Expectation for Schooling of Youths with Disabilities

Yoon-Jeong Shin

This study estimates the effects of youth limb disabilities, sensory disabilities, mental retardation, learning disabilities, and depression on the youth's desire and expectation for college education, the youth's perception of parental expectation for the youth college education, and the parent's actual expectation for their child's college education.

Data from the National Longitudinal Study of Adolescent Health (Add Health) collected in 1995 was used for the empirical analysis. According to the descriptive analysis, youth with disabilities have lower desire and lower expectation for their college education than the youths without disabilities. Also, the youths with disabilities perceive lower level of the parental expectation than youths without disabilities. The parents whose child have disabilities report lower level of the expectation for their child 's college education than the parent whose child do not have disabilities.

The results from the econometric analysis show that youth mental disabilities are negatively associated with youths' desire and expectation for college education. However, this study finds no evidence that youths with physical disabilities have different level of desire or expectation for their college education comparing the youths without disabilities. In addition, this study finds that depressed youths and mentally retarded youths perceive the parental expectation which is different what their parent actually expect.

The results from this study imply that many youths with mental disabilities and their parent are discouraged. It may lead the current problem of poor schooling and labor market outcomes of youths with disabilities. This study suggests that one general approach to improve the poor outcomes of youths with disabilities would be intervention that promotes higher expectation among the youths, parents, and teachers.

Key World: disability, schooling, human capital

필자: 한국보건사회연구원 책임연구원

Ⅰ. Introduction

Youths with disabilities are in general more likely to have poor school outcomes. Educational officials are concerned that poor school outcomes of youths with disabilities prevent them from growing to responsible adults. The poor school outcomes of youths with disabilities indicate that youths with disabilities have less human capital. Inadequate human capital accumulation of youths with disabilities might be one of the reasons why many people with disabilities do not live independent lives and rely on government income support programs. There have been public attitude toward people with disabilities that people with disabilities are able to work if they are given reasonable training and job opportunities. As reflected in the Americans with Disabilities Act in 1990, disabled people have rights to work and to participate in other mainstream social activities. With this point of view, the poor school outcomes of youths with disabilities are inequitable, and need to be improved with special cares.

There are several factors influencing youths with disabilities to have less human capital. Youth disabilities have a direct negative influence on human capital of youths with disabilities by limiting their functional or mental abilities. Besides the influence of functional and mental limitations, it is also a concern that youths with disabilities and their parents have low educational expectations, and these low expectations are associated with less human capital. It is important to look at how youth disabilities influence youth expectations and parent’s expectations because the indirect influence of youth

disabilities through the youth' and their parents' expectations put the youth at "double jeopardy."

This study examines the influence of youths' disabilities on youth desire and expectations for further education, youth perceptions of parental expectations, parents' actual expectations for children's further education, and parental time spend on their child's school-related works. There are several explanations that youth desire and expectations, youth perceptions of parental expectations, and parent's actual expectations are related to the formation of youth human capital. Youth disabilities may have important roles in the formation of youth human capital by affecting these factors.

For empirical analysis, this study uses data from the National Longitudinal Study of Adolescent Health (Add Health) collected in 1995. Based on data from Add Health, this study identified the students with limb disabilities, sensory disabilities, mental retardation, learning disabilities, depression, and students who received special education. Data from Add Health also provided measures of the level of students' desire and expectations for college education. Student's reports on the level of their parent's disappointment if the student do not graduate from college were used to measure youth perceptions of parental expectations. Parent's reports on level of disappointment if their child do not graduate from college were used to measure actual parental expectations for their child.

Descriptive analysis shows general patterns of youths with disabilities' desire and expectations for their college education, youths with disabilities' perceptions of parental expectations, actual parental expectations for disabled children, and parental time spend on disabled children. Econometric analysis presents influences of youth

disabilities on the above factors holding other things constant.

Ⅱ. Background

1. Poor school outcomes of youths with disabilities

Administrative data from the U.S Department of Education shows that in 1991 and 1992 only 57.3 percent of youths with disabilities graduated from high school (Kaye 1997). Youths with disabilities have lower high school completion rates compared to youths without disabilities because many youths with disabilities drop out of school (Wagner 1991). Many youths with disabilities drop out of school because they perform poorly at school. A significant number of youths with disabilities show low rates of attendance at school, fail in school, and do not see school as relevant to their lives (Jay and Padilla 1987). Also, it is reported that high school seniors with learning disabilities have lower educational and occupational aspirations than those without disabilities (Rojewski 1996). The National Longitudinal Transition Study of Special Education Students (NLTS) shows that high absenteeism and a high probability of course failure among youths with disabilities contribute to their dropping out of school (Wagner et al. 1992).

After leaving high school, youths with disabilities show poor post-secondary school outcomes. Youths with disabilities are not only less likely to be employed, but are also more likely to work at lower-status or menial jobs than those without disabilities (Marder and D'Amico 1992). Additionally, youths with disabilities are less likely to

attend post-secondary schools upon leaving high school than youths without disabilities (Marder 1992). Among youths with disabilities, those who dropped out of high school have poorer post-secondary school outcomes than those who graduated. The NLTS shows that among youths with disabilities, 47 percent of dropouts were working in competitive paid jobs in three to five years after they left secondary school, compared with 65 percent of those who graduated. Only 11 percent of youths with disabilities who dropped out of school had been post secondary student during 3-5 years after they left secondary school, compare to 37 percent of those who graduated (Wagner 1992).

2. Expectations, human capital, and disabilities

This section discusses how youth desire and expectations, youth perceptions of parental expectations, and actual parental expectations are associated with the formation of the human capital of youths. This section also discusses important roles of youth disabilities in the formation of human capital of youths through its influences on youth desire and expectations, youth perception of parental expectations, and actual parental expectations.

