

ONLINE APPENDIX FOR “HUMAN CAPITAL AND THE LIFETIME COSTS OF  
IMPATIENCE” BY BRIAN C. CADENA AND BENJAMIN J. KEYS

This appendix provides additional information on the construction of the variables used in the analysis as well as additional results discussed in the main text but not included in the main tables.

## A-1 Data coding

### A-1.1 The sample

The sample includes all NLSY respondents who meet the following criteria:

1. Have a valid “ever impatient” variable
2. Have a valid measure of completed schooling at age 26

In each of the regressions, we include dummy variables for missing values of the additional controls so that all individuals who meet the above criteria as well as any additional sampling criteria listed in the table are included in the regression. The construction of these and other variables is described in the following subsection.

### A-1.2 Creation of variables

This section details the construction of the key variables used in the analysis, paying particular attention to how the information collected at each wave is used to update the cumulative lifetime educational investment variables. Variables not listed here are coded in a standard way from survey responses to a single question.

#### **Ever Impatient**

This is a dichotomous variable created from the same question administered at multiple waves. At the conclusion of each survey, the interviewer is asked a number of questions about the interview, including the respondent’s attitude. The interviewer is asked “In general, what was the respondent’s attitude toward the interview?” The choices are:

1. Friendly, interested
2. Cooperative, not interested
3. Impatient, restless
4. Hostile

We code individuals as “impatient” in a single wave if they are coded as 3. We then aggregate over the interviews conducted in 1980-1985. Respondents who do not have a valid response (for non-interview attrition or other reasons) in at least five of the six interviews are coded as missing. Among those who have sufficient valid responses, individuals coded as impatient during at least one interview are coded as 1. Those who are never coded as impatient are coded as 0.

### Regular High School Diploma by age 21

This is a dichotomous variable indicating whether an individual received a regular high school diploma (not a GED) prior to turning 22. It is constructed using questions on whether the respondent has a high school degree or equivalent, and whether that credential is a diploma or GED. It uses data from 1979-1985.

- Individuals age 22+ at initial interview: all coding uses 1979 wave data
  - Those without a high school diploma are coded as 0.
  - Those with a high school diploma are coded as 1 if and only if they received the diploma prior to the month in which they turned 22. This calculation is accomplished using the individual’s birth month and year and the month and year the respondent reports receiving a high school diploma. Those with a high school diploma received after turning 22 are coded as 0.
- Individuals with age  $\leq 21$  at initial interview
  - Those with a high school diploma in 1979 are coded as 1.
  - Individuals who are not enrolled in school and do not have a high school diploma (including those with a GED) in 1979 are initially coded as 0.
  - Those currently enrolled in high school (or an earlier grade) in 1979 are initially coded as missing.
    - \* In subsequent waves, respondents are asked whether they now have a high school degree, and whether it is a diploma or GED. If the respondent is younger than 22 at the time of the interview, his value of the variable is updated as follows:
      - Those with a diploma are coded as 1.
      - Those without a diploma are coded as 0.
      - Those with a GED are coded as 0.
      - Those who are not interviewed are coded as missing.
    - \* This pattern continues for each wave until all respondents are older than 21.

*Note: The dependent variable reported in regression results uses the opposite of this variable, i.e. “No regular high school diploma by age 21”.*

### **No High School Degree Ever**

This is a dichotomous variable indicating whether an individual had obtained a high school degree or equivalent by the time of the 2008 survey. It is based on the “highest grade completed question” and the “highest degree received” question.

- Those who report a highest grade completed at or beyond the first year of college are coded as 1.
- Those who report that their highest degree received is “high school diploma or equivalent” or higher are coded as 1.
- Those whose highest grade completed is 12th grade or lower and who report that they have no degree are coded as 0.
- Those with a highest grade completed of exactly 12th grade and who report a highest degree of “other” are coded as 1.
- Respondents with a non-valid response to either question are coded as missing.

