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ABSTRACT

The question of how entrepreneurship relates to income mobility is cogent given the current public debate about the sources of income inequality and mobility in United States society. We examine how experience with entrepreneurship has affected an individual's place in the earnings distribution. Our basic tack is to follow individuals' positions in the income distribution over time, and to see how their mobility (or lack thereof) was affected by involvement with entrepreneurship. Our main finding is that for low-income individuals there is some merit to the notion that the self-employed moved ahead in the earnings distribution relative to those who remained wage earners. On the other hand, for those at the upper end of the earnings distribution, those who became self-employed often advanced less in the earnings distribution than their salaried counterparts.

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1. INTRODUCTION

The Horatio Alger theme continues to exert a powerful grip on the American imagination. Its basic message is that one can get ahead in life by striking out on one's own as an entrepreneur.[1] This notion is consistent with sociologists' accounts of the immigrants' experience in the United States: "But as against the worker, each businessman had the possibility, slim though it was, of achieving influence and perhaps wealth" [Glazer and Moynihan, 1970, pp. 30-31]. A recent variation on this theme is that encouraging entrepreneurship would be a good strategy for improving the economic status of black people. For example, the distinguished journalist William Raspberry [1991, p. A23] has argued that there "is a need to shift the black focus from jobs to ownership, from income to wealth, from political office to using politics to improve the climate for black business development." More generally, the question of how entrepreneurship relates to earnings mobility is cogent given the current public debate about income inequality and mobility in United States society.[2] As the *Wall Street Journal* recently suggested, the stakes in this debate are high:

> a widening wage gap alone doesn't prove that the rich are getting forever richer and the poor forever poorer. Annual pay provides only a snapshot of worker well-being...Do people who hit the skids one year move up the income ladder the next? Do the poor ascend easily enough to make up for the paltry wages they earn while still at the bottom? That is the real test of whether the U.S. is an increasingly caste-based society (Phillips [1996, p. A1]).

Economists have now produced a substantial number of careful empirical studies designed to address these and related issues, both for the United States and a number of European countries.[3] For the most part, however, these studies have ignored possible links between entrepreneurship and earnings mobility.[4] The purpose of this paper is to provide a statistical history of how experience with entrepreneurship has affected earnings mobility. Our basic strategy is to track individuals' positions in the earnings distribution over time, and to see how

their mobility (or lack thereof) was affected by involvement with entrepreneurship. Of course, individuals select into and out of entrepreneurship. We do *not* attempt to analyze this self-selection process, so we cannot determine what would have happened to a randomly selected person who became an entrepreneur. Rather, we have the more modest goal of summarizing how entrepreneurship has actually affected the relative positions of those individuals who have tried it.

Section 2 provides a first cut at the data with a comparison of mobility tables for wage-earners and entrepreneurs. The focus here is on movements from one quintile of the earnings distribution to another. In Section 3 we impose more structure on the data in order to estimate how entrepreneurship affects one's position in the distribution conditional on education, experience, race, gender, and other variables. Our main finding is that there is some merit to the notion that self-employment has been a way for low-earnings individuals to move up in the earnings distribution, relative to those who were salaried. On the other hand, high-earnings individuals who got involved with self-employment tended to move downward relative to their wage-earning counterparts. These general tendencies were present for all demographic groups, although there were some interesting differences by gender and race. Section 4 has the conclusion and suggestions for future research.

2. PRELIMINARIES: MOBILITY TABLES

Our analysis is based upon the Panel Study of Income Dynamics (PSID), which has interviewed annually a representative sample of some 5,000 families since 1968.[5] We analyze information on men and women between the ages of 25 and 55 for the calendar years 1969 to

1990. We focus on this "prime-age" group to avoid the complications that arise from younger individuals' labor market entry decisions and older individuals' impending retirements.

2.1 Key Concepts

Our first problem is to identify the entrepreneurs in our sample. The PSID asks each individual, "On your main job, are you self-employed, are you employed by someone else, or what?" Throughout this paper, we characterize the self-employed as being "entrepreneurs." In the nonstatistical literature on this topic, entrepreneurs are characterized in Schumpeterian terms—they are daring, overflowing with animal spirits and creativity, and so on. Those who do statistical work must settle for observable (and hence, more prosaic) criteria for identifying entrepreneurs. With survey data of this sort, self-employment is a sensible proxy, and it has been used in a number of previous studies.[6] Some individuals indicated that they were simultaneously self-employed and wage-earners. Somewhat arbitrarily, we put these individuals in the self-employed category. Fortunately, the decision is not crucial; there are few such observations (only 0.5 percent on average), and our substantive conclusions are unaffected when we classify these individuals as wage-earners.

Both salary workers and the self-employed were asked to report their labor earnings; this figure includes any bonuses, overtime, and commissions. As is the case with most data sets, the PSID does not allow us to measure comprehensively the economic income accruing to individuals in the form of in-kind payments and various fringe benefits. In addition to this familiar difficulty, a particular problem arises in comparing the earnings of entrepreneurs and wage-earners. The PSID question on self-employment earnings asked, "How much was (your) share of the total income from business in (the year)—that is, the amount (you) took out plus any

profit left in?" Total income from business depends not only on the entrepreneur's labor input, but any capital invested as well. Thus, we can imagine a situation in which the "earnings" of an individual increased after he made a transition to entrepreneurship, but this was due to the return on the capital that he had invested in the enterprise, as opposed to his labor. And the PSID provides no way to estimate the capital share of self-employment income.

One response to this observation is to note that a great many entrepreneurial enterprises have little or no capital, so as a practical matter, this is not an important drawback.[7] Indeed, using data from the Survey of Income and Program Participation (SIPP), which allows one to estimate the capital component of self-employment earnings, Hamilton [1995, p. 29] found that, in general, results relating to earnings differences between entrepreneurs and salaried individuals do not differ substantively when the capital income component is taken into account. Further, on the basis of examination of Survey of Consumer Finances data, Yuengert [1996] concluded that the self-employed actually overstate capital income relative to labor income. Thus, to the extent there is a bias, its direction is not clear. This may be the reason that most studies of self-employment income simply ignore this issue.[8] That said, we do make an attempt to roughly gauge its importance for our substantive results. If the individual takes some of his or her *family's* money and invests it in the enterprise, then it might make sense to examine how *family* income changes when the individual makes a transition to entrepreneurship. Hence, we repeat our major analyses focusing on movements within the family income distribution as opposed to movements within the individual earnings distribution. No important substantive results emerged.[9]

A final issue relating to the measurement of earnings concerns the treatment of individuals with no reported earnings. We assume that those who never reported labor earnings

during our sample period were not actively participating in the labor market and exclude them from the analysis. Some individuals, however, reported zero labor earnings in some years and positive values in others. Movements between positive and zero earnings may be an important part of our story, so such individuals are kept in the sample.

2.2 Constructing Mobility Tables

With earnings for each individual in hand, the next step is to summarize their movements through time. The traditional way to do this is to compute mobility tables showing movements among different parts of the income distribution, so that is how we begin our analysis. Following Burkhauser, Holtz-Eakin, and Rhody [1997], we computed mobility tables as follows: In each year, for example 1980, we ranked individuals by their earnings (as defined above), and calculated each individual's quintile in the distribution. We then went to the next year (1981) and calculated the individual's quintile in that year's earnings distribution. We know, then, whether each individual moved up, moved down, or stayed in the same quintile. To get some sense of "typical" behavior, we averaged over individuals in the sample. Specifically, define the indicator variables t_{qr}^{i} to be equal to 1 if individual i made a transition from quintile q to quintile r, and zero otherwise. Our estimate of the probability of moving between quintiles q and r is

$$p_{qr} = \frac{\sum_{i=1}^{i=N_q} w^i t_{qr}^i}{\sum_{i=1}^{i=N_q} w^i}, \tag{2.1}$$

where w^i is the sample weight for individual i and N_q is the number of individuals initially in quintile q.

This process produces a picture of mobility between any two years (1980 and 1981 in this example). Next, we collected together all the year-to-year comparisons—1970 to 1971, 1971 to 1972, etc.—and calculated the average experience, which we call "one-year" mobility.[10] In order to see how becoming an entrepreneur affected mobility, we divided the set of one-year transitions into two groups: those in which the individual was a wage-earner in the first year and self-employed the next, and all the rest. We then computed one-year mobility tables for both groups.

It is well-established that mobility patterns depend on the length of the transition period (see, for example, Atkinson, Bourguignon, and Morrisson [1992, p. 138]). Hence, in addition to one year transitions, it is important to analyze the longer term effects of experience with entrepreneurship on mobility. We therefore computed five-year mobility measures as well. To do so, we again began by calculating the quintile for each individual in each year (say 1980). We then examined the individual's situation five years later (in this case, 1985), and computed whether he or she moved up a quintile, down a quintile, and so forth. We next calculated the fraction of individuals who moved up or down by various numbers of quintiles, and took averages over all the five-year periods. We call this average "five-year" mobility. To assess the impact of self-employment on five-year mobility, we took all the five-year transitions and divided them into two groups—those in which the individual was a wage-earner in the initial year (say 1980) and self-employed in any two of the five subsequent years (in this case 1981-85); and everyone else. The former are deemed to have become "self-employed" during the period. We then computed separate mobility tables for both groups.

An obvious problem with this method is that it arbitrarily lumps together individuals who were self-employed only two years with those who remained self-employed for up to five years and, similarly, ignores the self-employment experience of those who were in that category for

only one year. One could address this problem by computing separate mobility tables for those with one, two, three, four, and five years of self-employment experience during the transition period, but the number of observations per table would be too small to allow us to make reliable inferences. Further, one would soon start drowning in numbers. This points to a problem with using mobility tables to investigate the role of entrepreneurship—it is cumbersome to investigate how various experiences with self-employment affect mobility, *ceteris paribus*. More generally, mobility tables are inconvenient for exploring how other variables such as experience and education may interact with self-employment experience. Another manifestation of this problem is that mobility tables do not allow us to distinguish between the effect of a transition *per se* versus the impact of additional years of self-employment experience. A discrete model simply cannot deal with such continuous phenomena. All of this said, the tables provide a wealth of useful information on the distribution of movements within the population. Further, they facilitate comparisons with earlier studies. Hence, our tack is to present the mobility tables, even given their limitations, and then in Section 3 to provide a complementary approach that is more concise and structural (but has less information about the distribution of transitions).

2.3 Results

Our presentation of the mobility tables begins in Table 1, in which we display one-year transition results for the entire sample, and transition results broken down by various demographic groups. In each table, the first figure in cell (i,j) shows the proportion of individuals originally in quintile i who were in quintile j one year later. The second figure in the cell is the associated number of observations used to compute the transition rate.[11] Transition matrices on the left-hand side of the page are based on individuals who were wage earners both

years of the two-year period, and those on the right-hand side are for individuals who began as wage earners and made a transition to self-employment.[12] For example, the first cell of the first matrix tells us that of the set of individuals who remained wage-earners, about 75 percent of those who were in lowest quintile of the earnings distribution initially were also in the lowest quintile one year later. Further, there were 7,204 data points representing such transitions. Note that the figures on the diagonal tell us the percentage of individuals in each quintile who do not change quintiles at all. They provide a simple but useful way to characterize the degree of mobility—the greater the size of the diagonal element, the less the mobility, *ceteris paribus*.[13]

Let us first consider the results at the top of the table, which pool together all the demographic groups. Among individuals who did not make a transition to self-employment, there was not a great deal of one-year mobility. The figures on the diagonals of the matrix indicate that, in every earnings quintile, the probability of remaining in that quintile exceeded 60 percent. The likelihood of remaining in the very highest quintile was 85 percent. This finding of low mobility is no surprise. The salaried-both-periods sample comprises the bulk of individuals in the data, and it is well known that for the population as a whole, mobility rates are very low over short time periods (see Atkinson, Bourguignon, and Morrisson [1992, p. 139]).

Comparing these results to those for individuals who made a transition to self-employment we note that, except in the bottom quintile, the probability of remaining in any given quintile was lower than the corresponding probability for those who did not make a transition. For example, of those who started out in the middle quintile and became self-employed, only 40 percent were there a year later, as opposed to 64 percent in the other group. What happened to the 60 percent of the newly self-employed who changed quintiles? Some of them advanced substantially in the earnings distribution—5.59 percent of the newly self-employed ended up in

the top quintile, as opposed to only 1.40 percent of those who remained wage-earners. But about 43 percent of the newly self-employed who started in the third quintile ended up in the lower two quintiles, as opposed to only about 18 percent of the wage-earners. This theme will repeat itself throughout our analysis: movements into self-employment were associated with greater mobility, but it was downward as well as upward.[14]

The next two pairs of matrices allow us to compare the mobility patterns of males and females. Consider first individuals who remained wage earners. Comparing the figures on the diagonals across matrices, we see that except in the top quintile, men were more mobile than women. Of those who did not make a transition, for example, 60 percent of the males who started in the third quintile remained there, while for women this figure was 67 percent. In contrast, when we consider those who became self-employed, except in the bottom quintile, men were more likely to remain in the quintile in which they began. For both males and females, the probability of an extreme outcome was higher for those who became self-employed. However, men appear to have had a better chance of obtaining a positive outcome from a move to self-employment. For example, about 22 percent of males who started in the third quintile moved upward in the earnings distribution, while for females this was only 7 percent. Note, however, that the cell counts are small in the matrix for female entry into self-employment, particularly in the higher quintiles. Hence, one must be cautious in making inferences about the impact of self-employment on women who started near the top of the earnings distribution.

The last two sets of matrices in the tables allow us to compare results for blacks and non-blacks.[15] For those who remained wage-earners, a comparison of the diagonal elements suggests that blacks and non-blacks were roughly equally likely to remain in the quintile in which they started a year before. (In the top quintile, the probability of leaving was somewhat higher for

blacks than for non-blacks.) For those who became self-employed, except in the top quintile, blacks were less likely to leave their original quintiles than their non-black counterparts. In the top quintile, this tendency was reversed. However, as was the case for women, there are very few observations in this part of the matrix for blacks. In any case, the overall comparison of the matrices for blacks and non-blacks highlights the necessity of taking care in contrasting racial differences in this context, because the magnitudes appear to depend on individuals' starting places in the earnings distribution.

We now consider the results for five-year transition periods, which are presented in Table 2. As already noted, for these purposes, an individual is deemed to have made a transition to self-employment if he or she began as a wage earner, and was then self-employed for at least two of the next five years. The most apparent difference between the five-year matrices and the one-year matrices in Table 1 is how much more mobility there is in the former. Consider the individuals who were wage earners during the entire period, shown on the left hand side of the page. Of those who began the period in the lowest quintile, only 56 percent were there five years later. In contrast, from Table 1, 75 percent of the individuals who started in the lowest quintile were there one year later. Similarly, of those who started in the third quintile, only 46 percent were there five years later, whereas from Table 1, 64 percent who began in the third quintile were there one year later.

Turning now to the right side of Table 2 we see that, as before, experience with self-employment generally increased mobility in both directions. For individuals who began in the middle quintile and became self-employed, only 21 percent were there five years later; this proportion was more than twice as high for the wage-earners. At the extremes of the earnings distribution, entry into self-employment had a negative impact on mobility. For individuals who

began in the top quintile and became self-employed, 55 percent were there five years later. For those who were wage earners throughout the period, a higher proportion—about 75 percent—maintained their places at the top of the earnings distribution. And in the lowest quintile, individuals who became self-employed were more likely to stay there than their wage-earnings counterparts—60 percent versus 56 percent.

The next two pairs of matrices in Table 2 indicate that there were marked differences in the mobility impacts of self-employment on males and females. Generally, it appears to have been a more successful strategy for males. In the lowest quintile, only 33 percent of the men who had some experience with self-employment were there five years later; for women, this figure was 64 percent. For males in the middle quintile who tried self-employment, about 35 percent were in the two top quintiles five years later. For females, this figure was only 21 percent. We conjecture that at least some of this difference may be due to the fact that the businesses started by males could have lasted longer than those by females, and length of survival is related to the success of the venture.[16] Mobility matrices are too crude a tool for sorting out the effects of differentials in the amount of time devoted to self-employment; this issue is addressed in the next section.

The last two sets of matrices in Table 2 allow us to compare five-year mobility for blacks and non-blacks. Generally, over five-year periods, self-employment appears to have been less successful as a mobility strategy for blacks than for non-blacks. In the third quintile, for example, about 8 percent of the blacks who became entrepreneurs were in higher quintiles two years later, while the corresponding figure for non-blacks was 31 percent. In the bottom quintile, a greater proportion of blacks who entered self-employment were still there five years later—68 percent versus 59 percent. As was the case for the male-female comparisons, some of these

differences might have been due to differences in the duration of self-employment that are concealed in the mobility matrices.[17] And as was the case for the females, many of the cell counts in the right hand side matrix for the blacks are very low.