Youth desire and expectations for their further educations is the youth's plan for their human capital investment. Youths know by themselves whether there are gains or losses from further education. Youths who think there are more gains from further education may want further education, but youths who think there are more losses from further education may do not want further education. An important role of youths' desire and expectation for further education in formation of youth human capital is that the youth desire and

expectations are associated with the level of current effort in school. That is, youths who have high desire and high expectation for further education may currently invest more in their human capital than youths who have low desire and low expectation.

Disabilities are associated with youth desire and expectations for the youth's further education because disabilities influence youth self-evaluation of the gains and losses from their further education. For example, youths with learning disabilities may think it will take a great deal of financial or psychological costs for them to enter into college because of their mental limitations. If the costs are higher than gains from college education, the youths with learning disabilities would not desire and expect to go to college. The low desire and low expectations of youths with learning disabilities for their college education may negatively influence youth current investment in their human capital.

Parent's expectations for their child's further education reflect their evaluation of their child's level of human capital. Parent's expectations for their child's further education have important roles in human capital formation of the child because the parent's expectations are associated with level of parent's investment in human capital of the child. A parent who has low expectations for their child's further education may invest less in their child's education than a parent who has high expectations. The child's disabilities – especially child's mental disabilities - are possibly associated with parent's low expectations for the child's further education. The low parental expectations are not a problem in itself. The problem is that the low parental expectations are related to low parental investment in the human capital of their child with disabilities.

The child's perceptions of parental expectations may have a different role in the human capital formation of the child from the actual parental expectation. While actual parental expectations for the child's further education are related to the level of the parent's investment in human capital of the child, the child's perception of parental expectations is related to the incentives for the child's efforts in their human capital investment behaviors. A child who perceives a high level of parental expectation may exert more effort to achieve academic success than a child who perceives a low level of parental expectation. It is interesting to see whether youth disabilities are associated with youth perceptions of parental expectations. If youth disabilities influence youths to perceive low parental expectations, the youths with disabilities may exert less effort for their school work because the perceived low parental expectations cause them to have low incentive for school work.

A child's perceptions of parental expectations and the parent's actual expectations may differ. Also, child's disabilities may have a different influence on actual parental expectations and the youth perceptions of parental expectations. However, both the child's perceptions of parental expectations and the parent's actual expectations have important roles in the formation of the child's human capital in different ways. And the child's disabilities may influence the child's human capital by affecting the child's perceptions of parental expectations and parent's actual expectations.

3. *Human capital of youths*

Economic theory refers to knowledge and skills possessed by an

individual as his or her human capital. The concept of human capital reflects the idea that an individual's knowledge and skill could be rented out to employers (Ehrenberg and Smith 1996). An individual's human capital is valued by how much his or her skills can earn in the labor market. Therefore, human capital plays an important role in individuals' lives since the stock of human capital influence individuals' earning power. People continuously invest in their human capital through their life-time by schooling and training. In the period of adolescence youths in junior high schools or high schools accumulate their own human capital by acquiring knowledge, skills, attitude toward learning, and physical ability to work.

Haveman and Wolfe (1994) say that the human capital of youths is primarily determined by choices of governments, parents of youths, and the youths' themselves. They say that governments, parents of youths, and youths decide how much to invest in the human capital of the youths given other competing demands. Governments provide direct resources to youths through "social investment in youths." For example, programs such as public schooling, job training, and Head Start are designed to promote the development of youths. Governments also provide indirect resources to parents for them to give appropriate support to their children. Government welfare policies such as AFDC or food stamps support poor parents, and allow parents to spend more on their children. Within the environment given by governments, parents decide how to spend their money and time on their children. In addition to the direct investment in their children, parental decisions on family structure, neighborhood choices, monitoring, and disciplining influence the level of human capital of their children. Given the opportunities and resources provided by

parents and governments, youths decide how to behave, and these behaviors contribute to the outcomes of the youths.

Becker (1981) emphasized that endowments from parents play an important role in the formation of their children's human capital. Endowments include genetic components such as disability, intelligence, race, and personal characteristics. Students who receive better endowments from their parents have more opportunities for success than who do not. In another study, Becker and Tomes (1986) point out that parents are major investors in the human capital of their children. According to Becker and Tomes (1986), parents invest more in the human capital of the child who has the better abilities among children in the family. The reason is that the rate of return from investing in the human capital of the child who has the better abilities is greater than the rate of return from investing in the children with lower abilities. It implies that parents of children with disabilities might invest less in the human capital of the child with disabilities than of child without disabilities if the parent thinks the rate of return for the child with disabilities is lower than rate of return for the child without disabilities.

Ⅲ. Data set and principal variables

1. The National Longitudinal Study of Adolescent Health

This study uses data from the National Longitudinal Study of Adolescent Health (Add Health) collected in 1995 for its empirical analysis. Add Health conducted its first survey between April and

December in 1995 for 20,745 students in grades 7th through 12th. Parents of students completed parent questionnaires when their child was administered the 1995 survey at home.[1] Hence, the data from Add Health contain current information on lives of the U.S. students in their schools and at homes.

Add Health studies were especially designed to explore physical and mental problems of students in junior high and high schools. By using the rich information related to students' health problems, this study identifies the following six categories of students with disabilities: students with limb disabilities, sensory disabilities, mental retardation, learning disabilities, depression, and students who received special education services.

The students file in Add Health provides information on students' level of desire and level of expectations for their college education. The surveys also asked about parental expectations for their child's college education for parents and for their child separately. Through this information, it is possible to measure the child's perceptions of parental expectations and the parent's actual expectations. Reports on parental time spent on their child's school-related work were used to measure levels of parental time investment in their child's school-related work. Based on the rich information from the student file and parent file this study measures characteristics of students, characteristics of students' parents, and characteristics of the students' households.

