The first set of control variables is comprised of human capital measures: y*ears of education, years of full time employment since the age of 18,* and t*enure* in log months. I also use a dummy measuring *whether the respondent was unemployed in the previous year* to capture immediate effects of entering the workforce after a spell of unemployment (Light and Ureta 1995; Mincer and Ofek 1982).

The second set of variables control for individuals' workplace characteristics such as the *job's union coverage* and *private vs. public sector* as both of these factors influence mobility patterns and wages.

The third set of controls covers personal characteristics such as *marital status* which tends to affect the wages of men positively (Blau and Beller 1988), *number of children under 18 in the household* as women tend to be penalized for motherhood (Budig and England 2001; Waldfogel 1998) and the *year of birth of the respondent* as

employer changes affect older cohorts of workers more negatively than younger cohorts (Lippmann 2008; Topel and Ward 1992).

The fourth set of control variables accounts for income differences caused by other labor market characteristics. In particular, *geographic region* is measured in four dummies, Northeast, South, Midwest and West[7]. Eleven *industry dummies*, which are based on the 1970 classification used by the Census, control for industry specific variations in income and mobility patterns. The *unemployment rate by state* controls for the overall "tightness" of the labor market, which affects the decision as well and the outcome of job mobility (Booth, Francesconi, and Garcia-Serrano 1999; Campbell 1997).

4.3. Analytic strategy

To estimate the effect of being on the external labor market on income, I use growth curve modeling[8]. My data is structured in hierarchical levels such that repeated observations (level 1 – e.g. labor market position) are nested within individuals (level 2 – e.g. gender)[9]. My "level 1" represents the model of intra-individual income growth as it takes into account all the time varying predictors.

$$Y_{it} = \pi_{0t} + \pi_{1t} x_{it} + \ldots + \pi_{kt} x_{ikt} + \varepsilon_{it} \qquad (1.1)$$

For instance, one of my level 1 predictors is measuring whether individuals work in the primary or secondary labor market. However, this effect might depend on time-constant level 2 predictors such as gender. Hence, in growth curve models, the level 1 parameters become the outcome on level 2.

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[7] I also had an indicator for rural residence but it was dropped after being non-significant.
[8] The literature also refers to this empirical model as hierarchical linear model or multilevel model.
[9] For more information see full (level 1 and 2) specification for Models 2a and 2b in the appendix

$$\pi_{0t} = \beta_{00} + \beta_{01}a_i + ... + \pi_{0k}a_{0ki} + u_i \qquad (1.2)$$

$$\pi_{1t} = \beta_{10} + \beta_{11}a_i + ... + \pi_{1k}a_{1ki} + u_i \qquad (1.3)$$

In order to examine the historically changing returns of switching employer depending on gender, I am utilizing growth curve modeling in two ways. First, as I am assuming that the effect of changing employer is different in 1980 than in 2000, growth curve modeling allows me to model this time dependence very easily by creating interactions between my predictors and the time variable. Second, I use the flexibility of growth curve models to assess how growth over time varies across individuals (Raudenbush and Bryk 2002; Singer and Willet 2003). Thus, I am testing Hypothesis 1 and 2 by creating several cross level interactions between labor market position (level 1) and sex (level 2)[10].

Not only are growth curve models very flexible with regard to modeling but also they are well equipped to handle unbalanced panels. That is, as growth curve models are based on Bayesian estimation, they are better able to deal with unequal number and spacing of individual observations (Raudenbush 2002: p.26) than other panel data models based on maximum likelihood estimation (e.g. Fixed-Effects Models /Random-Effects Models). This is very important, because not only do the number of observations per individual vary between 3 and 21 in my data, but also observations are often spaced unequally (e.g. because individuals become unemployed for a number of years before

[10] This would not be possible in a Fixed Effects framework (which is otherwise equally well suited for the analysis of panel data) because Fixed Effects Models take time-constant unobserved individual heterogeneity into account by subtracting out everything that is time-constant such as gender. While this reduces the bias due to unobserved heterogeneity, it also makes the analysis of gender effects impossible, which is one of the reasons why I am using growth curve modeling instead (Singer and Willet 2003).

they reenter the labor market again at a later time), which would create problems with other panel data methods.

5. Results

In the following section I will first review the most salient descriptive statistics concerning income, gender and labor market position. In the second step, I will focus on the results of the multivariate growth curve model in order to test Hypotheses 1 and 2.

5.1. Descriptive analysis

To get a better overview of how changing employer and being in the primary labor market affects income and how this is linked to gender, Table 4 shows the average weekly income (in raw dollars[11]) by sex and labor market position. Panel A of Table 4 examines the average income in the primary and secondary labor market for individuals in the internal and external labor market. It shows that those who stayed with their employer in the last year have a higher weekly income then those who started with a new employer. For instance, female stayers in the primary labor market earn on average $494 per week while female leavers in the same market only earn $419 per week. Hence female leavers earn on average $75 less per week than female stayers. The pattern is similar for women changing employer in the secondary labor market (difference = $46). Moreover, it replicates among male stayers and leavers. The fact that the bonus to staying (vs. leaving), especially in the secondary labor market, is smaller for women (primary LM = $76, secondary LM = $46) than for men (primary LM = $80, secondary LM = $89)

[11] I use weekly income in raw dollar in the descriptive statistics in order to illustrate the magnitude of the gender gap. In the actual analysis however, I use ln weekly income in constant dollars, to alleviate skewedness and to account for inflation.

might indicate that neither hypotheses apply to primary labor market, while the trends in the secondary labor market seem to speak to Hypothesis 1, which predicted the gap to close.

