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The Work Decision of College Students

FREDERICK W. DERRICK*

The objectives of this article are twofold. The first is to broaden the information concerning what determines whether an individual will work in the market while enrolled in an institute of higher education. Previous studies in the area [2, 4, 8] have been directed towards explaining the short run fluctuations. In contrast, this study employs a life cycle model that assumes no transitory elements and emphasizes the work decision over the lifetime of the individual. The second objective is to acquire two specific results which previously have not been found pertaining to the life cycle model. The two results are (1) estimates of the ratio of the production function parameters and (2) estimates of the production function parameters within the model. The latter will be obtained by combining the ratio results with a previous estimate of the sum of the production function parameters. Estimates of the production function parameters have not been found previously.

With emphasis on the period of specialization in human capital production, i.e. full time schooling, this paper is in contrast to the usual application of life-cycle models. Ben-Porath [1] in the initial article in the field expresses major emphasis on the period following specialization and does not solve for the breakpoint between specialization and non-specialization in human capital production. Wallace and Ihnen [15] follow by deriving the optimal path for human capital accumulation while specializing under more restrictive loan assumptions. In each of these as well as in supporting works [5, 9, 10, 13], rental rates for human capital are fixed over the lifetime of the individual.

While the model applied herein is of similar vein to the previous life-cycle models, the model developed by Johnson [7] differs in two major aspects from previous life-cycle models. The first difference is that the individual receives a lump sum allowance while he is specializing. "Specialization is defined to mean that the total of earnings and allowance just equals the value of purchased inputs to the production of human capital. . ." [7, p. 3]. The second difference is that the individual receives a fixed wage, which does not change while he is specializing in the production of human capital.

The assumptions of Johnson's model provide a theoretical means of determining whether an individual will work or not work in the market while specializing in the production of human capital. The result of the model is that the individual will work if his allowance is less than the ratio of the coefficient of his own human capital, β_1, to the coefficient of purchased inputs, β_2, in a Cobb-Douglas production function for human capital times his fixed wage rate. Second, Johnson's life cycle model yields the theoretical result that the ratio of the production function parameters, β_1/β_2, is equal to the ratio of the foregone earnings to the reported earnings plus the allowance for those who worked.

The preceding results form the basis for the empirical study presented herein. The study of what determines whether an individual will work while specializing in the production of human capital is accomplished by using logit

*Economics Dept., Loyola College in Maryland, Baltimore, Md 21210

analysis. The independent variables include allowance and wage from the model as well as possible shifters. Thus, the logit analysis provides a means of testing the prediction from the model concerning the work choice decision. The estimation of the ratio of the production function parameters is accomplished by two methods. The first is by directly applying the second result, and the second is by taking the ratio of the coefficients of allowance and wage in the logit analysis.

The remainder of the empirical work is an estimation of the production function parameters. This is accomplished by using the estimates of the ratio of the production function parameters discussed above, and by using Haley's estimate of their sum.

The data set for the empirical study consists of 1,559 individuals taken from the "National Longitudinal Study of the High School Class of 1972" [14]. The individuals selected were those who, for the fall of 1973, were attending as a full-time student the same public four-year college or university which they attended as freshmen in the fall of 1972.

The Life Cycle Model

The decision facing the individual in the model is how to properly allocate his human capital between producing more human capital and working in the market so as to maximize the present value of his income minus the cost of purchased inputs over the life cycle. The fraction of an individual's effort spent producing more human capital is denoted by $k_i(t)$; and, the fraction of an individual's effort spent working in the market is denoted by $k_m(t)$. The sum of $k_i(t)$ and $k_m(t)$ equals one. Thus, $k_i(t)$ and $k_m(t)$ times the amount of human capital which the individual has is the amount of human capital used in producing more human capital, and the amount of human capital used in working, respectively.[1]