1) The first in-home survey of Add Health was conducted in 1995. In 1996, the students who participated in the first in-home survey were administered again for the second in-home survey. Student, parents of the students, and school administrators participated the Add Health surveys. Among the several files in Add Health, this study used the 1995 student files and parent file.

2. Disabilities of students[2]

This section describes in detail how this study measures students' disabilities. A student was considered to have limb disabilities if the student answered "yes" to at least one of the following questions: "Do you have difficulty using your hands, arms, legs, or feet because of a permanent physical condition?" "Do you use a cane, crutches, walker, medically prescribed shoes, wheelchair, or scooter to get around because of a permanent physical condition?" "Do you use a brace for your hand, arm, leg, or foot because of a permanent physical condition?" and "Do you use an artificial hand, arm, leg, or foot?" Students with sensory disabilities were identified by answers from interviewers who reported whether or not the students were blind or deaf.

Students were identified to have mental retardation based on their Add Health Picture Vocabulary Test (AHPVT) standardized scores.[3] Students whose AHPVT scores below 70 were identified as students with mental retardation. Students were considered to have learning disabilities based on reports from their parents. Parents were asked, "Does your child have a specific learning disability, such as difficulties with attention, dyslexia, or some other reading, spelling,

2) Summary of descriptions on variables of students' disabilities are in Appendix table 5.1.

3) The 1995 Add Health survey conducted Add Health Picture Vocabulary Test (AHPVT) for the students who participated the interview. AHPVT is an abridged version of the Peabody Picture Vocabulary Test – Revised (PPVT). PPVT is a well-known test which was designed to measure cognitive development of children, and to screen gifted or mentally retarded children. With a special request, it was advised to screen students with the AHPVT standardized score below 70 as mentally retarded students.

writing, or math disability?" The students whose parents answered "yes" for this question were assumed to have learning disabilities.

The level of depression of a student was measured based on a student' respond to nineteen questions in "Feelings Scales." The questions in "Feelings Scales" were designed to measure level of a student' depression. Students answered "never or rarely," "sometimes," "a lot of time," or "most of time or all of the time" for each of the question. These answers were coded as 0,1,2, and 3, which higher value reflects higher level of depression. These coded numbers for the nineteen questions were added together to represent level of the students' depression.[4] The students who are in the highest 5 percentile in the distribution of the depression scores were considered to have severe depression.

Students who received special education were also classified one of the categories of students with disabilities. The students who received special education were identified based on reports from their parent. Parents were asked, "During the past 12 months did your child receive any type of special education service?" Students whose parent answered "yes" was considered students who were received special education service.

4) Some students answered, "I don't know," or refused to answer for some of the nineteen questions. Hence, these students answered different number of questions from students who completed all of the nineteen questions. In order to control for the differences in answered questions, the variable reflecting number of answered questions in "Feeling Scales" was used as an explanatory variable.

3. Students' desire and expectations [5]

The level of students' desire for college education was measured by the question, "On a scale of 1 to 5, where 1 is low and 5 is high, how much do you want to go to college?" The level of students' expectation for college education were measured by the question, "On a scale of 1 to 5, where 1 is low and 5 is high, how likely is it that you will go to college?" The students' answers 1 and 2 were coded as 1, and students' answers 3, 4, and 5 were coded as 2,3, and 4, respectively.

4. Parental expectations [6]

Students and parents of the students were asked separately similar questions about the level of parental disappointment if the students do not graduate from college. Students were asked, "On a scale of 1 to 5, where 1 is low and 5 is high, how disappointed would your mother be if you did not graduate from college?" Students, who answered higher number than other students, were assumed to perceive higher parental expectation for their college education than the other students. Therefore, students' answers 1 and 2 were coded as 1, and students' answers 3, 4 and 5 were coded as 2, 3 and 4 respectively.

Parents were also asked, "How disappointed would you be if

5) The summary of descriptions on the variables for level of students' desire and expectation for college education is in Appendix table 5.2.

6) The summary of descriptions on the variables for level of parental expectation is in Appendix table 5.3.

your child did not graduate from college?"[7] The parents answered, "very disappointed," "somewhat disappointed," or "not disappointed." The parents who reported higher level of the disappointment than other parents did, were assumed to have higher expectation for their child's college education. Therefore, the answers were coded as 3, 2 and 1, respectively.

5. Parental time investments [8]

This study measured parental time investments in their child's school related works by three binary indicators. This information was obtained from students' reports. If a student answered that he/she talked with his/her mother or father about his/her school work or grade in the past 4 weeks, the binary indicator, "talked with parent on school work or grade", was assigned as one, or zero otherwise. The binary indicator, "talked with parent on other things in school", was assigned one if a student answered that he/she talked with his/her mother or father in the past 4 weeks about other things he/she is doing in school, or zero otherwise. Similarly, if a student reported that he/she worked on his/her project for school with his/her mother or father in the past 4 weeks, the binary indicator, "worked with parent on a school project", was assigned one, or zero otherwise.

7) Among the 17,713 parents who were administered for this question, 16,027 parents were mothers of students. These mothers include biological, step, adoptive, and foster mothers.

8) The summary of descriptions on variables used to measure parental time investment in their child's school related works are in Appendix table 5.4

Ⅳ. Descriptive analysis [9]

1.Students' desire and expectations

Table 1 compares desire and expectation for college education between students without disabilities and students with disabilities (Desire, Expect). This study finds that in average students with disabilities generally had lower desire and lower expectations for their college education compared to students without disabilities. In addition, compared to students with physical disabilities students with mental disabilities generally had average lower desire and lower expectations for their college education. Students with mental retardation on average had the lowest desire and the lowest expectations for their college education among the students with disabilities.

