Minimum Wage Careers?

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August 1999

ABSTRACT

This paper investigates the extent to which people spend *careers* on minimum wage jobs. We find that a small but non-trivial number of NLSY respondents spend 25%, 50%, or even 75% of the first ten years of their career on minimum or near-minimum wage jobs. Workers with these minimum wage careers tend to be drawn from groups such as women, blacks, and the less-educated that are generally overrepresented in the low-wage population. The results indicate that lifetime incomes of some workers may be supported by a minimum wage. At the same time, these same groups would be disproportionately affected by any minimum wage-induced disemployment. The results suggest that minimum wage legislation has non-negligible effects on the lifetime opportunities of a significant minority of workers.

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I. Introduction

Minimum wage policy must balance the beneficial effects of the minimum wage on individuals' earnings against the potentially adverse effect on employment. Since young people are most likely to work at minimum wage jobs, most minimum wage research has focussed on teens and young adults.[1] The emphasis on teens is appropriate to the extent that the effects of minimum wages, whatever they may be, are transitory because young workers soon age into higher wage jobs. Yet there is evidence that the minimum wage may effect some older workers as well. For example, Card and Krueger (1995) estimate that over half the workers affected by the April 1990 minimum wage increase were over the age of 24. This and other facts suggest that some workers might be effected by the minimum wage well into their careers. In this paper we ask whether some workers spend a significant portion of their post-teen, post-school years on - or earn a significant portion of their earnings from - minimum wage jobs. In short, we ask whether some workers have minimum wage careers.

There is already a short literature on this topic. Smith and Vavrichek (1992) examined the one-year earnings mobility of workers that initially worked at minimum wage jobs. They found that 63% of the minimum-wage workers in their sample were employed at higher-than-minimum wage jobs one year later. Schiller (1993) found that "only 15 percent of the 1980 entrants still had any (minimum wage) experience after three years," which suggests that long-term minimum wage employment is rare. More than three quarters of Schiller's sample were still attending school while working at this first job, however, and relatively few of the sample workers had embarked on their post-school career.[2]

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[1] Most research in this area has addressed the effects of the minimum wage on employment. Research on other effects of the minimum wage include work on schooling decisions (Ehrenberg and Marcus, 1982; Currie and Fallick, 1991; Neumark and Wascher, 1993), on-the-job training (Hashimoto, 1982; Schiller, 1993), and crime (Chressanthis and Grimes, 1990). Studies on the major intended benefit, changing the distribution of income in favor of low-income households include Behrman, Sickles, and Taubman (1983), Burkhauser and Finegan (1989), Johnson and Browning (1983), Martin and Giannaros (1990), Smith and Vavrichek (1987), and Loveman and Tilly (1988).

[2] Recognizing the apparent differences between this group and the members of the sample who were no

We concentrate on workers who have finished school, and so presumably embarked on their careers. Using the National Longitudinal Study of Youth (NLSY), we follow a large sample of workers after they "permanently" leave school. We find that upon leaving school the vast majority of workers quickly move into wage ranges effectively outside the bounds within which minimum wages might be expected to have an effect. Thus, minimum wages have virtually no effect on the careers of most workers. However, we identify a non-trivial fraction of workers that spend substantial portions of their post-school career on minimum or near-minimum wage jobs. For example, we estimate that over 8% of workers spend at least 50% of their first ten post-school years working on jobs paying less than the minimum wage plus $1.00. We find that workers with such "minimum wage careers" are largely drawn from demographic groups with generally low wages: women, minorities, and the less-educated. Thus, while relatively few in number, there is an identifiable sub-population of workers whose lifetime income and employment is likely to be effected by minimum wage policy. For individuals in this group, minimum wage policy does not have merely transitory effects.

The rest of this paper is organized as follows. Section II places our NLSY results in context by examining the incidence of minimum and near-minimum wage jobs among workers in the Current Population Survey (CPS). The CPS provides useful point-in-career or point-in-time estimates of minimum wage job holding. The large sample size and broad age coverage of the CPS make it useful background information, but its cross-sectional nature lead us to expend most of our efforts on the NLSY. Section III exploits the longitudinal structure of the NLSY to calculate the proportion of workers' early careers spent on minimum wage jobs. The section also examines the relative incidence of such minimum wage job-holding across various demographic groups. Section IV concludes.

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longer in school in 1980, parts of Schiller's analysis treats the two groups separately.

II.   Overview from the CPS

Our analysis in this paper is centered on the NLSY because we need panel data to accurately

gauge the presence or absence of minimum wage careers. Before doing so, however, we think it useful to

take a broader look at the incidence of minimum wage jobs over the life cycle. The Outgoing Rotation

Groups from Current Population Survey (CPSORG) provide estimates of hourly wage rates for a very

large sample of workers over all age groups.[3] For two recent years, 1993 and 1994, we extracted

information on all workers between ages of 16 and 65 who we estimated were making at least one dollar

per hour. We then characterized each worker as having a minimum wage job depending upon whether

they were within $.25, $.50, $1.00, or $2.00 of the prevailing minimum wage (i.e., the higher of the

federal or the relevant state minimum wage). Figure 1 graphs the fraction of the population in each age

group characterized as having a minimum wage job under these four criteria.

Figure 1 indicates that the incidence of minimum wage jobs is very high among teenagers.

Roughly 40% of 16-year olds in these two calendar years were employed at jobs paying less than the

minimum wage plus $.25, and virtually all 16-year olds reported working at jobs paying less than the

minimum wage plus $2.00. In addition, Figure 1 indicates that the incidence of minimum-wage job-

holding drops off quickly as workers age. For example, the fraction of working 25-year olds with

minimum wage jobs is estimated to be only 5.5% for the minimum plus $.25 cutoff, and 14.6% for the

minimum plus $1.00 cutoff. Figure 1 therefore supports the view that teenagers tend to work at

minimum wage jobs, but that workers move out of minimum wage jobs as they acquire schooling and

experience.