The income of an individual in this model differs in two respects from that of previous models. First, a wage, w, has been included which does not change while specialization is occurring. Hence, the amount of income which an individual specializing in human capital accumulation earns is w times the portion of effort devoted to the market. This income is independent of the amount of additional human capital accumulated after the decision was made to specialize in the production of human capital. The wage may vary between individuals because of differences in the stock of human capital accumulated before the decision was reached to specialize. The second difference is that the model includes a lump sum allowance per time period, A, while the individual is specializing. The individual may participate in two unique labor markets. The first is the labor market in which the individual participates while he is specializing in the production of human capital; and, the second labor market is the one where the individual is no longer specializing in the production of human capital. In the first market, the wage, w, is the maximum wage which the individual could earn if all of his effort was spent working at the same jobs which are available to him while he is specializing in the production of human capital. This wage is different from the maximum wage which he could receive if he were not specializing in the production of human capital. In the second labor market, the individual receives a rental rate for each unit of human capital which he sells in the market.

The individual's objective is to maximize the present value of his income minus the cost of purchased inputs over the life cycle. This maximization divides life into two possible phases. In phase I, the individual will spend his entire income to buy inputs for the production of human capital, ie. he is specializing in the production of human capital. In phase II, all of the income will not be spent on purchased inputs. Individuals who are specializing in the production of human capital are classified as being either case 1 individuals or case 2 individuals. A case 1 individual has k_i equal to one. A case 2 individual has k_i less than one.[2]

A case 1 individual is one who is specializing, and not working. For this individual, the value of his effort is greater in the production of human capital, than it is in the market at a wage w. A case 2 individual is one who is both specializing and working in the market at a wage w. For this individual, the value of his effort in the market at a wage w equals the value of his effort in the production of human capital. For a case 2 individual, the theoretical formula for k_i is

$$k_i = \left(\frac{w + A}{w}\right)\left(\frac{\beta_1}{\beta_1 + \beta_2}\right). \qquad (1)$$

For k_i to be less than one as is required for a case 2 individual, $A < w(\beta_2/\beta_1)$ as can be seen from the preceding equation. Thus, an individual will be a case 1 individual and will not work in the market if $A \geq w\beta_2/\beta_1$ and will be a case 2 individual and will work in the market if $A < w\beta_2/\beta_1$.

With its distinction between case 1 and case 2 individuals during specialization in the production of human capital, the theoretical life cycle model and its assumptions yields three results which can be used to determine whether an individual will work or not work while enrolled in higher education. The first point is that the individual faces a dichotomous choice. The individual will either be in the market working as a case 2 individual, or will not be in the market, and hence will be a case 1 individual. Thus, the question is not how much will he be working, but if he will be working. This question is partially answered by the second result yielded by the theoretical model, which is that the decision to work in the market is based only on the variables A and w and the parameters β_1 and β_2 as noted above. The relationship between A and w in the two equations is linear as can be seen by rewriting $A < w(\beta_2/\beta_1)$ and $A \geq w(\beta_2/\beta_1)$ as $\beta_1 A - \beta_2 w \geq 0$ and $\beta_1 A - \beta_2 w < 0$. The decision to work or not to work is based solely on this linear relationship between A and w. Thus, the study is directed to the linear relationship between the allowance and the wage. The third result yielded by the model concerns the relationship between k_i and allowance, and between k_i and the wage. If partial derivatives are taken of k_i in Phase I, with respect to A and w, the results are:

$$\frac{\partial k_i}{\partial A} = \frac{1}{w}\left(\frac{\beta_1}{\beta_1 + \beta_2}\right)$$
$$\frac{\partial k_i}{\partial w} = \frac{-A}{w^2}\left(\frac{\beta_1}{\beta_1 + \beta_2}\right) \qquad (2)$$

With the assumption in the model that β_1, β_2, w, and A are positive numbers, the results state that there is a positive relationship between A and k_i, and a negative relationship between w and k_i.