2.Parental expectations

Table 1 reports child's perceptions of parental expectations for their college education and parent's actual expectation for their child's college education(Disacm, Disapar). Generally, students with disabilities perceived lower parental expectation for their college education than students without disabilities. Also, parents of children with disabilities on average had low expectations for their disabled child's college education than parents of children without disabilities.

9) This study used sample weight to present the characteristics of students' with disabilities to be nationally representative. Consequently, the reported estimates represent population mean in 1995. Complete sets of the descriptive analysis are in Appendix 6.

Students with mental disabilities, on average, perceived lower parental expectations for their college education than students with physical disabilities. Also, parents of children with mental disabilities on average had lower expectations for their mentally disabled child's college education than parents of children with physical disabilities had.

For students without disabilities, there is not much of a difference between child's perceptions of parental expectations and parent's actual expectations. However, for students with disabilities, parent's actual expectations are lower than child's perceptions of parental expectations except for students with severe depression. For students with severe depression, child's perceptions of parental expectations are lower than parent's actual expectations.

3.Parental time investment

Table 1 compares the mean characteristics of parental time investment in their child's school-related work between parents of child with disabilities and parents of child without disabilities(Talk1p, Talk2p). Parents of children with mental disabilities and parents of child who received special education were less likely to talk with their disabled child about the child's school related work than parents of child without disabilities. However, parents of children with mental disabilities and parents of children who received special education were more likely to work with their disabled child on the child's school project than parents of child without disabilities. This study finds that parents of children with severe depression were not only less likely to talk with the severely depressed children on the child's school

related works, but also less likely to work with the severely depressed children on the child's school project than parents of children without disabilities.

4. Demographic characteristics of students

Table 1 compares demographic characteristics between students with disabilities and students without disabilities. Students with sensory disability, students with learning disability, and students who received special education were more likely to be male compared to the students without disabilities. However, students with severe depression were more likely to be female than students without disabilities. Students with mental retardation were more likely to be older than students without disabilities and students with other disabilities.

This study finds that among students with mental retardation and students with severe depression, relatively large portions of them were Hispanics or blacks rather than white. Among the estimated total population of students aged from 11 to 21 in 1995, 10.22 percent were Hispanics, 14.50 percent were blacks, and 69.22 percent were white. However, among students with mental retardation, 24.50 percent were Hispanics and 45.22 percent were blacks compared to 23.38 percent were white. Also, among students with severe depression, 14.50 percent were Hispanics and 18.54 percent were blacks compared to 58.77 percent were white. In addition, among students with sensory disability, relatively large portion of them were Hispanics (18.34 percent).

5. Characteristics of parents of students

Table 1 compares characteristics of parents between students with disabilities and students without disabilities. This study finds that generally students with disabilities were less likely to live with parent who has at least college education than students without disabilities. This study also finds that parents of students with disabilities were more likely to have disabilities than parents of students without disabilities.

6. Characteristics of household of students

Table 1 compares characteristics of households between students with disabilities and students without disabilities. This study finds that compared to students without disabilities, students with disabilities were less likely to live with both parent, and more likely to live without both parents. This study also finds that students with disabilities were more likely to live in poor family and more likely to live in family on the welfare programs than students without disabilities. Among the students with disabilities, students with mental retardation were the most likely to live in poor family and the most likely to live in family on the welfare program.

Ⅴ. Econometric analysis

While results from the descriptive analysis provides useful information on the general characteristics of students with disabilities, such analysis cannot reveal how students' disabilities influence

students' desire and expectations for college education, parental expectations for child's college education, and parental time spent on child's school related work, holding other things constant. In order to see the influences of students' disabilities holding other things constant, this study conducts the following econometric analysis.

1. Empirical models

1) Students' desire and expectations

The data from the 1995 Add Health allow researchers to measure the level of students' desire for their college education and students' expectation for their college education as four categorical variables which are ordered by 4. Hence, this study estimates models for the probability of the level of students' desire for their college education and students' expectation for their college education using an ordered probit model represented by the following two equations.

$$P(\text{Desire for college education}_{ij} = h) = P(k_{h-1} < a_1 \textit{ Student's Disabilities}_{ij} + a_2 \textit{ Student's demographics}_{ij} + a_3 \textit{ Characteristics of Parent}_{ij} + a_4 \textit{ Characteristics of Household}_{ij} + a_5 \textit{ State dummies}_j + u_{ij} \leq k_h) \quad (1)$$

$$P(\text{Expectation for college education}_{ij} = h) = P(l_{h-1} < b_1 \textit{ Student's Disabilities}_{ij} + b_2 \textit{ Student's demographics}_{ij} + b_3 \textit{ Characteristics of Parent}_{ij} + b_4 \textit{ Characteristics of Household}_{ij} + b_5 \textit{ State dummies}_j + u_{ij} \leq l_h) \quad (2)$$

The error term u_{ij} is assumed to be normally distributed. The

subscript i refers to the student, and subscript j refers to the state student i lived in 1995. Vectors of variables are italicized. In the first equation the dependent variable "Desire for college education$_{ij}$" represents the level of student i's desire for college education and the level is ordered by 1,2,3 and 4 (h=1, ... , 4). In the second equation the dependent variable "Expectation for college education$_{ij}$" represents the level of student i's expectation for college education and the level is ordered by 1,2,3, and 4 (h=1, ... , 4).