Despite the movement of most workers into higher-paying jobs, Figure 1 leaves open the

possibility that aging cohorts leave some workers behind in minimum wage jobs for substantial fractions

of their careers. In particular, Figure 1 shows that while the fraction of workers in minimum wage jobs

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[3] In contrast, the NLSY is relatively small and focussed on younger workers. The oldest NLSY

goes down significantly as cohorts age, it never gets to zero. For example, even among workers in their peak earning years of the mid-40's, approximately 2.5% of workers are at jobs paying less than the minimum plus $.25, and approximately 8% of workers are at jobs paying less than the minimum plus $1.00. If the identity of these workers changes from year to year within a cohort, then there are few workers we might characterize as having a minimum wage career. If the identity of minimum wage workers does not change, however, then there will be a minority who persistently work at minimum wage jobs. Distinguishing between these polar cases requires panel data on workers' careers, of course, and the CPSORG files are of limited use in this regard.

Figures 2 and 3 present figures analogous to Figure 1 with the exception that Figure 2 is based on a sample of women and Figure 3 is based on a sample of blacks. The figures for these two groups are very similar to the aggregate patterns revealed in Figure 1. Teenagers are extremely likely to work at minimum or near-minimum wage jobs, but workers in both groups move to higher-paying jobs as they age and acquire education and work experience. Comparisons across graphs show, however, that the incidence of minimum wage job-holding is substantially higher for women and blacks than it is for the population at large. This is not surprising given that these groups are generally overrepresented in the low-wage labor market. Nevertheless, the graphs highlight that some groups may be more likely than others to have truly extended periods of minimum wage employment. Our analysis of the NLSY will take up this issue in some detail.

III.   Longitudinal Analysis of the NLSY

The National Longitudinal Survey of Youth (NLSY) began in 1979 with 12,686 men and women between the ages of 14 and 21. The NLSY has five distinct panels: a) a nationally representative "cross-sectional" sample and four oversampled groups: b) blacks, c) Hispanics, d) economically disadvantaged

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respondent was 36 in 1994, the last year of data examined in our study.

whites, and e) members of the military. Following the suggestion of MaCurdy, Mroz, and Gritz (1998), we exclude the poor whites and the military from our analysis.[4] Using the combination of the black, Hispanic, and cross-sectional samples implies that blacks, Hispanics, and other groups are included in the sample with differing probabilities. In such circumstances, survey weights are required to make statements about the aggregate U.S. population. The original NLSY weights are inappropriate, however, as they are based on the inclusion of the military and poor white subsamples. For this reason, we use the 1979 weights of MaCurdy, Mroz, and Gritz (1998), which are designed to make the restricted sample we use nationally representative.

We restrict our attention to the portion of each respondent's life that occurs after they first leave school for at least two years. Although a few workers may go back to school at some later date, this restriction focusses attention on the portion of individuals' work-life that might be appropriately termed "career" work. In contrast, work before this point is generally stop-gap work between periods of schooling, or a source of income in the midst of schooling. There are some NLSY respondents for whom we were unable to accurately characterize the first year of career work, largely because of missing data, and we excluded such workers from our analysis. This and other exclusion restrictions naturally raise issues of selectivity. We will consider this issue later in the paper, although we have no completely satisfactory answer to the question of how sample selection effects our results.

Our goal is to calculate the fraction of each worker's career spent on minimum wage jobs. This goal requires that we accurately characterize a worker's minimum wage status over each year within a career. There are four reasons why this may be impossible for some workers in some years. First, there may be no valid wage because the worker went back to school (after at least a two-year hiatus), because the worker neither worked nor went to school, or because the information was missing from the

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[4] The military sample is omitted because its respondents were generally not followed after 1983, and the economically disadvantaged whites were dropped because of concerns regarding its sample frame (MaCurdy, Mroz, and Gritz, 1998).

interview. Second, we may not know the prevailing minimum wage due to missing information on the worker's state. Third, some workers attrit from the sample, although MaCurdy, Mroz, and Gritz (1998) suggest that this imparts little biases to most measures of labor market activity.

Finally, the fact that the last year of the NLSY we use is 1994 leads to somewhat non-random selection when we examine behavior farther out into workers' careers.[5] Recall that the NLSY began with people between 14 and 21 in 1979. For people who end their education with high school, we almost always have at least 10 years of post-school observations. For people finishing a college degree at the age of 22, however, we will have 10 years of post-school data for the older NLSY respondents, but not for the younger respondents. This reasoning suggests that as we look further out into people's careers, the sample becomes increasingly selective with respect to schooling. For example, the sample of workers for whom we have 10 years of post-school data has slightly lower initial schooling than the corresponding sample for whom we have 5 years of post-school data. This selectivity is less acute for the earlier birth cohorts within the NLSY, since we have many years of post-school data for almost everyone in these cohorts, whereas the selectivity on education is more severe for the later cohorts within the NLSY. This fact leads us, in some instances, to focus on the earlier birth cohorts to minimize this selectivity.

Table 1 displays some basic attributes of our NLSY sample.[6] The table presents summary statistics by "Years Into Career," which is defined as the number of years elapsed since the worker first left school for at least two years. The sample is restricted to those workers for whom we could determine their minimum wage status. Looking at the bottom row of the table first, note that the number of observations included in the sample decreases from 4,322 in the first year of the career down to 3,494 in the tenth year of the career. Again, this occurs because of survey attrition, because the younger and more

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[5] The NLSY did not interview respondents in 1995, as part of the survey's move to a biannual survey schedule. Surveys were administered again in 1996, but the two-year gap led the 1996 data to be of limited use in the analysis.

highly educated have not had as many post-school years by 1994, and because some people drop out of

the workforce and do not report a valid wage. This latter phenomenon is partly driven by women

dropping out of the workforce to raise children, as can be seen by the gradually decreasing share of

women in the sample as we look further out into people's careers. For example, women account for

48.5% of our sample one year into career, but 46.3% at ten years into a career.

Table 2 begins to look at the minimum wage job experience of our NLSY sample. For each year

into the career, the table reports the fraction of the sample whose wage is within $.25, $.50, $1.00, $1.50,

or $2.00 of the prevailing minimum wage. We have several reasons for defining "minimum wage jobs" in

these alternative fashions. The lowest threshold, the minimum wage plus $.25, is our preferred method

for characterizing workers currently on a minimum wage job. Given the possibility of misreporting and

division bias (hourly wages are sometimes calculated by dividing earnings by reported hours), it seems

reasonable to allow for some measurement error in characterizing jobs as minimum wage or not. Our

interest in the higher thresholds (minimum +$.50, minimum + $1.00, etc.) are motivated in part by

measurement error, but also because workers below these higher bands may be effected by the minimum

wage in other ways. For example, Grossman (1983) and Card and Krueger (1995) study the possibility

of ripple effects, i.e., that the minimum wage may result in wage increases for workers slightly above the

minimum.[7] As another example, future increases in the minimum wage are likely to be in this range, so it

is useful to consider the broader class of workers that might be affected by higher minimum wages that

are within the range of future policy options.