The theoretical model also yields a means of estimating the ratio of β_1 to β_2 for individuals who are working in the market while specializing in human capital production. By solving $k_m = 1 - k_i$ for a case 2 individual, for the ratio of β_1 to β_2, the following result is obtained:

$$\frac{\beta_1}{\beta_2} = \frac{w(1 - k_m)}{A + k_m w} \qquad (3)$$

Therefore, the model yields the result that the ratio of the production function parameters is a relationship between w, k_m, and A. This relationship will be used in reaching the second objective.

Logit Model

In the study of what determines whether an individual will work while specializing in human capital production, the dependent

[1]For a more rigorous presentation of the model see Johnson (7).

[2]The Argument t has been dropped to reduce complexity in the formulas.

variable, the work of the individual, is dichotomous (i.e., yes or no). With a dependent variable of this type, a means of estimation is conditional logit analysis. Using this approach, the probability of an individual working while specializing in the production of human capital is equal to

$$\frac{1}{1+e^{-v}} \text{ where } v = \alpha_0 + \alpha_1 x_1 + \alpha_2 x_2 + \ldots + \alpha_n x_n + \alpha_{n+1} A + \alpha_{n+2} w. \quad (4)$$

This formulation of v is based on the implications that the work decision is based on the allowance and the wage given β_1 and β_2 and that the work decision is based on a linear relationship between allowance and wage.[3] The coefficients can be calculated by maximum likelihood estimation [11, p. 108]. The variables used in the estimation of α either describe the attributes of the alternatives or the attributes of the individual.

A test of whether the coefficient of a variable is significant is accomplished by calculating the maximum likelihood estimators under the constraints imposed by the null hypothesis, and by calculating the maximum likelihood estimators under no constraints. Next, the logarithm of the unconstrained likelihood function is subtracted from the logarithm of the constrained likelihood function. Twice this difference is used as the test statistic, and it is approximately distributed as a chi-squared distribution with the degrees of freedom equal to the number of constraints [11, pp. 120–121].

The results from the conditional logit procedure can be used in three ways. First, the empirical results provide a means of testing the results from the life cycle model. One result obtained from the life cycle model is that A and w should play a significant part in the individual's decision to work or not to work while specializing in the production of human capital. Another result from the theoretical model which is based on equation (2) is that the coefficient of A and the coefficient of w in v should be negative and positive, respectively. Second, the estimated coefficients can be used in equation (4) to predict whether an individual will work while specializing in the production of human capital. Third, the ratio of the estimated coefficient of allowance to the estimated coefficient of wage is an estimate of $-\beta_1/\beta_2$.[4]

Another estimate of the ratio of β_1 to β_2 is obtained by taking the ratio of foregone earnings, (the difference between maximum earnings and reported earnings), to total income. Total income equals the sum of the allowance and the reported earnings. This estimate applies only to those individuals who work while specializing in the production of human capital and is based on equation (3).

Estimation of β_1 and β_2

Estimates of the production function parameters, β_1 and β_2, are obtained by solving the simultaneous equation system consisting of the estimate of the ratio of the production function parameters from this study and the estimate of the sum of the production function parameters from Haley [6].

In Haley's study, it is shown that the estimate of the production function parameter in his paper is also an estimate of the sum of the production function parameters used in this paper. An apparent difficulty is that the two

[3]Emphasis on the life-cycle model presentations and on the empirical study is on phase I, the period of specialization. This may lead to questions concerning the appropriateness of separating the methods in one phase from the other. It can be shown in the model that the student's length of specialization will be influenced by his initial stock of human capital, the wage allowances, and future retail rates. However, the future retail rate and initial stock do not influence his actions while specializing. (7, p. 868).

[4]The estimated coefficient of allowance and wage are estimates of $c\beta_1$ and $-c\beta_2$ where c is an unknown constant. Thus, estimates of β_1 and β_2 are not directly available from the logit estimation [7, p869, ft16].

models make different assumptions and use different definitions for the period of specialization. This difficulty is eliminated if the production function for an individual is assumed fixed over the lifetime of the individual.