For the two equations the same independent variables were used. Summaries of the descriptions of the independent variables are in tables of Appendix. *Student's Disabilitiy$_{ij}$* includes the five dummy variables respectively indicate whether or not student i has limb disability, sensory disability, mental retardation, or learning disability, and whether or not student i received special education during the past 12 months, and the continuous variable reflects the level of depression of student i. *Student's demographics$_{ij}$* is a vector of variables which reflect student i's sex, age, race or ethnicity, and three dummy variables which indicate level of student i's AHPVT standardized score.[10]

Characteristics of Parent$_{ij}$ is a vector of three dummy variables indicating whether or not the mother or father of student i has a high school diploma only, whether or not the mother or father of student i has at least a college education, and whether or not the mother or father of student i has disabilities, and a variable for age of the parent of student i. *Characteristics of Household$_{ij}$* is a vector of three dummy variables indicating whether or not student i lived with both

10) The three dummy variables indicating the level of students' scores on AHPVT are included in the model to control cognitive abilities of students.

parents, whether or not student i lived without a parent, whether or not a family member of student i received benefits from SSI, AFDC, food stamps, or housing subsidy in the last month, variable for the number of siblings of student i, and a variable for student i's family income as a percent of poverty. The vector *Characteristics of Household*$_{ij}$ also includes a square of the variable "family income as a percent of poverty level$_{ij}$," an interaction between the variables "family income as a percent of poverty level$_{ij}$" and "welfare program participation$_{ij}$," and an interaction between the variables "family income as a percent of poverty level$_{ij}$," and "student with any disabilities$_{ij}$." *State dummies*$_j$ is a vector of dummy variables indicating state student i lived in 1995.[11]

2) Models of parental expectations

The data from the 1995 Add Health contains variables which measure the level of child's perception of parental expectation as four categorical variables which are ordered by 4. The level of the parental actual expectation were measured as three categorical variables which are ordered by 3. Hence, this study estimates models for the probability of level of the parental expectations using ordered probit model represented by the following two equations.

P (Child's perceptions of parental expectations$_{ij}$ = h) = P (m_{h-1} < c_1 *Student's Disabilities*$_{ij}$ + c_2 *Student's demographics*$_{ij}$ + c_3 *Characteristics of Parent*$_{ij}$ + c_4 *Characteristics of Household*$_{ij}$ + c_5 *State dummies*$_j$ + $u_{ij} \leq m_h$) (3)

11) State dummy variables are included in the econometric models to control for differences in characteristics of students and characteristics of students' parents across states.

P (Parental actual expectations$_{ij}$ = h) = P (n_{h-1} < d_1 *Student's Disabilities*$_{ij}$ + d_2 *Student's demographics*$_{ij}$ + d_3 *Characteristics of Parent*$_{ij}$ + d_4 *Characteristics of Household*$_{ij}$ + d_5 *State dummies*$_j$ + u_{ij} ≤ n_h) (4)

In the first equation the dependent variable "Childs' perception of parental expectations$_{ij}$" represents the perception of student i of the level of disappointment of his or her mother if the he or she does not graduate from college. The level is ordered by 1,2,3 and 4 (h=1, ... , 4). In the second equation the dependent variable "Parental actual expectations$_{ij}$" represents the level of disappointment of the parent of student i if their child does not graduate from college, and the level is ordered by 1,2, and 3 (h=1,2,3). As predictors for these probabilities the same vectors of independent variables which were used for the models of students' desire and expectations were also used.

3) Models of parental time investment

Based on the data from 1995 Add Health, it was possible to measure parental time investment in their child's school related-work as three dichotomous variables. Therefore, this study uses probit models and estimates models of the probability of parental time investment in their child's school-related work which are represented by following three equations.

P (Talked with parent on school works or grade$_{ij}$ = 1) = Φ (a_1 *Student's Disabilities*$_{ij}$ + a_2 *Student's demographics*$_{ij}$ + a_3 *Characteristics of Parent*$_{ij}$ + a_4 *Characteristics of Household*$_{ij}$ + a_5

$State\ dummies_j$) (5)

P (Talked with parent on other things in school$_{ij}$ = 1) = Φ (b_1 $Student's\ Disabilities_{ij}$ + b_2 $Student's\ demographics_{ij}$ + b_3 $Characteristics\ of\ Parent_{ij}$ + b_4 $Characteristics\ of\ Household_{ij}$ + b_5 $State\ dummies_j$) (6)

P (Worked with parent on a school project$_{ij}$ = 1) = Φ (c_1 $Student's\ Disabilities_{ij}$ + c_2 $Student's\ demographics_{ij}$ + c_3 $Characteristics\ of\ Parent_{ij}$ + c_4 $Characteristics\ of\ Household_{ij}$ + c_5 $State\ dummies_j$) (7)

In the first equation, the left-hand side of the first equation represents the probability that student i talked with his or her mother or father about his or her school work or grade in the past 4 weeks. In the second equation, the left hand side represents the probability that student i talked with his or her mother or father about other things he or she did in school in the past 4 weeks. In the third equation, the left hand side represents the probability that student i worked with his or her mother or father on his or her project for school in the past 4 weeks. As predictors for these probabilities the same vectors of independent variables which were used for the models of students' desire and expectation were also used.

2. Estimated effects of students' disabilities [12]

1) Results from models of students' desire and expectations

12) In order to present nationally representative statistics, this study used sample weight for the estimations by using survey command of STATA 6.0. Complete sets of results from the econometric analysis is available with request.

The results suggest that there is an important difference between mental and physical disabilities (Table 2). This study finds that students with mental disabilities and students who received special education have lower desire for their college education and lower expectations about their college education than students without disabilities. However, the findings provide no evidence that students with physical disability have different level of desire or expectations about their college education from students without disabilities.

2) Results from models of parental expectation

Students with learning disabilities and students who received special education perceive lower parental expectations for their college education than students without disabilities (Table 2). Parents of children with learning disability and parents of children who received special education have lower expectations for their child's college education than parents of children without disabilities have.