Table 2 indicates that a substantial fraction of workers start their careers on jobs that pay near-

minimum wages. For example, roughly 30% of workers in our sample held initial jobs within $.25 of the

minimum wage, and over 50% of the sample held a job that was within $1.00 of the prevailing minimum.

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[6] All statistics are calculated using NLSY 1979 sample weights.
[7] The basic idea behind such ripple effects is that raising the price of minimum wage labor may increase
demand for close substitutes, and that near-minimum wage labor is likely to be the closest substitute.

Thus, for most workers, initial jobs are at a wage that might be affected by significant changes in the minimum wage. As workers age, however, they gradually move out of jobs within range of the minimum wage. For example, by the eighth year of their career less than eight percent of our sample worked on jobs paying less than the minimum plus $.25, and roughly fourteen percent worked on jobs paying less than the minimum plus $1.00. Thus, minimum wage work, however defined, is disproportionately done by inexperienced workers.

Table 3 examines the evolution of minimum wage exposure from a different angle. If we divide workers into two groups based on whether or not their wages are above the minimum wage plus $.25, then there are four possible transitions that can be made across any pair of years. Rows 1 and 2 of table 3 report the probabilities of being on (row 1) or off (row 2) a minimum wage job in year t, conditional on having held a job that paid _more_ than the minimum wage plus $.25 in year t-1. Rows 3 and 4 report the same probabilities conditional on having held a job that paid _less_ than the minimum wage plus $.25 in year t-1. The columns of table 3 examine these transitions across adjacent pairs of years that move farther out into workers' careers as the table moves from left to right. An example of how to interpret the table is that the "10.5" entry under row 1 (entitled "Prob[Min(t)=1|Min(t-1)=0]") and the 1→2 column indicates that 10.5% of the people with non-minimum wage jobs in the first year of their career went on to hold a minimum wage job in their next year of work.

Row 1 of table 3 indicates that transitions from non-minimum to minimum wage jobs are rare, particularly as workers get further out into their careers. Row 2 shows that the analogous transitions from non-minimum to non-minimum wage status are correspondingly high, as of course they must be since the sum of rows 1 and 2 must be 1 for any column. Thus, once workers find a job above the minimum wage, they rarely go back to lower-paying minimum wage work. Rows 3 and 4 report the analogous probabilities for transitions out of minimum wage work. These rows show that the odds of a minimum wage worker finding an above-minimum wage job in the following year are in the 40%-50%

range throughout the first ten years of workers' careers.[8] Thus, workers are much more likely to escape

from minimum wage employment than they are likely to fall back into such low wage jobs after an initial

period at higher-paying jobs. Plugging these transition rates into standard stock-flow identities yields the

prediction that minimum wage work becomes increasingly less likely as cohorts age, which is of course

what the previous results showed.

These patterns are broadly consistent with the transitions made by the synthetic cohorts extracted

from the CPSORG. Note that transitions in the two samples are not directly comparable, as the synthetic

panel of the CPSORG acquires schooling and experience over time, whereas the true panel of the NLSY

acquires only experience (since they have left school permanently in most cases).[9] Nevertheless, in both

samples there is a dramatic transition out of minimum or near-minimum wage jobs as cohorts age.

However, it also true that a significant minority of workers remain in such jobs as they age and gain

experience. With the results presented so far, it is not possible to ascertain whether such minimum wage

workers represent a stable minority of workers, or whether instead the identity of minimum wage workers

changes from year to year. Obviously, the existence of minimum wage careers hinges on the answer to

this question.

Table 4 presents information on the fraction of workers' careers spent on minimum wage jobs.

In particular, we created for each worker a series of variables of the form share(x,y) that measure the

fraction of the workers first y career years spent on jobs paying less than the minimum wage plus $x.

Thus, as an example, the 14.6 entry under the table where x=.25 and y= 6 indicates that the average

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[8] These figures are similar to the transition rates that Smith and Vavrichek (1992) estimated using the Survey of Income and Program Participation (SIPP).

[9] For any worker, we define the "first career year" to be the first year of the first two-year period in which they do not go to school. Some workers eventually do go back and obtain further education such as GED's or graduate degrees. Thus, the NLSY panel does acquire some education as they move further out into their career. The acquisition of graduate degrees is probably unimportant from our perspective, since people acquiring such degrees were probably not employed in minimum wage work prior to their return to school. In contrast, the GED may be an important element of workers' escape from minimum wage work.

worker spent 14.6% of their first six career years on jobs that paid less than the prevailing minimum plus

$.25. The results indicate that, depending on how we define "near-minimum," a substantial fraction of

these cohorts' first ten years were spent on minimum or near-minimum wage jobs. For example, the

mean worker in this sample spent 29% of their first six years on jobs paying less than the minimum wage

plus $1.00, and 35% of their first ten years on jobs paying less than the minimum wage plus $2.00. Thus,

Table 4 indicates that a substantial portion of most workers' early careers are spent on minimum or near-

minimum wage jobs.

Table 4 may overstate the importance of minimum wage jobs by weighting all years equally. If

workers can shift resources over the life-cycle, or if intergenerational transfers ease the burden of low

income in one's early years, then the salience of minimum wage job-holding would be better measured

by weighting years by the wage received. That is, one may be interested in the proportion of a person's

career income received on minimum wage jobs. To follow this line of reasoning, tables 5 and 6 repeat

the analysis of table 4 with the exception that the fraction of years on minimum wage jobs are weighted

by the nominal wage (table 5) or the real wage (table 6).[10] The tables indicate that weighting by either

nominal or real wages significantly reduces the importance of minimum wage jobs in the first ten years

of a career. However, there are still a non-trivial number of years spent on minimum wage jobs under

either metric. For example, table 5 indicates that, when years are weighted by nominal wages, the mean

worker spends roughly 20% of their first ten career years on jobs paying less than the minimum wage

plus $1.50. As a second example, table 6 indicates that when years are weighted by real wages, the mean

worker spends 10% of their first nine career years on jobs paying less than the minimum wage plus $.50.