*** Table 4 about here ***

Panel B of Table 4 takes a closer look at those in the external labor market. How does income differ depending on whether workers change voluntarily and involuntarily? Panel B in Table 4 shows that women who change employers voluntarily in the primary labor market make $30 more per week than women who change involuntarily. Surprisingly, the relationship is reversed in the secondary labor market. That is, female voluntary changers make on average $20 *less* per week than *in*voluntary changers. Moreover it appears that the circumstances under which workers left their previous employer do not affect men's income.

These effects in Table 4 neither hold constant human capital, workplace and personal characteristics, nor industry and region. For this purpose, Table 5 gives the summary statistics for all explanatory and control variables by gender and labor market position. It shows that leavers tend to have less labor market experience, slightly less education (in the primary labor market only), tend to be younger, less likely to work in a union covered job, more likely to work in the private sector, and more likely to work in the construction or wholesale and retail industry. Likewise it shows that women tend to have less tenure, years of experience and education, work in occupations with a higher percentage of females and Blacks, are less likely to be married and have fewer children and are more likely to work in professional and related services than men. Men on the contrary, are more likely to work in "good" manufacturing jobs, public transportation, communication

and public utility. Hence, while descriptive analysis in Table 4 indicate that gender as well as labor market position affect income, these differences might be explained by human capital differences, workplace and personal characteristics, as well as industry and geographic region.

*** Table 5 about here ***

5.2. Income differences by sex and labor market position

In order to see how gender and labor market position affect earnings over time, Table 6 shows the results of the multivariate growth curve model, which controls for personal and workplace characteristics as well as industry and region. In the first step, Models 1a and 1b estimate the effect of gender and labor market position and how they change over time. In order to account for the circumstances under which these changes occurred, Model 1a compares stayers with voluntary leavers whereas Model 1b compares stayers with *in*voluntary leavers. Moreover, as the "time" variable in this analysis is centered at 1979, the first year of my study, the intercepts in these models express initial income differences in 1979 and the growth trajectories (interactions with "time") express how these initial differences changed since then.

*** Table 6 about here ***

<u>Gender and Income</u>

Consistent with the general picture of gender inequality (Bernhardt, Morris, and Handcock 1995; Blau and Kahn 2000; Blau and Kahn 2007; Morris and Western 1999; Polachek and Robst 2001), Table 6 shows significant gender differences in the late 1970s. That is, men's log income was on average 0.27 (Model 1a) units higher than women's log income, keeping everything else constant. Parallel to previous findings

(Bernhardt, Morris, and Handcock 1995; Blau and Kahn 2007; Morris and Western 1999; Polachek and Robst 2001) my results show that the initial gender gap closes every year by 0.004 units of log income (b= -0.004 in Model 1a and 1b).

Dual Labor Market and Income

The results also reveal strong dual labor market effects on earnings. Consistent with literature on the dual labor market (Piore 1970), workers in the secondary labor market earn less on average than workers in the primary labor market (Model1a: b= -0.02; Model 1b: b= -0.03). Moreover, since 1979 income disparities between the two segments have increased significantly (Model 1a and 1b: b= -0.003). This is consistent with Hudson (2006) who found that "the increase in income inequality has been accompanied by an increase in the level of dualism in the labor market" (p. 287).

Controls and Income

Looking at the control variables in Models 1a and 1b, results show, consistent with the overall literature, that the more education, labor market experience and tenure individuals possess the higher individuals' income, controlling for gender, labor market position, personal characteristics, industry and region. Likewise, working in a union covered job or in the private sector, being married and living outside the South is positively correlated with income. On the contrary, belonging to an older birth cohort and living in an area (or time) with higher unemployment significantly reduces weekly income.

5.3. Differences in the effect of changing employer for men and women

Does the externalization increase or decrease the gender wage gap?

According to Hypothesis 1, which draws on Becker's taste discrimination theory and the "boundary less career" theory, I expect that women benefit relatively more from changing employer than men. In contrast, drawing on social capital differences and situational components Hypothesis 2 predicts the opposite effect. That is, women benefit less or are penalized more when changing employers then men. In order to test these hypotheses I will focus on Model 2a and 2b in Table 6, in which I added interactions between gender and labor market position. This allows me to test if there are significant interactions between changing employer and gender. Again, in order to take into account the circumstance under which workers left their previous employer, Model 2a compares stayers with voluntary leavers while Model 2b compares stayers with *in*voluntary leavers.

For an easier understanding of the interaction terms, Figures 4a and 4b illustrate the results of Model 2a and Model 2b from Table 6 respectively. The figures represent the gender earnings gap by labor market. I calculated the values by subtracting women's predicted earning from men's predicted earnings in the respective labor market, holding constant human capital, workplace and personal characteristics as well as local unemployment rate, industry and regions[12]. For instance, Figure 4a shows that among those working in the primary-external labor market in 1980, men's log income is 0.21 units higher than females' log income[13].

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[12] Earnings are predicted for full-time employed workers with 13 yrs of education, 16 years of labor market experience, 98 months of tenure, not unemployed in the previous year, private sector, not covered by the union, married, 1 child, living in the South, manufacturing industry, 6% unemployment. Values are sample averages, changing any of these values only changes the intercepts, but not the actual slope.

[13] The predicted log income for men in the primary-external labor market is $1.37 per week, while a women with the same attributes and in the same labor market is predicted to earn $1.16 log weekly earnings. Hence the gap 1980 is 0.21.

*** Figures 4a and 4b about here ***

Figure 4a, which compares stayers with the *voluntary* leavers, shows that during the 1980s, gender inequality was the highest in the primary external labor market and second highest in the primary-internal labor market. This relates to my earlier discussion of the dual labor market. In just 30 years, the secondary labor market went from having the smallest gender gap to having the biggest gender disparities between men and women. Given that the gender gap developed so differently in the primary and secondary labor market, how did this affect men and women, who changed employers *voluntarily* in these sectors?