Definitions

In the application of the theoretical results, definitions are necessary for the terms: specialization, working, the maximum wage, and the allowance.

(1) An individual is said to be specializing if he was a full-time student during the fall of 1972.

(2) An individual is said to be working if he used part of his savings, summer earnings, or earnings while taking courses to finance part of his first year of college. The survey did not distinguish between summer earnings and personal savings.

(3) The fixed maximum wage facing the individual during specialization is estimated in one of two methods. The first method which applies to those who reported their earnings is to transform reported earnings into a yearly maximum wage. The second method applies only to those individuals who did not report their earnings. In order to establish a wage for these individuals, a wage generating equation is estimated based on the characteristics of those who reported their earnings [3]. The estimated wage generating equation is then used to estimate the missing wages.[5]

(4) The allowance is estimated by finding the sum of the support which the student received directly and which does not require any financial obligation. These items are listed under individual support, scholarships, grants and other aid in Table I. Consideration is given to augmenting this basic definition of the allowance with the amount of loans received for higher education. It is not possible to consider the effect of indirect subsidies as part of the allowance due to limitations in the data source.

[5]As noted by a reviewer, this second approach is appropriate only if the failure to report earning is random across students in the population. If not random the second method will result in biased estimated of earnings.

TABLE I. Reported Financial Sources for College Expenses

Major Divisions	*Sources Included*
Savings or Earnings	Own savings or summer earnings
	Earnings while taking courses
	College work-study
Individual Support	Parents
	Husband or wife
	Other relatives or friends
Scholarships or Grants	Basic Educational Opportunity Grant Program
	Supplementary Educational Opportunity Grant
	College Scholarship or grant from other college funds
	ROTC scholarship or stipend
	Nursing scholarship
	Health profession scholarship
	State scholarship
	Other scholarship
Other Aid	Law Enforcement Educational Program
	Veterans Administration
	Vocational Rehabilitation
	Social Security
Loans	Federal Guaranteed Loans
	State Loans
	Regular bank loans
	NDS loans
	Health profession loans
	Nursing student loans

Results from the Class of 1972

The data set of 1559 individuals is from the "National Longitudinal Study of the High School Class of 1972." The set is restricted to those who attended the same four-year public college or university for the fall of 1972 and

1973. This is necessary so that relevant information collected only for the fall of 1973 will also be pertinent for discussion and empirical use in the fall of 1972. The observed variables are listed in Table II. All individuals whose reported sources of college financing differ by more than one percent of those reported have been omitted due to inconsistent answers on the questionnaire.

Results from the Logit Model

The results from the logit analysis are presented in Table III. The coefficients which were estimated are in the v function where

$$v = \alpha_0 + \alpha_1 \text{ALLOW} + \alpha_2 w + \alpha_3 \text{LOANS} + \alpha_4 \text{SEX} + \alpha_5 C1 + \alpha_6 C2 + \alpha_7 C3 + \alpha_8 \text{RACE} + \alpha_9 \text{MARR} + \alpha_{10} \text{SES1} + \alpha_{11} \text{SES3}.$$

The following is a summary of the principal findings of the logit analysis.

(1) The allowance was predicted to have a negative relationship with the probability that an individual will work. This was found to be the case when allowance was defined to include all the direct aid received by the student which did not require repayment. Under this definition, the coefficient for allowance was significant and varied only slightly in magnitude. However, one possible component of allowance, the amount of loans the full-time student receives did not affect the work decision in the expected manner. The amount of loans received by the full-time student was found to be insignificant. Thus, in the empirical study it appeared that the proper choice for the definition of allowance was the definition which included the direct aid received by the full-time student which did not require repayment.