The preceding tables indicate that the NLSY cohort continued to hold minimum wage jobs as

they gained experience, albeit with decreasing frequency. It still remains to be seen whether there is any

variation across respondents in the fraction of time spent on minimum wage jobs. Table 7 begins to

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[10] Price deflators are based on the Consumer Price Index – Urban series.

address this question. Recall that share(x,y) is the share of the first y career years spent on a job paying less than the prevailing minimum plus $x. Table 7 asks whether there is much variation in share(x,y), with a particular eye on the right tail of the distribution. In particular, table 7 reports the fraction of the population for whom share(x,y) is greater than Z for Z=.25, .50, and .75. As an example, the entry for the Years Into Career =5 row under the X=.50/Z=.75 column indicates that 6.1% of the sample spent more than 75% of their first five career years on jobs that paid less than the prevailing minimum plus $.50. As a second example, the entry for the Years Into Career = 9 row and the X=1.50/Z=.25 column indicates that roughly 26% of the sample spent at least 25% of their first nine career years on jobs that paid less than the minimum plus $1.50.

Table 7 exploits the panel nature of the data to show the extent to which some workers are continually employed in minimum or near-minimum wage jobs. The figures indicate that few workers consistently hold minimum or near-minimum wage jobs. It could hardly be otherwise, given the low incidence of minimum wage job-holding seen in the cross-sectional comparisons of the previous tables. There is, however, a non-negligible subset of the population that continues to work at near-minimum wages throughout much of their early career. For example, table 7 indicates that almost 4% of the population spends at least 50% of their first nine post-school years working at jobs paying less than the minimum plus $.50. As another example, table 7 indicates that roughly 5% of the population spends over 75% of their first eight post-school years working at jobs paying less than the minimum plus $1.00. For these workers, it is clear that minimum wage policy has potentially long-ranging effects.

It is important to keep the results from earlier tables in mind when interpreting table 7. In particular, although some workers nine or ten years into their careers have spent a significant cumulative time on minimum wage jobs, these figures overstate the number that are on minimum wage jobs this far out. The overstatement occurs because most workers accumulate minimum wage job experience most quickly in the first few years of their career. Nevertheless, there are significant fractions of workers in

minimum wage jobs after several years of post-school experience have been accumulated. For example, table 2 showed that roughly 8% of the population held a job paying less than the minimum plus $.50 ten years into their career. Thus, the proportion of workers with "minimum wage careers" will not necessarily go to zero as cohorts age. Some workers remain at minimum wage jobs far into their careers.

Which groups are particularly likely to have such minimum wage careers? It is natural to look at groups with generally low wages, since they are likely overrepresented in the minimum wage population. Tables 8 and 9 reproduce table 7 for samples comprised solely of blacks (table 8) or women (table 9). Table 8 shows that, like the broader population, few blacks are consistently employed at minimum wage jobs for the duration of their early careers. For example, table 8 indicates that only 11.3% of the black population spent at least 50% of their first nine post-school years on jobs paying less than the minimum plus $1.00. As another example, the table indicates that roughly 3.4% of the black population spent more than 75% of their first eight post-school years on jobs paying less than the minimum plus $.50. Thus, extended exposure to minimum wage jobs is the exception rather than the norm for black workers.

As with the broader population, however, there is a subset of black workers with extended stays in minimum wage jobs. Further, the proportion of black workers in such jobs is substantially higher than for non-blacks. For example, roughly 13% of the black population spent more than 75% of their first eight post-school years on jobs paying less than the minimum plus $1.50, whereas the corresponding figure for the full sample was only 8.5%. Thus, blacks are overrepresented in the minimum and near-minimum wage population.

Table 9 examines similar figures for women. On this dimension, the labor market experience for women as a group are very similar to those for blacks. True "minimum wage careers" are quite rare among women, as most women spend only a small fraction of their careers on minimum or near-minimum wage jobs. However, women are substantially more likely than men to have extended stays in minimum or near-minimum wage jobs. For example, approximately 4.2% of women spend over 75% of

their first nine post-school years working in jobs paying less than the minimum plus $1.00. Again, this is not surprising given that women are generally overrepresented in the low-wage population.

To conduct a more systematic analysis of the determinants of minimum wage careers, we estimated linear regression models in which the dependent variable was the fraction of time spent on jobs paying less than the minimum wage plus $1.00. The right-hand side variables in this analysis included race and sex, but also years of schooling , age, number of children, an urban dummy, and measures of the father's and mother's education. Table 10 reports the results of this analysis for five, eight, and ten years out into a career.[11] The results are broadly consistent with expectations based on general analyses of the wage distribution. For example, being highly educated and living in an urban area are both strongly correlated with *not* having a minimum wage career. In addition, consistent with the preceding tables, blacks and women are more likely than white males to spend significant portions of their career in minimum wage jobs. Finally, the presence of children is positively correlated with minimum wage job-holding for women, but negatively correlated for men. These relationships are all consistent with previously established patterns of wage variation.

Table 11 presents fitted values for hypothetical workers based on the models of table 10. Predictions for five, eight, and ten years into careers are presented in panels A, B, and C, respectively. The rows within each panel vary by race, sex, and urban/rural designation, and each row presents estimates for five different levels of education. All other variables are set to sample means. An example of how to read the table is that the top left entry indicates that the model predicts that a black rural woman is predicted to have sent 63% of her first five career years in jobs that paid less than the minimum wage plus $1.00. The models obviously predict that the incidence of minimum wage careers varies dramatically across demographic groups. Rural high-school dropouts, particularly women and blacks,

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[11] We obtained similar results when we estimated analogous models using a logit specification. In addition, standard errors in table 10 take account of stratification and clustering in the design of the survey.

are likely to spend substantial fractions of their careers on minimum wage jobs. Since these models use the minimum plus $1.00 distinction, the models predictions would differ if we used alternate bifurcations such as the minimum plus $.25 or the minimum plus $2.00.