In summary, the matrices in Tables 1 and 2 indicate that mobility patterns differed by length of transition period and by demographic group, results that are consistent with earlier research. There are also strong indications that experience with self-employment had important effects on mobility patterns, both over short and long periods. Importantly, however, the matrices warn us that it is difficult to characterize these patterns in a simple fashion—they depend on demographic characteristics and starting position in the earnings distribution, *inter alia*. Further, there may be factors that interacted with self-employment experience such as experience and age that are difficult to capture in a mobility matrix framework. We now turn to an alternative framework that allows us to take some of these factors into account.

3. A MULTIVARIATE APPROACH

Mobility matrices do not require that one put much structure on the data, and they contain an enormous amount of information. But, as already suggested, these benefits come at a cost. For one thing, matrices are not a convenient framework for exploring the reasons for differences in mobility patterns within and between demographic groups. For example, we found that the impact of self-employment on mobility depended on one's starting point in the earnings distribution. To what extent is this due to the fact that education levels differ by quintiles? Or how might differences in the age structures between the black and non-black populations explain the differential impact of self-employment by race? Another problem with the mobility matrix approach is that it ignores information on within-quintile movements in the distribution. Of

course, looking at deciles rather than quintiles would attenuate this problem, but not make it go away, and would come at the cost of quadrupling the quantity of numbers to be examined. In this section we develop and implement a complementary strategy based on multivariate regressions.

3.1 Specification of the Model

Our approach is to use ordinary least squares regressions to summarize the relationship between an individual's percentile in the income distribution in some year and his percentile in an earlier year, and to allow this relationship to depend on his self-employment experience.[18] To begin, let us consider the one-year mobility data, which were summarized in Table 1. The clearest message from that table is that there is a strong relationship between a person's percentile in the earnings distribution in year t+1, P_{t+1}, and his percentile in period t, P_t. To fix ideas, we begin by positing a simple linear relationship between P_{t+1} and P_t:

$$P_{t+1} = \alpha_0 + \alpha_1 P_t \,, \tag{3.1}$$

where α_0 and α_1 are parameters. An important benchmark is the case of $\alpha_0=0$ and $\alpha_1=1$. If so, $P_{t+1}= P_t$, and there is no mobility. However, if $\alpha_0>0$ and $0<\alpha_1<1$, this specification implies that the long-run location in the earnings distribution (P^*) differs from the current location:

$$P_{t+1} = P_t = P^* = \frac{\alpha_0}{1-\alpha_1} \,. \tag{3.2}$$

Further, in the short-run there is "regression toward the mean": if $P_t > P^*$ then $P_{t+1} < P_t$ and *vice versa*.

While linear models have expositional virtues, there is no reason to impose linearity on the relationship between past and present positions in the earnings distribution. We assume a quadratic specification:

$$P_{t+1} = \alpha_o + \alpha_1 P_t + \alpha_2 P_t^2 \ . \tag{3.3}$$

The quadratic term permits the degree of regression to the mean to differ between high and low percentiles; i.e., the poor may rise faster than the rich fall and *vice versa*.[19]

Equation (3.2) reveals a major flaw in a model that makes one's present place in the earnings distribution depend only on the past value: it leads to the counterfactual prediction that everyone ends up in the same place in the earnings distribution. In practice, individuals' positions in the earnings distribution differ due to attributes such as education (*EDUC*) and labor market experience (*EXP*).[20]

Indeed, these variables may affect not only the intercept of equation (3.3), but also the entire dynamics of the process.[21] That is, it may be appropriate to interact education and experience with P_t and P_t^2 as well as to enter them in levels. The general labor market situation confronting individuals may also affect their mobility—mobility patterns may be different in tight and loose labor markets. We therefore enter into the equation the national civilian unemployment rate (UR_t), both by itself and interacted with P_t and P_t^2.

Defining $f(P_t) = \alpha_1 P_t + \alpha_2 P_t^2$, this leads to the following specification:

$$\begin{aligned} P_{t+1} = {} & \alpha_o + f(P_t) + \alpha_2 EDUC_t + \alpha_3 EXP_t + \alpha_4 EXP_t^2 + \alpha_5 UR_t \\ & + \left\{\text{interactions of } f(P_t) \text{ with } EDUC_t,\ EXP_t,\ EXP_t^2,\ UR_t\right\} . \end{aligned} \tag{3.4}$$

Our next task is to build into the model the individual's record with entrepreneurship during the transition period. Define SE_t to be one if the individual was self-employed in period t, and zero otherwise, and SE_{t+1} analogously. Then by augmenting equation (3.4) with SE_t and SE_{t+1} we can fully characterize the individual's experience with entrepreneurship during the two-year period, and estimate directly how it affects his or her position in the earnings distribution,

ceteris paribus. Further, we can interact the *SE* variables with P_t and P_t^2, and thus estimate how self-employment affects the dynamics of the mobility process.

A final issue relates to the fact that a movement into or out of self-employment is necessarily a job change, and it is well documented that job changes in themselves tend to lower individuals' earnings. (See, for example, Farber [1995].) We do not want to confound the effects of changing jobs *per se* with the effects of changing self-employment status. Hence, we augment the equation with the variable CHANGE_{t+1}, which takes a value of one if the individual changed jobs between years *t* and *t*+1, and zero otherwise.[22] Further, we interact CHANGE_{t+1} with all the right hand side variables except those containing the SE variables. Thus, the equation now appears as

$$\begin{aligned} P_{t+1} = {} & \alpha_o + f(P_t) + \alpha_2 EDUC_t + \alpha_3 EXP_t + \alpha_4 EXP_t^2 + \alpha_5 UR_t + \alpha_6 SE_t + \alpha_7 SE_{t+1} \\ & + \left\{\text{interactions of } f(P_t) \text{ with } EDUC_t,\ EXP_t,\ EXP_t^2,\ UR_t,\ SE_t,\ SE_{t+1}\right\} \\ & + \left\{\text{interactions of } SE_t \text{ and } SE_{t+1} \text{ with } f(P_t), EDUC_t, EXP_t, EXP_t^2, UR_t\right\} \\ & + \left\{\text{interactions of } CHANGE_{t+1} \text{ with } f(P_t), EDUC_t, EXP_t, EXP_t^2, UR_t\right\} + \varepsilon_{t+1}, \end{aligned} \tag{3.5}$$

where ε_{t+1} is a random error term.[23] Given the strong differences in the patterns among genders and races evident from Table 1, we estimate the equation separately for males and females and for blacks and non-blacks, as well as for the sample as a whole.[24]

An econometric issue arises because our left hand side variable is bounded between zero and one. This can lead to heteroskedastic errors. We therefore estimate robust standard errors using Huber's method. A related issue is that it is possible for a linear model to generate predictions that are greater than one or less than zero. However, in our application, this is of no

practical importance. For example, in our analysis of one-year transitions for the entire sample, only three predictions out of 48,818 were outside the zero-one interval.

We estimate equation (3.5) using data on all the one-year transitions in our sample. Summary statistics on the basic right hand side variables in equation (3.5) (but not the interaction terms) are included in Table 3.[25]

Due to the presence of so many interactions, the equation is very messy and it is virtually impossible to make sense of individual estimated coefficients. Luckily, the coefficients themselves are of little interest to us. What we care about is using them to estimate how experience with entrepreneurship affected individuals' movements through the earnings distribution. To be more specific, consider an individual at the 25th percentile of the earnings distribution who had a known set of characteristics (education, experience). Suppose further that the individual was a wage-earner in both periods, i.e., SE_t and SE_{t+1} were both zero. Then we can substitute into equation (3.5) to predict what his or her percentile would have been the next year. Now we can repeat the exercise, but instead assume that the individual made a transition from wage-earning to self-employment, i.e., $SE_t = 0$ and $SE_{t+1} = 1$. By comparing this figure to that for the individual who stayed a wage-earner, we obtain an estimate of how becoming self-employed affected an individual's one-year mobility. In the same way, we can learn how exiting from entrepreneurship affected one's position in the earnings distribution ($SE_t = 1$ and $SE_{t+1} = 0$), and how being an entrepreneur both periods affected one's position ($SE_t = 1$ and $SE_{t+1} = 1$).[26] Our main interest is in these computations—in effect, the analogues of the partial derivatives of equation (3.5) with respect to self-employment experience—not the coefficients themselves.

The strategy for analyzing five-year mobility requires only minor modifications. In this case, the left hand side variable in equation (3.5) becomes P_{t+5} rather than P_{t+1}. The main serious

new issue is the treatment of self-employment experience during the transition period. In direct analogy to equation (3.5), one could create six dichotomous variables, each indicating whether the individual was self-employed or not during the initial year and each year of the transition period. As before, this would allow us to characterize completely the individual's self-employment history during the transition period, including the possibility of several entries and exits. However, this history would involve 2^6=64 possible cases. While we could report such results in a tabular fashion, it would defeat our purpose, which is to create comprehensible summaries of the data. Instead, we characterize self-employment experience during the transition by including the variable *%SE*, defined as the proportion of the six-year period during which the individual was self-employed. We include *%SE* and its square, as well as their interactions with the other right hand side variables, in analogy to equation (3.5). Note that %SE can take on only seven values: 0, 1/6, 1/3, 1/2, 2/3, 5/6, and 1.[27] Table 4 shows the frequency distribution of %SE for the various groups in our sample.

An analogous issue crops up in the context of job change, and we deal with it in a similar way. Specifically, we define the variable %CHNG, the proportion of times that the individual changed jobs during the transition period. Over the period, there were at most five opportunities to change jobs, so the only possible values for %CHNG are 0, 1/5, 2/5, 3/5, 4/5, and 1. Intuitively, one can think of this variable as a measure of the disruption in the individual's work history and the associated effects on his or her place in the earnings distribution. In analogy to %SE, we enter %CHNG and its square, and interact it with the initial percentile in the earnings distribution, education, experience (and its square), and the unemployment rate.

A final issue relating to our model is that it is essentially a "one-size-fits-all" approach. The model is the same across gender and racial groups (although, of course, the parameters

differ). The advantage of this approach is that it permits us to make comparisons across gender and racial groups in a common framework. On the other hand, there is some evidence that the processes relating to entry into self-employment may differ across groups. For example, Devine [1994] and Bruce [1999] find that married, self-employed women are much more likely to have a self-employed husband than married, wage-and-salary women. Thus, a woman's mobility may depend upon her husband's. The problem then becomes the possible endogeneity of the husband's self-employment status and how to deal with it. Especially in light of such complications, we feel the virtue of a common framework outweighs the advantages of tailoring the model to the particular circumstances of each group.

3.2 Results

As already noted, the regression coefficients themselves are of limited interest, and they are reported in the Appendix. Our main focus in this section is on the implications of the coefficients for the mobility process. Before turning to the self-employment results, we note briefly some findings from the Appendix. First, P_t and P_t^2 are jointly statistically significant. Evaluated at the means, the effect of P_t is positive, and that for P_t^2 is negative. As noted earlier, this means that those in lower percentiles rise faster than those at the upper end of the distribution fall. Second, the partial derivative of P_t with respect to years of education is positive and statistically significant. While it is not shocking that education improves ones place in the earnings distribution, it is important to remember that this is an effect *conditional* on the individual's previous position in the distribution. The coefficients on potential experience and its square are also jointly significant.

One-year mobility. We turn now to our main concern, the effect of self-employment on income mobility. In Table 5 we show for the entire sample, and by gender and race, the effects

of experience with entrepreneurship on one-year mobility. The effects are given separately for individuals in the 10th, 25th, 50th, and 75th, and 90th percentiles.[28] The table has four columns. The first column gives percentile predictions for individuals who were wage-earners both years of the transition period. In terms of our notation, SE_t and SE_{t+1} are both zero. Column (2) is for individuals who were initially self-employed and then exited self-employment; $SE_t = 1$ and $Se_{t+1} = 0$. The third column provides predictions for individuals who entered self-employment; $SE_t = 0$ and $SE_{t+1} = 1$. Finally, column (4) shows predicted percentiles for those who were self-employed both years; $Se_t = 1$ and $SE_{t+1} = 1$.

To fix ideas, consider the first cell in the second row of the table. It gives us the predicted percentile in year $t + 1$ of an individual who began in the 25th percentile, had the mean characteristics of the group, and was a wage-earner both years. According to the table, he or she would have been in the 28th percentile one year later. Moving rightward in the table, we learn that an individual with the same characteristics but who was self-employed the first year and then exited self-employment, would have been in the 32nd percentile the second year. From column 3, if the individual entered self-employment, he or she would have been in the 28th percentile the second year, and from column 4, a person who was self-employed both years would have been in the 32nd percentile.

One finding certainly stands out from Table 5. For all demographic groups, and regardless of experience with self-employment, there is "regression toward the mean." On average, individuals in the 10th percentile were in a higher percentile one year later, and individuals in the 90th percentile were in a lower percentile one year later. Now, if all individuals in the 10th percentile moved up in the earnings distribution (on average), it is not very informative to say that individuals toward the bottom who entered self-employment also

advanced. We want to know whether a transition to self-employment moved an individual up *relative* to someone who was a wage-earner the entire period. The same consideration applies to the decreases in position of those toward the top. To find the relative effect of entering self-employment, we simply subtract the number in the first column from the number in the third column. For example, according to the first row of Table 5, entering self-employment did nothing to aid the relative position of an individual who started out in the 10th percentile (0.150 - 0.150 = 0). The same is true at the 25th percentile. More generally, to find the relative effect of each pattern of self-employment, we take the associated figure and subtract from it the figure in column (1).

For easy reference, the results of a series of such calculations for the sample as a whole are graphed in Figure 1, and in Figures 2 through 5 for the various sub-groups. Because the patterns for the 10th and 90th percentiles are essentially the same as those for the 25th and 75th percentiles, respectively, we omit the former two categories in the interest of readability. The calculations suggest that during the year an individual entered self-employment, there was virtually no change in his or her position in the earnings distribution. This absence of any substantial movement was present in each of the subgroups, except for blacks. For blacks starting in the 25th percentile, entry into self-employment was associated with a 2.3 point decline (relative to those who remained wage earners), while those who started at the 75th percentile experienced a relative 7.9 point gain.[29]

We turn next to the impact of exiting from self-employment. For the sample as a whole, for individuals who started in the 25th and 50th percentiles, departure from self-employment was associated with relative movements upward in the earnings distribution (4.2 and 1.9 points, respectively). On the other hand, for those who began at the top of the distribution, exit from

self-employment was associated with a 2.8 point relative decline.[30] This 2.8 point figure masks considerable differences across subgroups—the comparable number for women was 8.1 points, and for blacks 13.8 points.[31]

We next consider the impact on one-year mobility of being self-employed both years of the transition period. For the sample as a whole, the gains to being self-employed varied inversely with the individual's starting position. In the 25th percentile, an individual who was self-employed both years gained 4.2 points in the earnings distribution relative to a similar individual who was a wage earner in both periods. On the other hand, for two individuals starting in the 75th percentile, the one who was self-employed both periods ended up 2.6 points below a comparable wage earner. The same pattern repeats itself in each of our demographic groups—the lower the initial percentile, the greater the gain (or the lower the loss) from having been self-employed. Interestingly, for blacks and women, self-employment did not lead to a relative improvement in any percentile.

Five-year mobility. As already stressed, two year bits of time are not really long enough to assess the consequences of self-employment. Table 6 turns to the analysis of mobility over five-year periods. The setup is basically the same as that in Table 5. Each figure is the predicted percentile in year (t+5), conditional on the percentile in year t as well as the other variables on the right hand side of equation (2.5). (The estimated coefficients are in the Appendix.)[32] Recall that in these equations, we characterize the individual's self-employment experience with the variable %SE, the percentage of the six year period during which the individual was self-employed.[33] Table 6 shows the predicted percentile for each value of %SE.

Echoing the results from the mobility tables, there is a lot more movement reflected in the five-year transitions of Table 6 than the one-year transitions of Table 5. For example, for the

sample as a whole, a wage earner who started out in the 10th percentile was, on average, in the 26th percentile five years later. The comparable percentile in Table 5 was only 15. Let us now consider the effects of self-employment on mobility, relative to having remained a wage-earner. As before, these are summarized graphically for the entire sample and for each demographic group. For the entire sample (Figure 6), individuals who started in the 25th percentile and were engaged in self-employment over the entire five-year period (%SE = 1) experienced substantial gains in mobility—about 6.1 points relative to those who were wage-earners during the entire period. For those who started in the 50th percentile and had %SE =1, there were also relative gains, but they were quite small—1.9 points. However, individuals in the 75th percentile who experienced six years of self-employment ended up 4.0 points below their wage-earning counterparts.[34] As before, the patterns in the 10th percentile are quite similar to those in the 25th percentile, and those in the 90th are close to those in the 75th percentile. Again, in the interest of readability we omit the 10th and 90th percentiles from the figures.