Going back to Figure 4a we can see that while the gap was initially the biggest among voluntary changers in the primary labor market it was the smallest by the end of the century. Put differently, gender differences declined most rapidly among those changing employers in primary labor market (Model 2a: b= -0.004), which is marginally significant (p=0.053). These results support Hypothesis 1. Based on Becker's theory of taste discrimination (1957) and the early "boundaryless career" literature, Hypothesis 1 predicts that the gender gap decreases with the externalization of the labor market.

However, Figure 4a also shows that the effect of voluntarily changing employer depends greatly on whether changes take place in the primary or secondary market. While gender disparities vanish among changers in the primary labor market, they actually significantly increase for those who change employers in the secondary labor market (Model 2a: b=0.009). This speaks to Hypothesis 2, which predicted that the gender gap would increase with the externalization of the labor market. When looking at the effects of voluntarily changing employer, Figure 4a reveals that the effect of being on

the external labor market greatly depends on where changes occur. That is, while the gender gap closes the fastest among leavers in the primary labor market, it widens the fastest among leavers in the secondary labor market. Hence, my next question is: Does the same interaction between changing employer and being in the primary versus secondary labor market exist among *involuntary* leavers?

To answer this question, Figure 4b shows the gender gap by labor market position comparing the stayers with the *involuntary* leavers. Overall, there is no such interaction for changing *in*voluntarily. Gender disparities grew among all involuntary changers regardless of whether changes occur in the primary or secondary labor market. These findings offer strong support for Hypothesis 2, which predicted that the externalization of the labor market would increase income differences between men and women.

Taking a closer look at the changers in secondary labor market in Figure 4b, it is striking that gender differences among the *in*voluntary leavers in the secondary labor market are increasing dramatically over time, just like they were for voluntary changers in the secondary labor market (Figure 4a). In other words, it appears that gender differences are driven among all changers in the secondary labor market, independent of whether workers quit their previous job voluntarily or involuntarily.

While there are similarities between voluntary and involuntary job changers in the secondary labor market, the story is different for the changers in the primary labor market. That is, while the gap *closes* the fastest among voluntary changers in the primary labor market it *opens* the fastest when individuals changed primary employer *in*voluntarily. In this sense it seems that when changing employers, there is a lot to gain but also a lot to lose in the primary labor market when it comes to gender equity.

6. Discussion

This study examines how the externalization of the labor market affected gender earnings inequality. Is the externalization one of the forces that contributed to the closing of the gender gap or might it be one of the factors that keep it from closing completely? The evidence discussed above suggests it might be both: While the gender earnings gap closed among those changing employer voluntarily in the primary labor market, it widened among those changing voluntarily in the secondary labor market and among those changing involuntarily, in both the primary and secondary labor market.

This initially seems paradoxical, but in reviewing the literature around the externalization of the labor market, it appears that the externalization has been talked about in two different ways. Some of the literature approaches the externalization in terms of individuals' behavior and their *rational choices*. For example, the "boundarlyess career" literature (Arthur and Rousseau 1996) focuses on whether individuals can capitalize on external jobs offered to accelerate their careers by pursuing an external labor market strategy. Other literature around industrial restructuring and increasing flexibility of the workforce (i.e. Cappelli 1999; Kalleberg 2001; Osterman 1999) tends to approach the externalization as a structure that was pushed upon individuals without their choosing.

In this regard these two approaches to the externalization of the labor market address different segments of the population – those who are involuntarily pushed into the external labor market after being fired or laid off and those who have the resources to utilize the new opportunities and choose to use the external labor market.

As the results show, mobility outcomes are very different for these two groups. Changing employers *involuntary* has very adverse consequences on gender inequality as income differences have actually increased among all movers. This speaks to the fact that men and women are affected very differently by the externalization of the labor market and hence confirms Hypothesis 2. Especially among involuntary leavers in the primary labor market, men's income increased whereas women lost ground quickly. The gap for involuntary changers in the secondary labor market increased as women lost ground faster than men.

These trends cannot be explained by women dropping out of the labor force and then reentering later, as I control for whether the respondent was unemployed prior to starting the new job. Alternatively, these gender disparities might be explained by differences in readily available resources such as social networks when faced with a sudden and unexpected job loss. If men are more likely to have access to social networks that provide them with more job leads (McDonald, Lin, and Ao 2009) it should be easier for men to bounce back from job loss. Another explanation might be crowding of female-dominated occupations: As (white) women entered the labor market, female occupations became crowded leaving fewer vacancies, making it harder to find a new employer who will pay at least as much as the previous one.

The picture is slightly different for those *voluntarily* changing employer, as outcomes depend on whether these changes occur in the primary or secondary labor market. Consistent with the processes outlined by Arthur and Rousseau (1996) and Becker (1957), earning differences between male and female leavers quickly disappear in the primary labor market. When looking at those who changed employer voluntarily in

the primary labor market, women were able to catch up to men. One of the factors driving this trend might be that women and men self-select into the primary-external market for more similar reason over time[14]. As women's attachment to the labor force grows, they might be less likely to change employers to accommodate family responsibilities and instead have more career-related reasons, which might affect the outcome of their mobility positively.

In contrast, gender differences have increased for voluntary changers in the secondary labor market since 1979, mostly because women lost ground faster than men. There might be several potential explanations. First, it is possible that conditions in female-dominated occupations in the secondary labor market have deteriorated, resulting in more frequent voluntary downward mobility in exchange for non-monetary rewards (e.g. less overtime) (Dwyer 2004). Second, female-dominated occupations in the secondary labor market might be crowded, leaving fewer vacancies and making it harder for women to find an employer that offers at least the same wage. Another reason could be that despite leaving voluntarily, men and women might still have different reasons to leave. Sicherman (1996) for instance finds that women are more likely to quit their jobs for non-work related reasons such as household duties and illness in the family, whereas men are more likely to leave for better (work) opportunities.