Parents of children with mental retardation have lower expectation for their mentally retarded child's college education than parents of children without disabilities. However, mentally retarded students do not recognize the lower level of the parental expectation. In addition, depressed students are more likely to feel that their parent has lower expectation for their college education than students without disabilities. However, the findings provide no evidence that parents of depressed child have different expectations for their depressed child's college education than parents of children without disabilities.

3) Results from models of parental time investment

The impact of a child's mental disabilities on parental time

investment seems to depend on the nature of the disabilities (Table 3). Parents of children with mental retardation and parents of children with learning disability are more likely to spend time on helping their mentally disabled child's school project than parents of child without disabilities. However, parents of depressed children and parents of children who received special education are less likely to spend their time on their disabled child's school related works than parents of child without disabilities.

3. Other findings

1) Estimated effects of characteristics of parent

A high level of parental education is associated with higher desire and higher youth expectations for their college education (Table 2). Also, a high level of parental education is associated with a child's perception that their parents have high expectations for their college education. Parents who have a high level of education are more likely to have high expectations for their child's college education. In addition, parents with high level of education are more likely to spend their time on their child's school-related work than parents with lower levels of education.

2) Estimated effects of characteristics of household

Family composition has an important role in parental time spent on their child's school-related work (Table 3). Single parents are less likely to spend their time on their child's school-related work compared to families where both parents are present. However, single parents have higher expectations for their child's college education

compared to two parent families. Also, students who live with single parents are more likely to feel higher parental expectations for their college education compared to students who live with both parents. Family income has a positive relationship to students' desire and expectations for college education, child's perceptions of parental expectations, parent's actual expectations, and parental time investment in child's school-related work.

Ⅵ. Conclusions

There are three main findings from this study. First, this study finds that youth mental disabilities are negatively associated with youth's desire and expectations for their college education. This finding suggests that youth mental disabilities might cause youths to expect a low rate of return from college education or a high cost of college education, and thereby influence youths with mental disabilities to think that college education does not pay off for them.

Second, youth mental disabilities are associated with low parental expectations for their mentally disabled child's college education. Also, mental disabilities influence youths to perceive low parental expectation for their college education. An important finding is that depression seems to cause youths to erroneously assume that their parents have low expectations for their college education. The findings for depressed students suggest that depressed students may have problems in their relationship with their parents.

Third, this study finds that parents of children with mental retardation or learning disabilities are more likely to spend their time

on the mentally disabled child's school related works compared to parents of child without disabilities. However, parents of depressed children are less likely to spend their time on the depressed child's school related works. These findings suggest that characteristics of youths' mental disabilities might amplify or hurt the human capital of the youths by influencing parent's time spend on disabled child.

The conclusions of this study are that youth mental disabilities may have negative influence on human capital of youths by discouraging youths with mental disabilities from expecting their further schooling and by influencing youths with disabilities to perceive low parental expectations. In addition to that, the findings on parent's low expectations for disabled child imply that the low parent's expectations are associated with parental low investment in the disabled child's human capital, and consequences the disabled child to have less human capital.

The findings from this study imply that one general approach to improve outcomes of youths with disabilities would be interventions that promote higher expectations among parents, teachers, and the students. For example, giving them opportunities to see what disabled adults can do in the workplace, or in other mainstream environments. By providing youths with disabilities opportunities to strive for a goal and be successful at it, youths with disabilities learn that hard work pays off, and they might be more enthusiastic about investing their education. It is important to let youths with disabilities and their parents to realize that greater educational achievement has more value than it used to. If the expectations for youths with disabilities would change, the real outcomes of youths with disabilities would change.

Table 1. Mean value of the variables by students' disabilities

	Without	Limbstu	Sensory	vocamr	Learning	depress	speciale
Desire	3.56	3.38	3.08	2.86	3.13	3.14	3.06
Expect	3.33	3.12	3.10	2.50	2.70	2.62	2.65
Disacm	3.08	3.01	3.14	2.88	2.72	2.73	2.68
Disapar	3.05	2.93	2.89	2.57	2.57	2.84	2.49
Talk1p	67.01	68.51	52.63	59.50	60.70	58.93	57.54
Talk2p	58.78	58.74	60.15	52.66	53.36	46.84	53.58
Projp	16.53	17.87	24.17	20.42	19.69	11.29	18.01
Male	47.92	46.42	61.98	52.17	65.55	35.69	64.94
Age	15.29	15.32	15.21	16.05	15.48	15.66	15.43
Hispanic	9.62	10.58	18.34	24.50	10.65	14.50	11.82
White	70.24	68.58	63.21	23.38	69.12	58.77	67.48
Black	14.19	11.64	8.39	45.22	15.77	18.54	16.98
Hspar	58.39	55.43	61.64	43.56	62.43	59.38	62.18
Cpar	33.67	33.91	26.63	12.76	23.11	22.78	21.30
parage	42.97	42.12	44.63	42.65	42.84	42.51	42.43
pardisa	8.29	11.05	12.70	15.20	14.04	14.40	13.95
Twopar	68.06	60.48	62.60	40.38	60.96	50.15	58.17
Nopar	3.96	5.62	21.52	11.58	5.98	10.04	6.25
Sibling	1.36	1.21	1.21	1.94	1.36	1.38	1.42
Fwelf	14.33	22.41	34.64	62.95	30.91	26.51	34.80
Pov	3.12	2.90	3.07	1.35	2.73	2.42	2.55
Pov < 1	14.15	18.91	21.31	56.32	23.00	24.82	27.39

