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ECONOMIC PAYOFFS TO ADULT EDUCATION

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ECONOMIC PAYOFFS TO ADULT EDUCATION

Introduction

The purpose of this paper is to examine the economic payoffs from pursuing adult education activities. Individuals beyond the age of compulsory schooling engage in many forms of educational activities for a variety of reasons. This paper classifies postsecondary education into three categories. Higher education is the pursuit of a baccalaureate degree or higher at universities, colleges, or community colleges. Postsecondary technical education refers to formal education that results in the development of skills for occupations that require less than a baccalaureate degree but greater than a high school diploma. It takes place in community colleges, publicly-funded vocational/technical schools, and proprietary institutions. Adult education would be all other education or formal training activities. It ranges from adult basic education and GED preparation to short-term technical on-the-job training to avocational courses.¹

Adult education has, by far, the greatest number of participants of the three forms of postsecondary education (even if we were to exclude part-time students in higher or postsecondary technical education). The data set primarily relied upon for this paper suggests that around 40 percent of the adult population (over 75 million individuals) pursued adult education during a 12 month period in 1994-95. The number of participants in postsecondary education in that time period is as follows:

¹Note that many analysts, including staff and contractors of the U.S. Department of Education, include pursuit of higher education or postsecondary technical education on a part-time basis in adult education. The empirical work in this study will follow this lead even though it means that there is considerable overlap between higher education and adult education, and postsecondary technical education and adult education.

o	Higher education	20,412,000
o	Postsecondary technical education	6,193,000
o	Adult education	75,931,000
o	English as Second Language (ESL) courses ²	1,301,300
o	Basic skills training	2,240,300
o	Part-time higher or postsecondary technical ed.	11,553,600
o	Apprenticeship	2,136,200
o	Job-related/Career-related	39,695,100 ³
o	Structured activity, other than job/career-related	37,639,000

Source: 1995 National Household Education Survey (NHES).

The data provide enrollment totals for six categories of adult education. These categories, which are defined rigorously later in the paper, represent the major motivating factors for pursuit of adult education. All together, about 44 percent of the adult population (almost 84 million persons) participated in some form of postsecondary education according to this data source.

A human capital framework provides a model that easily accommodates pursuit of higher education, postsecondary technical education, and job- or career-related training into an investment behavior. Clearly, individuals (or their employers) are bearing direct education and training-related costs and indirect foregone opportunity costs in order to increase their productivity to warrant higher

²The ESL participants include some individuals who are taking ESL classes as part of a college program, and thus are pursuing higher education.

³Frazis et al. report that a 1995 survey of firms and employees showed that 70 percent of employees at establishments with 50 or more employees reported receiving formal training in the last 12 months.

wages and lifetime earnings. However, it seems less clear whether or not adult education, particularly that share of adult education that is not work-related training, is pursued as an investment. First of all, the payoff periods may be smaller since adult education usually occurs later in life than higher education or postsecondary technical education. Second, it may be the case that adult education has a significant avocational, and therefore consumption, component. Third, adult education activities are typically not certificated, so there is no clear signal to employers that can be rewarded.

In fact, a primary motivation of adult education participants is, in fact, for work-related reasons. The NHES reports that about 25 percent of the individuals who participate in ESL and in basic skills training indicated that the main reason for taking an adult education course was to improve, advance, or keep up to date in their current job or to train for a new job. The question was not asked of respondents to this survey, but we assume that 100 percent of formal apprenticeships were entered for job-related reasons. The NHES asked individuals who reported job- or career-related educational activities and structured activities to provide their motivation for taking particular courses. Almost 90 percent of the respondents with job- or career-related training and about 20 percent of the respondents with structured activities indicated that they were taking the course to improve, advance, or keep up to date in their current job or to train for a new job.⁴ These percentages probably underestimate the extent to which adult education is work-related because the survey only asked for the respondents' *main* reason for pursuing an activity. Job- or career-related reasons may be secondary reasons.

³About two-thirds of the participants in higher education and postsecondary education reported that their main reason for pursuing the credential they were working on was work-related.

The next section of this paper describes the data base that is used to analyze the adult educational experiences of adults in the U.S. population, aged 16 and over, and discusses summary statistics from that data. Section 3 presents models of participation in and the economic payoffs from adult education activities. Section 4 discusses the results and summarizes key findings.

Data Source

The 1995 National Household Education Survey (NHES) collected data about two subjects--early childhood education and adult education--from a random sample of the U.S. population aged 16 years or older who were not currently enrolled in elementary or secondary school and not on active military duty. It represents an effort by the U.S. Department of Education to collect education data through a random sample of households rather than from students, teachers, or administrators.

The purpose of the adult education component of the NHES was to measure enrollment in, reasons for participation in, and barriers to participation in adult education activities. For participants, it collects data on intensity of instruction (length in months and hours), provider and location of the instruction, cost, and employer participation. (Collins et al., 1996).

For each individual who participated in adult education, the NHES collected detailed information on up to six courses. The data set contains information on 19,722 individuals. Because the survey first screened households to identify adult education participants and then oversampled such households, it is important to adjust statistical analyses by sampling weights that have been provided on the dataset.

Tables 1 - 4 provide weighted and unweighted descriptive statistics for selected variables from the 1995 NHES. The tables display demographic and geographic characteristics; and

employment and earnings data for the total population and for participants in various types of adult education activities. The following glossary provides the precise wording of the survey questions that was used to categorize the various forms of postsecondary and adult education:

Glossary

English as Second Language (ESL): “During the last 12 months, did you have a tutor or take any classes to learn English as a Second Language?” (Asked only of respondents who indicated that a language other than English was used most often at home.)