A glance at figures (7) through (10) reveals that the qualitative story is quite similar for each of the subgroups. The largest relative losses associated with being self-employed throughout the period were incurred by individuals who started in the 75th percentile. For blacks and women, the relative advantage to being self-employed during the entire period was slightly larger for those who started in the 50th than the 25th percentiles. For men and non-blacks, on the other hand, those who started at the 25th percentile benefitted substantially more than those who started in the 50th percentile. From a quantitative standpoint, the most dramatic aspects of the figures are the large gains for blacks who started out in the 50th percentile (7.2 points), and the large losses for women who started out in the 75th percentile (6.4 points).

Return now to Figure 6, and consider the impact upon five-year mobility of participation in self-employment for less than the entire period. For the sample as a whole, there was not a great deal of impact one way or the other. There were both small pluses and small minuses, depending on the extent of experience with self-employment and starting point in the earnings distribution. There were, however, some differences across the various groups. Figure 9, for example, suggests that partial involvement almost never hurt the relative position of blacks, while Figure 10 indicates that this was not the case for non-blacks.

Summary. In the sample as a whole, for individuals who began toward the bottom of the earnings distribution, continuous experience with self-employment was a successful strategy for moving ahead (relative to wage-earners), both in the short- and long-term. The result is just the opposite for those who started out toward the top—continuous experience with self-employment led to a fall in their relative positions. With respect to individuals who took a stab at self-employment and then went back to the salaried sector, we find that in the short run their relative positions in the earnings distribution fell. But over a longer period, these negative effects more or less evaporated—the effects of partial experience with self-employment upon five-year mobility were small.

For women, the main message that seems to come through is that entrepreneurship has not been a very successful strategy for moving ahead in the earnings distribution. In both the short- and long-term, experience with self-employment sometimes led to small gains, but often to substantial losses. The losses were particularly large for those who started out toward the high end of the earnings distribution. With respect to blacks, the most striking phenomenon is the difference between the short-term and long-term effects of experience with self-employment. In the short-term, the effects were often negative, and dramatically so for those who began in the

middle of the earnings distribution and exited from self-employment. However, when we look at longer term effects of experience with self-employment, the impact was generally positive and sometimes substantially so. Importantly, continuous experience with self-employment led to very large improvements for blacks who started toward the bottom of the earning distribution.[35]

4. CONCLUSION

Do entrepreneurs get ahead in life, as suggested by the Horatio Alger myth? We have analyzed panel data from the last several decades to determine whether entrepreneurs moved ahead in the earnings distribution relative to their wage-earning peers. An examination of mobility tables suggests that making a transition to entrepreneurship increased the likelihood that an individual left his or her current quintile in the earnings distribution. In general, new entrepreneurs were more likely to end up in a higher quintile than their wage-earning counterparts. But they were also more likely to end up in lower quintiles. This result echoes a theme found in earlier research—entrepreneurship is a risky business.

We supplemented the mobility tables with a regression-based strategy to allow us to take into account variables such as experience and education when analyzing the effects of entrepreneurship on mobility. For individuals who started at the low end of the earnings distribution, the Horatio Alger myth is alive and well—provided that they were able to stick it out as entrepreneurs for several years. But those who started out near the top of the earnings distribution lost ground relative to their counterparts who remained wage-earners.

A striking result is that, on average, entrepreneurship was a more successful long-term strategy for blacks than for non-blacks, *ceteris paribus*. If potential black entrepreneurs observe that this strategy has worked for others who have tried it, one might imagine that they would try

it for themselves. Thus, this finding would seem to complicate even further the task of explaining why there are so few black entrepreneurs (Meyer [1990]). The answer may perhaps be found in the fact that experience with entrepreneurship had a substantial negative impact on blacks in the *short-term*. It may be the case that blacks lack the financial resources to sustain their enterprises through initial hard times. This is just a conjecture. Further research is needed on how the financing patterns of small businesses differ among racial and ethnic groups.

Endnotes

1. Sarachek [1978] examines the life histories of a number of successful entrepreneurs to determine whether they have backgrounds similar to those of Horatio Alger's heroes. Aficionados of nineteenth century American culture will know that despite their close identification with entrepreneurship in the population imagination, Horatio Alger's heroes get ahead in a variety of ways, including marrying the boss's daughter.

2. See Atkinson, Bourguignon and Morrison [1992, pp. 23-29] for a careful discussion of the normative aspects of income mobility.

3. See, for example, Aaberge et al. [1996], Palme [1995], Burkhauser, Holtz-Eakin and Rhody [1998], and Buchinsky and Hunt [1996]. Gottschalk and Smeeding [1997] survey the empirical literature on inequality. Atkinson, Bourguignon, and Morrisson [1992] and McMurrer and Sawhill [1996] provide useful surveys.

4. Quadrini [1996] provides a theoretical model of the evolution of entrepreneurs' wealth over time, how it compares with that of wage earners, and the implications for the wealth mobility of entrepreneurs.

5. See Hill [1992] for a complete discussion of these data.

6. See, for example, Hamilton [1995], Quadrini [1996], Evans and Jovanovic [1989], Evans and Leighton [1989], and Meyer [1990]. Self-employed workers as defined here meet the Census' criteria for business ownership.

7. Using tax-based data, Holtz-Eakin, Joulfaian, and Rosen [1994] found that only 41 percent of sole proprietorships have any depreciable assets. Similarly, in examining data from the Survey of Income and Program Participation, Meyer [1990] found that 56 percent of individuals report no new business equity upon entering self-employment. Meyer also noted that about 60 percent of new enterprises in the Characteristics of Business Owners survey report zero equity capital. Yuengert [1996] computed that, in the Survey of Consumer Finances, 43 percent of self-employed individuals have no business equity.

8. See, for example, Fuchs [1982], Evans and Leighton [1989], and Fairlie and Meyer [1995].

9. A final ambiguity in comparing wage/salary earnings with those from self-employment revolves around the payroll tax. Ideally one would like to compare both figures *gross* of the employer and employee share of the tax or both figures *net* of the total tax. Under one interpretation reported self-employment earnings are gross of all taxes and thus inappropriately high to compare to wage earnings that are (presumably) net of the employer share. At the other extreme, reported earnings may be net of *all* payroll taxes, making the comparison inappropriately small. Or, the reported value could be anywhere in between. In the absence of any firm way to determine the appropriate adjustment, we

restrict ourselves to using the reported data.

10. Note that we are not taking averages over exactly the same groups of people. Some individuals join the sample over time (because they become 25 years old) and some leave it (because they become 56). There is, of course, attrition in the panel for other reasons as well.

11. The transition rates are based on weighted data. To compute quintiles in the earnings distribution, we weight the data; quintiles are thus the *population* quintiles and transitions are *population* transition rates. In these computations, each sample data point represents a different number of individuals in the population. The second number in each cell is the unweighted number of *sample* data points used in each computation. An implication of this is that one cannot use the sample figures to replicate the transition rates shown in the matrices. Indeed, there is not even any reason for the number of sample points in each quintile to be constant within a matrix. The quintile breaks (in 1991) are $8,900, $17,182, $26,500, and $39,400.

12. Thus, individuals who began the two-year period as entrepreneurs are excluded from both tables.

13. The diagonal elements are closely related to the "immobility ratio," which is the percentage of people staying in the same decile or entering the decile immediately above or below. There are a number of ways in which to collapse the information in a mobility matrix into a single number; see Atkinson, Bourguignon, and Morrisson [1992, pp. 74-79], and Buchinsky and Hunt [1996]. Given that our reason for examining mobility tables is to obtain a rough sense of what is in the data, we eschew here the use of such measures. Moreover, as noted earlier, the approach followed in Section 3 serves to condense the information regarding mobility; there is no need to do so here.

14. Note that the comparison includes wage earners who both did and did not change jobs during the period. To the extent that job changes *per se* are associated with greater upward and downward mobility, then comparisons of the matrices may overstate the impact of changing to self-employment. As we stressed before, such problems are inherent to the mobility matrix methodology. We deal with them explicitly in our multivariate analysis below.

15. The PSID contains information that would allow one to make finer distinctions with respect to race and ethnicity. However, within subgroups there are not enough self-employed individuals to allow meaningful comparisons. See Fairlie and Meyer [1993], and Borjas [1990, Chapter 10] on ethnic differences in self-employment.

16. Over five-year periods, the mean percentage of women who are self-employed during the entire period is 2.1 percent as opposed to 9.6 percent for men.

17. On average, only 0.6 percent of the blacks in the sample were self-employed during the entire period, while the figure for non-blacks was 6.4 percent.

18. There are obvious correspondences to the analysis of wage dynamics. See Atkinson, Bourguignon, and Morrison [1992, pp. 8-14].

19. Formally, (3.3) is a nonlinear difference equation, which can be conveniently analyzed by linearizing in the vicinity of the steady state, P^*. Doing so indicates that the time, t, required to close 50% of the gap between the initial location, P_0, and P^* is given by $ln(0.5)/ln(1+g)$ where $g=\alpha_1+2\alpha_2 P^*$. Thus, $\alpha_2 \neq 0$ permits the speed of adjustment to vary with P^*.

20. Because the PSID does not report actual experience on a regular basis, we analyze "potential experience" defined as age minus years of education minus six.

21. For example, an empirical regularity is the earnings mobility falls with age. See Atkinson, Bourguignon, and Morrisson [1992, p. 138].

22. A job change is recorded if the months of tenure on the job reported at the date of the interview is less than or equal to the months since the last interview. See Brown and Light [1992] for a careful discussion of issues involved in measuring job changes in the PSID. The incidence of job change in our sample is similar to that found in previous studies; e.g., Jaeger and Stevens [1997].

23. In some cases, transitions associated with the same individual will occur multiple times. The error terms for a given individual across time may be correlated with each other. This may lead to inefficient estimates but they are still consistent.

24. The data strongly rejects the hypothesis that mobility processes are the same across races and sexes. In each case, the joint hypothesis that all the coefficients are the same is rejected at least at the 1 percent level.

25. The sample used to estimate the equation for five-year transition is, of course, different. However, the mean values of the various right-hand side variables do not differ appreciably.

26. Note that the mobility tables presented in the right hand side of Table 1 correspond to the case $SE_t = 0$ and $SE_{t+1} = 1$. The formulation in equation (3.5) allows us to explore a richer set of possibilities.

27. In addition, given our particular interest in the effects of entry into self-employment, we include a dichotomous variable that is one if the individual was self-employed the first year of the period, and zero otherwise. We experimented with an alternative specification that allows for the transition to self-employment *per se* to have an independent effect. In this experiment, we created a dichotomous variable that took a value of 1 whenever %SE = 1/6, and of zero otherwise. When we entered this variable and its interactions with the other right-hand-side variables, we found that it was statistically significant but had only a minuscule effect on the mobility probabilities.

28. The estimates at the 10^{th} and 90^{th} percentiles allow us to address the poverty-alleviation effects of entrepreneurship and its impact on the very well-to-do, respectively. We thank

a referee for this suggestion.

29. For purposes of reference, around the 25th percentile, a 5 percentile movement corresponds roughly to a $2,450 change in earnings (in 1990 dollars); around the 50th percentile, $2,320; and around the 75th percentile, $3,850.

30. Our results are consistent with Hamilton's [1995] finding that, at the median, entrepreneurs returning to paid wage employment earn a higher wage than employees with the same characteristics.

31. But remember from Table 1 that there were very few blacks and women who were self-employed and in the 75th percentile. This should be taken into account in interpreting these results.

32. For the sample as a whole, the R^2 is 0.80 for the one-year transitions and 0.64 for the five year transitions. This is no surprise given the results from the mobility tables—initial position does a worse job of predicting one's position over a short horizon than a long horizon.

33. Recall that the equation contains a dichotomous variable for whether the individual was self-employed during the initial period. We view the simulations as telling us about the impact of entering self-employment for various proportions of the five-year period. Hence, in the simulations we set this dichotomous variable equal to zero. For example, we compute the effects of two years of self-employment by setting the dichotomous variable equal to zero and %SE equal to 2/6. When %SE equals 1.0, however, definitionally the dichotomous variable must be equal to 1.0. Similarly, we view the simulations as telling us the impact of becoming self-employed, above and beyond the impact of a job change alone. Thus, in the simulations, we set the variable showing the fraction of years in which there was a job change equal to zero.

34. Taken at face value, this finding contradicts the common notion that self-employment is riskier than wage-earning, and hence, requires greater mean returns. We emphasize, however, two caveats. First, the riskiness of self-employment depends on the variability of *consumption* streams, not *income* streams. Higher income people may be able to insure their consumption despite income shocks; whether self-employment really is riskier than wage earning remains an open question. Second, to the extent that non-monetary aspects of self-employment are higher, utility may be higher in self-employment even if mean returns are lower.

35. To the extent that blacks face particularly severe liquidity constraints, we expect only the most able blacks to enter and survive in self-employment. This may explain why the mobility effects are greater for blacks than the rest of the population.

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Table 1. One-Year Mobility Tables[a]

No Entry Into Self-Employment					Entry Into Self-Employment				
Entire Sample									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
75.31	19.89	3.58	0.91	0.31	79.50	14.41	4.00	1.87	0.22
7,204	1,931	315	65	20	480	83	21	10	1
16.21	68.37	16.81	3.15	0.45	33.23	45.08	15.81	4.16	1.73
1,813	6,897	1,689	278	33	107	147	47	15	5
3.94	14.05	64.24	16.36	1.40	15.06	27.88	40.02	11.45	5.59
383	1,474	5,883	1,419	114	36	64	90	28	10
1.82	2.75	14.11	68.26	13.06	4.56	9.77	19.76	44.08	21.83
164	245	1,207	5,289	971	8	22	35	75	35
0.58	0.63	1.59	12.52	84.68	5.18	6.03	4.88	13.04	70.86
37	41	104	818	4,852	11	15	10	29	148
Males									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
58.50	27.76	9.23	3.12	1.41	52.90	32.98	9.91	3.06	1.15
1,244	506	138	35	16	84	37	9	3	1
13.19	57.26	22.12	6.22	1.21	22.50	48.46	20.15	6.54	2.35
525	2,025	701	166	28	39	66	24	10	3
3.78	13.89	60.46	19.53	2.34	8.82	26.95	42.11	13.64	8.48
171	645	2,472	759	86	13	41	59	19	9
1.45	2.70	13.50	66.74	15.60	3.15	6.59	20.83	47.09	22.33
97	156	745	3,353	735	4	9	26	55	28
0.52	0.49	1.51	11.75	85.74	5.31	4.52	3.79	11.78	74.60
29	27	85	653	4,180	7	8	7	21	128
Females									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
74.83	18.43	2.53	0.51	0.10	85.94	9.91	2.57	1.58	0.00
5,960	1,425	177	30	4	378	42	11	7	0
17.50	65.96	14.56	1.86	0.12	40.78	42.69	12.75	2.49	1.29
1,288	4,872	988	112	5	64	76	20	4	2
4.07	14.17	67.12	13.96	0.68	27.11	29.69	35.98	7.22	0.00
212	829	3,411	660	28	20	21	27	6	0
2.47	2.85	15.18	70.99	8.51	8.67	19.07	16.63	35.29	20.35
67	89	462	1,936	236	3	10	7	16	6
0.94	1.48	2.08	17.07	78.44	4.23	17.06	12.89	22.33	43.49
8	14	19	165	672	1	4	3	5	13

Table 1. Continued[a]

No Entry Into Self-Employment					Entry Into Self-Employment				
Blacks									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
75.76	20.30	3.05	0.84	0.06	87.09	9.66	1.71	1.54	0.00
3,448	931	138	22	4	158	24	8	3	0
18.48	64.37	14.86	1.90	0.39	45.50	47.45	4.98	1.79	0.29
924	3,433	741	100	9	31	46	9	4	1
3.80	17.93	64.52	13.32	0.43	20.67	26.36	43.25	9.72	0.00
168	678	2,152	452	27	14	19	24	7	0
3.02	3.82	19.72	66.24	7.19	1.91	23.25	9.68	56.64	8.53
62	84	392	1,314	185	1	8	5	9	5
1.59	1.03	1.05	16.39	79.94	0.00	8.27	0.00	32.07	59.66
10	8	17	161	569	0	3	0	3	12
Non-Blacks									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
75.21	19.80	3.69	0.93	0.36	78.91	14.78	4.18	1.89	0.24
3,756	1,000	177	43	16	322	59	13	7	1
15.71	63.15	17.24	3.43	0.46	32.25	44.89	16.67	4.35	1.84
889	3,464	948	178	24	76	101	38	11	4
3.97	13.43	64.20	16.86	1.55	14.51	28.03	39.70	11.62	6.13
215	796	3,731	967	87	22	45	66	21	10
1.71	2.65	13.58	68.45	13.60	4.67	9.20	20.19	43.55	22.40
102	161	815	3,975	786	7	14	30	66	30
0.54	0.62	1.61	12.38	84.85	5.36	5.95	5.04	12.40	71.24
27	33	87	657	4,283	11	12	10	26	136

[a]The first figure in cell (*i,j*) shows the population-weighted proportion of individuals originally in quintile *i* who in quintile *j* one year later. The second figure in the cell is the number of observations used in the computation of transitions. Transition matrices on the left-hand side of the page are for individuals who were wage-earners during the first year of the two-year period. Matrices on the right-hand side of the page are for individuals who were wage-earners during the first year and self-employed during the second year.