< Note> without = students without disabilities, limbstu = limb disability, sensory = sensory disability, vocamr = mental retardation, learning = learning disability, depress = depression, speciale = students in special education, desire = desire for college education, expect = expectation for college education, disacm = child's perception of parental expectation, disapar = parent's actual expectation, talk1p = talked with parent on the school works of grade, talk2p = talked with parent on the other things in school, projp = worked with parent on a school project

sex = male, sibling = number of sibling, twopar = student lives with both parent, nopar = student lives without parent, parage = parent's age, hspar = mother/father has high school diploma only, cpar = mother/father has at least college educaton, pardisa = parent has disabilities, fwelf = welfare program participation, pov = family income as a percent of poverty, povsq = pov*pov, povwelf = pov*fwelf, cdispov = students with any disabilities * pov, state1, ..., state36 = dummies for states

Table 2. Result of the Econometric Analysis: Models of Schooling Expectation

	Desire	Expect	Disacm	Disapar
Sex	-.213** (-5.768)	-0.351** (-10.388)	-0.049 (-1.541)	-0.023 (-0.882)
Age	-0.075** (-7.272)	-0.015 (-1.592)	-0.037** (-4.020)	-0.039** (-4.607)
White	-0.278** (-3.420)	-0.260** (-3.716)	-0.150* (-1.946)	-0.467** (-5.568)
Black	0.016 (0.156)	-0.097 (-1.170)	0.042 (0.504)	-0.091 (-0.996)
Hispanic	-0.182** (-2.192)	-0.263** (-3.262)	-0.046 (-0.505)	-0.009 (-0.102)
Sibling	0.021 (1.207)	0.024 (1.580)	0.011 (0.860)	0.002 (0.147)
Twopar	-0.040 (-0.955)	0.003 (0.073)	-0.084* (-1.981)	-0.094** (-2.410)
Nopar	0.156 (0.950)	0.111 (0.834)	-0.105 (-0.698)	-0.070 (-0.527)
Parage	0.004 (1.138)	0.003 (1.137)	0.001 (0.251)	0.003 (1.115)
Hspar	0.108** (2.007)	0.121* (1.978)	0.002 (0.049)	-0.165** (-2.769)
Cpar	0.428** (6.516)	0.633** (8.820)	0.302** (4.847)	0.204** (3.172)
Pardisa	-0.052 (-0.870)	-0.115** (-2.019)	0.040 (0.701)	-0.046 (-0.784)
Limstu	-0.065 (-0.890)	0.001 (0.013)	0.057 (0.896)	0.060 (0.905)
Sensory	-0.490 (-1.515)	-0.082 (-0.206)	0.012 (0.342)	0.056 (0.194)
Vocamr	-0.627** (-2.471)	-0.494** (-2.240)	0.145 (1.082)	-0.350** (-2.049)
Voca1	-0.343** (-5.833)	-0.353** (-6.591)	-0.032 (-0.556)	-0.100** (-2.074)

Voca2	-0.279** (-4.971)	-0.313** (-6.666)	-0.019 (-0.428)	-0.168** (-4.703)
Voca3	-0.112* (-1.871)	-0.174** (-3.330)	-0.025 (-0.572)	0.007 (0.165)
Learning	-0.146** (-2.251)	-0.269** (-4.634)	-0.190** (-2.924)	-0.253** (-4.341)
Depress	-0.022** (-6.625)	-0.031** (-10.368)	-0.011** (-3.728)	-0.002 (-0.622)
Depressn	0.053 (0.550)	0.238** (2.732)	0.204** (3.670)	0.237** (3.288)
Speciale	-0.210** (-2.676)	-0.178** (-2.254)	-0.168* (-1.867)	-0.335** (-4.347)
Fwelf	0.003 (0.053)	-0.024 (-0.425)	0.020 (0.387)	0.061 (1.007)
Pov	0.063** (5.820)	0.101** (8.662)	0.064** (6.734)	0.058** (7.250)
Povsq	-0.001** (-4.764)	-0.002** (-6.248)	-0.001** (-5.358)	-0.001** (-4.537)
Povwelf	-0.056** (-2.249)	-0.042* (-1.746)	-0.025 (-0.907)	-0.043* (-1.686)
Cdispov	0.005 (0.444)	0.001 (0.121)	0.005 (0.615)	-0.014 (-1.494)
Prov>F	0.000	0.000	0.000	0.000

Note) Values in parenthesis are t-statistics. * $p < 0.1$, ** $p < 0.05$
desire = desire for college education, expect = expectation for college education, disacm = child's perception of parental expectation, disapar = parent's actual expectation
sex = male, sibling = number of sibling, twopar = student lives with both parent, nopar = student lives without parent, parage = parent's age, hspar = mother/father has high school diploma only, cpar = mother/father has at least college educaton, pardisa = parent has disabilities, limbstu = limb disability, sensory = sensory disability, vocamr = mental retardation, voca1 = AHPVT1, voca2 = AHPVT2, voca3 = AHPVT3, learning = learning disability, depress = depression, depressn = number of answered questions in "Feelings Scales," speciale = students in special education, fwelf = welfare program participation, pov = family income as a percent of poverty, povsq = pov*pov, povwelf = pov*fwelf, cdispov = students with any disabilities * pov, state1, ..., state36 = dummies for states