### **Respondent Desires High School Degree**

This is a dichotomous variable indicating whether the respondent responds with a value greater than or equal to 12th grade in response to the question “What is the highest grade or year of regular school, that is, elementary school, high school, college, or graduate school that you would like to complete” in the 1979 survey wave. Individuals with non-valid responses are coded as missing.

### **Respondent Expects High School Degree**

This is a dichotomous variable indicating whether the respondent responds with a value greater than or equal to 12th grade in response to the follow-up question “As things now stand, what is the highest grade or year you think you will actually complete?” in the 1979 survey wave. Individuals with non-valid responses are coded as missing.

### **Respondent Desires College Degree**

This is a dichotomous variable indicating whether the respondent responds with a value greater than or equal to “second year of college” in response to the question “What is the highest grade or year of regular school, that is, elementary school, high school, college, or graduate school that you would like to complete” in the 1979 survey wave. Individuals with non-valid responses are coded as missing.

**Respondent Expects College Degree**

This is a dichotomous variable indicating whether the respondent responds with a value greater than or equal to “second year of college” grade in response to the follow-up question “As things now stand, what is the highest grade or year you think you will actually complete?” in the 1979 survey wave. Individuals with non-valid responses are coded as missing.

**Respondent Desires Bachelor’s Degree**

This is a dichotomous variable indicating whether the respondent responds with a value greater than or equal to “fourth year of college” in response to the question “What is the highest grade or year of regular school, that is, elementary school, high school, college, or graduate school that you would like to complete?” in the 1979 survey wave. Individuals with non-valid responses are coded as missing.

**Respondent Expects Bachelor’s Degree**

This is a dichotomous variable indicating whether the respondent responds with a value greater than or equal to “fourth year of college” grade in response to the follow-up question “As things now stand, what is the highest grade or year you think you will actually complete?” in the 1979 survey wave. Individuals with non-valid responses are coded as missing.

**Respondent Enrolls in College by age 22**

This is a dichotomous variable indicating whether the respondent enrolled in college by age 22. It is constructed using information on current school attendance, highest grade attended, and highest grade completed information from multiple waves from 1979-1987.

- In 1979, the following coding is used
  - Individuals who are currently attending college or who report having attended or completed at least the first year of college are coded as 1.
  - Individuals who are not currently attending college and who report highest grades attended and completed at high school or below are coded as 0.
- Beginning in 1980, and continuing through 1987. Respondents who are age 22 or younger at the time of the interview have their original values updated as follows
  - Any individual currently attending college is coded as 1.

- Any individual who reports have attended or completed at least one year of college is coded as 1.
- Any individual who has a non-interview wave is coded as missing. This coding is permanent, i.e. it cannot be overridden if the respondent re-enters the survey in a later year.

### **Respondent Enrolls in a 4-year school by age 22**

This is a dichotomous variable based on a follow-up question to the enrollment questions asked in each year. An individual is coded as 1 if he enrolls/has enrolled in a 4-year institution in any survey year when he is younger than 23. An individual is coded as 0 if he never enrolls in college or enrolls only in a two-year institution. This variable is missing for all individuals who are coded as missing for “**Respondent Enrolls in College by age 22.**”

### **Highest Grade Completed by 26**

This is a categorical variable based on the “highest grade completed” variables in survey years 1979-1991. This measure begins with the 1979 value of highest grade completed, which is asked of all respondents. In subsequent years, the question is asked only of those who have been enrolled in school since the date of the last interview. Therefore, beginning with the 1980 survey wave and continuing through the 1991 wave, the value of this variable is updated to the value from the most recent wave under two conditions:

1. **The respondent is age 26 or younger at the time of the interview**
2. **The current value of “Highest Grade Completed” is no lower than the previous value.**

Individuals who have a non-interview year before they turn 26 are coded as missing, and this cannot be overwritten.

### **Observed Receiving Associate’s Degree by 26**

This is a dichotomous variable based on the “highest degree completed” variables in survey years 1979-1984 and 1988-1991.