Table 2. Five-Year Mobility Tables[a]

No Entry Into Self-Employment					Entry Into Self-Employment				
Entire Sample									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
55.80	29.87	10.19	3.01	1.13	59.79	24.47	7.92	5.26	2.56
3,155	1,620	481	168	45	300	114	35	23	9
22.20	45.60	23.43	7.10	1.67	32.64	37.55	18.11	4.40	7.30
1,408	2,989	1,325	363	76	123	126	54	16	21
9.72	15.79	46.07	25.01	3.41	23.23	25.89	21.17	18.74	10.98
521	984	2,542	1,243	165	59	68	51	40	23
5.80	4.93	17.12	51.34	20.81	10.19	19.45	21.51	21.55	27.30
280	242	831	2,257	864	26	42	46	43	53
3.14	1.94	3.70	16.72	74.50	10.22	10.69	10.53	13.26	55.30
119	66	134	618	2,330	31	30	30	40	150
Males									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
37.39	32.71	16.95	7.49	5.46	32.74	41.72	8.45	7.45	9.64
411	294	124	63	30	38	28	8	7	5
15.92	39.96	27.49	12.59	4.04	19.23	39.38	26.29	6.42	8.68
333	756	446	164	49	37	50	29	10	12
6.07	15.68	45.54	27.15	5.57	16.25	25.72	23.21	24.33	10.49
165	409	1,042	586	105	27	42	36	33	16
4.36	4.64	16.91	50.84	23.25	5.58	20.61	23.71	24.96	25.15
153	158	549	1,461	626	12	33	39	37	39
2.43	1.71	3.62	16.66	75.58	9.00	11.03	9.68	13.86	56.43
90	54	119	534	2,075	25	29	26	39	140
Females									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
58.71	29.42	9.12	2.30	0.44	64.17	21.68	7.83	4.91	1.41
2,744	1,326	357	105	15	262	86	27	16	4
24.33	47.50	22.05	5.24	0.87	40.22	36.52	13.48	3.26	6.51
1,075	2,233	879	199	27	86	76	25	6	9
12.28	15.86	46.44	23.52	1.90	35.69	26.20	17.52	8.74	11.85
356	575	1,500	657	60	32	26	15	7	7
8.51	5.46	17.51	52.28	16.23	24.86	15.77	14.51	10.72	34.13
127	84	282	796	238	14	9	7	6	14
8.33	3.60	4.33	17.16	66.58	27.21	5.93	22.33	4.90	39.63
29	12	15	84	255	6	1	4	1	10

Table 2. Continued[a]

No Entry Into Self-Employment					Entry Into Self-Employment				
Blacks									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
60.92	30.38	6.85	1.65	0.20	67.70	23.47	3.41	5.42	0.00
1,485	732	161	72	9	90	29	7	5	0
23.26	52.53	19.66	4.24	0.32	43.67	45.61	3.78	3.29	3.65
688	1,582	567	117	15	45	36	5	6	5
8.63	22.37	51.06	16.85	1.10	20.46	37.70	33.59	6.47	1.77
198	474	979	345	37	15	18	14	5	1
8.33	6.62	22.16	51.17	11.73	48.79	23.34	14.59	3.91	9.37
81	83	263	548	153	7	4	3	2	2
4.37	3.88	6.42	18.80	66.53	7.29	10.89	19.36	8.29	54.18
29	9	20	119	237	4	1	2	4	8
Non-Blacks									
1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
54.81	29.77	10.83	3.27	1.31	59.30	24.54	8.20	5.25	2.72
1,670	888	320	96	36	210	85	28	18	9
21.96	44.03	24.28	7.75	1.98	31.90	37.01	19.07	4.48	7.54
720	1,407	758	246	61	78	90	49	10	16
9.90	14.71	45.25	26.35	3.79	23.33	25.42	20.68	19.22	11.34
323	510	1,563	898	128	44	50	37	35	22
5.55	4.76	16.62	51.36	21.70	9.54	19.38	21.62	21.85	27.61
199	159	568	1,709	711	19	38	43	41	51
3.09	1.87	3.60	16.64	74.79	10.32	10.69	10.22	13.43	55.34
90	57	114	499	2,093	27	29	28	36	142

[a]The first figure in cell (*i,j*) shows the population-weighted proportion of individuals originally in quintile *i* who in quintile *j* five years later. The second figure in the cell is the number of observations used in the computation of transitions. Transition matrices on the left-hand side of the page are for individuals who were wage-earners during the entire period. Matrices on the right-hand side of the page are for individuals who were wage-earners during the first year and self-employed two or more of the next five years.

Table 3. Summary Statistics: Variables in One-Year Mobility Equations[a]

	Entire Sample (1)	Males (2)	Females (3)	Blacks (4)	Non-Blacks (5)
$EDUC_t$ (years of education)	13.2	13.3	13.0	12.3	13.3
	(2.44)	(2.55)	(2.32)	(2.25)	(2.45)
EXP_t (potential experience: age minus education minus 6)	19.6	19.5	19.7	19.4	19.6
	(8.99)	(8.91)	(9.07)	(9.08)	(8.98)
P_t (equals percentile in the earnings distribution in initial year)	0.507	0.651	0.365	0.380	0.523
	(0.287)	(0.254)	(0.244)	(0.239)	(0.289)
SE_t (equals 1 if individual was self-employed in initial year)	0.114	0.155	0.0726	0.0314	0.124
	(0.318)	(0.362)	(0.259)	(0.174)	(0.330)
SE_{t+1} (equals 1 if individual was self-employed in second year)	0.120	0.161	0.0800	0.0356	0.131
	(0.325)	(0.367)	(0.271)	(0.185)	(0.337)
$CHANGE_t$ (equals 1 if individual changed jobs during period)	0.262	0.192	0.331	0.311	0.256
	(0.440)	(0.394)	(0.471)	(0.463)	(0.436)
NOBS	48,818	23,217	25,601	16,811	32,007

[a]Numbers in parentheses are standard deviations of the means. Means are taken over the number of transitions, not the number of individuals. In any given year, the value of UR_t (the national unemployment rate), is essentially invariant across demographic groups. Its mean is 6.68 (s.d. = 7.04).

Table 4. Frequency Distribution of %SE[a]

	Entire Sample (1)	Males (2)	Females (3)	Blacks (4)	Non-Blacks (5)
0	77.1	71.6	84.8	90.5	75.6
0.167	7.4	7.7	7.0	5.9	7.5
0.333	3.2	3.6	2.5	1.2	3.4
0.50	2.3	2.7	1.7	0.7	2.4
0.667	1.9	2.3	1.3	0.5	2.1
0.833	2.3	3.0	1.2	0.5	2.4
1.0	5.9	9.1	1.5	0.7	6.5

[a]%SE is the proportion of each five-year period that the individual is self-employed, including the initial year. This table provides, for each group, the overall frequency distributions of %SE, computed using the PSID weights.

Table 5. Effects of Self-Employment on One-Year Mobility[a]

Percentile	No SE (1)	SE in Year 1 (2)	SE in Year 2 (3)	SE in Both Years (4)
	Entire Sample			
10th	0.150	0.196	0.150	0.196
	(0.00257)	(0.00639)	(0.00608)	(0.00694)
25th	0.278	0.320	0.278	0.320
	(0.00129)	(0.00603)	(0.00588)	(0.00506)
50th	0.501	0.520	0.501	0.520
	(0.00101)	(0.00804)	(0.00791)	(0.00636)
75th	0.731	0.703	0.733	0.705
	(0.000984)	(0.00859)	(0.00872)	(0.00553)
90th	0.876	0.812	0.880	0.816
	(0.00138)	(0.0123)	(0.0126)	(0.00625)
	Males			
10th	0.230	0.305	0.248	0.322
	(0.00918)	(0.0166)	(0.0170)	(0.0156)
25th	0.323	0.386	0.332	0.395
	(0.00468)	(0.0101)	(0.0102)	(0.00901)
50th	0.515	0.545	0.513	0.543
	(0.00168)	(0.00978)	(0.00987)	(0.00734)
75th	0.733	0.713	0.727	0.707
	(0.00128)	(0.00904)	(0.00935)	(0.00616)
90th	0.879	0.825	0.874	0.820
	(0.00140)	(0.0122)	(0.0127)	(0.00606)
	Females			
10th	0.138	0.163	0.126	0.152
	(0.00255)	(0.00630)	(0.00589)	(0.00640)
25th	0.269	0.280	0.254	0.265
	(0.00125)	(0.00933)	(0.00885)	(0.00775)
50th	0.493	0.466	0.484	0.457
	(0.00133)	(0.0138)	(0.0132)	(0.0118)
75th	0.722	0.641	0.732	0.651
	(0.00262)	(0.0263)	(0.0241)	(0.0179)
90th	0.864	0.748	0.890	0.773
	(0.00453)	(0.0424)	(0.0392)	(0.0268)

Table 5. Continued

Percentile	No SE (1)	SE in Year 1 (2)	SE in Year 2 (3)	SE in Both Years (4)
	Blacks			
10th	0.148	0.203	0.103	0.159
	(0.00585)	(0.0160)	(0.0122)	(0.0174)
25th	0.272	0.296	0.249	0.273
	(0.00264)	(0.0177)	(0.0152)	(0.0148)
50th	0.485	0.440	0.504	0.459
	(0.00272)	(0.0247)	(0.0218)	(0.0201)
75th	0.699	0.561	0.778	0.640
	(0.00533)	(0.0358)	(0.0383)	(0.0232)
90th	0.835	0.642	0.948	0.755
	(0.00840)	(0.0563)	(0.0599)	(0.0320)
	Non-Blacks			
10th	0.150	0.194	0.153	0.197
	(0.00283)	(0.00677)	(0.00648)	(0.00724)
25th	0.280	0.323	0.280	0.323
	(0.00150)	(0.00627)	(0.00617)	(0.00517)
50th	0.504	0.525	0.501	0.523
	(0.00110)	(0.00826)	(0.00819)	(0.00625)
75th	0.735	0.710	0.734	0.710
	(0.000967)	(0.00828)	(0.00840)	(0.00529)
90th	0.877	0.815	0.880	0.818
	(0.00137)	(0.0122)	(0.0125)	(0.00616)

[a]Each figure shows the predicted percentile in the distribution using the estimated coefficients from equation (2.5). The equation is estimated separately for each demographic group. Predictions are for the second-year of two-year periods, for individuals in the 25th, 50th, and 75th percentiles. Column (1) assumes $SE_t = SE_{t+1} = 0$; i.e., the individual was never self-employed. In column (2), the individual was self-employed the first year, and then exited self-employment, i.e., $SE_t = 1$, $SE_{t+1} = 0$. In column (3), the individual was a wage earner the first period, and made a transition to self-employment, i.e., $SE_t = 0$, $SE_{t+1} = 1$. In column (4) the individual was self-employed both years, $SE_t = SE_{t+1} = 1$. Number in parentheses are heteroskedasticity-consistent standard errors of the predictions.

Table 6. Effects of Self-Employment in Five-Year Mobility[a]

Percentile	%SE = 0 (1)	%SE = 0.16 (2)	%SE = 0.33 (3)	%SE = 0.5 (4)	%SE = 0.67 (5)	%SE = 0.83 (6)	%SE = 1.0 (7)
				Entire Sample			
10th	0.256	0.231	0.220	0.224	0.242	0.275	0.333
	(0.00703)	(0.00900)	(0.0108)	(0.0112)	(0.0110)	(0.0128)	(0.0174)
25th	0.349	0.343	0.344	0.349	0.360	0.377	0.410
	(0.00360)	(0.00566)	(0.00768)	(0.00856)	(0.00880)	(0.00984)	(0.00909)
50th	0.522	0.533	0.541	0.544	0.543	0.538	0.541
	(0.00199)	(0.00574)	(0.00891)	(0.0103)	(0.0103)	(0.0105)	(0.0113)
75th	0.716	0.724	0.726	0.720	0.708	0.690	0.676
	(0.00176)	(0.00581)	(0.00918)	(0.0106)	(0.0104)	(0.00997)	(0.00945)
90th	0.844	0.840	0.831	0.818	0.799	0.776	0.759
	(0.00273)	(0.00865)	(0.0137)	(0.0155)	(0.0145)	(0.0122)	(0.0118)
				Males			
10th	0.387	0.376	0.370	0.368	0.371	0.380	0.413
	(0.0205)	(0.0250)	(0.0288)	(0.0290)	(0.0257)	(0.0220)	(0.0246)
25th	0.430	0.430	0.431	0.432	0.433	0.435	0.458
	(0.00396)	(0.0145)	(0.0174)	(0.0181)	(0.0168)	(0.0154)	(0.0156)
50th	0.547	0.554	0.558	0.558	0.554	0.546	0.555
	(0.00360)	(0.00814)	(0.0124)	(0.0143)	(0.0141)	(0.0135)	(0.0124)
75th	0.718	0.719	0.716	0.708	0.696	0.679	0.679
	(0.00236)	(0.00672)	(0.0105)	(0.0123)	(0.0123)	(0.0119)	(0.00984)
90th	0.848	0.839	0.826	0.811	0.792	0.770	0.766
	(0.00269)	(0.00848)	(0.0134)	(0.0153)	(0.0147)	(0.0132)	(0.0116)

Table 6. Continued

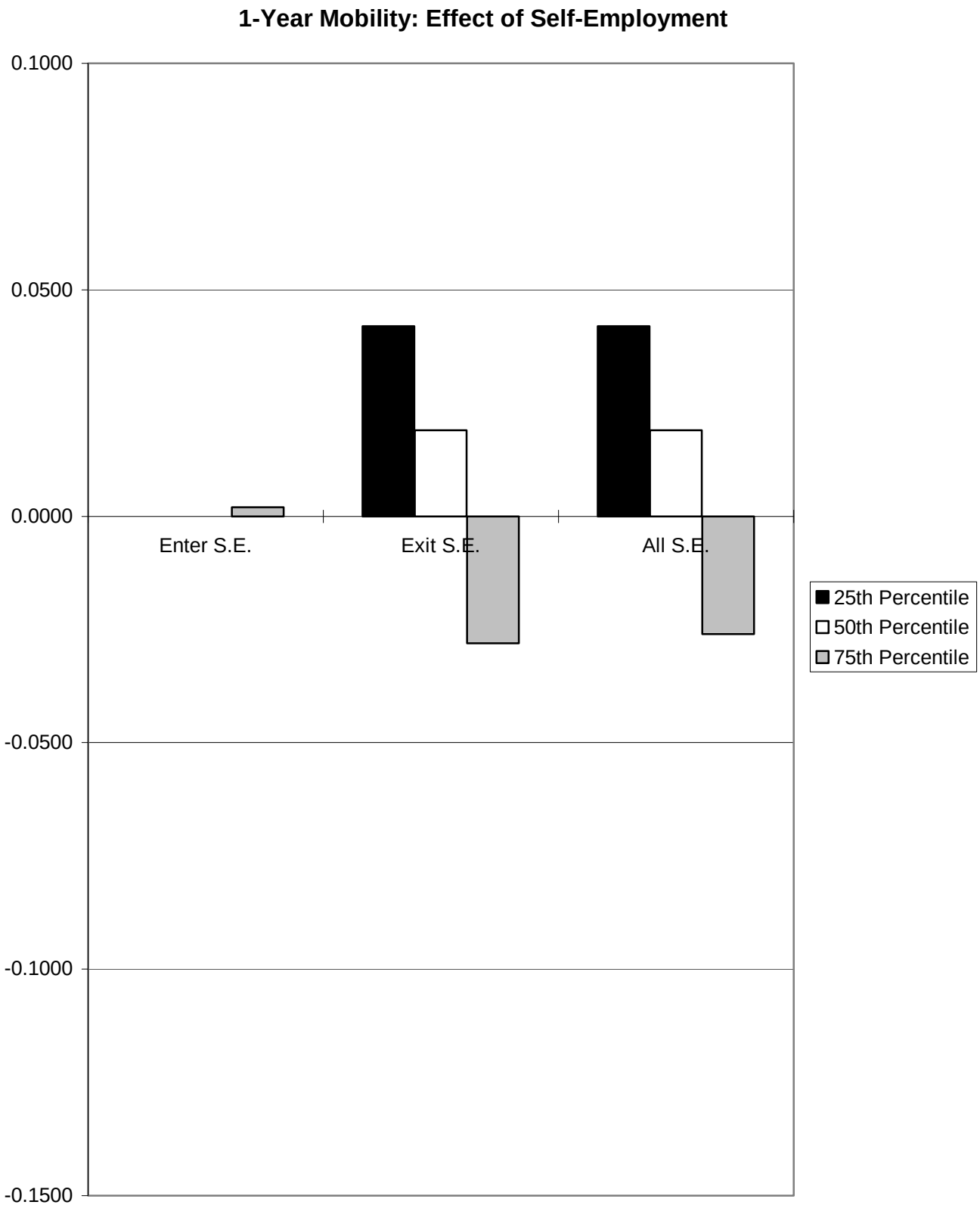
Percentile	%SE = 0 (1)	%SE = 0.16 (2)	%SE = 0.33 (3)	%SE = 0.5 (4)	%SE = 0.67 (5)	%SE = 0.83 (6)	%SE = 1.0 (7)
				Females			
10th	0.234	0.217	0.207	0.203	0.205	0.214	0.214
	(0.00776)	(0.00965)	(0.0114)	(0.0120)	(0.0125)	(0.0153)	(0.0204)
25th	0.335	0.320	0.315	0.318	0.330	0.350	0.365
	(0.00358)	(0.00679)	(0.00981)	(0.0112)	(0.0121)	(0.0146)	(0.0179)
50th	0.511	0.508	0.509	0.515	0.525	0.540	0.545
	(0.00276)	(0.00867)	(0.0133)	(0.0153)	(0.0163)	(0.0197)	(0.0261)
75th	0.699	0.715	0.721	0.718	0.704	0.682	0.635
	(0.00509)	(0.0176)	(0.0273)	(0.0304)	(0.0284)	(0.0265)	(0.0344)
90th	0.816	0.848	0.857	0.843	0.805	0.744	0.647
	(0.0105)	(0.0309)	(0.0475)	(0.0525)	(0.0479)	(0.0427)	(0.0510)
				Blacks			
10th	0.224	0.220	0.218	0.218	0.221	0.225	0.245
	(0.0110)	(0.0157)	(0.0199)	(0.0239)	(0.0555)	(0.0522)	(0.0751)
25th	0.317	0.316	0.319	0.326	0.337	0.352	0.383
	(0.00488)	(0.0109)	(0.0160)	(0.0196)	(0.0251)	(0.0364)	(0.0483)
50th	0.489	0.494	0.501	0.510	0.521	0.534	0.561
	(0.00438)	(0.0135)	(0.0208)	(0.0243)	(0.0270)	(0.0345)	(0.0456)
75th	0.685	0.694	0.698	0.697	0.690	0.678	0.673
	(0.00605)	(0.0185)	(0.0291)	(0.0333)	(0.0328)	(0.0333)	(0.0392)
90th	0.813	0.825	0.824	0.811	0.785	0.747	0.708
	(0.0107)	(0.0319)	(0.0497)	(0.0558)	(0.0519)	(0.0453)	(0.0526)