[14] Unfortunately the PSID records very different reasons (quit, resigned, retired, pregnant, needed more money, just wanted a change in jobs, was self employed before) as one category, making a more fine-grained analysis impossible.

7. Conclusion

Overall, the results are in support of theories predicting an adverse effect of the externalization on the gender earnings gap. That is, since 1979 income *inequality between males and females has increased* among individuals changing employers involuntarily. Even when voluntarily changing employers, women have increasingly fallen behind men. This effect however, is specific to voluntary changers in the secondary labor market.

There is one major exception to the overall negative effect of the externalization. Consistent with the idea of the "boundaryless career" the results reveal that *gender differences* have dramatically *decreased* among men and women who voluntarily left their previous employer in the primary labor market. Future research on the effects of the externalization of the labor market should examine why leaving voluntarily is so beneficial for women in the primary labor market, but so detrimental to gender equality in the secondary labor market.

Overall the results speak to three major issues: First, dual labor market theory (Hudson 2006; Piore 1970), despite its crudeness, still appears to be a useful concept as the effect of changing employers depends on whether changes occur in the primary or secondary market. Second, this study indicates that current explanations of gender inequality such as human capital differences, occupational segregation and gender discrimination may be incomplete. That is, we might also need to consider how these processes are embedded in the larger structure of the labor market and how macro level changes such as the externalization of the labor market interact with micro and meso level processes in creating or alleviating inequality. Third, this study advances the understanding of the gender earnings gap by showing that beneath the aggregate data

there are a larger number of specific processes driving the overall trends. Considering that, counter to the overall trend, gender disparities have actually increased among those changing employers involuntarily or in the secondary labor market, the externalization might become a major driving force of gender income differences among broad segments of the workforce.

Future research should aim at identifying the underlying mechanisms that drive these trends. That is, if we want to buffer the disadvantaged from falling deeper while still maintaining the advances made among other groups, we need to understand why the gap closes among voluntary changers in the primary labor market and why it widens among all involuntary changers and voluntary changers in the secondary labor market.

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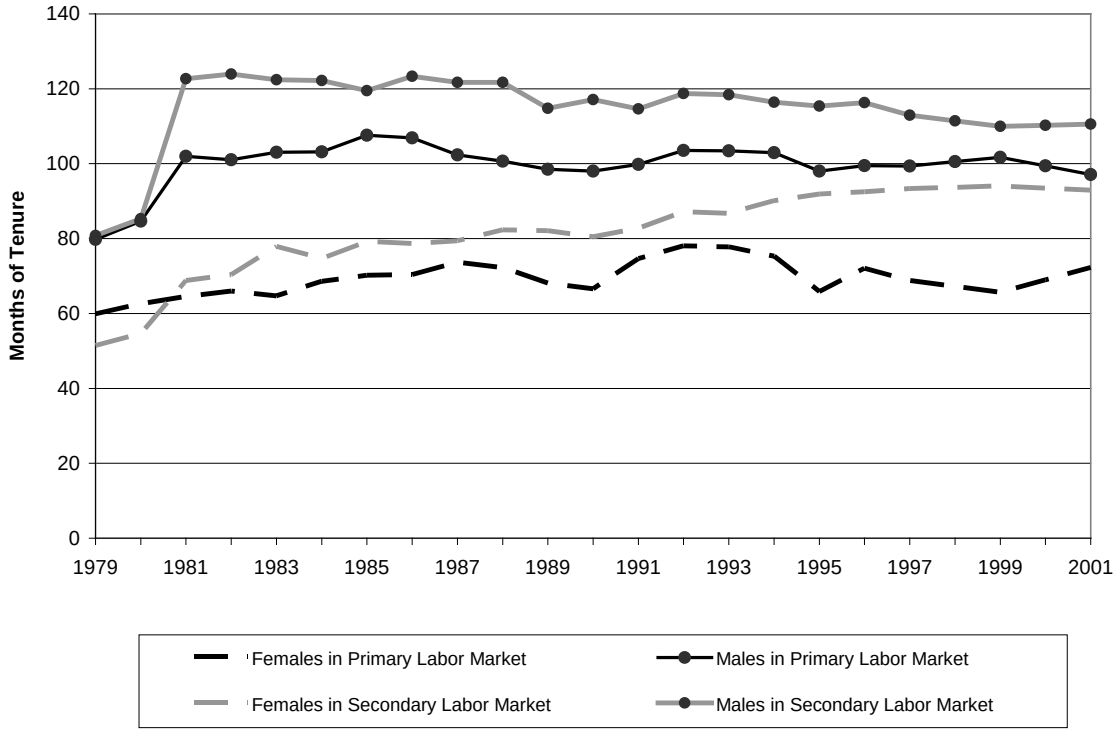
Figure 3. Average months of tenure by sex and labor market position, 1979-2001



Source: 1979-2001 PSID. Own calculations.