Table 3. Result of the Econometric Analysis: Models of Investment on Child

	Talk1p	Talk2p	Projp
Sex	-0.023 (-0.730)	-0.080** (-2.729)	-0.001 (-0.035)
Age	-0.008 (-0.694)	-0.023** (-2.315)	-0.113** (-10.808)
White	-0.088 (-1.188)	-0.006 (-0.079)	0.117 (1.382)
Black	-0.008 (-0.084)	0.021 (0.209)	0.006 (0.048)
Hispanic	-0.068 (-0.815)	-0.026 (-0.328)	0.036 (0.375)
Sibling	-0.005 (-0.363)	0.003 (0.189)	-0.024 (1.220)
Twopar	0.068* (1.665)	0.028 (0.746)	0.146** (2.843)
Nopar	-0.175 (-1.154)	0.180 (1.100)	-0.036 (-0.185)
Parage	0.002 (0.566)	0.008** (2.473)	0.001 (0.306)
Hspar	0.098 (1.434)	0.112* (1.830)	0.177** (2.482)
Cpar	0.150** (2.071)	0.228** (3.182)	0.309** (3.607)
Pardisa	-0.079 (-1.451)	-0.102* (-1.821)	-0.007 (-0.102)
Limstu	0.151* (1.872)	0.074 (1.052)	0.045 (0.509)
Sensory	-0.166 (-0.607)	0.146 (0.473)	0.348 (0.979)
Vocamr	0.045 (0.298)	-0.033 (-0.279)	0.476** (3.318)
Voca1	-0.056 (-1.051)	-0.060 (-1.058)	0.133* (1.888)
Voca2	-0.049 (-0.976)	-0.113** (-2.471)	0.081 (1.400)
Voca3	-0.027 (-0.483)	-0.036 (-0.803)	0.058 (1.042)

Learning	0.009 (0.161)	-0.046 (-0.875)	0.181** (2.825)
Depress	-0.004 (-1.610)	-0.010** (-3.684)	-0.010** (-3.354)
Depressn	0.108** (2.078)	0.055 (1.074)	0.130** (2.902)
Speciale	-0.180** (-2.560)	-0.006 (-0.091)	-0.082 (-1.097)
Fwelf	-0.054 (-0.918)	0.079 (1.547)	0.150* (1.755)
Pov	0.010 (0.889)	0.017 (1.657)	0.024** (2.347)
Povsq	-0.000 (-0.248)	-0.000 (-0.820)	-0.000* (-1.879)
Povwelf	-0.003 (-0.107)	0.004 (0.164)	-0.031 (-0.911)
Cdispov	-0.009 (-0.972)	-0.007 (-0.821)	0.004 (-0.320)
Prov>F	0.000	0.000	0.000

Note) Values in parenthesis are t-statistics. * $p < 0.1$, ** $p < 0.05$
talk1p = talked with parent on the school works of grade, talk2p = talked with parent on the other things in school, projp = worked with parent on a school project
sex = male, sibling = number of sibling, twopar = student lives with both parent, nopar = student lives without parent, parage = parent's age, hspar = mother/father has high school diploma only, cpar = mother/father has at least college educaton, pardisa = parent has disabilities, limbstu = limb disability, sensory = sensory disability, vocamr = mental retardation, voca1 = AHPVT1, voca2 = AHPVT2, voca3 = AHPVT3, learning = learning disability, depress = depression, depressn = number of answered questions in "Feelings Scales," speciale = students in special education, fwelf = welfare program participation, pov = family income as a percent of poverty, povsq = pov*pov, povwelf = pov*fwelf, cdispov = students with any disabilities * pov, state1, ..., state36 = dummies for states

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Summary

장애 청소년의 고등교육 기대감에 관한 연구

신 윤 정

본 연구는 청소년의 신체장애, 시청각장애, 정신지체, 학습장애, 우울증이 청소년과 부모가 가지고 있는 대학 교육에 대한 열망과 기대에 어떤 영향을 미치는가에 대해 분석하였다. 이러한 장애요인들이 부모가 장애자녀에 대해 갖는 대학 교육에 대한 기대감에 어떠한 영향을 미치는가도 고찰하였다. 부모가 장애자녀에 대해 갖는 기대감은 장애 청소년이 스스로 느끼는 것과 부모가 사실적으로 느끼는 것으로 나누어 살펴봄으로써 양자간에 어떠한 차이가 있는지 고찰하였다.

통계분석을 위해서는 1995 년에 수집된 National Longitudinal Study of Adolescent Health(Add Health)를 사용하였다. 기술통계분석 결과, 장애 청소년은 장애 없는 청소년에 비해 대학교육에 대한 낮은 기대감과 열망을 갖고 있는 것으로 나타났다. 장애 청소년의 부모 역시 장애 없는 청소년의 부모에 비해 자녀의 대학 교육에 대한 낮은 기대감과 열망을 갖고 있는 것으로 나타났다.

계량분석 결과, 신체장애는 청소년의 대학교육에 대한 기대감과 열망에 유의한 영향을 미치지 않으나, 정신장애는 대학교육에 대한 기대감과 열망을 낮추는 요인으로 작용하는 것으로 나타났다. 또한 우울증이 있는 청소년은 부모가 실제로 그렇게 생각하지 않음에도 불구하고 부모가 자신의 대학교육에 낮은 기대감과 열망을 갖고 있는 것으로 느끼고 있는 것으로 나타났다. 이에 반해, 정신지체 청소년은 부모가 자신의 대학교육에 낮은 기대감과 열망을 갖고

있음에도 불구하고 그러한 사실을 인지하지 못하고 있는 것으로 나타났다.

본 연구는 정신장애 청소년들과 그들의 부모들이 고등 교육에 대한 낮은 열망을 갖고 있으며, 이러한 낮은 열망감이 장애 청소년들로 하여금 학교와 직장에서 성공하지 못하게 하는 요인의 하나로 작용하는 것으로 판단하였다. 이러한 판단에 근거하여 본 연구는 장애 청소년이 사회에서 성공할 수 있게 하기 위해서는 장애 청소년과 그들의 부모, 그리고 교사로 하여금 장애 청소년에 대한 높은 기대감과 열망을 갖게 하는 정책이 모색되어야 할 것으로 보았다.