Basic skills: “During the past 12 months, did you have a tutor or take any classes: (a) to improve your basic reading, writing, and math skills? (b) to prepare to take the General Educational Development, or GED?, or (c) In some other high school equivalency program or adult high school program?”

Higher education: “During the past 12 months, did you take any courses that are part of a program, or a series of courses associated with a program leading toward a college or university degree, such as an associate’s, bachelor’s, or graduate degree?”

Postsecondary technical education: “During the past 12 months, did you take any courses that are part of a program, or a series of courses associated with a program leading toward a diploma or certificate from a vocational or technical school after high school or a formal vocational training program?”

Apprenticeship: “During the past 12 months, were you in a formal apprenticeship program leading to journeyman status in a skilled trade or craft?”

Job- or career-related activities: “Now, I’d like to ask about courses related to a job or career, whether or not you had a job, when you took the courses. (Please don’t include courses you already told me about.) Some examples are courses taken at you job, courses taken somewhere else that relate to your job or a new career, or courses for a license or certificate you need for your job. Have you taken any of these in the past 12 months?”

Structured activities: “Now, I am going to ask about any other courses where there was an instructor. (Please don’t repeat any courses and programs you have already told us about.) These might include things like arts and crafts, sports or recreation, first aid or childbirth, Bible study, or any other types of courses we haven’t talked about yet. Did you take any of these or other courses in the past 12 months?”

Postsecondary education: (Derived from above). Union of all of the above activities.

Adult education: (Derived). Union of ESL, basic skills, apprenticeship, job- or career-related activities, structured activities, and higher education and postsecondary education if taken on a part-time basis only.

Part-time enrollment: “In the past 12 months, how many months were you enrolled in this program on a full-time basis? How about on a part-time basis?” Part-time enrollment if 0 months full-time in any program and nonzero months part-time in at least one program.

Work-related activities: ESL, basic skills, part-time higher education, part-time postsecondary technical education, and structured activities are work-related if respondent indicated that “the main reason you took _____ classes was to (1) to improve, advance, or keep up to date on current job or (2) to train for a new job or a new career.” Apprenticeships and job- or career-related activities are also defined as work-related activities.

Work-related adult education: (Derived). Union of work-related activities.

Table 1 shows characteristics of the total population, postsecondary education participants, and participants in the three categories of postsecondary education: higher education, postsecondary technical education, and adult education. The individuals who participated in some form of postsecondary education (roughly 44 percent of the population) were more likely to be women, be of white/nonhispanic ethnicity, have greater than a high school education, live in an MSA, be younger, be employed, and have higher annual earnings than in the overall population. Adult education participants represent almost 90 percent of individuals who participated in any postsecondary education, so not surprisingly these characteristics describe those individuals as well as can be seen by comparing the last column of the table to the second column.

Table 2 presents summary statistics about participants in work-related adult education (the third set of columns of data in the table) vis-a-vis those individuals for whom none of their adult education activities were work-related (fourth set of columns). Relative to the latter, individuals who pursued adult education for work-related reasons were disproportionately male, white/nonhispanic,

educated above the high school level, not from the West, younger, employed, and higher annual earnings.

Table 3 breaks down the adult education participants into the six major types of adult education. There are quite substantial differences among the characteristics of participants of each type of adult education. Over-represented among participants in ESL education were males, individuals of Hispanic or “Other” ethnicity, those with less than a high school education, residents of the West, younger individuals (average age of 32.5), residents of MSA’s, individuals not in the labor force (43 percent) or unemployed (12.6 percent), and individuals with low earnings (mean annual earnings of \$18,500). Over-represented among participants in basic skills education were nonwhites, nonmarried individuals, individuals with low educational attainment, younger individuals (average age of 30.7), individuals not in the labor force (32 percent) or unemployed (15.5 percent), and individuals with low earnings (mean of \$14,970).

Part-time college students are over-represented by females, individuals who are not married, younger individuals (average age of 33.4), and employed individuals (84 percent). Interestingly, the mean earnings of part-time college students approximates the means earnings in the population – \$27,070 to \$28,518. Individuals in formal apprenticeships are preponderantly males (almost 75 percent), minorities (40 percent), individuals with a high school diploma or less education, from the South or West, younger individuals (average age of 30.6), employed individuals (83 percent), and have lower average annual earnings (\$22,140).

Individuals who reported participating in job- or career-related education activities (tantamount to formal job training) were over-represented by whites, married individuals, individuals who had earned at least a bachelor’s degree (over 44 percent), employed individuals (92.3 percent),

and individuals with relatively high annual earnings (mean of \$35,800). The characteristics of individuals who participated in the “catch-all” category of structured activities closely resemble the total adult population, except that they are more likely to be female (about 62 percent). Note that the average age of participants in structured activities is considerably older than the average age for any of the other types of adult education and that a substantial share of the participants are not in the labor force. This results from the fact that many retired individuals are included in this category.

Table 4 focuses on participants of work-related adult education, by type. (Note that all of the participation in apprenticeships and job- and career-related educational activities is assumed to be work-related.). Comparing the entries in this table to the previous table suggests that work-“relatedness” is more important for males, whites, and younger individuals. For ESL and basic skills educational activities, it is individuals with less education and lower earnings who tended to report their main motivating factors being work-related. However, for part-time college students and structured activities, it is individuals with more education and higher earnings who reported that their participation was work-related.

With this description of the data set as background, the next section describes analyses of who participates in adult education activities and with what outcomes.