Table 6. Continued

Percentile	%SE = 0 (1)	%SE = 0.16 (2)	%SE = 0.33 (3)	%SE = 0.5 (4)	%SE = 0.67 (5)	%SE = 0.83 (6)	%SE = 1.0 (7)
				Non-Blacks			
10th	0.261	0.234	0.222	0.224	0.243	0.276	0.334
	(0.00794)	(0.0100)	(0.0118)	(0.0122)	(0.0120)	(0.0131)	(0.0176)
25th	0.355	0.347	0.345	0.350	0.360	0.377	0.411
	(0.00412)	(0.00623)	(0.00831)	(0.00918)	(0.00930)	(0.0102)	(0.0116)
50th	0.526	0.536	0.542	0.544	0.542	0.537	0.541
	(0.00218)	(0.00607)	(0.00939)	(0.0108)	(0.0108)	(0.0108)	(0.0114)
75th	0.719	0.726	0.726	0.720	0.708	0.689	0.676
	(0.00180)	(0.00593)	(0.00934)	(0.0108)	(0.0106)	(0.0102)	(0.00946)
90th	0.844	0.840	0.831	0.818	0.799	0.776	0.760
	(0.00276)	(0.00860)	(0.0136)	(0.0154)	(0.0145)	(0.0123)	(0.0117)

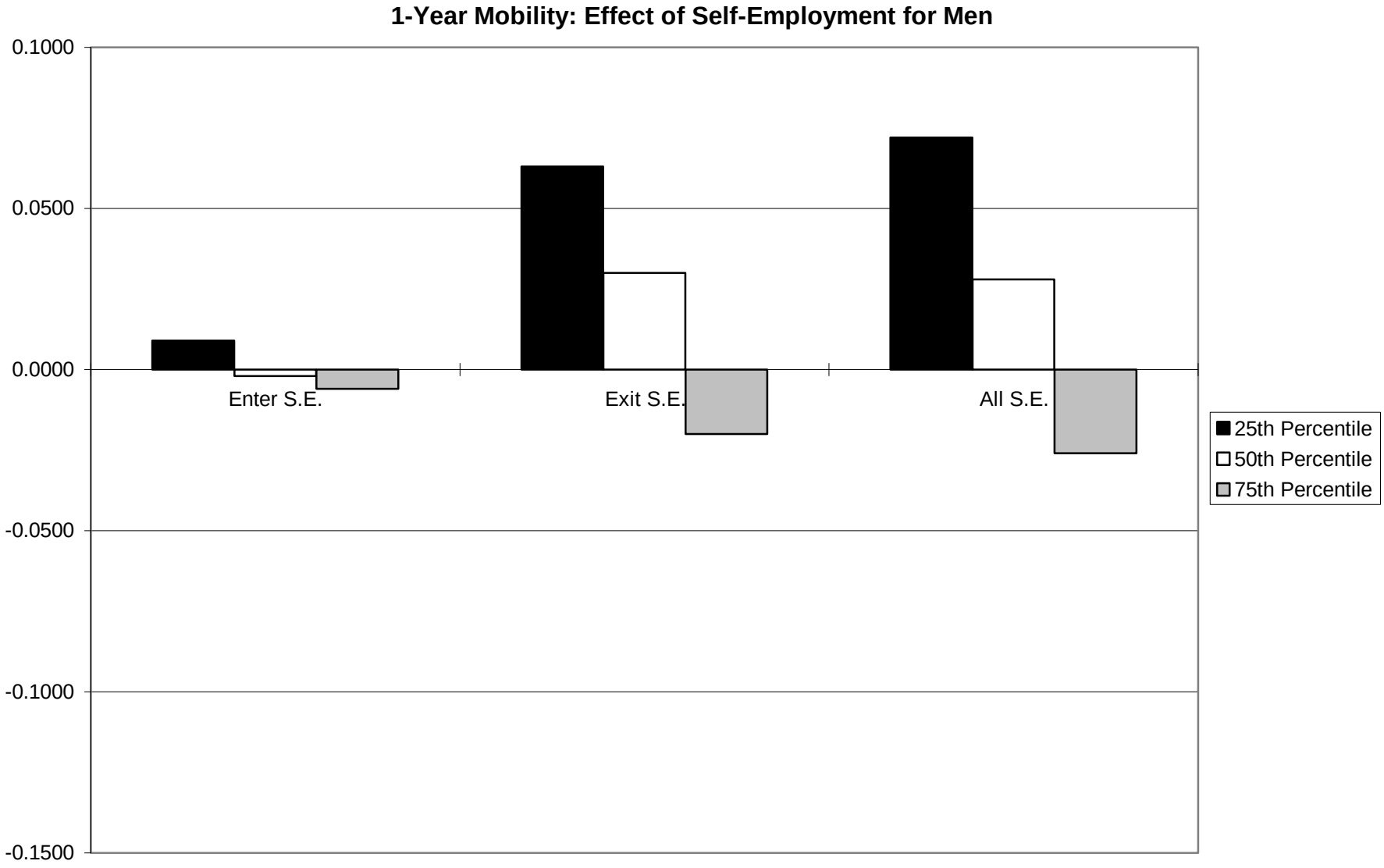
[a]Each figure shows the predicted percentile in the earnings distribution conditional on percentile in the earnings distribution five years earlier, *inter alia*. Estimates are based on a variant of equation (2.5) in which the left hand side variable is P_{t+5}, and the experience with self-employment is a quadratic in %SE, the proportion of the five-year period in which the individual was self-employed. Figures in parentheses are heteroskedasticity-consistent standard errors of the predictions.

Figure 1*



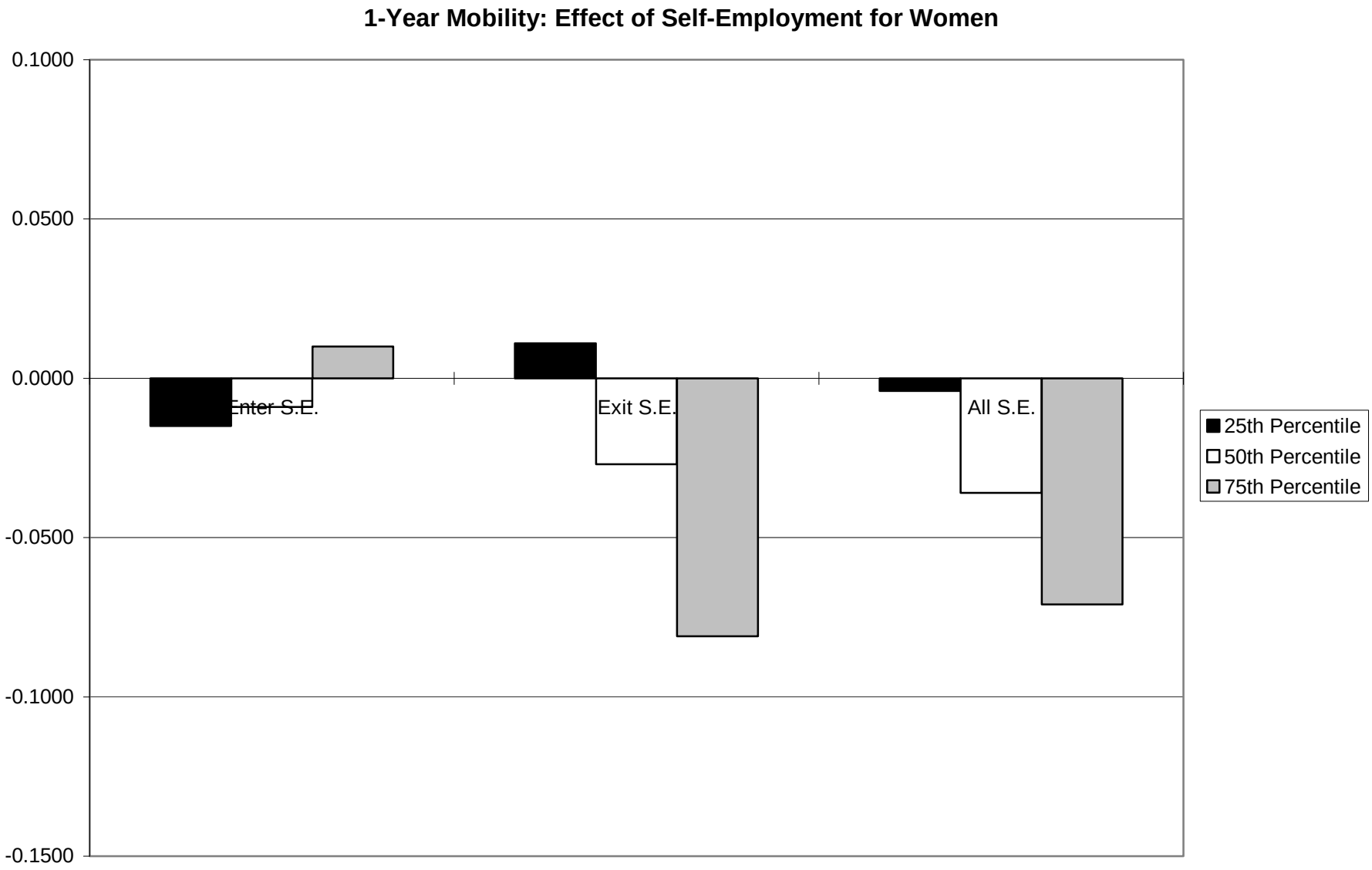
*Based on Table 5. Bars are difference between percentile of a group member and that of a wage-earner in both years; e.g., "Exit S.E." equals difference between a self-employed individual who exited in year 2 and a wage-earner in both periods.

Figure 2*



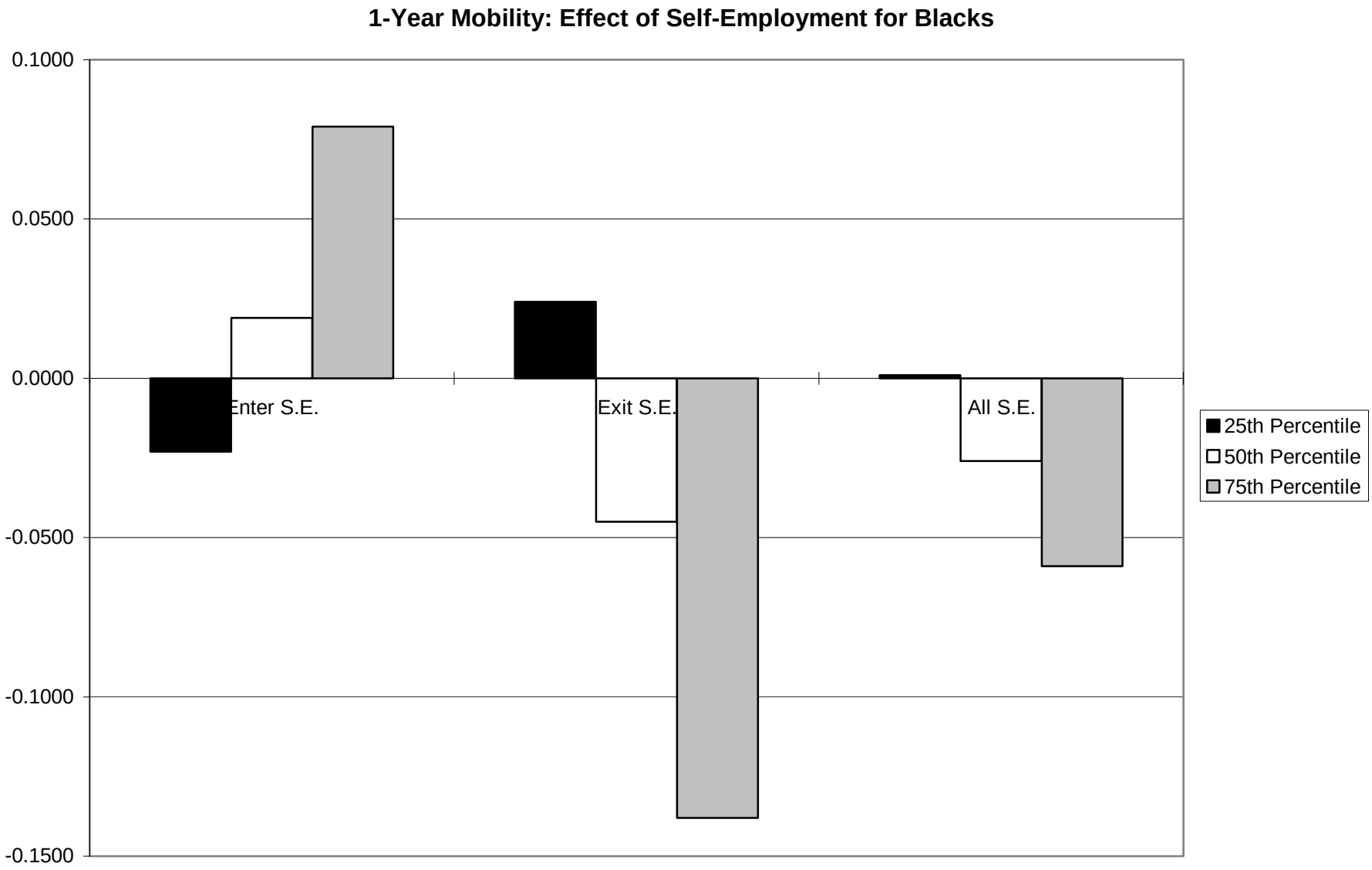
*Based on Table 5. Bars are difference between percentile of a group member and that of a wage-earner in both years; e.g., "Exit S.E." equals difference between a self-employed individual who exited in year 2 and a wage-earner in both periods.