There are two related questions about the results presented here: sample selection and weighting. We interpret our results as if they accurately portray patterns of minimum wage job holding in the U.S. population. If we merely applied the MaCurdy, Mroz, and Gritz weights to all workers present in the three NLSY panels we use, then we are justified in making this interpretation. However, there are two reasons why some original NLSY respondents are omitted from the samples on which are estimates are based. The first reason is attrition, i.e. the fact that some respondents drop out of the survey. MaCurdy, Mroz and Gritz provide a set of updated weights that are designed to make latter rounds of the NLSY nationally representative. We experimented with these latter year weights, and it made very little difference in our results. This finding is consistent with MaCurdy, Mroz, and Gritz' (1998) finding that attriters were not drawn from any one part of the wage or employment distribution. Thus, we don't believe that attrition is a major source of bias in our results.

The second reason why respondents are omitted from our sample is that we can not accurately characterize their minimum wage experience over their careers. This occurs sometimes because we can not reliably date the start of respondents' post-school career, but more often it occurs because respondents did not report a valid wage in one or more years, typically because they did not work at all. This implies that our results should be viewed as statements about the incidence of minimum wage careers among the restricted population of workers with stable employment histories. It seems reasonable to suppose that non-workers, were they to take jobs, would probably have lower wages than those who do work, and thus that they would have more exposure to minimum wage jobs. This in turn implies that our results might understate the incidence of minimum wage *opportunities* among the broader population of workers and non-workers. It is also easy to imagine that this type of selection

would lead the regressions of table 10 to understate the correlation of some characteristics, race for example, with minimum wage opportunities.

We explored this idea by estimating maximum likelihood versions of Heckman's selection equation. The results vary somewhat depending upon which of the non-sample respondents (i.e. those respondents who didn't meet all our selection criteria) we include in the first stage probit equation. In all cases we've examined, however, the wage equation of the two-equation Heckman model yields parameter estimates similar to those reported in table 10. One problem with this exercise is that we can identify no reasonable a priori exclusion restrictions for the wage equation, so that the selection effect is identified solely on the basis of functional form. Thus, we view this exercise as only a partial answer to whether our results would differ in a fully representative sample.

IV. Concluding Remarks

This paper has examined whether some workers are in minimum or near-minimum wage jobs for substantial fractions of their post-school careers. Following previous work, we show that many workers begin their post-school careers in jobs paying the minimum or something close to it, but that the vast majority of workers move on to higher-paying jobs as they accumulate experience. However, there is a non-trivial fraction of workers who spend substantial portions of their early careers consistently working in minimum wage jobs. We only examine respondents' first ten post-school years, so it is possible that further wage growth will take all workers out of minimum wage work as they acquire experience. The fact that wages grow much more quickly in the initial stages of work careers, however, suggests that some workers will continue to be left behind in minimum wage careers. Less educated people, blacks, women with young children, and workers who reside outside of SMSAs are much more likely to have such minimum wage careers. In short, there are particular groups whose lifetime incomes may be supported by a minimum wage. By the same token, any disemployment effects of the minimum wage

may apply to these same groups throughout their careers. Further research is necessary to see whether these results hold farther out into people's careers and in other time periods. Nevertheless, the results suggest that minimum wage legislation has non-negligible effects on the lifetime opportunities of a significant minority of workers.

REFERENCES

Behrman, Jere, Robin Sickles, and Paul Taubman, "The Impact of Minimum Wages on the Distribution of Earnings for Major Race-Sex Groups: A Dynamic Analysis," American Economic Review, September 1983.

Burkhauser, Richard V. and T. Aldrich Finegan, "The Minimum Wage and the Poor: The End of a Relationship," Journal of Policy Analysis and Management, 8(1), Winter 1989, pp. 53-71.

Card, David, and Alan B. Krueger. 1995. Myth and Measurement: The New Economics of the Minimum Wage. Princeton, NJ: Princeton University Press.

Chressanthis, George A. and Paul W. Grimes, "Criminal Behaviour and Youth in the Labour Market: The Case of the Pernicious Minimum Wage," Applied Economics 22, 1990, pp.1495-1508.

Currie, Janet and Bruce Fallick, "Minimum Wage Legislation and the Educational Outcomes of Youths: A Re-examination," manuscript, UCLA, June 1991.

Ehrenberg, Ronald and Alan Marcus, "Minimum Wages and Teenagers Enrollment-Employment Outcomes: A Multinomial Logit Model," Journal of Human Resources 17, 1982.

Grossman, Jean B. "The Impact of the Minimum Wage on Other Wages." Journal of Human Resources, 18, 1983, pp. 359-78.

Hashimoto, Masanori, "Minimum Wage Effects on Training on the Job," American Economic Review 72(5), December 1982, pp.1070-1087.

Johnson, William R., and Edgar K. Browning, "The Distributional and Efficiency Effects of Increasing the Minimum Wage: A Simulation," American Economic Review 73(1), March 1983.

Loveman, Gary W., and Chris Tilly, "Good Jobs or Bad Jobs? Evaluating the American Job Creation Experience." International Labour Review 127(5), 1988, pp. 593-611.

MaCurdy, Thomas, Thomas Mroz, and R. Mark Gritz. "An Evaluation of the National Longitudinal Survey of Youth." Journal of Human Resources, 33(2), Spring 1998, pp. 345-436.

Martin, Linda R. and Demettrios Giannaros, "Would a Higher Minimum Wage Help Poor Families Headed by Women?" Monthly Labor Review 113(8), August 1990, p.33-7.

Neumark, David and William Wascher, "Minimum Wage Effects on Employment and School Enrollment: Evidence from Policy Variation in Schooling Quality and Compulsory Schooling Laws," Federal Reserve Board, Working Paper Number 133, June 1993.

Oppenheimer, Valerie K. and Matthijs Kalmijn, "Life-Cycle Jobs, Race, and the Youth Labor Market," UCLA Institute of Industrial Relations Working Paper #169, April 1989.

Schiller, Bradley R., "Moving Up: The Training and Wage Ga ins of Minimum-Wage Entrants," Social Science Quarterly, 1993.

Smith, Ralph E. and Bruce Vavrichek, "The Minimum Wage: Its Relation to Incomes and Poverty,"
Monthly Labor Review 110(6), June 1987, pp. 24-30.