Participation and Earnings Models

The previous section of the paper described various relationships between participation in adult education activities and characteristics of individuals; however, I now want to be more systematic in analyzing participation behavior. Two competing hypotheses about that behavior are as follows:

- o Adult education effectively enhances human capital and so participants are individuals most in need of human capital enhancement--i.e., younger, lower educational levels, lower income
- o The link from adult education to labor market rewards is not readily perceived, so adult education will more likely be pursued by those who have had prior success in and a taste for education--i.e., older, higher educational levels, higher income

To test these hypotheses, I estimated the following probit model of participation:

$$(1) \quad AE_i = \begin{cases} 1, & \text{if } p_i^* > 0 \\ 0, & \text{otherwise} \end{cases}$$

$$p_i^* = a_1 + B_1'X_i + u_i$$

where,

$AE_i = 1$, if individual i participated in adult education; 0 otherwise

$X_i =$ vector of characteristics describing i that are thought to be related to participation

$a_1, B_1 =$ parameters to be estimated

$u_i =$ standard error term

Table 5 presents the estimates of (1) using two different dependent variables -- participation in adult education and participation in work-related adult education. The results do not settle the issue between the two competing hypotheses. They show a strong positive relationship between education level and income and participation in adult education. Both years of education and household income class have significant positive coefficients indicating that individuals who have higher levels of human capital invest in more through adult education activities. But there is also a significant positive relationship between being currently employed or currently unemployed and participating in adult education. These relationships are suggestive of human capital investment motives. With other controls in the model, it turns out that women are more likely to participate in both adult education and work-related adult education than men. The estimates for the quadratic in

age suggest an inverted U-shaped relationship. Younger and older individuals tend not to participate relative to “middle-aged” individuals. The relationship for work-related adult education is maximized at age 32.

To test whether or not there is any economic payoff to adult education, I estimated the standard human capital model presented in equation (2).

$$(2) \quad \ln E_i = a_2 + B_2'X_i + c AE_i + v_i$$

where,

- E_i = annual earnings of individual i
- X_i = vector of characteristics describing i that are related to earnings
- AE_i = 1, if individual i participated in adult education; 0 otherwise
- a_2, B_2, c = parameters to be estimated
- v_i = standard error term

The basic hypothesis of interest in this paper is that the coefficient on adult education participation, c , will be positive.

Tables 6 - 9 present (weighted) OLS estimates of the c coefficient from (2). Several specifications were used to test different configurations of adult education activities. In particular, I tested five specifications: (1) participation in postsecondary education (models 1 and 2); (2) participation in higher education, postsecondary technical education, or adult education (models 3 and 4); (3) participation in higher education, postsecondary technical education, work-related adult education, and adult education that is not work-related (models 5 and 6); (4) participation in higher education, postsecondary technical education, and each of the six types of adult education separately (models 7 and 8); and (5) participation in higher education, postsecondary technical education, each of the six types of work-related adult education separately, and adult education that is not work-related (models 9 and 10). Under the assumption that there are structural differences between the

labor markets for men and women, I estimated the model separately by sex. Furthermore, I estimated the model with and without a set of dummy variables for industry and occupation.⁵ The inclusion of the industry and occupation dummy variables reduces the size of the adult education effects somewhat, but does not alter their sign or significance.

The first two columns in each table, labeled model (1) and model (2), display impacts of participation in any postsecondary education on earnings and wages that are sizeable in magnitude and that are highly significant statistically. They are on the order of 6 - 7 percent for males and 9 - 10 percent for females. But, in the next two columns, it can be seen that adult education accounts for these advantages. Participating in adult education seems to accrue an 11-12 percent for males and 15-17 percent for females. Participating in higher education drags down current earnings and wages, as would be predicted by the human capital model. Students are investing in higher education and among their costs are foregone earnings, which in this model, are actually the lower earnings that come from being employed while pursuing higher education.

The third set of specifications in models (5) and (6) show that the economic impacts of adult education stem from its being work-related. These models disaggregate participation in adult education into work-related adult education and adult education, not related to work. The estimates suggest that it is the former that are associated with earnings, and not the latter. Participation in work-related adult education imparts a wage or earnings impact of about 15 percent for males and 21-23 percent for females.

⁴The industry and occupation classes are very broad—9 industries and 10 occupations. Because it may be argued that industry and occupation are endogenous with earnings, my preferred specification omits these covariates. Of course, as I argue below, adult education may be endogenous as well.

The last two sets models that were estimated, which have coefficients displayed in columns (7) - (10), examine the impacts by type of adult education. These models show that two types of adult education – part-time higher education and postsecondary technical education and job- or career-related activities – result in significant positive impacts on earnings and wages for both males and females on the order of 15-20 percent. Participation in ESL activities has sizable positive impacts for women; however they are not significant. Furthermore, this type of educational activity has a significant negative impact on earnings for males. Participation in formal apprenticeships has sizable, but statistically insignificant impacts for men, but no impacts on earnings or wages for females. Participation in basic skills training and structured activities, whether it is work-related or not, does not impact earnings or wages.

The estimated coefficients on job- and career- related adult education are essentially confirming the positive impact on productivity and wages that formal on-the-job training models suggest.⁶ The significant positive impacts of part-time college or postsecondary technical education are less expected. However, it should be noted that the positive impact is relative to full-time participants in higher education or postsecondary technical education. Thus the results may be explained by individuals who participate in higher education on a part-time basis because they have relatively high-paying current employment that they do not want to give up to attend higher education on a full-time basis. Alternatively, part-time college attenders may be able to obtain higher wages because they have more hours available and can pursue more types of employment opportunities than full-time college students. At any rate, it seems doubtful that it is the content of part-time higher

⁶See Barron, Berger, and Black (1997) and sources cited there for estimates of the returns to on-the-job training.

education relative to the content of full-time higher education that provides the former with such substantial wage and earnings impacts.