- Beginning in 1979, respondents are coded as 0 if they do not currently possess an associate’s degree (note: The question is asked differently in 1979 than in other years). They are coded as 1 if they currently possess an associate’s degree.
- From 1980-1984, this variable is updated to 1 from 0 if the respondent reports receiving an associate’s degree since the date of the last interview.

- In 1988, each respondent is asked to report his “highest degree ever received”. Also reported is the year and month that degree was received.
  - Respondents ages 26 and younger in 1988 are recoded as having received an associate’s degree if their “highest degree ever received” is an associate’s degree.
  - Respondents ages 27 and older in 1988 are recorded as having received an associate’s degree if their “highest degree ever received” is an associate’s degree and that degree was received prior to the month the respondent turned 27.
- Beginning in 1989, respondents who have completed any schooling or received any degree since the last interview are again asked to report their highest degree ever received. Respondents reporting an associate’s degree with an interview age of 26 or younger are coded as having received a degree.
- For all respondents: a non-interview wave before the respondent turns 26 will result in this variable being missing. This is a permanent recoding.

### **Observed Receiving Bachelor’s Degree by 26**

This variable is coded in precisely the same way as “Received Associate’s Degree by 26”, replacing associate’s degree with “bachelor’s degree or higher” at all points.

### **No College Degree Completed by 26**

This is a dichotomous variable equal to 1 if “Observed Receiving Associate’s Degree by 26” and “Observed Receiving Bachelor’s Degree by 26” are both 0 and “Highest Grade Completed by Age 26” is less than “4th year of college”. It is equal to 0 if the respondent was observed receiving either degree or if his highest grade completed by age 26 was at least 4th year of college. A respondent missing any of the three constructed variables is coded as missing.

### **No Bachelor’s Degree Completed by 26**

This is a dichotomous variable that is defined using the same variables as comprise “No College Degree Completed by 26.” Those who have received an associate’s degree but not a bachelor’s degree and who have a highest grade completed less than “4th year of college” are coded as 1. The other definitions are the same.

## A-2 Additional Results

As referenced in the main text, Table A-1 provides descriptive statistics for each of our control variables. Table A-2 contains the results of the probit regression used to generate Figure 2 in the main article. The remaining appendix tables are discussed in more detail below.

### A-2.1 Heterogeneity Across Race, Gender, and Age

Table A-3 explores the heterogeneous role of impatience across demographic groups. We interact the impatience measure with dummy variables for race  $\times$  gender categories. The baseline results without the interactions appear in the odd numbered columns, while the versions with the interaction terms are in the even columns. The table also includes the p-value from a test of the null hypothesis that all of the interaction terms are 0, i.e. that the impatience gaps are equal for all race and gender groups. We fail to reject each of these hypotheses and conclude that no single demographic group is driving our full sample results.<sup>1</sup>

As an additional specification check, we conduct a similar analysis in Table A-4 across age groups. Note that we include controls for age in all of our main results, but not a fully interacted set of age categories with our measure of impatience. As previously discussed, one might be concerned that the interviewer assessments are measured fairly late in some respondents' educational careers. In particular, suppose that interviewers' assessments of impatience were affected by the respondents' schooling level. If, for example, students with a college degree were perceived as more patient, this differential perception would represent an alternative explanation for the dropout results. Further, respondents who have already entered the workforce may have a higher opportunity cost of time and may therefore appear more impatient during the interview. Importantly, under either of these alternative interpretations, we should find that the results are strongest among the older age cohorts whose interviewer assessments occur later relative to education and work decisions.

Table A-4 explores the results interacted across age categories to address these concerns. The high school dropout results are broadly consistent across age groups, while the point estimates suggest that the college dropout and timing results are strongest among the youngest cohort. These results confirm that no particular age group drives the full-sample results, and show that, if anything, the results are stronger among the younger cohorts. As an additional check, we restrict the sample to only those aged 14-18 in 1979 and re-run the college dropout behavior results presented in Table 3 in the main article based on this subsample, displaying the results in Table A-5. The results are consistently stronger for the youngest cohort, who has yet to make

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<sup>1</sup>We have performed similar analysis with the other included covariates, e.g. parents' education, and these stratified results also show that the aggregate results are not driven by a single demographic group. Results not shown in the tables are available from the authors upon request.

college-level human capital decisions at the time of the earliest NLSY surveys, and thus their responses to questions regarding desires and expectations for schooling are entirely forward looking.