Smith, Ralph E. and Bruce Vavrichek, "The Wage Mobility of Minimum Wage Workers," Industrial &
Labor Relations Review 46(1), October 1992, pp.82-88.

Table 1

Sample Means
By Years Into Career

Variable	Years Into Career					
	1	2	4	6	8	10
Education at this point of career	12.8	12.8	12.9	12.9	13.0	13.0
Age at this point of career	20.1	21.1	23.1	25.1	27.1	29.1
Year of first job	1981.5	1981.5	1981.5	1981.5	1981.5	1981.5
Female =1	48.5%	48.9%	47.9%	46.6%	46.5%	46.3%
Black = 1	12.3%	11.9%	11.5%	11.7%	12.0%	11.9%
Urban =1	79.4%	79.0%	80.0%	78.9%	79.1%	78.8%
Father's education as of 1979	11.8	11.9	11.9	11.9	11.9	11.8
Mother's education as of 1979	11.6	11.6	11.7	11.6	11.6	11.6
Number of observations	4322	4066	3689	3608	3552	3494

Notes: All numbers derived from authors' calculations from National Longitudinal Survey of Youth. Sample for each year restricted to those people for whom we could determine whether or not they were working at a minimum wage job.

Table 2

**Share of Population on Minimum or Near-Minimum Wage Jobs
By Years Into Career**

| Years Into Career | Percent of Population Within $X of the Minimum Wage | | | | |
	X=.25	X=.50	X=1.00	X=1.50	X=2.00
1	30.5	38.7	54.5	64.3	72.6
2	23.4	30.2	42.4	52.4	62.0
3	16.7	21.8	31.9	42.0	50.8
4	13.5	17.2	25.6	33.9	42.9
5	10.5	14.0	21.0	28.0	37.0
6	9.2	12.0	17.9	24.2	32.4
7	8.6	10.4	15.8	20.6	27.5
8	7.7	9.5	14.4	18.2	25.2
9	7.3	8.8	12.7	17.1	22.5
10	7.3	8.6	12.2	15.1	20.3

Source: Authors' calculations from National Longitudinal Survey of Youth.

Table 3

Transition Rates Into and Out of Minimum Wage Employment
By Years Into Career

	Year(t-1) → Year(t)								
	1→2	2→3	3→4	4→5	5→6	6→7	7→8	8→9	9→10
1. Prob[Min(t)=1IMin(t-1)=0]	10.5	8.4	6.7	5.3	4.7	4.6	4.3	3.8	3.7
2. Prob[Min(t)=0IMin(t-1)=0]	89.5	91.6	93.3	94.7	95.3	95.4	95.7	96.2	97.3
3. Prob[Min(t)=1IMin(t-1)=1]	53.6	44.9	42.9	38.4	37.2	44.7	33.7	44.6	46.1
4. Prob[Min(t)=0IMin(t-1)=1]	46.4	55.1	57.1	61.6	62.8	55.3	56.3	55.4	53.9

Notes: Min(t) =1 if a person is on a job paying less than the minimum wage plus $.25 in year t, where years are indexed by their position within a person's career. Thus, Prob[Min(t)=1IMin(t-1)=0] is the probability that a person held a job paying less than the minimum plus $.25 in year t, conditional on the fact that they held a job paying more than the minimum plus $.25 in year t-1. An example of how to interpret the table is that the "10.5" entry under the Prob[Min(t)=1IMin(t-1)=0] row and the 1→2 column indicates that 10.5% of people with non-minimum wage jobs in the first year of their career went on to hold a minimum wage job in their next year of work.

Sources: Authors' calculations from National Longitudinal Survey of Youth.

Table 4

**Proportion of Career Spent on Minimum or Near-Minimum Wage Jobs
By Years Into Career**

Years Into Career	Mean Share of Years Spent Within $X of the Minimum Wage				
	X=.25	X=.50	X=1.00	X=1.50	X=2.00
1	30.5	38.7	54.5	64.3	72.6
2	26.6	34.0	48.0	57.9	67.0
3	22.2	29.0	41.8	51.8	60.9
4	19.1	25.0	36.7	46.4	55.5
5	16.5	21.7	32.4	41.6	50.5
6	14.6	19.3	29.0	37.5	46.4
7	13.3	17.5	26.4	34.3	42.9
8	12.0	15.8	24.0	31.3	39.7
9	10.9	14.3	21.9	28.7	36.7
10	10.1	13.3	20.4	26.9	34.6

Source: Authors' calculations from National Longitudinal Survey of Youth.

Table 5

**Proportion of Career Spent on Minimum or Near-Minimum Wage Jobs
Wage-Weighted
By Years Into Career**

Years Into Career	Mean Share of Years Spent Within $X of the Minimum Wage				
	X=.25	X=.50	X=1.00	X=1.50	X=2.00
1	30.5	38.7	54.5	64.3	72.6
2	24.3	31.5	45.2	55.1	64.6
3	18.7	25.0	37.3	47.3	56.6
4	15.1	20.3	31.2	40.7	49.8
5	12.4	16.8	26.4	35.1	44.0
6	10.5	14.3	22.7	30.6	39.2
7	9.1	12.5	20.0	27.0	35.2
8	7.8	10.7	17.3	23.7	31.5
9	6.7	9.2	15.2	20.9	28.0
10	6.1	8.3	13.7	18.9	25.7

Source: Authors' calculations from National Longitudinal Survey of Youth.

Table 6

Proportion of Career Spent on Minimum or Near-Minimum Wage Jobs
Real Wage-Weighted
By Years Into Career

	Mean Share of Years Spent Within $X of the Minimum Wage				
Years Into Career	X=.25	X=.50	X=1.00	X=1.50	X=2.00
1	30.5	38.7	54.5	64.3	72.6
2	24.4	31.6	45.4	55.3	64.7
3	18.9	25.3	37.7	47.7	57.0
4	15.4	20.7	31.8	41.3	50.5
5	12.8	17.3	27.1	35.9	44.8
6	10.9	14.9	23.6	31.6	40.2
7	9.6	13.1	21.0	28.2	36.4
8	8.4	11.4	18.4	25.0	32.8
9	7.3	10.0	16.3	22.3	29.6
10	6.6	9.1	14.9	20.5	27.4

Source: Authors' calculations from National Longitudinal Survey of Youth.