Summary of Findings and Conclusions

The basic finding of this paper is that "adult education" seems to have sizable effects on participants' annual earnings. For men, the estimated effect is on the order of 10 percent and for women, it is somewhat higher, around 12-15 percent. Disaggregating adult education by whether or not it is work-related resulted in a finding that work-related "adult education" increases earnings and wages by 12-15 percent for men and 17-23 percent for women. Disaggregating adult education by type of activity resulted in a finding that it is job- or career-related educational activities and part-time college attendance that imparts the earnings and wage impacts, and that ESL, basic skills training, and structured activities do not have seem to have positive economic impacts. In short, the positive economic impacts of adult education are precisely the positive impacts of formal on-the-job training.

Analyses of participation in adult education suggest that participants tend to be more advantaged--higher educational achievement, higher levels of household income, and higher employment rates. This raises the specter of significant causality from annual earnings to adult education and consequent simultaneity bias in the estimates of the returns to adult education. Unfortunately, this cross-sectional data set has almost no variables to use to instrument for participation. What I can report is that the coefficient on adult education does not decrease greatly as variables are added to the earnings equation, which suggests that any bias component to the return is unlikely to be the major share of the effect.

In summary, work-related adult education activities tend to be pursued by relatively advantaged individuals--high education levels, high household income, relatively young, employed, and white. It appears as if these activities do enhance earnings for participants, but additional analyses on this dataset, or analyses on other datasets are needed to more firmly identify the existence and magnitude of this effect.

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Table 1

Characteristics of Participants in Postsecondary Education

Characteristic	Total Population		Any Postsecondary		Higher Education		Postsecondary Technical Education		Adult Education	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Sex</u>										
Female	55.4	52.4	57.4	54.4	58.3	55.0	49.3	46.8	57.9	54.8
Male	44.6	47.6	42.6	45.6	41.7	45.0	50.7	53.2	42.1	45.2
<u>Race/Ethnicity</u>										
White/Nonhispanic	72.9	76.3	74.4	78.1	70.5	74.2	67.4	71.1	75.1	78.7
Black/Nonhispanic	11.5	11.0	11.4	10.4	13.4	12.6	16.0	15.6	11.2	10.1
Hispanic	10.8	8.3	9.4	7.0	9.5	6.7	11.0	8.1	9.2	6.9
Other	4.8	4.5	4.8	4.6	6.6	6.5	5.6	5.2	4.5	4.3
<u>Current Marital Status</u>										
Married	76.8	79.6	72.2	73.1	45.9	42.2	66.0	65.2	76.5	77.6
Not married	23.2	20.4	27.8	26.9	54.1	57.8	34.0	34.8	23.5	22.4
<u>Highest Educ. Obtained</u>										
< High school	12.8	15.7	7.0	5.7	0.6	0.3	5.5	3.6	7.6	6.2
HS diploma/equivalent	52.2	54.5	49.8	52.7	60.0	61.2	67.3	70.6	47.8	51.0
Assoc. degree	6.1	5.3	7.5	7.3	8.9	8.5	10.7	10.3	7.6	7.3
Bach. degree +	28.9	24.5	35.7	34.3	30.4	30.0	16.6	15.6	37.0	35.5
<u>Years of Education</u>										
Mean	13.3	12.9	14.0	13.9	14.1	14.1	13.1	13.1	14.0	13.9
<u>Census Region</u>										
Northeast	18.2	20.4	18.0	20.1	18.5	20.4	15.9	17.9	17.7	19.9
South	37.9	34.3	37.0	32.9	35.5	31.6	37.9	33.7	37.2	33.1
North Central	21.9	24.0	22.3	24.0	23.7	25.7	20.4	22.2	22.2	24.0
West	22.0	21.2	22.8	22.9	22.3	22.3	25.8	26.2	22.9	23.0
<u>Urban Status</u>										
MSA	80.3	75.2	82.3	78.9	85.5	83.7	82.5	80.5	81.8	78.2
Non-MSA	19.7	24.8	17.7	21.1	14.5	16.3	17.5	19.5	18.2	21.8

Table 1
(Continued)

Characteristic	Total Population		Any Postsecondary		Higher Education		Postsecondary Technical Education		Adult Education	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Age</u>										
Mean	41.5	44.6	37.7	38.5	29.0	28.5	33.5	33.3	38.9	39.8
<u>Employment Status</u>										
Employed	69.0	62.2	78.0	76.4	72.3	70.3	78.5	78.3	80.1	78.3
Unemployed	4.2	4.0	4.1	4.1	5.2	5.8	6.7	7.4	3.7	3.6
Not in Labor Force	26.8	33.8	17.9	19.5	22.5	23.9	14.8	14.3	16.2	18.1
<u>Annual Earnings</u>										
Mean ^a	\$ 24,490	\$ 28,518	\$ 30,328	\$ 30,012	\$ 21,675	\$ 20,630	\$ 24,895	\$ 24,799	\$ 31,659	\$ 31,321
Sample Size (weighted in 000s)	19,722	189,600	11,713	84,050	3,153	20,410	930	6,190	10,587	76,270

Source: Tabulations of the 1995 National Household Education Survey.

^a Conditional on nonzero values.

Table 2

Characteristics of Participants in Work-Related and Non-Work-Related Adult Education