Figure 4a. Gender earnings gap by labor market position (ELM=Voluntary), 1980-2000

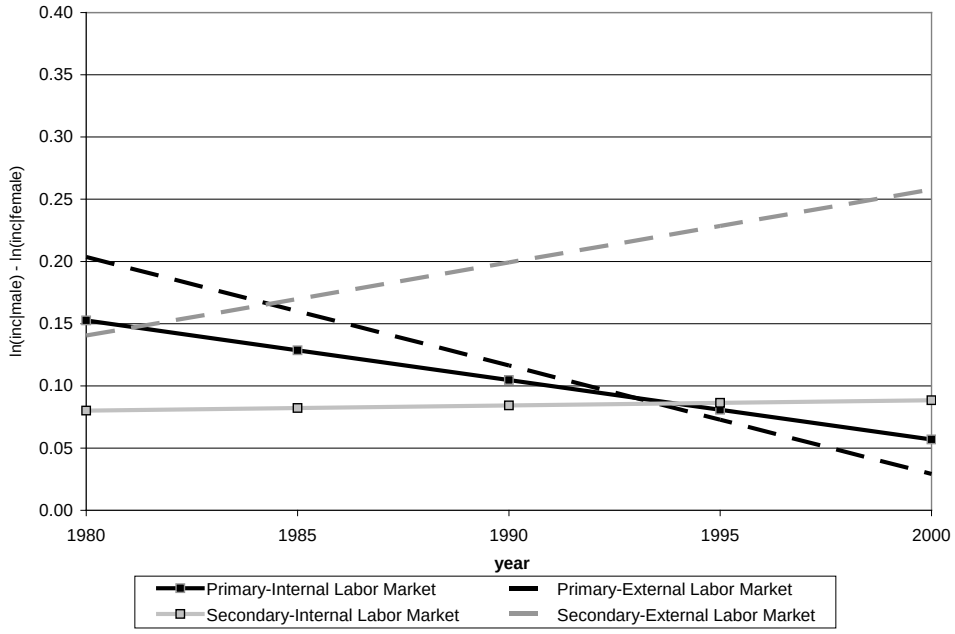
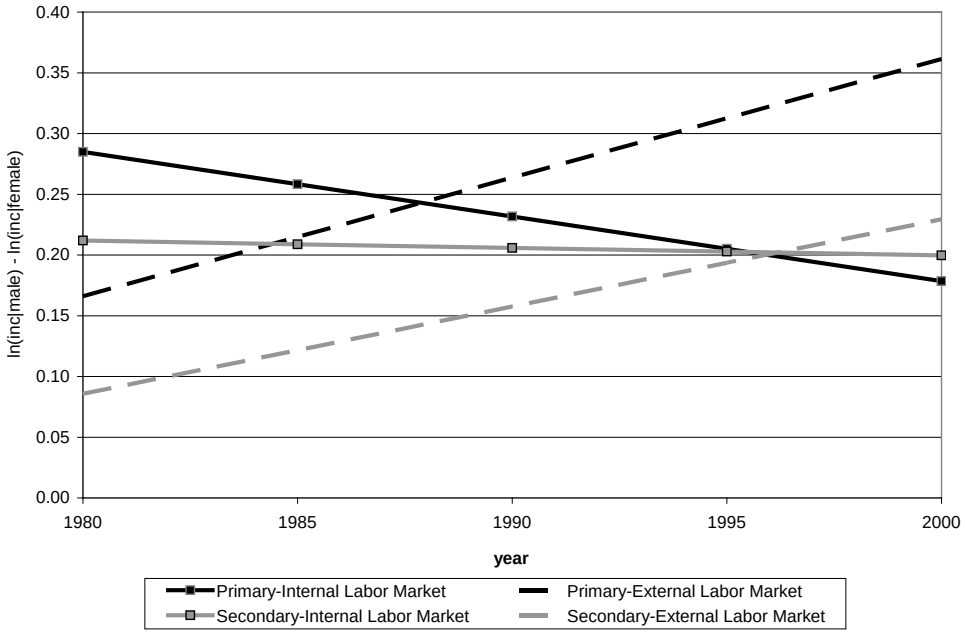


Figure 4b. Gender earnings gap by labor market position (ELM=Involuntary), 1980-2000



Source: 1979-2001 PSID. Own calculations.
Note: gap was calculated by subtracting the predicted earnings for females from the predicted earnings of males. Weekly log earnings in constant dollars from salary and wages were calculated for full-time employed individuals with 13 years of education, 16 years of labor markets experience, 98 months of tenure, not unemployed in the previous year, private sector, not covered by the union, married, 1 child, living in the South, manufacturing industry, 6% unemployment

Table 1. Variable overview

Dependent Variable	
ln(earnings)	the natural logarithm of respondents' weekly income from salary and wages at their most current main job in constant dollars
Key Explanatory Variable	
Labor Market	
secondary labor market	Dummy: 1 = job in secondary labor market 0 = job in primary labor market (see Table 2 and 3)
external labor market	Dummy: 1 = R started with new employer in last year 0 = R stayed with same employer
voluntary leavers	Dummy: 1 = "quit, resigned, retired, pregnant, needed more money, just wanted a change in jobs, was self employed before", "strike lock-out", "first full-time or permanent job ever"
involuntary leavers	Dummy: 1= "Company folded, changed hands ,moved out of town, employer died/went out of business", "Laid off, fired", "Job was completed, seasonal work, was a temporary job"
Gender and Race	
male	Dummy: 1 = male; 0 = female
white	Dummy: 1 = first mentioned race is non-Hispanic White, 0 = first mentioned race is non-Hispanic Black
Control Variables	
Human capital	
education	years of education
job experience	years of full-time employment since age of 18
ln(tenure)	natural log of months since R started working for current main employer
unemployed last year	Dummy: 1= was unemployed or not in labor force last year 0 = was employed last year
Work Place Characteristics	
union	Dummy: 1 = job is covered by union; 0 = job is not covered by union
private sector	Dummy: 1 = R works for private employer; 0 = R works for federal, state or local government
Individual Characteristics	
married	Dummy: 1 = R is married, 0 = R is single, divorced, separated or widowed
children	number of children under the age of 18 in household
year of birth	year of birth centered around 1950
Labor Market Characteristics	
Region	
northeast	Dummy: 1 = R lives in north east of the US States: ME, NY, VT, NH, MA, CT, RI, PA, NJ
south	Dummy: 1 = R lives in south of the US, States: MD, DE, DC, MV, VA, KY, TN, NC MS, AL, GA, SC, FL, OK, AR, TX, LA
midwest	Dummy: 1 = R lives in mid west of the US, States: ND, SD, MN, WI, MI, NE, IA, KS, MO, IL, IN, OH
west	Dummy: 1 = R lives in west of the US, States: WA, OR, ID, MT, WY, CA, NV, UT, CO, AZ, MN, HI, AL
unemployment rate	Annual average unemployment rate (seasonal unadjusted) by state
Industry	
agric., forestry, fishing, mining	Dummy: 1 = R works in agriculture, forestry, fishing, mining
construction	Dummy: 1 = R works in construction
manufacture	Dummy: 1 = R works in manufacture
transp., communic., public utility	Dummy: 1 = R works in transportation, communication, public utility
wholesale, retail trade	Dummy: 1 = R works in wholesale, retail trade
finance and related services	Dummy: 1 = R works in finance and related services
business and repair services	Dummy: 1 = R works in business and repair services
personal services	Dummy: 1 = R works in personal services
entertainment, recreational s.	Dummy: 1 = R works in entertainment, recreational services
professional, related services	Dummy: 1 = R works in professional and related services
public administration	Dummy: 1 = R works in public administration