Figure 3*



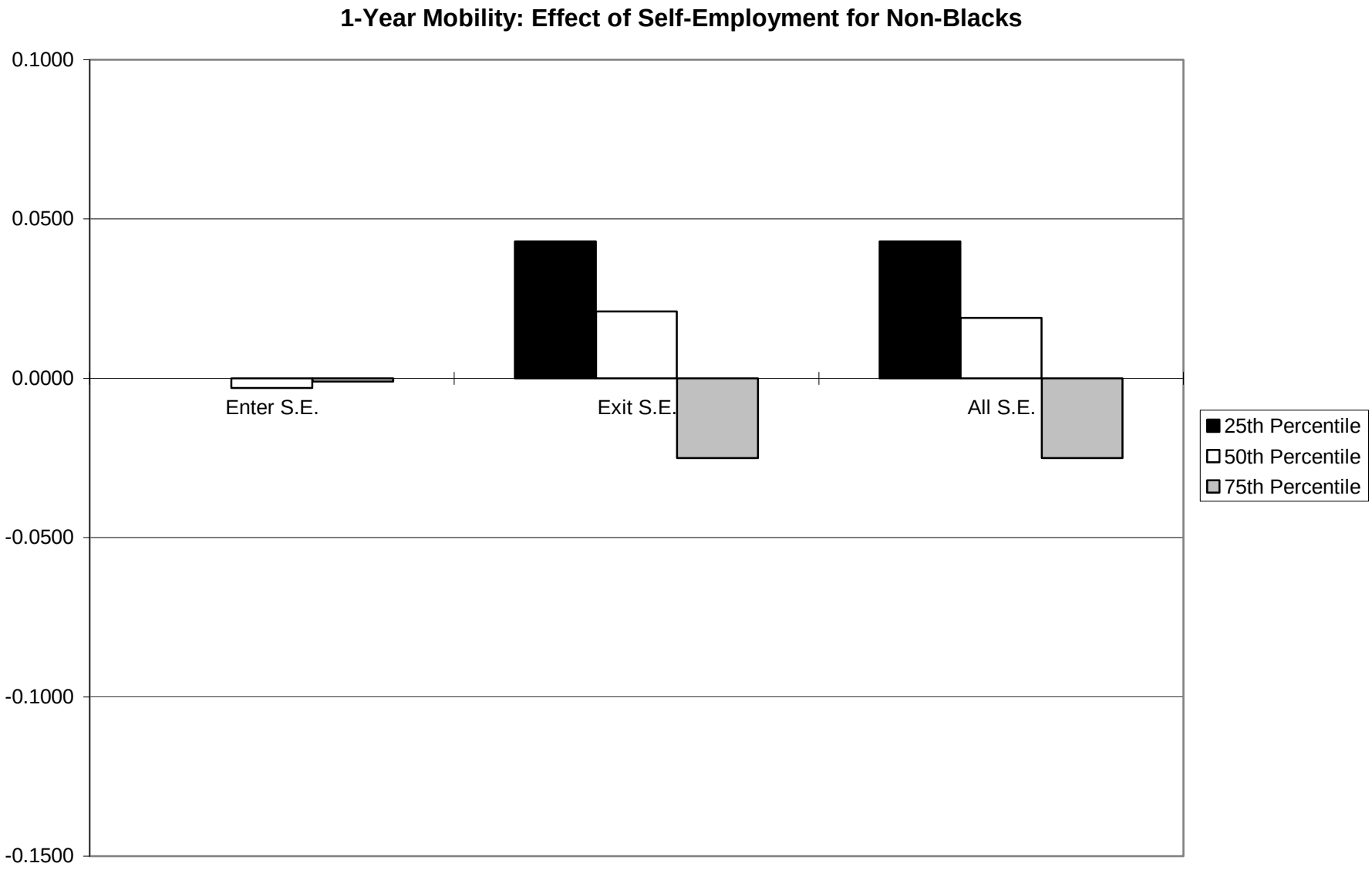
*Based on Table 5. Bars are difference between percentile of a group member and that of a wage-earner in both years; e.g., "Exit S.E." equals difference between a self-employed individual who exited in year 2 and a wage-earner in both periods.

Figure 4*



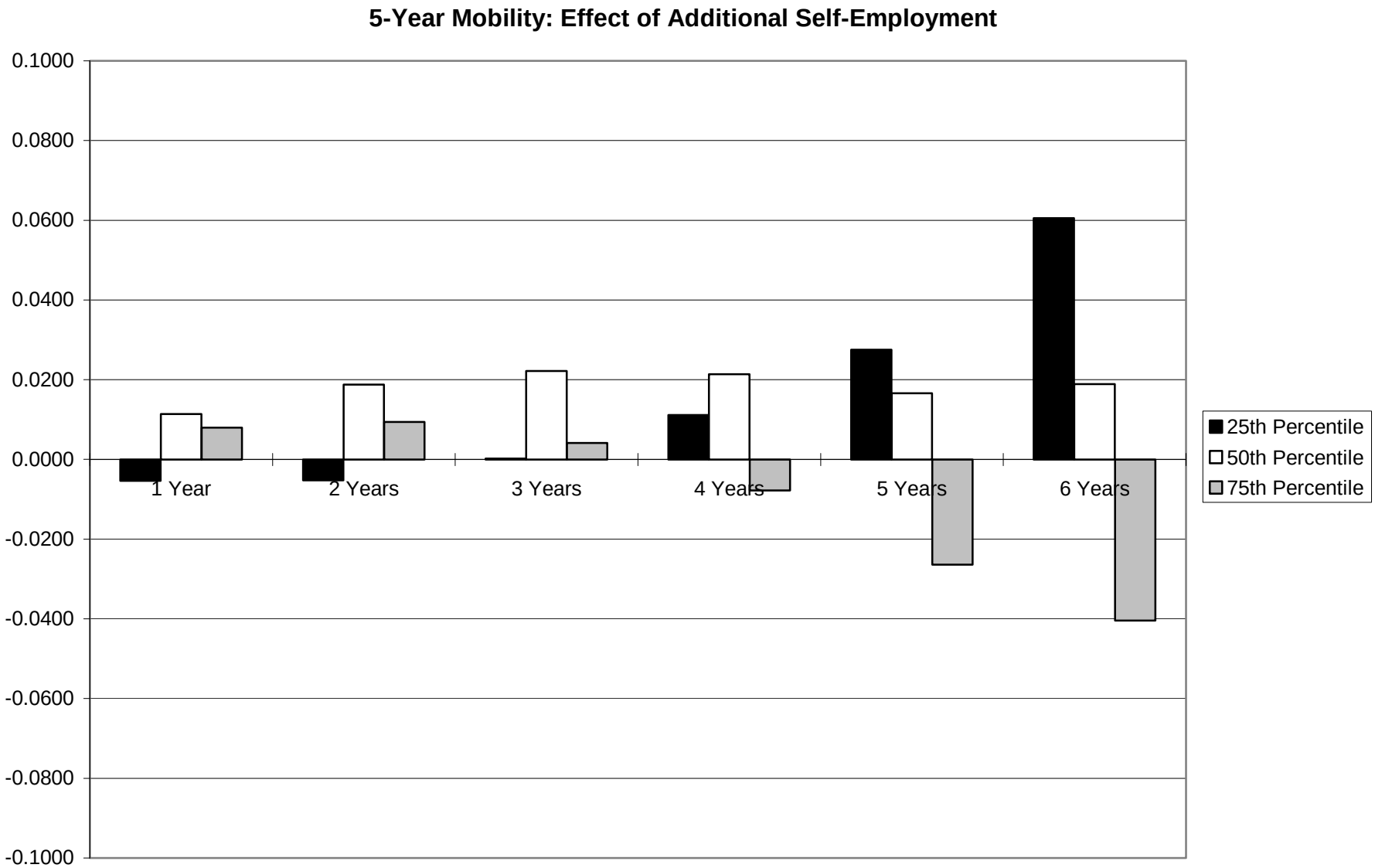
*Based on Table 5. Bars are difference between percentile of a group member and that of a wage-earner in both years; e.g., "Exit S.E." equals difference between a self-employed individual who exited in year 2 and a wage-earner in both periods.

Figure 5*



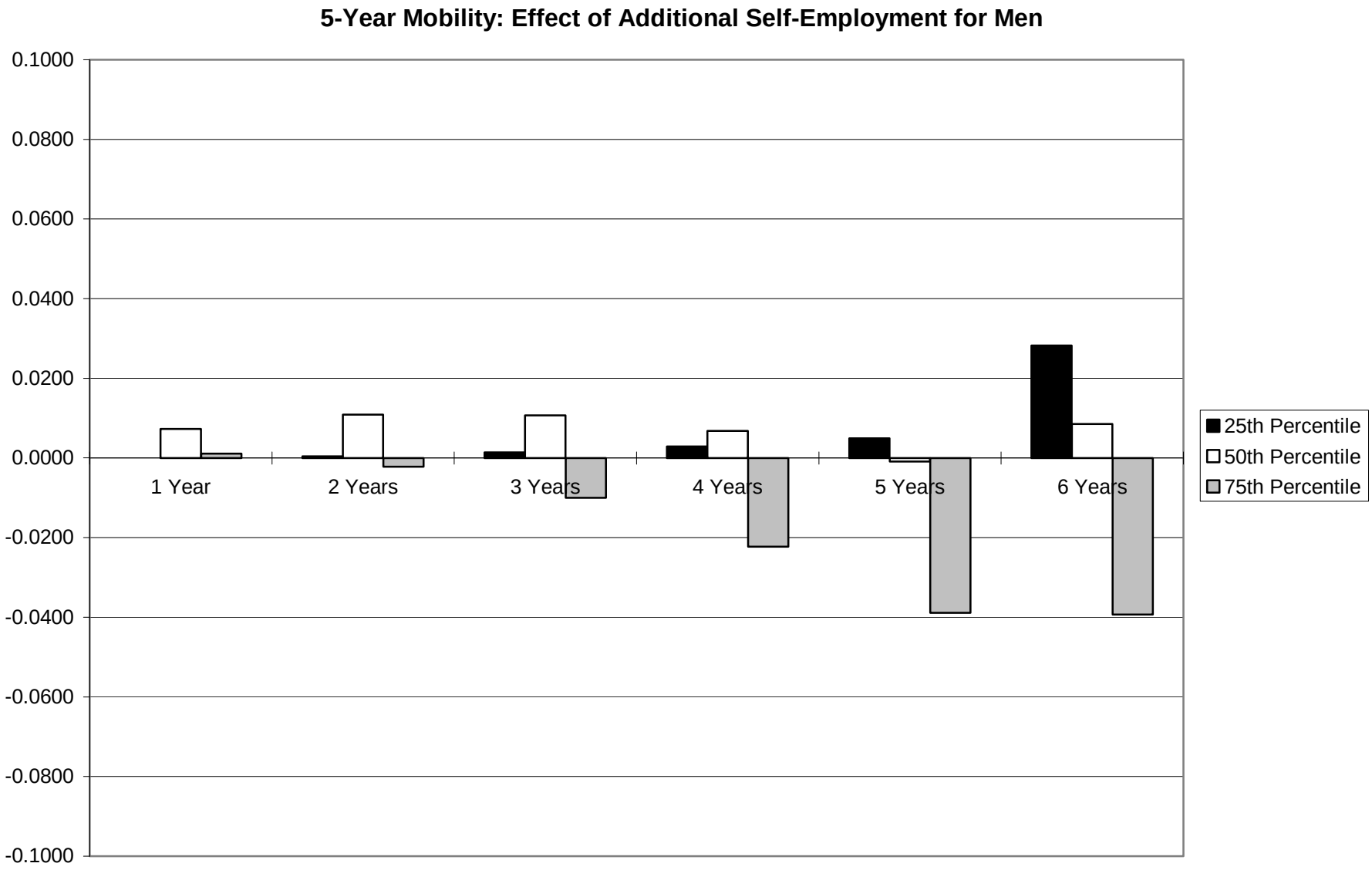
*Based on Table 5. Bars are difference between percentile of a group member and that of a wage-earner in both years; e.g., "Exit S.E." equals difference between a self-employed individual who exited in year 2 and a wage-earner in both periods.

Figure 6*



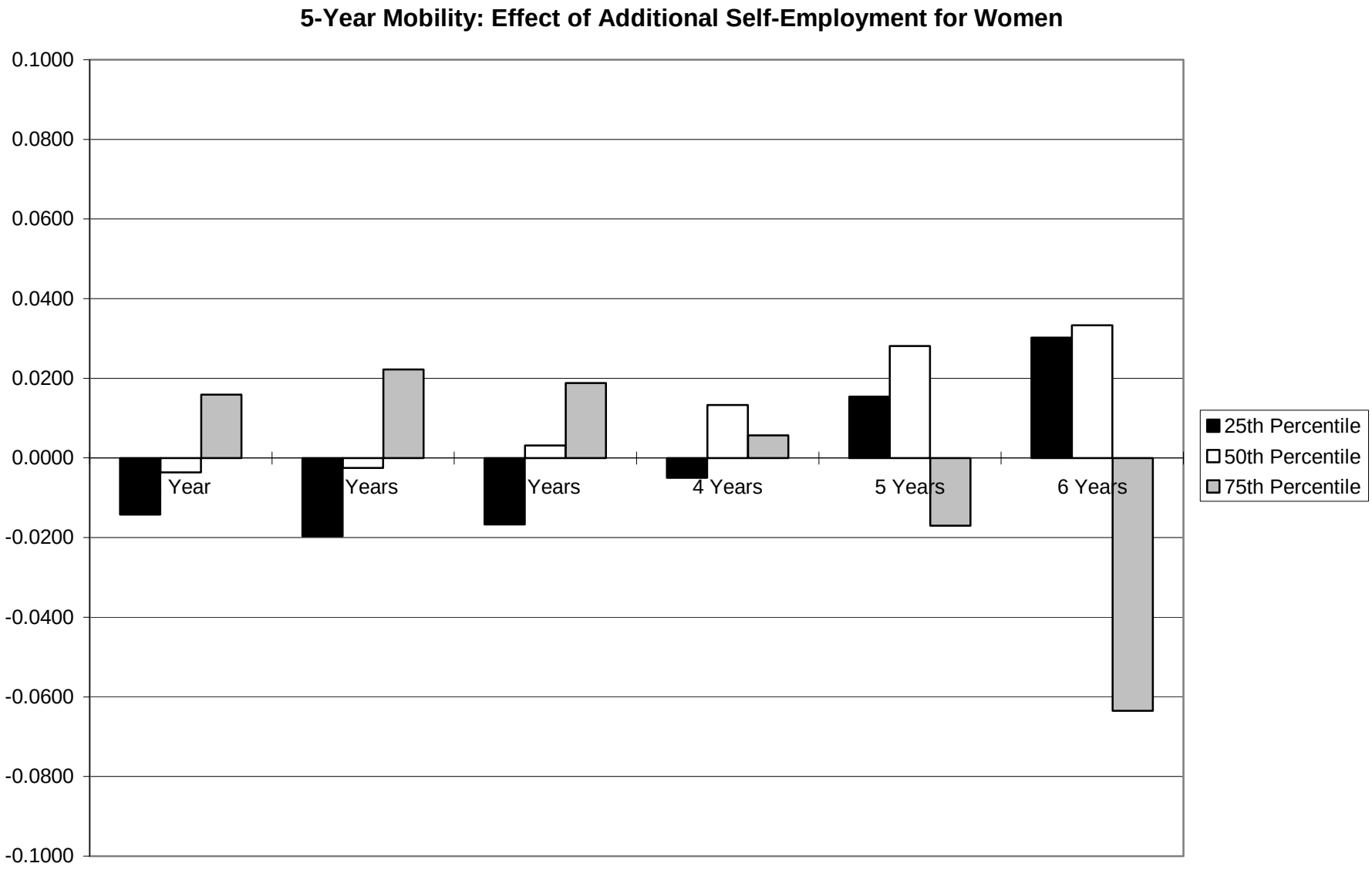
*Based on Table 6. Bars are difference between percentile of a group member and that of a wage-earner in all years; e.g., "3 Years" equals difference between self-employed for 3 years and a wage-earner in all years.