Table 7

Fraction of Population That Has Spent At Least Z% of Their Career
Working At Jobs Within $X of the Minimum Wage

Years Into Career	X=.50			X=1.00			X=1.50		
	Z=25	Z=50	Z=75	Z=25	Z=50	Z=75	Z=25	Z=50	Z=75
1	38.5	38.5	38.5	54.1	54.1	54.1	63.8	63.8	63.8
2	42.6	42.6	21.2	56.3	56.3	33.8	64.9	64.9	43.7
3	42.5	22.9	10.0	54.8	35.1	18.9	62.0	45.4	27.6
4	40.5	22.8	12.3	51.5	34.3	21.0	58.0	43.5	29.8
5	22.0	12.7	6.1	33.3	21.4	12.4	41.7	29.8	19.3
6	21.1	12.4	3.0	31.5	20.8	7.6	39.6	28.6	12.4
7	20.6	7.0	1.8	30.6	13.3	4.7	38.0	19.7	8.2
8	19.6	7.0	2.1	28.9	13.0	5.1	35.8	19.2	8.5
9	12.1	3.7	1.0	19.6	8.0	3.0	25.8	13.4	5.3
10	11.8	3.8	0.7	18.8	8.3	1.9	24.9	13.2	3.6

Source: Authors' calculations from National Longitudinal Survey of Youth.

Table 8

Fraction of Black Population That Has Spent At Least Z% of Their Career Working At Jobs Within $X of the Minimum Wage

Years Into Career	X=.50			X=1.00			X=1.50		
	Z=25	Z=50	Z=75	Z=25	Z=50	Z=75	Z=25	Z=50	Z=75
1	45.9	45.9	45.9	62.0	62.0	62.0	71.3	71.3	71.3
2	49.1	49.1	28.2	62.7	62.7	41.5	69.4	69.4	52.0
3	45.0	26.8	13.0	56.1	38.5	22.3	61.2	47.9	30.3
4	41.7	25.4	15.8	51.7	37.0	23.6	55.7	44.8	32.5
5	24.5	16.4	8.7	35.4	24.4	15.6	42.2	31.8	23.2
6	24.6	16.6	4.6	34.3	25.0	11.1	40.9	31.3	17.3
7	23.4	10.8	2.6	32.3	17.2	7.5	38.7	24.0	12.3
8	22.7	10.6	3.4	31.3	17.1	8.4	37.2	23.1	13.0
9	14.4	5.7	1.7	21.2	11.3	4.5	27.0	16.2	8.4
10	13.6	5.9	0.8	20.1	11.1	2.9	25.4	16.2	6.1

Source: Authors' calculations from National Longitudinal Survey of Youth.

Table 9

**Fraction of Female Population That Has Spent At Least Z% of Their Career
Working At Jobs Within $X of the Minimum Wage**

Years Into Career	X=.50			X=1.00			X=1.50		
	Z=25	Z=50	Z=75	Z=25	Z=50	Z=75	Z=25	Z=50	Z=75
1	46.5	46.5	46.5	61.9	61.9	61.9	70.6	70.6	70.6
2	50.7	50.7	28.7	63.7	63.7	42.9	71.2	71.2	52.6
3	49.2	29.7	14.7	60.5	43.1	25.6	66.2	52.3	35.5
4	46.6	28.2	16.9	56.2	40.9	27.2	61.2	48.7	36.8
5	27.0	16.6	8.5	38.7	26.8	16.0	46.1	35.4	24.3
6	24.7	15.2	4.6	35.2	24.9	10.2	42.1	32.6	15.2
7	23.9	9.1	2.9	34.1	16.1	6.7	40.1	23.6	10.6
8	22.3	8.8	3.2	31.5	15.3	7.1	37.3	22.7	10.7
9	13.9	5.3	1.5	22.4	9.9	4.2	28.3	15.6	7.1
10	13.4	5.6	1.1	21.1	10.4	2.7	26.8	15.1	4.7

Source: Authors' calculations from National Longitudinal Survey of Youth.

Table 10

Models of Minimum Wage Careers

Independent Variable	Dependent Variable = Fraction of First X years spent on jobs paying less than the prevailing minimum wage plus $1.00		
	X=5	X=8	X=10
Intercept	1.676 (.071)	1.339 (.067)	1.150 (.056)
Age as of this year	-.037 (.004)	-.027 (.003)	-.022 (.003)
Number of children	-.028 (.013)	-.026 (.007)	-.020 (.006)
Female	.109 (.013)	.067 (.013)	.062 (.014)
Female * Number of Children	.070 (.020)	.049 (.014)	.034 (.011)
Black	.073 (.024)	.061 (.021)	.053 (.020)
Black * Female	-.035 (.037)	-.015 (.033)	-.031 (.032)
Education	-.029 (.005)	-.024 (.004)	-.017 (.004)
Urban	-.049 (.017)	-.039 (.014)	-.039 (.012)
Father's Education	-.005 (.002)	-.003 (.002)	-.002 (.002)
Mother's Education	-.002 (.003)	-.003 (.067)	-.004 (.002)
Number of Observations	2494	2132	1942
R-square	.259	.244	.211

Notes: Standard errors properly account for the complex survey design of the data.
Sources: Authors' calculations based on data from National Longitudinal Survey of Youth.