(2) The maximum wage, which a full-time student could earn if all his effort were spent working at a job he could obtain while a college student was predicted in the life cycle

TABLE II. Variable Definitions and Codings for the Class of 1972

Variable	*Definition*
ALLOW	The aid in dollars received directly by the student which does not require repayment.
C0, C1, C2, C3	The size of the city where the individual attended college. C0 will be 1 if the city size is less than 50,000; C1 will be 1 if the city size is between 50,000 and 100,000; C2 will be 1 if the city size is between 100,000 and 500,000; C3 will be 1 if the city size is greater than 500,000; 0 if otherwise.
LOANS	The sum in dollars of the loans which the individual received for financing his higher education.
MARR	The marital status of the individual. 1 if single or separated; 0 if otherwise.
RACE	The race of the individual. 1 if white; 0 if otherwise.
SEX	The sex of the individual. 1 if male; 0 if female.
SES1, SES2, SES3	The socioeconomic status of the individual.[a] SES1 will be 1 if the individual's status is in the lower quartile; SES2 will be 1 if the individual's status is in the middle two quartiles; SES3 will be 1 if the individual's status is in the top quartile; 0 if otherwise.
w	The maximum yearly wage in dollars attainable by the individual while he is specializing in the production of human capital.
WK	The work choice of the individual. 1 if summer earnings, savings, or earnings from working during the school year were used to finance his education; 0 if otherwise.

[a]The socioeconomic status variables are calculated in the "National Longitudinal Study of the High School Class of 1972". For a description of the procedure used, see U.S. Department of Health, Education and Welfare [9, p. 34].

TABLE III. Logit Results for the Class of 1972[a]

Model	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Constant	.66	.16	.36	.36	−.08	−.37	−.58	−.57
α_0	(.49 D-1)	(.12)	(.14)	(.14)	(.15)	(.16)	(.41)	(.42)
ALLOW	−.28 D-3		−.27 D-3	−.27 D-3	−.29 D-3	−.27 D-3	−.29 D-3	−.29 D-3
α_1	(.31 D-4)		(.31 D-4)	(.33 D-4)	(.34 D-4)	(.34 D-4)	(.35 D-4)	(.35 D-4)
w		.34 D-4	.31 D-4	.66 D-4	.66 D-4	.91 D-4	.86 D-4	.87 D-4
α_2		(.24 D-4)	(.27 D-4)	(.27 D-4)	(.28 D-4)	(.29 D-4)	(.29 D-4)	(.29 D-4)
LOANS				.30 D-5	.66 D-4	.92 D-4	.70 D-4	.70 D-4
α_3				(.94 D-4)	(.98 D-4)	(.99 D-4)	(.10 D-3)	(.10 D-3)
SEX						.32	.32	.32
α_4						(.06)	(.06)	(.06)
C1							.02	.02
α_5							(.07)	(.07)
C2							−.19	−.19
α_6							(.08)	(.08)
C3							−.10	−.10
α_7							(.09)	(.09)
RACE					.54	.52	.51	.51
α_8					(.08)	(.08)	(.08)	(.09)
MARR							.30	.31
α_9							(.38)	(.39)
SES1								−.04
α_{10}								(.10)
SES3								.02
α_{11}								(.06)
Model	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*
Estimate of β_1/β_2	—	—	8.71	4.09	4.39	2.97	3.37	3.33
Log of likelihood	−960.255	−996.327	−957.153	−957.153	−934.850	−919.684	−915.453	−915.366

Hypothesis	$\alpha_{10} = \alpha_{11} = 0$	$\alpha_5 = \alpha_6 = \alpha_7 = \alpha_9 = 0$	$\alpha_4 = 0$	$\alpha_8 = 0$	$\alpha_3 = 0$
Models compared	7, 8	6, 7	5, 6	4, 5	3, 4
χ^2	0.174	8.462*	30.332****	44.606****	0.000
Degrees of freedom	2	4	1	1	1

Hypothesis	$\alpha_1 = 0$	$\alpha_2 = 0$
Models compared	2, 3	1, 3
χ^2	78.348****	6.204***
Degrees of freedom	1	1

[a]Asymptotic standard errors are in parentheses, aD6 stands for a times 10^6.
*Significant at 0.05 level of significance, ***significant at 0.025 level of significance, ****significant at 0.005 level of significance.

model to have a positive relationship with the probability that the student would work. The positive relationship was found in the results from the logit analysis; and, the coefficient of wage was found to be significant.