Figure 7*



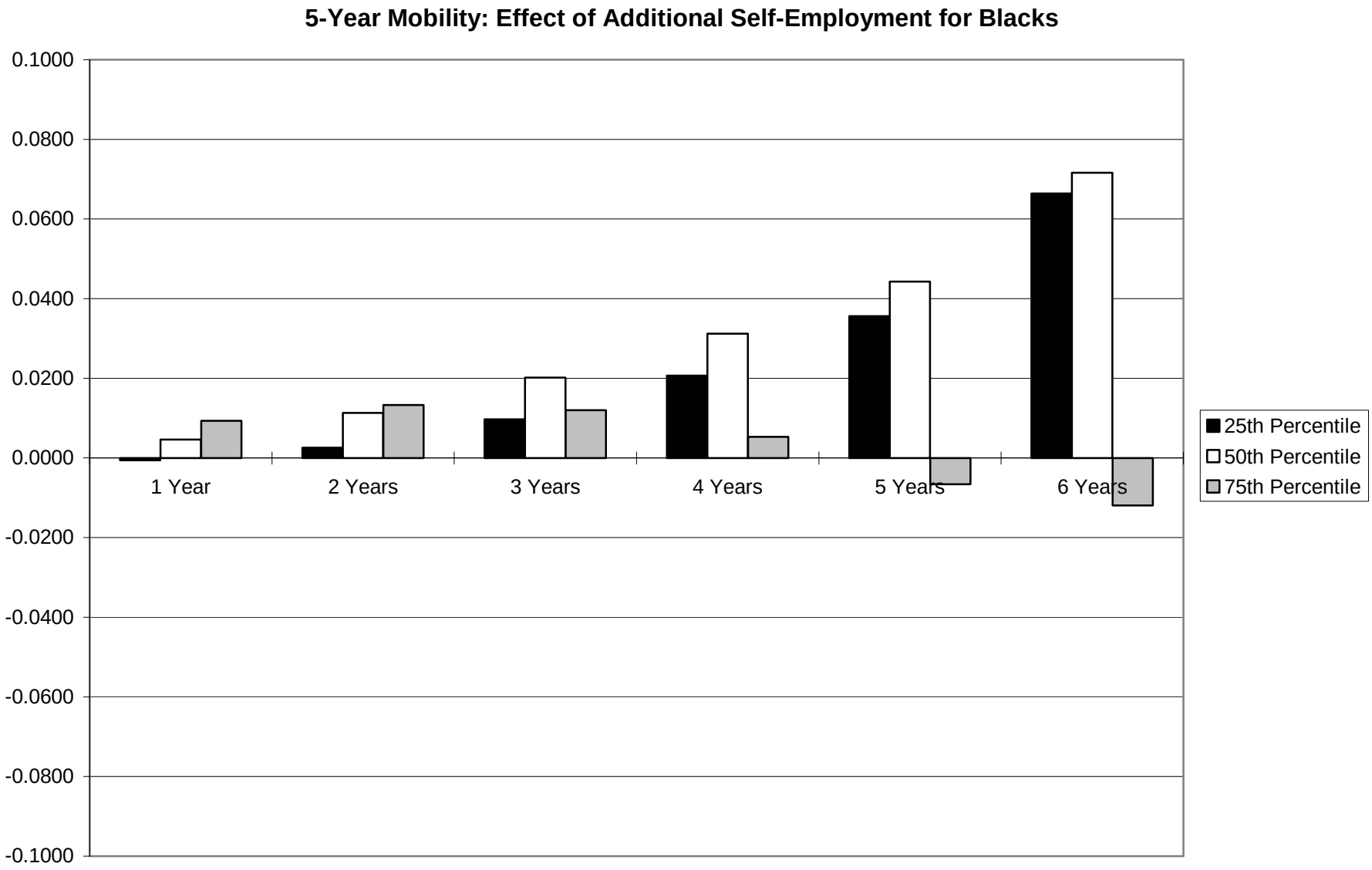
*Based on Table 6. Bars are difference between percentile of a group member and that of a wage-earner in all years; e.g., "3 Years" equals difference between self-employed for 3 years and a wage-earner in all years.

Figure 8*



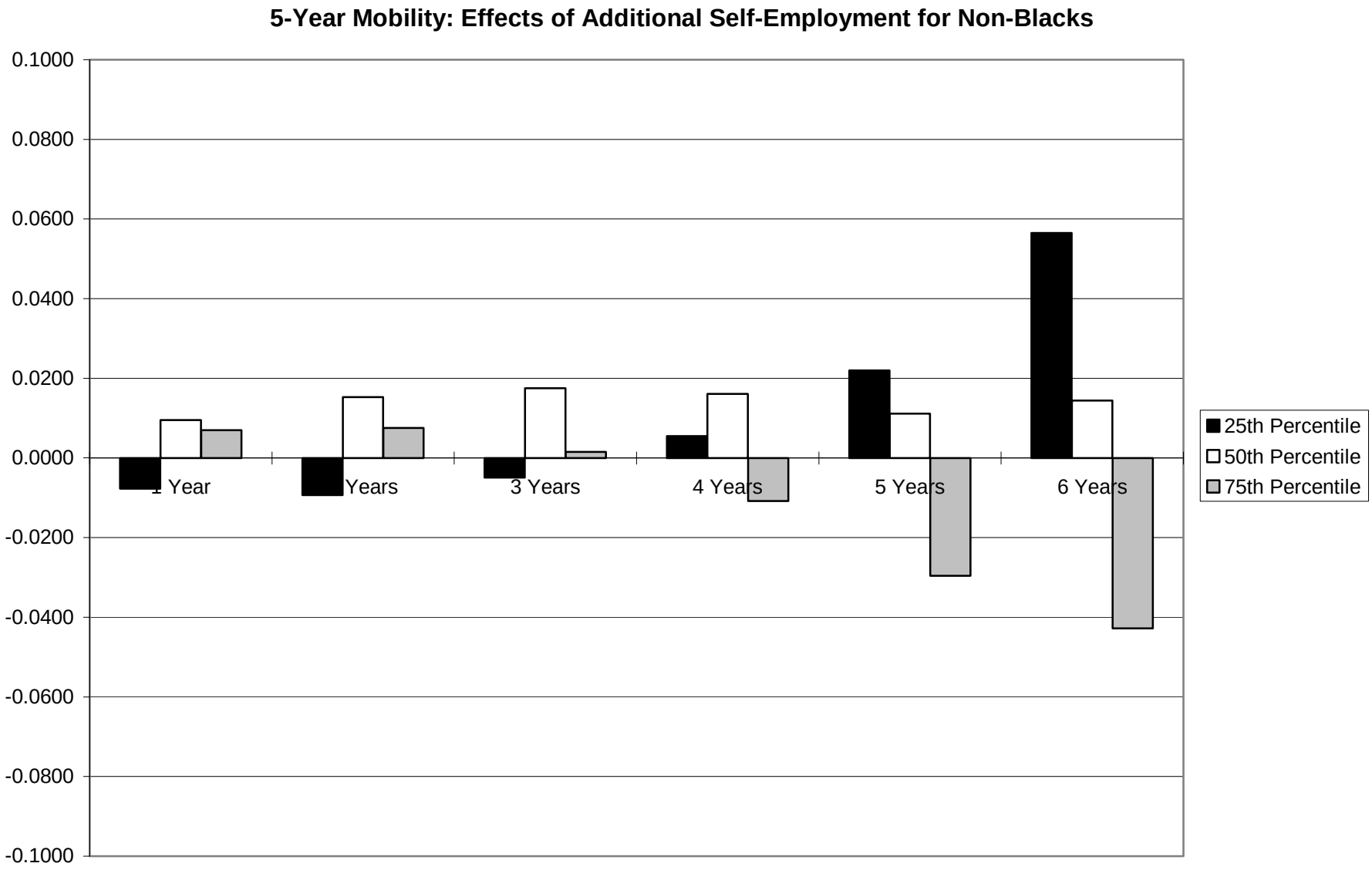
*Based on Table 6. Bars are difference between percentile of a group member and that of a wage-earner in all years; e.g., "3 Years" equals difference between self-employed for 3 years and a wage-earner in all years.

Figure 9*



*Based on Table 6. Bars are difference between percentile of a group member and that of a wage-earner in all years; e.g., "3 Years" equals difference between self-employed for 3 years and a wage-earner in all years.

Figure 10*



*Based on Table 6. Bars are difference between percentile of a group member and that of a wage-earner in all years; e.g., "3 Years" equals difference between self-employed for 3 years and a wage-earner in all years.

APPENDIX

The results summarized in Tables 5 and 6 and the associated figures are based on the estimated parameters of the regression model developed in Section 3.1. This appendix contains the parameter estimates. Appendix Table 1 defines the right-hand-side variables. Appendix Table 2 exhibits the one-year mobility results for both the entire sample and the various sub-groups. Appendix Table 3 provides the same information for the analysis of five-year mobility.

As noted in the text, because of the many interactions among the right-hand-side variables, the coefficients are very hard to interpret. Therefore, to help assess the implications of the coefficients, we report in Appendix Table 4 the partial derivatives of the dependent variables (P_{t+1} or P_{t+5}, depending on whether we are examining one-year or five-year mobility) with respect to potential experience, the unemployment rate, education, and initial position (i.e., P_t). This table shows the impact of each variable for the sample as a whole and for each demographic group.

Appendix Table 1. Variable Definitions

Variable	Definitions
EXP	Years of potential experience
EXP^2	Years of potential experience, squared
EDUC	Years of education
UR	Unemployment rate
P_t	Percentile in initial year
P_t^2	Percentile in initial year, squared
JC	= 1 if changed jobs (1-year regressions only)
SE_t	= 1 if self-employed in initial year
SE_{t+1}	= 1 if self-employed in terminal year (1-year regressions only)
%SE	= fraction of transition period spent in self-employment (5-year regressions only)
$\%SE^2$	= fraction of transition period spent in self-employment, squared (5-year regressions only)
%CHNG	= fraction of years in transition period with a job change (5-year regressions only)
$\%CHNG^2$	= fraction of years in transition period with a job change, squared (5-year regressions only)

Appendix Table 2. 1-Year Mobility Regression[a]

	All	Men	Women	Black	Non-Black
EXP	0.0020399 (0.0013012)	-0.0080875 (0.0033379)	0.0010453 (0.0014534)	0.0035027 (0.0027395)	-0.0027389 (0.0014487)
EXP^2	0.00005 (0.000028)	0.0002192 (0.000071)	-0.00003 (0.000032)	-0.00006 (0.000057)	0.000066 (0.000032)
EDUC	0.0073685 (0.0011775)	0.0235488 (0.0030146)	0.001316 (0.0013966)	0.0085604 (0.0027585)	0.0074294 (0.0012916)
UR	0.0016485 (0.0016783)	0.0013244 (0.0046004)	0.0020744 (0.0018977)	0.0038291 (0.0043784)	0.001203 (0.0018466)
P_t	1.0398 (0.0983838)	1.039626 (0.2148776)	0.8368162 (0.1406247)	1.54838 (0.2766358)	1.048316 (0.1086846)
P_t^2	-0.1243531 (0.0896961)	-0.0076926 (0.1707608)	0.0007875 (0.1567415)	-0.9893203 (0.3109384)	-0.1334765 (0.0980936)
SE_t	0.0422039 (0.0100954)	0.0781343 (0.0237375)	0.0313761 (0.0125226)	0.0672441 (0.0263667)	0.0399112 (0.0106448)
SE_{t+1}	0.0022443 (0.0091072)	0.0271074 (0.0231803)	-0.0056276 (0.0106508)	-0.0471269 (0.0195906)	0.0067026 (0.0096019)
JC	0.0295087 (0.0049477)	0.0091469 (0.0143087)	0.0335809 (0.0056019)	0.0299582 (0.0111363)	0.0298055 (0.0054422)
P_t x EXP	0.0071223 (0.0053543)	0.0254118 (0.0114283)	-0.000724 (0.0072746)	-0.0183206 (0.014015)	0.0088724 (0.0058445)
P_t x EXP^2	-0.000217 (0.0001183)	-0.000685 (0.0002475)	7.92e-06 (0.000162)	0.0002057 (0.0002962)	-0.000262 (0.0001293)
P_t x EDUC	-0.0124122 (0.0046664)	-0.048901 (0.0097535)	0.0130897 (0.0066839)	-0.0227719 (0.0119271)	-0.0138173 (0.0050832)
P_t x UR	-0.010238 (0.0067635)	0.0023916 (0.015042)	-0.0174928 (0.0092054)	-0.0245012 (0.0199241)	-0.009111 (0.0073472)
P_t^2 x EXP	-0.0052244 (0.0049311)	0.0192398 (0.0092472)	0.0026955 (0.0083071)	0.0267917 (0.0156196)	-0.0064104 (0.0053163)
P_t^2 x EXP^2	0.0001829 (0.0001095)	0.000513 (0.0002021)	-0.00002 (0.0001869)	-0.000268 (0.0003265)	0.0002113 (0.0001183)
P_t^2 x EDUC	0.0104209 (0.0041622)	0.0308745 (0.0076222)	-0.0117628 (0.0072117)	0.0328819 (0.0123488)	0.0115638 (0.0045111)
P_t^2 x UR	0.0096807 (0.0060257)	-0.0055659 (0.0117119)	0.0204831 (0.0099387)	0.0303714 (0.0203213)	0.0089331 (0.0064945)
SE_t x P_t	0.0720512 (0.3568211)	0.3229562 (0.4538401)	-0.2634639 (0.6951141)	-1.564425 (1.040795)	0.1689735 (0.371365)
SE_t x P_t x EXP	-0.0072965 (0.018677)	0.0037949 (0.0231601)	-0.0302082 (0.0332285)	0.0137349 (0.0519422)	-0.0055894 (0.019352)

Appendix Table 2. Continued

	All	Men	Women	Black	Non-Black
SE_t x P_t x EXP^2	0.0001584 (0.0004326)	-0.000219 (0.0005344)	0.0009934 (0.0007815)	0.0002225 (0.0011152)	0.000092 (0.0004491)
SE_t x P_t x EDUC	0.0083382 (0.0157024)	-0.0038595 (0.0186506)	0.0235472 (0.0316869)	0.0651915 (0.0448638)	0.003637 (0.0163799)
SE_t x P_t x UR	-0.0085183 (0.0233005)	-0.0386934 (0.030546)	0.0062305 (0.0384742)	0.0431162 (0.0619183)	-0.0127055 (0.0245596)
SE_t x P_t^2	-0.5514046 (0.431421)	-0.759051 (0.5230715)	-0.743169 (1.081026)	0.2767879 (1.408068)	-0.6384936 (0.4467787)
SE_t x P_t^2 x EXP	0.0221399 (0.0240391)	0.0022686 (0.0288266)	0.0857955 (0.0506216)	-0.0142439 (0.0802395)	0.0205356 (0.0248019)
SE_t x P_t^2 x EXP^2	-0.000528 (0.0005661)	0.000078 (0.0006693)	-0.0025348 (0.0012376)	-0.000353 (0.0016746)	-0.00046 (0.000585)
SE_t x P_t^2 x EDUC	-0.000214 (0.019283)	0.0133067 (0.0219317)	-0.0126433 (0.0491065)	-0.0115084 (0.0586859)	0.0038486 (0.0199989)
SE_t x P_t^2 x UC	0.0250863 (0.0288443)	0.0523638 (0.0362622)	0.0389904 (0.0643288)	0.0125562 (0.0870201)	0.0290442 (0.0301213)
SE_{t+1} x P_t	0.183348 (0.3339471)	0.0518277 (0.4391549)	-0.1744686 (0.5786651)	2.071849 (0.9379211)	0.0579783 (0.3481789)
SE_{t+1} x P_t x EXP	-0.0087968 (0.0171287)	-0.0131264 (0.0223902)	0.0158232 (0.0271425)	-0.0659211 (0.0478374)	-0.008291 (0.0178293)
SE_{t+1} x P_t x EXP^2	0.0002075 (0.0003947)	0.0003334 (0.0005144)	-0.000417 (0.0006303)	0.0010645 (0.0010523)	0.0002216 (0.0004116)
SE_{t+1} x P_t x EDUC	-0.0222273 (0.0149122)	-0.0242751 (0.0181817)	-0.0239572 (0.0281644)	-0.0937183 (0.0430254)	-0.0178234 (0.0156293)
SE_{t+1} x P_t x UR	0.0226769 (0.0221592)	0.0383182 (0.0299499)	0.0425407 (0.0339368)	-0.0174198 (0.0581358)	0.027761 (0.0234097)
SE_{t+1} x P_t^2	-0.1421683 (0.4059606)	-0.1181431 (0.5071675)	0.799162 (0.8794594)	-1.241156 (1.305059)	-0.0282639 (0.4209672)
SE_{t+1} x P_t^2 x EXP	0.0035752 (0.0221671)	0.0148524 (0.0280747)	-0.0566844 (0.0412185)	0.0673939 (0.0741656)	0.0026796 (0.0229497)
SE_{t+1} x P_t^2 x EXP^2	-0.00004 (0.0005201)	-0.000334 (0.0006494)	0.0015161 (0.001008)	-0.0010532 (0.0015562)	-0.00004 (0.0005394)
SE_{t+1} x P_t^2 x EDUC	0.0258965 (0.0183707)	0.0271013 (0.021473)	0.0235451 (0.0436074)	0.0604495 (0.0560732)	0.0221973 (0.0191236)
SE_{t+1} x P_t^2 x UR	-0.0312997 (0.0277628)	-0.0428904 (0.0357403)	-0.0831254 (0.055962)	-0.0198501 (0.0808413)	-0.0363606 (0.0290279)
JC x P_t	-0.1367153 (0.1727687)	0.2503747 (0.2651504)	0.9860995 (0.2687993)	-0.3491241 (0.5482177)	-0.0868476 (0.1870952)

Appendix Table 2. Continued

	All	Men	Women	Black	Non-Black
$JC \times P_t \times$ EXP	-0.0072535 (0.0086654)	0.0013309 (0.012663)	0.0013564 (0.013358)	-0.022995 (0.024417)	-0.0030667 (0.009348)
$JC \times P_t \times \text{EXP}^2$	0.000107 (0.0002048)	-0.000192 (0.0002976)	0.00005 (0.0003094)	0.0004613 (0.0005183)	1.59e-06 (0.0002226)
$JC \times P_t \times$ EDUC	0.0031524 (0.0083012)	-0.0160041 (0.0118509)	0.0413227 (0.0131673)	0.0071502 (0.0239103)	0.0005762 (0.0089198)
$JC \times P_t \times$ UR	-0.001289 (0.0118017)	-0.0081582 (0.0174539)	0.0221005 (0.0173907)	0.0358482 (0.0389026)	-0.006082 (0.0125869)
$JC \times P_t^2$	-0.4786928 (0.2501266)	-0.9829794 (0.3451502)	0.9730991 (0.4998402)	-0.1351609 (1.175181)	-0.5276152 (0.2652244)
$JC \times P_t^2 \times$ EXP	0.0255507 (0.0133798)	0.0145032 (0.0177729)	0.0080371 (0.0252383)	-0.0016224 (0.0514193)	0.0216285 (0.0140683)
$JC \times P_t^2 \times \text{EXP}^2$	-0.000689 (0.0003228)	-0.000323 (0.0004267)	-0.000467 (0.0005968)	-0.00003 (0.0011536)	-0.000594 (0.0003402)
$JC \times P_t^2 \times$ EDUC	0.0155369 (0.0119733)	0.0435317 (0.015865)	-0.0450696 (0.0241904)	0.0430718 (0.0489755)	0.0171228 (0.0125681)
$JC \times P_t^2 \times$ UR	0.0129901 (0.0172123)	0.0248297 (0.0229918)	-0.0516113 (0.0335096)	-0.0777778 (0.0832947)	0.0198031 (0.0178198)
CONSTANT	-0.0263419 (0.0236442)	-0.0965346 (0.0641196)	0.0120609 (0.0280145)	-0.1100051 (0.057818)	-0.0195272 (0.0265045)

[a]Variables defined in Appendix Table 1. Dependent variable is percentile one year after the initial period. Numbers in parentheses are heteroskedasticity-consistent standard errors.