Table 11

Model Predictions for Percentage of First Y Years on Minimum Wage Job
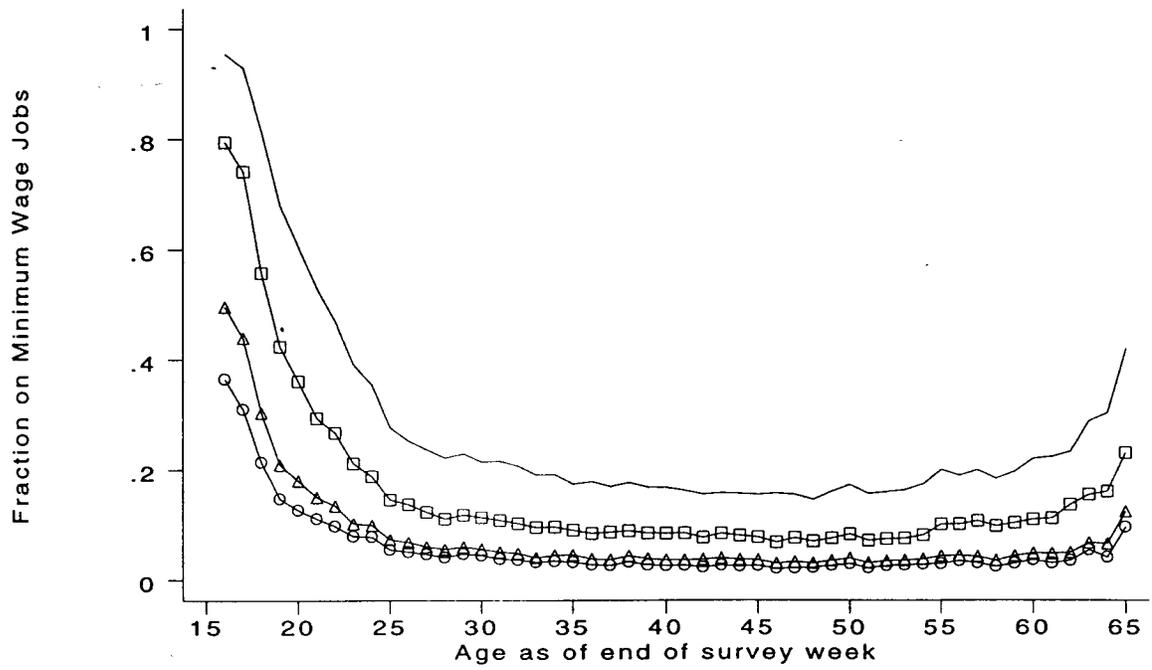## For Selected X's

A. First 5 years

Characteristics	Years of Education				
	8	10	12	14	16
Black – Rural – Woman	63.0	57.2	51.3	45.5	39.6
White – Rural – Woman	59.2	53.4	47.5	41.7	35.9
Black – Rural – Man	52.0	46.2	40.3	34.5	28.7
Black – Urban – Man	47.1	41.3	35.4	29.6	23.8
White – Rural – Man	44.7	38.8	33.0	27.1	21.3
White – Urban - Man	39.7	33.9	28.1	22.2	16.4

B. First 8 years

Characteristics	Years of Education				
	8	10	12	14	16
Black – Rural – Woman	50.2	45.4	40.7	35.9	31.1
White – Rural – Woman	45.6	40.8	36.1	31.3	26.5
Black – Rural – Man	40.7	36.0	31.2	26.5	21.7
Black – Urban – Man	36.8	32.0	27.3	22.5	17.8
White – Rural – Man	34.7	29.9	25.1	20.4	15.6
White – Urban – Man	30.7	25.9	21.2	16.4	11.7

C. First 10 years

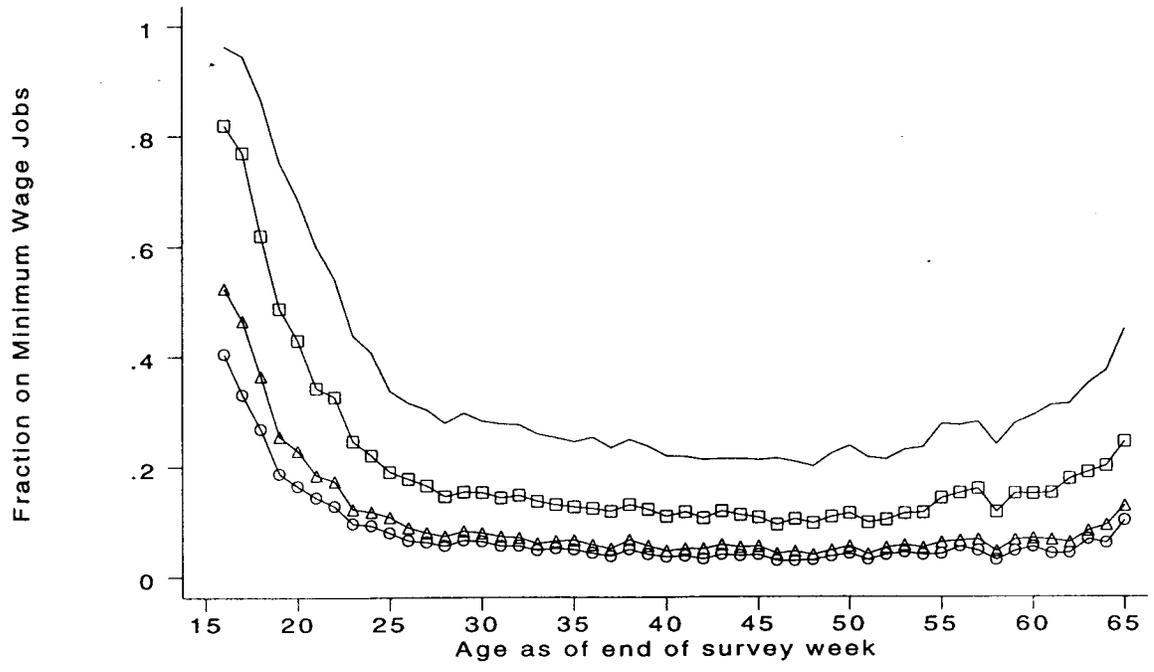| Characteristics	Years of Education				
	8	10	12	14	16
Black – Rural – Woman	40.4	36.9	33.5	30.0	26.6
White – Rural – Woman	38.2	34.7	31.2	27.8	24.3
Black – Rural – Man	33.8	30.4	26.9	23.5	20.0
Black – Urban – Man	30.0	26.5	23.1	19.6	16.2
White – Rural – Man	28.5	25.1	21.6	18.1	14.7
White – Urban - Man	24.7	21.2	17.7	14.3	10.8

Notes: All predictions based on linear regressions reported in Table 10
Authors' calculations based on data from the National Longitudinal Survey of Youth.

Figure 1
All Workers

Figure 2
Women Only

Fraction on Minimum Wage Jobs

Age as of end of survey week

STATA™

Figure 3
Blacks Only