Characteristic	Total Population		Adult Education		Work-Related Adult Education		Non-Work-Related Adult Education	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Sex</u>								
Female	55.4	52.4	57.9	54.8	54.8	50.4	66.1	64.9
Male	44.6	47.6	42.1	45.2	45.2	49.6	33.9	35.1
<u>Race/Ethnicity</u>								
White/Nonhispanic	72.9	76.3	75.1	78.7	77.2	80.4	69.6	74.7
Black/Nonhispanic	11.5	11.0	11.2	10.1	10.6	9.6	12.6	11.3
Hispanic	10.8	8.3	9.2	6.9	7.8	5.8	13.0	9.5
Other	4.8	4.5	4.5	4.3	4.4	4.2	4.9	4.5
<u>Current Marital Status</u>								
Married	76.8	79.6	76.5	77.6	77.8	77.9	72.8	76.9
Not married	23.2	20.4	23.5	22.4	22.2	22.1	27.2	23.1
<u>Highest Educ. Obtained</u>								
< High school	12.8	15.7	7.6	6.2	4.5	3.6	15.9	12.0
HS diploma/equivalent	52.2	54.5	47.8	51.0	45.8	48.2	53.1	57.2
Assoc. degree	6.1	5.3	7.6	7.3	8.4	8.1	5.5	5.6
Bach. degree +	28.9	24.5	37.0	35.5	41.2	40.1	25.5	25.2
<u>Years of Education</u>								
Mean	13.3	12.9	14.0	13.9	14.3	14.3	13.1	13.2
<u>Census Region</u>								
Northeast	18.2	20.4	17.7	19.9	17.8	20.1	17.3	19.4
South	37.9	34.3	37.2	33.1	37.8	33.8	35.9	31.5
North Central	21.9	24.0	22.2	24.0	22.5	24.2	21.4	23.4
West	22.0	21.2	22.9	23.0	21.9	21.9	25.4	25.7
<u>Urban Status</u>								
MSA	80.3	75.2	81.8	78.2	81.7	78.2	82.2	78.1
Non-MSA	19.7	24.8	18.2	21.8	18.3	21.8	17.9	21.9

Table 2
(Continued)

Characteristic	Total Population		Adult Education		Work-Related Adult Education		Non-Work-Related Adult Education	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Age</u>								
Mean	41.5	44.6	38.9	39.8	38.3	38.5	40.6	42.7
<u>Employment Status</u>								
Employed	69.0	62.2	80.1	78.3	89.6	89.3	54.9	53.6
Unemployed	4.2	4.0	3.7	3.6	2.7	2.9	6.3	5.2
Not in Labor Force	26.8	33.8	16.2	18.1	6.7	6.8	38.8	41.2
<u>Annual Earnings</u>								
Mean ^a	\$ 24,490	\$ 28,518	\$ 31,659	\$ 31,321	\$ 33,760	\$ 33,543	\$ 22,996	\$ 23,294
Sample Size (weighted in 000s)	19,722	189,600	10,587	76,270	7,697	52,840	2,890	23,430

Source: Tabulations of the 1995 National Household Education Survey.

^a Conditional on nonzero values.

Table 3

Characteristics of Participants in Adult Education, by Type

Characteristic	ESL		Basic Skills		Part-time College		Apprenticeship		Job- and Career-Related		Structured Activities	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Sex</u>												
Female	58.5	49.3	57.1	52.1	59.2	56.2	31.0	26.3	55.2	50.5	64.1	62.1
Male	41.5	50.7	42.9	47.9	40.8	43.8	69.0	73.7	44.8	49.5	35.9	37.9
<u>Race/Ethnicity</u>												
White/Nonhispanic	9.2	12.6	31.9	34.7	72.3	75.3	57.4	59.5	80.1	83.1	77.2	79.9
Black/Nonhispanic	2.6	1.9	16.7	14.3	13.3	13.1	16.9	16.0	9.8	8.5	11.0	10.4
Hispanic	74.2	68.6	41.7	39.7	9.0	6.5	15.9	13.6	6.2	4.7	7.5	5.7
Other	14.0	16.9	9.7	11.2	5.4	5.1	9.9	10.9	3.9	3.7	4.3	3.9
<u>Current Marital Status</u>												
Married	70.3	66.3	54.8	56.8	65.4	63.9	56.7	56.5	81.2	81.4	78.9	80.4
Not married	29.7	33.7	45.2	43.2	34.6	36.1	43.3	43.5	18.8	18.6	21.1	19.6
<u>Highest Educ. Obtained</u>												
< High school	41.1	28.9	60.9	50.2	1.7	1.3	13.0	11.5	3.3	2.7	6.0	5.9
HS diploma/equivalent	42.4	49.4	32.4	40.3	56.9	58.3	65.1	71.7	42.6	44.8	48.5	52.4
Assoc. degree	1.8	1.3	1.5	1.6	10.0	9.4	8.1	6.5	8.4	8.1	7.6	7.3
Bach. degree +	14.7	20.3	5.2	7.9	31.4	31.0	13.7	10.4	45.8	44.4	37.9	34.5
<u>Years of Education</u>												
Mean	10.4	11.1	10.4	10.7	14.0	14.0	12.7	12.4	14.6	14.5	14.1	13.9
<u>Census Region</u>												
Northeast	21.0	27.8	20.2	23.7	18.1	20.6	14.1	15.3	17.9	20.4	16.3	18.2
South	19.2	18.7	35.9	31.7	36.2	32.4	40.5	37.2	37.9	33.8	37.0	32.5
North Central	13.1	14.8	16.3	17.6	23.3	24.6	18.3	19.1	22.6	24.2	22.4	24.2
West	46.7	38.7	27.6	27.0	22.4	22.4	27.1	28.4	21.6	21.6	24.3	25.1
<u>Urban Status</u>												
MSA	98.3	96.4	86.5	84.4	83.0	80.2	80.6	77.0	82.0	78.8	81.3	76.9
Non-MSA	1.7	3.6	13.5	15.6	17.0	19.8	19.4	23.0	18.0	21.2	18.7	23.1

Table 3
(Continued)

Characteristic	ESL		Basic Skills		Part-time College		Apprenticeship		Job- and Career-Related		Structured Activities	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Age</u>												
Mean	33.2	32.5	30.4	30.7	33.5	33.4	30.9	30.6	39.5	39.6	40.9	42.0
<u>Employment Status</u>												
Employed	44.5	44.2	53.8	52.8	84.8	84.1	82.4	82.6	92.3	92.3	72.1	68.9
Unemployed	14.9	12.6	17.3	15.5	3.4	3.6	6.7	8.2	2.0	2.1	3.6	3.5
Not in Labor Force	40.6	43.2	28.9	31.7	11.8	12.3	10.9	9.2	5.7	5.6	24.3	27.6
<u>Annual Earnings</u>												
Mean ^a	\$ 15,148	\$ 18,489	\$ 14,074	\$ 14,972	\$ 27,555	\$ 27,070	\$ 23,730	\$ 22,139	\$ 35,862	\$ 35,801	\$ 30,235	\$ 29,161
Sample Size (weighted in 000s)	229	1,300	652	3,350	1,851	11,550	284	2,140	5,842	39,700	4,817	37,640

Source: Tabulations of the 1995 National Household Education Survey.