Appendix Table 3. 5-Year Mobility Regressions[a]

	All	Men	Women	Black	Non-Black
SE_t	0.0112189 (0.0077483)	0.0207397 (0.0104909)	-0.0141478 (0.0106211)	0.0120344 (0.0223085)	0.0119315 (0.008044)
EXP	-0.0036229 (0.0025131)	-0.0107682 (0.0052862)	-0.0028892 (0.0028061)	0.013226 (0.0043394)	-0.0053222 (0.0027606)
EXP^2	0.000034 (0.000054)	0.0002411 (0.0001119)	-1.04e-06 (0.000061)	-0.000339 (0.00009)	0.000073 (0.00006)
EDUC	0.0146056 (0.0021845)	0.0339745 (0.0046395)	0.0033085 (0.0025058)	0.0089092 (0.004669)	0.0142277 (0.002374)
UR	-0.000575 (0.004041)	-0.0130491 (0.0094865)	0.0059094 (0.0051012)	0.0027824 (0.0066545)	0.00004 (0.0044202)
P_t	1.088863 (0.2041863)	0.934942 (0.3810792)	0.6123376 (0.2999818)	1.902309 (0.4286446)	1.037855 (0.2228078)
$\boldsymbol{P_t^2}$	-0.3938976 (0.1892811)	-0.2607169 (0.3132375)	-0.0789044 (0.3376207)	-1.558986 (0.4604987)	-0.350341 (0.2051495)
%SE	-0.3205812 (0.0589491)	-0.1519319 (0.1292916)	-0.1043782 (0.0724413)	-0.0388127 (0.1323163)	-0.3353874 (0.0623254)
$\%SE^2$	0.3938554 (0.0731295)	0.1506608 (0.1472422)	0.0453589 (0.0927936)	-0.000746 (0.2070447)	0.4069726 (0.0766409)
%CHNG	0.4515125 (0.0445169)	0.4881647 (0.1152787)	0.4446944 (0.0525527)	0.2487811 (0.0757283)	0.4577269 (0.0494534)
$\%CHNG^2$	-0.480529 (0.0403541)	-0.664042 (0.1044293)	-0.4542408 (0.0476704)	-0.2611984 (0.0699956)	-0.4915015 (0.0445613)
P_t x EXP	-0.015001 (0.0101137)	-0.0022032 (0.0177503)	-0.0204617 (0.0141396)	-0.0983425 (0.0202166)	-0.0078658 (0.010983)
P_t x EXP^2	0.0003182 (0.0002203)	-0.000124 (0.0003821)	0.0005608 (0.0003106)	0.0021861 (0.0004245)	0.0001305 (0.0002394)
P_t x EDUC	-0.0164979 (0.0084959)	-0.0721331 (0.0153613)	0.0466569 (0.0119063)	0.014829 (0.0188294)	-0.0201117 (0.0091914)
P_t x UR	-0.021217 (0.016062)	0.0325487 (0.0307625)	-0.054943 (0.0238747)	-0.0802454 (0.0323975)	-0.0146615 (0.0173591)
$\boldsymbol{P_t^2}$ **x EXP**	0.022001 (0.0094884)	0.0150433 (0.0146643)	0.041254 (0.016939)	0.1175104 (0.0219544)	0.0153128 (0.0102366)
$\boldsymbol{P_t^2}$ **x** $\boldsymbol{EXP^2}$	-0.00045 (0.0002075)	-0.000187 (0.0003188)	-0.000966 (0.0003737)	-0.0024846 (0.0004573)	-0.000271 (0.0002239)
$\boldsymbol{P_t^2}$ **x EDUC**	0.0091445 (0.007662)	0.0473099 (0.0124703)	-0.0530191 (0.013262)	-0.0122125 (0.0181458)	0.0137153 (0.0082711)
$\boldsymbol{P_t^2}$ **x UR**	0.028854 (0.0146461)	-0.0167023 (0.0245852)	0.0624354 (0.0258584)	0.0962811 (0.0344752)	0.020389 (0.0157546)

Appendix Table 3. Continued

	All	Men	Women	Black	Non-Black
%SE x P_t	2.721188 (1.850904)	1.323822 (2.574317)	3.653802 (3.026939)	7.262658 (4.566119)	2.179764 (1.954818)
%SE x P_t x EXP	0.1099135 (0.0845839)	0.1145325 (0.1129932)	0.1455209 (0.1289939)	0.0238018 (0.2067518)	0.0969259 (0.0898061)
%SE x P_t x EXP^2	-0.001804 (0.0019029)	-0.0018687 (0.0025819)	-0.0031088 (0.0028127)	-0.00154 (0.0042428)	-0.0013376 (0.0020325)
%SE x P_t x EDUC	-0.1348114 (0.0766581)	-0.0530729 (0.1011599)	-0.176111 (0.1270095)	-0.2868787 (0.1821954)	-0.1194132 (0.0807481)
%SE x P_t UR	-0.1113864 (0.1451619)	-0.1503506 (0.201471)	-0.372833 (0.2268544)	-0.4356739 (0.4020147)	-0.0641073 (0.1528113)
$\%SE \times P_t^2$	-3.262933 (2.338552)	-1.610188 (3.060818)	-8.421054 (5.207363)	-6.389625 (6.826567)	-2.718007 (2.452808)
$\%SE \times P_t^2 \times$ EXP	-0.1010835 (0.1106473)	-0.1423579 (0.1410714)	-0.0019107 (0.2086973)	0.0270313 (0.3115932)	-0.0817588 (0.1163736)
$\%SE \times P_t^2 \times EXP^2$	0.0019354 (0.0025451)	0.0026246 (0.0032867)	0.0023383 (0.0047223)	0.0008468 (0.0064962)	0.0013039 (0.0026892)
$\%SE \times P_t^2 \times$ EDUC	0.1916965 (0.0985041)	0.0974086 (0.1235361)	0.2534014 (0.2155328)	0.2904367 (0.2554683)	0.1757725 (0.102992)
$\%SE \times P_t^2 \times$ UR	0.0854965 (0.1837264)	0.1417747 (0.2428892)	0.5962876 (0.3975648)	0.2581864 (0.5806998)	0.0342253 (0.1921044)
$\%SE^2 \times P_t$	-2.659282 (2.063873)	-0.4197283 (2.771452)	-5.120821 (3.745717)	-8.52194 (5.953978)	-2.085305 (2.165935)
$\%SE^2 \times P_t \times$ EXP	-0.1166958 (0.0957084)	-0.096391 (0.1223549)	-0.1262137 (0.1735268)	-0.0934999 (0.270963)	-0.1034074 (0.1007923)
$\%SE^2 \times P_t \times EXP^2$	0.0017084 (0.0021316)	0.0011091 (0.0027798)	0.0028153 (0.0037141)	0.0024573 (0.0055037)	0.0012521 (0.0022581)
$\%SE^2 \times P_t \times$ EDUC	0.10074 (0.0860719)	-0.0226522 (0.1101144)	0.2292181 (0.152812)	0.154438 (0.223856)	0.0900587 (0.0901866)
$\%SE^2 \times P_t \times$ UR	0.1745366 (0.1610708)	0.174531 (0.2156583)	0.5179122 (0.271138)	0.9834376 (0.5175119)	0.1122631 (0.1685813)
$\%SE^2 \times P_t^2$	2.688066 (2.559234)	0.2396741 (3.273332)	10.0396 (6.096955)	7.111215 (8.413096)	2.097437 (2.672796)
$\%SE^2 \times P_t^2 \times$ EXP	0.1066891 (0.1223779)	0.1208649 (0.1513728)	-0.057686 (0.27138)	-0.0172791 (0.3718441)	0.0877103 (0.128092)
$\%SE^2 \times P_t^2 \times EXP^2$	-0.0017633 (0.0027842)	-0.0017327 (0.0035023)	-0.001479 (0.005993)7	-0.000128 (0.0076798)	-0.0011551 (0.0029283)
$\%SE^2 \times P_t^2 \times$ EDUC	-0.1387698 (0.107771)	-0.0018513 (0.1327035)	-0.2885136 (0.2465638)	-0.0814696 (0.2998624)	-0.1281401 (0.1123213)

Appendix Table 3. Continued

	All	Men	Women	Black	Non-Black
$\%SE^2 \times P_t^2 \times$ UR	-0.142212 (0.199749)	-0.1569095 (0.2577172)	-0.7472232 (0.439834)	-0.8245746 (0.7288753)	-0.0740192 (0.2079996)
$\%CHNG \times P_t$	-5.701077 (1.118274)	-4.953951 (1.783747)	-9.712347 (1.685492)	-4.334656 (2.35767)	-5.390136 (1.219352)
$\%CHNG \times P_t \times$ EXP	0.0230879 (0.0479427)	-0.0474334 (0.0700862)	0.1796109 (0.0685064)	-0.001963 (0.1029901)	0.0321954 (0.0521245)
$\%CHNG \times P_t \times \text{EXP}^2$	-0.00096 (0.0010698)	0.0005705 (0.0015531)	-0.0036548 (0.0015318)	-0.000687 (0.0021357)	-0.0011833 (0.0011655)
$\%CHNG \times P_t \times$ EDUC	0.1688682 (0.0452573)	0.1891991 (0.0661124)	0.2956099 (0.0691521)	0.1196872 (0.0989601)	0.1724703 (0.0491692)
$\%CHNG \times P_t \times$ UR	0.2030713 (0.0882523)	0.1753703 (0.1374759)	0.2688727 (0.1351812)	0.3393763 (0.1768314)	0.1451573 (0.0955868)
$\%CHNG \times P_t^2$	6.153473 (1.605444)	5.057864 (2.2829)	11.09696 (3.20768)	1.274954 (4.48067)	5.988168 (1.713834)
$\%CHNG \times P_t^2 \times$ EXP	-0.020551 (0.0690133)	0.0510551 (0.092805)	-0.1308874 (0.1233317)	-0.1671477 (0.207865)	-0.0272687 (0.0735234)
$\%CHNG \times P_t^2 \times \text{EXP}^2$	-0.000247 (0.0015854)	-0.0016245 (0.0021126)	0.000096 (0.0028982)	0.0046128 (0.0043596)	-0.000138 (0.0016873)
$\%CHNG \times P_t^2 \times$ EDUC	-0.1881359 (0.0663828)	-0.2071656 (0.087928)	-0.3403269 (0.1285716)	0.0877973 (0.1786305)	-0.2040348 (0.0708148)
$\%CHNG \times P_t^2 \times$ UR	-0.2851911 (0.1267836)	-0.2303164 (0.1786393)	-0.4472045 (0.2651917)	-0.3832629 (0.3169519)	-0.2193263 (0.134976)
$\%CHNG^2 \times P_t$	5.22701 (1.263119)	4.761809 (2.040201)	9.063991 (1.822575)	4.812853 (2.554967)	4.802852 (1.388528)
$\%CHNG^2 \times P_t \times$ EXP	0.0293508 (0.0543477)	0.0588773 (0.0831812)	-0.0855975 (0.0730153)	-0.0907847 (0.1161464)	0.0385537 (0.059023)
$\%CHNG^2 \times P_t \times \text{EXP}^2$	-0.00002 (0.0011981)	-0.00073 (0.00183)	0.0017134 (0.0016275)	0.0028657 (0.0024353)	-0.00017 (0.0013019)
$\%CHNG^2 \times P_t \times$ EDUC	-0.240862 (0.0534418)	-0.2383198 (0.0814156)	-0.3476068 (0.0749173)	-0.1756908 (0.1096365)	-0.2366938 (0.0587107)
$\%CHNG^2 \times P_t \times$ UR	-0.1870377 (0.1012928)	-0.088975 (0.163935)	-0.321645 (0.1496763)	-0.3134147 (0.185762)	-0.1456421 (0.1102407)
$\%CHNG^2 \times P_t^2$	-6.381609 (1.928538)	-5.428427 (2.701065)	-10.93502 (3.822034)	-2.55232 (5.32691)	-6.083505 (2.067713)
$\%CHNG^2 \times P_t^2 \times$ EXP	-0.0270778 (0.0846965)	-0.0612718 (0.1144244)	-0.0071898 (0.1404171)	0.3149808 (0.2706629)	-0.0425006 (0.0899401)

Appendix Table 3. Continued

	All	Men	Women	Black	Non-Black
$\%CHNG^2 \times P_t^2 \times \text{EXP}^2$	0.0007942 (0.0019182)	0.0013898 (0.0025925)	0.0026972 (0.0032956)	-0.0088942 (0.0057535)	0.0011419 (0.0020362)
$\%CHNG^2 \times P_t^2 \times \text{EDUC}$	0.2723899 (0.0847167)	0.3034177 (0.1115052)	0.3525213 (0.1464238)	-0.1139235 (0.2190014)	0.2797083 (0.0911562)
$\%CHNG^2 \times P_t^2 \times \text{UR}$	0.3077261 (0.155781)	0.1301446 (0.2195385)	0.6257926 (0.3273971)	0.5161521 (0.3618774)	0.2628174 (0.1660345)
CONSTANT	0.0662473 (0.0504796)	0.1188741 (0.113587)	0.1363099 (0.0616629)	-0.0618753 (0.0927228)	0.0851298 (0.0557559)

[a]Variables defined in Appendix Table 1. Dependent variable is percentile five years after the initial period. Numbers in parentheses are heteroskedasticity-consistent standard errors.

Appendix Table 4. Effects of Covariates on Mobility[a]

Variable	1-Year	5-Year	Variable	1-Year	5-Year
Potential Experience			**Unemployment Rate**		
All	-0.000304 [-0.00281]	-0.00224 [-0.00809]	All	-0.000399 [-0.00369]	-0.00346 [-0.0125]
Men	-0.000101 [-0.000461]	-0.00292 [-0.00662]	Men	0.00151 [0.00689]	-0.00116 [-0.00263]
Women	0.000173 [0.00171]	-0.000382 [-0.00144]	Women	-0.000578 [-0.00572]	-0.00536 [-0.0202]
Black	0.000151 [0.00106]	-0.00153 [-0.00580]	Black	-0.000540 [-0.00378]	-0.0134 [-0.0508]
Non-Black	-0.000381 [-0.00353]	-0.00237 [-0.00837]	Non-Black	-0.000380 [-0.00352]	-0.00156 [-0.00551]
Education			**Initial Position**		
All	0.00368 [0.0341]	0.00765 [0.0276]	All	0.892	0.723
Men	0.00617 [0.0282]	0.00772 [0.0175]	Men	0.781	0.559
Women	0.00506 [0.0501]	0.0135 [0.0508]	Women	0.899	0.734
Black	0.00520 [0.0364]	0.0119 [0.0451]	Black	0.857	0.736
Non-Black	0.00332 [0.0307]	0.00678 [0.0240]	Non-Black	0.892	0.717

[a]Entries show partial derivative of mobility equation with respect to each variable, evaluated at the sample means. Figures in brackets show "long-run" effect computed by dividing the entry by (1-*), where * is the partial derivative with respect to initial position.