(3) The individual's sex, race, marital status, and socioeconomic status were incorporated into the logit analysis as possible shifters. It was found that males have a significantly higher probability of working than females, and that whites have a significantly higher probability of working than nonwhites.

The marital status of the individual was found to have an insignificant effect on the probability that the student would work. Perhaps this result was due to the small percentage of married students in the sample. The socioeconomic status of the individual was found to have an insignificant effect on the probability that the individual would work.

(4) A measure of the city size where the student attends college was included in the logit analysis as a proxy for the size of the labor market. It was hypothesized that there would be a positive relationship between the city size and the probability that the individual would work while a full-time student. This relationship was not found. The failure to find this expected relationship may be a result of the city size being a reasonable proxy for the labor market during the academic year, but not during the calendar year, since summer work is not necessarily limited to the city where the student attends college.

(5) When the estimated coefficients from the logit analysis were used to estimate the probability that a full-time student would work (Table IV), it was found that the logit model fit the data well. The predictions were correct in over 60 percent of the cases where the estimated probabilities fell in the interval from .40 to .60. For the predicted probabilities below .40 or above .60, over 70 percent of the predictions were correct. The predictions from a separate data set from 1971 [12] were not as good. For the individuals in this data set with estimated probabilities greater than .60, 77 percent of the predictions were correct.

Thus, in the logit analysis, it was found that the maximum wage and the direct aid received by the student had a significant effect on the full-time student's work decision. The individual's sex and race were found to be shifters which have a significant effect on the probability that the individual will work.

Estimates of β_1/β_2

The individual estimates of the ratio of β_1/β_2 are obtained by taking the ratio of the individual's forgone earnings to the sum of his allowance and his actual earnings. These individual estimates are then averaged to estimate the population ratio of β_1 to β_2. The data set for this estimation consists of the 1,032 individuals who reported that they worked. The other students in the main data set of 1,559 individuals did not work for pay, and hence cannot be used in this estimation.

When the basic definition of allowance is used, the estimates of the ratio (reported in Table V) have a mean of 4.40 and a standard deviation of 22.167. The smallest estimate is −0.29 and the largest is 704.47. The negative estimate of the ratio is a result of the estimated maximum wage being smaller than the reported earnings. The mean estimate is significantly different from one which implies that β_1 and β_2 are not equal.

Alternatively, the ratio of β_1 to β_2 was estimated by taking the negative of the ratio of the coefficient of allowance to the coefficient of wage from the logit analysis. This estimate was based on the result in the life cycle model that an individual will not work if $A \geq (\beta_2/\beta_1)w$, when allowance is defined to include the direct aid which the student receives which does not have to be repaid. The estimates of the ratio of β_1 to β_2 using this method for the Class of 1972 were between 2.97 and 8.71.

The results from the direct estimate of the ratio of β_1 to β_2 and from the logit analysis were comparable, and there was no statistical reason for preferring one over the other. From a cost point of view and from a viewpoint of ease in calculation, a method using direct estimates is preferable in future computations of the ratio of β_1 to β_2.