^a Conditional on nonzero values.

Table 4

Characteristics of Participants in Work-Related Adult Education, by Type

Characteristic	Work-Related ESL ^b		Work-Related Basic Skills		Work-Related Part-time College		Apprenticeship		Job- and Career-Related		Work-Related Structured Activities	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Sex</u>												
Female	46.7	33.0	49.0	39.1	58.7	55.9	31.0	26.3	55.2	50.5	54.2	52.0
Male	53.3	67.0	51.0	60.9	41.3	44.1	69.0	73.7	44.8	49.5	45.8	48.0
<u>Race/Ethnicity</u>												
White/Nonhispanic	6.7	5.6	38.0	45.6	73.5	75.7	57.4	59.5	80.1	83.1	75.8	80.1
Black/Nonhispanic	0.0	0.0	14.0	9.0	12.8	13.4	16.9	16.0	9.8	8.5	11.2	10.2
Hispanic	90.0	89.8	41.0	37.4	8.6	6.0	15.9	13.6	6.2	4.7	8.5	5.3
Other	3.3	4.6	7.0	8.0	5.1	4.9	9.9	10.9	3.9	3.7	4.6	4.4
<u>Current Marital Status</u>												
Married	53.3	35.9	57.0	56.3	69.0	68.1	56.7	56.5	81.2	81.4	78.3	78.0
Not married	46.7	64.1	43.0	43.7	31.0	31.9	43.3	43.5	18.8	18.6	21.7	22.0
<u>Highest Educ. Obtained</u>												
< High school	46.7	38.4	66.0	54.0	1.8	1.5	13.0	11.5	3.3	2.7	4.5	3.5
HS diploma/equivalent	40.0	55.1	32.0	44.4	55.2	56.9	65.1	71.7	42.6	44.8	49.1	51.1
Assoc. degree	0.0	0.0	2.0	1.6	10.8	10.0	8.1	6.5	8.4	8.1	9.6	9.6
Bach. degree +	13.3	6.5	0.0	0.0	32.2	31.7	13.7	10.4	45.8	44.4	36.8	35.9
<u>Years of Education</u>												
Mean	10.1	10.0	10.2	10.3	14.1	14.0	12.7	12.4	14.6	14.5	14.1	14.1
<u>Census Region</u>												
Northeast	23.3	12.6	17.0	20.9	18.2	20.2	14.1	15.3	17.9	20.4	16.4	18.6
South	20.0	25.9	45.0	40.8	36.4	32.7	40.5	37.2	37.9	33.8	38.5	34.0
North Central	0.0	0.0	11.0	9.1	23.7	25.0	18.3	19.1	22.6	24.2	23.3	26.4
West	56.7	61.5	27.0	29.3	21.7	22.1	27.1	28.4	21.6	21.6	21.9	21.0
<u>Urban Status</u>												
MSA	100.0	100.0	82.0	79.2	82.4	80.2	80.6	77.0	82.0	78.8	78.6	72.5
Non-MSA	0	0.0	18.0	20.8	17.6	19.8	19.4	23.0	18.0	21.2	21.4	27.5

Table 4
(Continued)

Characteristic	Work-Related ESL ^b		Work-Related Basic Skills		Work-Related Part-time College		Apprenticeship		Job- and Career-Related		Work-Related Structured Activities	
	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage	Unweighted percentage	Weighted percentage
<u>Age</u>												
Mean	32.1	27.1	31.5	29.6	33.8	33.9	30.9	30.6	39.5	39.6	39.0	39.2
<u>Employment Status</u>												
Employed	40.0	29.6	62.0	61.9	86.8	86.2	82.4	82.6	92.3	92.3	85.9	84.6
Unemployed	23.3	21.6	14.0	11.5	3.5	3.6	6.7	8.2	2.0	2.1	3.5	4.0
Not in Labor Force	36.7	47.8	24.0	26.6	9.7	10.2	10.9	9.2	5.7	5.6	10.6	11.4
<u>Annual Earnings</u>												
Mean ^a	\$ 12,839	\$ 7,768	\$ 17,810	\$ 19,785	\$ 28,087	\$ 27,731	\$ 23,730	\$ 22,139	\$ 35,862	\$ 35,801	\$ 31,272	\$ 30,135
Sample Size (weighted in 000s)	30	170	100	528	1,354	8,550	284	2,140	5,842	39,700	978	7,630

Source: Tabulations of the 1995 National Household Education Survey.

^a Conditional on nonzero values.

^b Percentages in these columns based on small sample sizes.