Table 2. Occupations in the primary labor market

Occupation	Percentage of Workers Needing Specific Skills or Training
Managerial and Professional Specialty	
Executive, Administrative, and Managerial	
Officials, Administrative and Managerial	72.2
Other Executive, Admin., and Managerial	69.8
Management-Related	76.6
Professional Specialty	
Engineers	90.7
Math and Computer Scientist	90.2
Natural Science Scientist	97.1
Health Diagnosing	99.1
Health Assessment and Treatment	97.3
Teacher, College and University	95.5
Teachers, Excluding College	95.7
Lawyers and Judges	94.4
Other professional Specialties	85.0
Technical, Sales and Administrative Support	
Technicians and Related Health	
Technologists	90.1
Technicians	77.4
Other Technicians	86.5
Sales	
Supervisors and Proprietors	90.1
Sales Representative, Finance, and Business	74.8
Sales Representative, Commodities (Except Retail)	55.1
Sales-Related	56.8
Administrative Support, Incl. Clerical	
Supervisors	60.5
Computer Equipment Operators	74.3
Secretaries, Stenographers, Typists	73.3
Financial Records, Processing	59.0
Clerical, Distributing Clerks, Misc. Admin.	47.0
Service	
Protective Services	54.8
Health	61.4
Personal Services	50.7
Precision Products	
Mechanics	67.8
Construction	64.8
Other Production, Craft, and Repair	60.5

Source: Boston (1990) p. 102

Table 3. Occupations in the secondary labor market

Occupation	Percentage of Workers Needing Specific Skills or Training
Sales	
Sales Workers, Retail and Personal Service	25.9
Administrative Support	
Mail and Message Distribution	25.0
Service	
Private Household	
Food Services	23.2
Cleaning and Building Service	13.0
Operators, Fabricators, and Laborers	
Mach. Oper., Tenders, Except Precision	34.5
Inspectors and Samplers	40.0
Transport and Material Moving	
Motor Vehicle Operators	34.5
Other Transport and Material Handling	41.1
Handlers, Equipment Cleaners, Helpers, and Laborers	
Construction Laborers	17.3
Freight, Stock, and Materials Handlers	11.0
Other Handlers, Equip. Cleaners, Helpers, and Laborers	17.9
Farming, Forestry, and Fishing	
Farm Operators and Managers	30.8
Farm Workers and Related	21.9
Forestry, Fishing, and Logging	33.7

Source: Boston (1990) p. 102

Growth Curve Model – specification for model 2a and 2b

Level 1

$Y_{it} = \pi_{0i}$ Intercept + $\pi_{1i}(time_{it})$

+ π_{2i}(External $_{it}$) + π_{3i}(Secondary $_{it}$) + π_{4i}(External*Secondary $_{it}$)

+ π_{5i}(External $_{it}$)*($time_{it}$) + π_{6i}(Secondary $_{it}$)*($time_{it}$) + π_{7i}(External*Secondary $_{it}$)*($time_{it}$)

+ $\Sigma^{q=8}_{q=13}$ π_{qi} (human capital controls $_{it}$) + π_{14i}(education $_{it}$)*($time_{it}$) + $\Sigma^{q=15}_{q=16}$ π_{qi} (workplace controls $_{it}$)

+ $\Sigma^{q=16}_{q=18}$ π_{qi} (personal controls $_{it}$) + $\Sigma^{q=19}_{q=23}$ π_{qi} (region+unemployment controls $_{it}$)

+ $\Sigma^{q=24}_{q=35}$ π_{qi} (industry controls $_{it}$) $+\varepsilon_{it}$

Level 2

π_{0i} Intercept $= \beta_{00} + \beta_{01}$(male $_i$)+ β_{02} (white $_i$) + β_{03} (year of birth $_i$) + u_{0i}

π_{1i} ($time_{it}$) $= \beta_{10} + \beta_{11}$(male $_i$)+ β_{12} (white $_i$) + β_{13} (year of birth $_i$) + u_{1i}

π_{qi}(Labor Market Segment $_{it}$) $= \beta_{q0} + \beta_{q1}$(male $_i$)+ β_{q2}(white $_i$) + u_{qi}

π_{qi} (LM Segment $_{it}$)*(time) $= \beta_{q0} + \beta_{q1}$(male $_i$)+ β_{q2}(white $_i$)