TABLE IV. Distribution of Estimated Probabilities for the Class of 1972

Estimated Probabilities of Working	*Total no. of Observations*	*No. that Actually Worked*	*No. that did not Work*	*Percent Correct Predictions*
0–.10	0	0	0	0
>.10–.20	1	0	1	100
>.20–.30	4	2	2	50
>.30–.40	28	6	22	79
>.40–.50	164	65	99	60
>.50–.60	596	360	236	62
>.60–.70	635	479	156	75
>.70–.80	129	118	11	92
>.80–.90	2	2	0	100
>.90–1.00	0	0	0	0

TABLE V. Distribution of the Individual Estimates of the Ratio of β_1 to β_2 for the Class of 1972

Range of Estimated β_1/β_2	*Frequency*
<0	1
0–1	45
>1–3	576
>3–5	225
>5–7	90
>7–10	39
>10–20	43
>20–40	11
>40–60	1
>60–80	0
>80–100	0
>100	1
Total	1,032

TABLE VI. Estimates of β_1 and β_2 for the Class of 1972

Model No.	*Estimate of Ratio β_1/β_2*	*Estimate using $\beta_1 + \beta_2 = .604$* β_1	β_2
3	8.71	.542	.062
4	4.09	.485	.119
5	4.39	.492	.112
6	2.97	.452	.152
7	3.37	.466	.138
8	3.33	.465	.139
Ratio Model	4.40	.492	.112

Estimates of β_1 and β_2

The estimates of β_1 and β_2 are in Table VI and these estimates are calculated by using the estimates of the sum of β_1 and β_2 which were found by Haley. The table includes the results obtained by using the logit model and the ratio model. When the logit results are used, the estimates of β_1 and β_2 are of the expected sign. The mean estimates of β_1 range from 0.452 to 0.542, and the mean estimates of β_2 range from 0.062 to 0.152. The results obtained by combining the direct estimates of β_1/β_2 with Haley's results are that the mean of β_1 is 0.492 and the mean of β_2 is 0.112.

Summary

The work decision of college students was significantly influenced by the allowance (i.e. direct aid) and the maximum wage. Thus with attempts by the Federal administrations to reduce grants to students and to raise the minimum wage, it should be expected that the percentage of students working would increase and that the portion of effort spent on human capital production would decrease. It is difficult in this paper to precisely identify the impact that reductions in federal support will have on the work decision of students since the allowance used in this paper is a combination of support from individuals, from local scholarships, and from federal support.

However, under the assumption that federal support will be reduced sufficiently such that there will be a ten percent reduction in the allowance, the percentage of students working will increase by approximately one percent at the point of means (59.6% to 60.5%). Similarly a net reduction in the allowance of twenty-five percent will lead to an increase of approximately four percent. The change in the minimum wage legislation would also change the quantity demanded and thus may influence the probability that the student would be able to find work.

Loans were not found to influence the part-time work decision. This may be a result of the availability of loans having an influence on the decision to attend college or on the conditional decision of how many hours to work given that the decision is to work. An additional question which was not directly approached but would be of future interest is the influence of work study arrangements versus work versus loans. Based on this study which does not make a distinction between work the student finds and work the college finds, one would expect that the larger the hourly wage (or alternatively the larger the maximum wage) the greater the probability of working.

The results for the demographic variables were mixed, with sex, and race having significant influences and with marital status, socio-economic status, and the city size (as a proxy for the size of the labor market) being found to have insignificant influences on the probability of working. Males and whites were found to have significantly higher probabilities of working than females and non-whites.

The expected positive relationship between the city size and the probability of working while a full time student was not confirmed. This failure may be a result of the city size being a reasonable proxy for the labor market during the academic year but not during the entire calendar year, since summer work is not necessarily confined to the city where the student attends classes. Alternatively, it could be argued that most students work at or near the college and consequently the relevant market size is not the city size.

The results from the direct estimates of the ratio of B_1 to B_2 and from the logit analysis were comparable with no statistical reason for preferring one over the other. Estimates of the coefficients for human capital were in the range from 0.452 to 0.542, and were in the range from 0.062 to 0.152 for the coefficient of purchased inputs.

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