Table 5

**Coefficient Estimates from a Model of Participation in
Adult Education and Work-Related Adult Education**

(standard errors in parentheses)

Variable	Dependent Variable	
	Adult Education	Work-Related Adult Education
Female	0.271*** (0.020)	0.122*** (0.022)
Minority	0.014 (0.032)	-0.003 (0.036)
Married	0.103*** (0.030)	0.057* (0.033)
Children under 18	0.004 (0.009)	-0.017 (0.010)
South	0.002 (0.021)	0.055** (0.023)
MSA	0.057** (0.023)	0.031 (0.025)
Age	-0.007* (0.004)	0.041*** (0.005)
Age ² /100	-0.008** (0.004)	-0.064*** (0.006)
Years of education	0.096*** (0.004)	0.104*** (0.004)
Household income class	0.050*** (0.003)	0.052*** (0.004)
Employed last week	0.448*** (0.015)	0.841*** (0.039)
Unemployed last week	0.292*** (0.052)	0.516*** (0.060)

Source: Estimates from a weighted probit regression using all 19,722 observations from the 1995 National Household Education Survey.

* Significant at the .10 level; ** significant at the .05 level; *** significant at the .01 level.

Table 6

Estimates of Annual Earnings Impacts of Participation in Adult Education, Males

(Standard errors in parentheses)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Participated in any postsecondary education	0.068*** (0.017)	0.046*** (0.016)								
(2) Participated in higher education			-0.236*** (0.027)	-0.224*** (0.027)	-0.232*** (0.027)	-0.221*** (0.027)	-0.306*** (0.033)	-0.299*** (0.032)	-0.256*** (0.031)	-0.250*** (0.030)
(3) Participated in part-time education			0.056 (0.038)	0.056 (0.037)	0.046 (0.038)	0.047 (0.037)	-0.010 (0.042)	-0.016 (0.041)	0.028 (0.042)	0.021 (0.040)
(4) Participated in adult education			0.121*** (0.016)	0.096*** (0.016)						
(5) Participated in work-related adult education					0.156*** (0.017)	0.128*** (0.017)				
(6) Participated in adult education, not related to work					-0.026 (0.029)	-0.033 (0.028)			-0.027 (0.029)	-0.032 (0.028)
(7) Participated in ESL							-0.291** (0.149)	-0.284* (0.145)		
(8) Participated in work-related ESL									-1.03 (0.70)	-1.00 (0.68)
(9) Participated in basic skills							-0.040 (0.079)	-0.001 (0.077)		
(10) Participated in work-related basic skills									0.064 (0.131)	0.053 (0.127)
(11) Participated in part-time college							0.233*** (0.041)	0.228*** (0.040)		

Table 6
(Continued)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(12) Participated in work-related part-time college									0.169*** (0.043)	0.167*** (0.042)
(13) Participated in formal apprenticeship							0.061 (0.054)	0.043 (0.053)	0.059 (0.054)	0.038 (0.053)
(14) Participated in job- or career-related training							0.155*** (0.018)	0.126*** (0.018)	0.153*** (0.018)	0.123*** (0.018)
(15) Participated in structured activities							-0.009 (0.020)	-0.018 (0.020)		
(16) Participated in work-related structured activities									0.043 (0.034)	0.038 (0.034)
Industry and occupation dummies	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
\bar{R}^2	0.291	0.332	0.302	0.342	0.307	0.345	0.309	0.348	0.307	0.346

Source: Estimated from observations with annual earnings > \$1,000 in the 1995 National Household Education Survey. Sample size is 6,042.

Note: Table entries are coefficient estimates from weighted least squares regression of the log of annual earnings. Besides variables in the table, the independent variables included minority status, marital status, presence of children < 18, South Census region, home ownership status, MSA residence, years of education, a quartic in age, full-time student status, and part-time student status.

* Significant at the .10 level; ** significant at the .05 level; *** significant at the .01 level.

Table 7

Estimates of Annual Earnings Impacts of Participation in Adult Education, Females

(Standard errors in parentheses)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Participated in any postsecondary education	0.097*** (0.018)	0.078*** (0.017)								
(2) Participated in higher education			-0.156*** (0.025)	-0.145*** (0.024)	-0.160*** (0.025)	-0.148*** (0.024)	-0.258*** (0.033)	-0.228*** (0.032)	-0.210*** (0.030)	-0.195*** (0.029)
(3) Participated in part-time education			-0.064 (0.043)	-0.041 (0.042)	-0.081* (0.043)	-0.056 (0.041)	-0.129*** (0.046)	-0.096** (0.045)	-0.104*** (0.045)	-0.081* (0.044)
(4) Participated in adult education			0.167*** (0.017)	0.140*** (0.017)						
(5) Participated in work-related adult education					0.230*** (0.019)	0.192*** (0.019)				
(6) Participated in adult education, not related to work					0.002 (0.025)	0.015 (0.025)			-0.002 (0.025)	0.011 (0.024)
(7) Participated in ESL							0.152 (0.164)	0.162 (0.158)		
(8) Participated in work-related ESL									0.046 (0.573)	-0.017 (0.552)
(9) Participated in basic skills							-0.237*** (0.083)	-0.193** (0.080)		
(10) Participated in work-related basic skills									-0.027 (0.248)	-0.056 (0.239)
(11) Participated in part-time college							0.275*** (0.039)	0.225*** (0.038)		

Table 7
(Continued)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(12) Participated in work-related part-time college									0.255*** (0.041)	0.224*** (0.039)
(13) Participated in formal apprenticeship							-0.000 (0.091)	0.010 (0.088)	-0.007 (0.091)	0.009 (0.088)
(14) Participated in job- or career-related training							0.216*** (0.018)	0.169*** (0.018)	0.217*** (0.019)	0.173*** (0.019)
(15) Participated in structured activities							-0.005 (0.018)	0.005 (0.018)		
(16) Participated in work-related structured activities									0.044 (0.035)	0.060* (0.034)
Industry and occupation dummies	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
\bar{R}^2	0.254	0.314	0.263	0.321	0.272	0.326	0.275	0.327	0.273	0.327

Source: Estimated from observations with annual earnings > \$1,000 in the 1995 National Household Education Survey. Sample size is 6,338.