π_{qi}(controls $_{it}$) $= \beta_{q0}$

Table 4. Average income by sex and labor market position

Panel A. Average weekly income by sex and labor market position

	Women						Men					
	Internal LM		External LM		Difference		Internal LM		External LM		Difference
Primary LM	$494	(8,326)	$419	(1,330)	$75	Primary LM	$757	(14,667)	$677	(1,960)	$80
Secondary LM	$380	(2,152)	$334	(306)	$46	Secondary LM	$501	(16,148)	$413	(2,621)	$88

Panel B. Average weekly income among job changers by sex, type of job separation and dual labor market position

	Women						Men					
	Voluntary		Involuntary		Difference		Voluntary		Involuntary		Difference
Primary LM	$425	(1,083)	$395	(247)	$30	Primary LM	$676	(1,505)	$681	(455)	-$5
Secondary LM	$329	(217)	$349	(89)	-$20	Secondary LM	$416	(1647)	$406	(974)	$10

Source: 1979-2001 PSID. Own calculations.
Note: case numbers in parentheses

Table 5. Summary statistics by sex and labor market position

	P-ILM Men		P-ILM Women		P-ELM Men		P-ELM Women	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Weekly Income in $	757	569	495	426	677	593	419	267
White	0.8	-	0.6	-	0.8	-	0.7	-
Left voluntarily	-	-	-	-	0.8	-	0.8	-
Human Capital								
years worked ft since age 18	17.5	9.2	14.7	7.6	12.9	8.1	11.1	6.7
tenure in months	126.0	100.0	103.7	81.1	6.5	3.8	6.5	3.6
eduction in years	14.5	2.1	13.7	1.9	14.5	2.0	13.7	1.8
unemployed last year	0.0	-	0.0	-	0.1	-	0.1	-
Workplace Characteristics								
job covered by union	0.2	-	0.2	-	0.1	-	0.1	-
private sector	0.7	-	0.7	-	0.8	-	0.8	-
Personal Characteristics								
married	0.8	-	0.4	-	0.8	-	0.4	-
number of children in HH	1.1	1.1	0.9	1.0	1.0	1.1	0.8	1.1
age	39.1	9.5	38.0	10.0	34.4	8.6	33.3	8.4
Region								
northeast	0.2	-	0.2	-	0.2	-	0.1	-
midwest	0.3	-	0.2	-	0.2	-	0.2	-
west	0.2	-	0.2	-	0.2	-	0.2	-
Unemployment Rate	6.5	2.0	6.4	1.9	6.4	1.9	6.4	2.0
Industry								
agric., forestry, fishing, mining	0.0	-	0.0	-	0.0	-	0.0	-
construction	0.0	-	0.0	-	0.0	-	0.0	-
manufacture	0.3	-	0.1	-	0.2	-	0.1	-
transp., communic., public utility	0.1	-	0.0	-	0.1	-	0.0	-
wholesale, retail trade	0.1	-	0.1	-	0.2	-	0.1	-
finance and related services	0.1	-	0.1	-	0.1	-	0.1	-
business and repair services	0.0	-	0.0	-	0.1	-	0.1	-
personal services	0.0	-	0.0	-	0.0	-	0.0	-
entertainment, recreational s.	0.0	-	0.0	-	0.0	-	0.0	-
professional, related services	0.2	-	0.4	-	0.2	-	0.4	-
public administration	0.2	-	0.1	-	0.1	-	0.1	-
Number of person-years	14,667		8,325		1,960		1,330	

Source: 1979-2001 PSID. Own calculations.

note: P-ILM = primary-internal labor market; P-ELM = primary-external labor market

Table 5 (continued). Summary statistics by sex and labor market position

	S-ILM Men		S-ILM Women		S-ELM Men		S-ELM Women	
	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.	Mean	Std.Dev.
Weekly Income in $	502	298	381	235	413	216	335	217
White	0.7	-	0.4	-	0.7	-	0.5	-
Left voluntarily	-	-	-	-	0.6	-	0.7	-
Human Capital								
years worked ft since age 18	17.8	9.9	15.4	8.4	12.7	8.3	10.5	7.1
tenure in months	126.3	97.5	116.0	86.6	6.0	3.8	6.4	3.9
eduction in years	11.9	1.9	11.9	1.7	12.2	1.7	12.4	1.6
unemployed last year	0.0	-	0.0	-	0.1	-	0.2	-
Workplace Characteristics								
job covered by union	0.4	-	0.4	-	0.2	-	0.2	-
private sector	0.8	-	0.9	-	0.9	-	0.9	-
Personal Characteristics								
married	0.8	-	0.3	-	0.8	-	0.3	-
number of children in HH	1.2	1.2	1.0	1.2	1.2	1.2	1.1	1.3
age	38.1	10.4	38.8	10.2	32.8	8.9	33.2	9.3
Region								
northeast	0.1	-	0.1	-	0.1	-	0.1	-
midwest	0.3	-	0.3	-	0.2	-	0.2	-
west	0.1	-	0.1	-	0.1	-	0.2	-
Unemployment Rate	6.5	2.1	6.4	2.0	6.4	1.9	6.0	1.7
Industry								
agric., forestry, fishing, mining	0.0	-	0.0	-	0.0	-	0.0	-
construction	0.1	-	0.0	-	0.2	-	0.0	-
manufacture	0.4	-	0.5	-	0.3	-	0.4	-
transp., communic., public utility	0.1	-	0.1	-	0.1	-	0.1	-
wholesale, retail trade	0.1	-	0.1	-	0.2	-	0.2	-
finance and related services	0.0	-	0.0	-	0.0	-	0.1	-
business and repair services	0.0	-	0.0	-	0.1	-	0.1	-
personal services	0.0	-	0.0	-	0.0	-	0.1	-
entertainment, recreational s.	0.0	-	0.0	-	0.0	-	0.0	-
professional, related services	0.0	-	0.1	-	0.0	-	0.1	-
public administration	0.1	-	0.0	-	0.0	-	0.0	-
Number of person-years	16,148		2,125		2,621		306	