Note: Table entries are coefficient estimates from weighted least squares regression of the log of annual earnings. Besides variables in the table, the independent variables included minority status, marital status, presence of children < 18, South Census region, home ownership status, MSA residence, years of education, a quartic in age, full-time student status, and part-time student status.

* Significant at the .10 level; ** significant at the .05 level; *** significant at the .01 level.

Table 8

Estimates of Hourly Wage Impacts of Participation in Adult Education, Males

(Standard errors in parentheses)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Participated in any postsecondary education	0.061*** (0.015)	0.039*** (0.015)								
(2) Participated in higher education			-0.229*** (0.025)	-0.209*** (0.024)	-0.225*** (0.025)	-0.206*** (0.024)	-0.283*** (0.030)	-0.264*** (0.029)	-0.239*** (0.028)	-0.224*** (0.027)
(3) Participated in part-time education			0.040 (0.036)	0.048 (0.035)	0.030 (0.036)	0.039 (0.035)	-0.015 (0.039)	-0.009 (0.038)	0.019 (0.039)	0.024 (0.038)
(4) Participated in adult education			0.114*** (0.015)	0.086*** (0.015)						
(5) Participated in work-related adult education					0.147*** (0.016)	0.115*** (0.016)				
(6) Participated in adult education, not related to work					-0.007 (0.026)	-0.015 (0.025)			-0.008 (0.026)	-0.014 (0.025)
(7) Participated in ESL							-0.115 (0.111)	-0.131 (0.108)		
(8) Participated in work-related ESL									-0.125 (0.242)	-0.207 (0.234)
(9) Participated in basic skills							-0.060 (0.070)	-0.026 (0.068)		
(10) Participated in work-related basic skills									0.049 (0.118)	0.037 (0.114)
(11) Participated in part-time college							0.199*** (0.038)	0.188*** (0.036)		

Table 8
(Continued)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(12) Participated in work-related part-time college									0.143*** (0.040)	0.133*** (0.039)
(13) Participated in formal apprenticeship							0.037 (0.049)	0.015 (0.048)	0.039 (0.050)	0.014 (0.048)
(14) Participated in job- or career-related training							0.155*** (0.017)	0.123*** (0.016)	0.155*** (0.017)	0.122*** (0.017)
(15) Participated in structured activities							-0.004 (0.019)	-0.016 (0.018)		
(16) Participated in work-related structured activities									0.032 (0.033)	0.026 (0.032)
Industry and occupation dummies	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
\bar{R}^2	0.318	0.363	0.328	0.371	0.331	0.373	0.333	0.375	0.331	0.374

Source: Estimated from observations with hourly wages > \$0.00 in the 1995 National Household Education Survey. Sample size is 7,314.

Note: Table entries are coefficient estimates from weighted least squares regression of the log of annual earnings. Besides variables in the table, the independent variables included minority status, marital status, presence of children < 18, South Census region, home ownership status, MSA residence, years of education, a quartic in age, full-time student status, and part-time student status.

* Significant at the .10 level; ** significant at the .05 level; *** significant at the .01 level.

Table 9

Estimates of Hourly Wage Impacts of Participation in Adult Education, Females

(Standard errors in parentheses)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) Participated in any postsecondary education	0.089*** (0.015)	0.065*** (0.015)								
(2) Participated in higher education			-0.148*** (0.022)	-0.135*** (0.021)	-0.151*** (0.022)	-0.136*** (0.021)	-0.213*** (0.028)	-0.190*** (0.027)	-0.177*** (0.026)	-0.165*** (0.025)
(3) Participated in part-time education			-0.079** (0.037)	-0.056 (0.036)	-0.099*** (0.037)	-0.072** (0.036)	-0.123*** (0.040)	-0.096** (0.039)	-0.105*** (0.039)	-0.085*** (0.038)
(4) Participated in adult education			0.151*** (0.015)	0.119*** (0.015)						
(5) Participated in work-related adult education					0.213*** (0.016)	0.171*** (0.016)				
(6) Participated in adult education, not related to work					-0.005 (0.022)	0.000 (0.021)			-0.009 (0.022)	-0.003 (0.021)
(7) Participated in ESL							0.109 (0.137)	0.088 (0.133)		
(8) Participated in work-related ESL									0.096 (0.481)	0.022 (0.464)
(9) Participated in basic skills							-0.182*** (0.068)	-0.155** (0.066)		
(10) Participated in work-related basic skills									-0.022 (0.184)	-0.068 (0.178)
(11) Participated in part-time college							0.209*** (0.034)	0.173*** (0.032)		

Table 9
(Continued)

Type of Adult Education Activity	Model									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(12) Participated in work-related part-time college									0.198*** (0.035)	0.175*** (0.034)
(13) Participated in formal apprenticeship							0.014 (0.080)	0.025 (0.077)	0.011 (0.080)	0.024 (0.077)
(14) Participated in job- or career-related training							0.215*** (0.016)	0.163*** (0.016)	0.214*** (0.017)	0.163*** (0.017)
(15) Participated in structured activities							-0.010 (0.016)	-0.004 (0.016)		
(16) Participated in work-related structured activities									0.031 (0.030)	0.047 (0.030)
Industry and occupation dummies	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
\bar{R}^2	0.253	0.311	0.262	0.318	0.271	0.323	0.274	0.324	0.272	0.323

Source: Estimated from observations with hourly wages > \$0.00 in the 1995 National Household Education Survey. Sample size is 7,779.

Note: Table entries are coefficient estimates from weighted least squares regression of the log of annual earnings. Besides variables in the table, the independent variables included minority status, marital status, presence of children < 18, South Census region, home ownership status, MSA residence, years of education, a quartic in age, full-time student status, and part-time student status.

* Significant at the .10 level; ** significant at the .05 level; *** significant at the .01 level.