Source: 1979-2001 PSID.
Own calculations.

note: S-ILM = secondary-internal labor market;
S-ELM = secondary-external labor market

Table 6. Fixed effects from growth curve model - Effect of sex and labor market position on earnings

	Model 1a (ELM=Voluntary)	Model 1b (ELM=Involuntary)	Model 2a (ELM=Voluntary)	Model 2b (ELM=Involuntary)
Central Explanatory Variables				
Intercept (initial income)	0.236 ***	0.198 ***	0.224 ***	0.184 ***
time (years)	-0.036 ***	-0.036 ***	-0.037 ***	-0.036 ***
Intercept: Demographic Group, Labor Market Position				
male	0.265 ***	0.266 ***	0.285 ***	0.291 ***
white	0.130 ***	0.128 ***	0.131 ***	0.129 ***
external lm	0.045 ***	0.072 **	-0.012	0.087
secondary lm	-0.023 **	-0.031 ***	0.046 **	0.034
secondary*external lm	0.020	-0.011	0.096 *	0.081
Growth: Demographic Group, Labor Market Position				
time * male	-0.004 ***	-0.004 ***	-0.005 ***	-0.005 ***
time * white	0.003 ***	0.004 ***	0.004 ***	0.005 ***
time * external lm	-0.001	-0.003	0.002	-0.011 **
time * secondary lm	-0.003 ***	-0.003 ***	-0.006 ***	-0.005 **
time * secondary*external lm	-0.005 ***	-0.005 *	-0.011 **	-0.004
Intercept: Demographic Group * Labor Market Position				
male * external lm			0.055 **	-0.134 **
male * secondary lm			-0.078 ***	-0.078 ***
male * secondary*external lm			-0.128 **	-0.001
white * external lm			0.029	0.108 *
white * secondary lm			-0.008	-0.002
white * secondary*external lm			0.032	-0.084
Growth: Demographic Group * Labor Market Position				
time * male * external lm			-0.004 *	0.015 **
time * male * secondary lm			0.005 **	0.005 **
time * male * secondary*external lm			0.009 **	-0.007
time * white * external lm			-0.001	-0.002
time * white * secondary lm			-0.002	-0.002 *
time * white * secondary*external lm			-0.002	0.004
N person-years	46,192	42,273	46,192	42,273
N persons	6,314	5,615	6,314	5,615
LL	829	1,845	849	1,868

Source: 1979-2001 PSID. Own calculations.
note: dependent variable is the natural log of the weekly income from salaries and wages in constant dollars.
elm = (type of) employer change. * p<0.10; **p<0.05; ***p<0.001

Table 6 (continued). Fixed effects from growth curve model - effect of sex and labor market position on earnings

	Model 1a (ELM=Voluntary)	Model 1b (ELM=Involuntary)	Model 2a (ELM=Voluntary)	Model 2b (ELM=Involuntary)
Control Variables				
Human Capital				
years worked since age 18	0.017 ***	0.014 ***	0.017 ***	0.014 ***
years worked-squared	0.000 ***	0.000 ***	0.000 ***	0.000 ***
ln(tenure)	-0.011 **	0.014	-0.011 **	0.014 *
ln(tenure)-squared	0.008 ***	0.005 ***	0.008 ***	0.005 ***
yrs of education	0.039 ***	0.040 ***	0.038 ***	0.039 ***
time * yrs of education	0.003 ***	0.003 ***	0.003 ***	0.003 ***
unemployed in last year	-0.010	-0.034 *	-0.009	-0.034 *
Job Characteristics				
job covered by union	0.059 ***	0.058 ***	0.058 ***	0.058 ***
private sector	0.038 ***	0.037 ***	0.038 ***	0.036 ***
Personal Characteristics				
married	0.022 ***	0.020 ***	0.022 ***	0.020 ***
number of children in HH	0.004 **	0.002	0.003 **	0.002
year of birth (centered 1950)	-0.009 ***	-0.010 ***	-0.009 ***	-0.010 ***
time * year of birth	0.000 ***	0.000 ***	0.000 ***	0.000 ***
Region				
northeast	0.058 ***	0.059 ***	0.058 ***	0.060 ***
midwest	0.009	0.017 *	0.010	0.017 *
west	0.074 ***	0.073 ***	0.074 ***	0.073 ***
unemployment rate	-0.004 ***	-0.004 ***	-0.004 ***	-0.004 ***
Industry				
agric., forestry, fishing, minin	0.046 ***	0.037 **	0.047 ***	0.038 **
construction	0.016 **	0.017 **	0.018 **	0.018 **
transp., communic., public ut	0.039 ***	0.036 ***	0.039 ***	0.037 ***
wholesale, retail trade	-0.060 ***	-0.057 ***	-0.059 ***	-0.057 ***
finance and related services	-0.036 ***	-0.035 ***	-0.035 ***	-0.034 **
business and repair services	-0.045 ***	-0.050 ***	-0.044 ***	-0.050 ***
personal services	-0.103 ***	-0.102 ***	-0.105 ***	-0.103 ***
entertainment, recreational s.	-0.047 **	-0.038 **	-0.046 **	-0.038 **
professional, related services	-0.052 ***	-0.059 ***	-0.051 ***	-0.058 ***
public administration	0.014	0.013	0.014 *	0.013
N person-years	46,192	42,273	46,192	42,273
N groups	6,314	5,615	6,314	5,615
LL	829	1,845	849	1,868

Source: 1979-2001 PSID. Own calculations.
note: dependent variable is the natural log of the weekly income from salaries and wages in constant dollars.
elm = (type of) employer change. * p<0.10; **p<0.05; ***p<0.001