## A-2.2 Results Robust to Alternative Impatience Classifications

For robustness, we replicate several of our key results using alternative measures of impatience. Each entry in Table A-6 displays the coefficient from a separate regression. The rows represent six different definitions of impatience, with the first row our preferred measure used throughout the results section: ever impatient in one of the 1980-1985 surveys. The second row instead uses the fraction of times a respondent is coded as impatient. This measure moves beyond the binary coding and leverages the fact that some respondents are coded as impatient during multiple interviews. The results are quite consistent with the first definition, especially given that the mean of this new definition for the impatient is 0.23. The third row of the table adjusts the impatience measure from the second row for a number of controls related to the interview and interviewer. In these regressions, the impatience measure is the average difference between the true outcome and the predicted probability from a year-by-year probit model that fits “respondent coded as impatient” at each wave using interview length, interviewer gender, interviewer race, whether the interviewer and respondent are of the same race and/or gender, the respondent’s labor force status, the size of the respondent’s household (including any children), and the respondent’s wage (as a proxy for opportunity cost of the survey time). These coefficients are essentially identical to the second row, reflecting the fact that interview and interviewer characteristics do not have much explanatory power in determining who is coded as impatient. Thus, the impatience measure does not appear to be contaminated by racial or gender-specific biases.

Expanding the fraction-of-interviews definition in the fourth row to include all 21 waves of the NLSY leads to a similar interpretation of the results. The means of this definition are 0.12 and 0.017 for those classified as impatient and patient, respectively, according to the original definition. The dependent variable in the fifth row of regressions uses the same set of controls as an adjustment to the fraction of all interviews coded as impatient. Again the impatience measure is robust to adjustments for interview and interviewer characteristics.

As a final robustness check, we use the answer to a hypothetical question asked in 2006 that was designed to elicit time preferences. Respondents were told to imagine that they had won a contest and were entitled to a \$1,000 prize. They were then asked for the **smallest** increase in prize value that they would accept in order to delay receipt of that prize by one month. As discussed in the main text in Section II.A, there are a number of conceptual reasons to prefer the measure based on interviewer ratings to one based on this question.



A further reason to avoid this measure is that the answers to this question do not, in general, produce estimated discount rates that are consistent with anything approaching rational choices. For reference, note that the “correct” answer to this question is quite a low number. The monthly interest on \$1,000 at 6 percent annually is only \$5. Survey answers range from zero to values over \$1,000. Previous researchers have truncated the answers to the range between \$0 and \$500 (?). We follow this precedent, and we run a set of regressions that replace the interviewer-based measure of impatience with the dollar value the respondent reported.

The results of this estimation are provided in the final row of Table A-6. The sign of the coefficients match the results using the interviewer-based measure. More impatient individuals (those who require larger payments to delay the prize receipt) are more likely to exhibit time-inconsistent human capital investment behaviors. Interpreting the magnitude of the coefficient proves difficult, especially given the wide range of seemingly nonsensical reported values. Nevertheless, the difference between someone who reports \$0 (a value given by 16 percent of the trimmed sample) and someone who reports \$200 (roughly the mean of the trimmed sample) is an increased likelihood of dropping out of 2-3 percentage points.

We provide the estimated relationship between this alternative impatience measure and other outcomes in Table A-7. Column (5) shows that this alternative measure is predictive of lower wages, even after controlling for completed schooling.

### A-2.3 Estimation of Lifetime Differences in Labor Market Outcomes

Table A-8 provides the estimation results used to produce Figure 3 (Earnings columns). It also provides coefficient estimates for Appendix Figures A-1 and A-2, which show the difference in earnings broken down into differences in hours and differences in wages. Each pair of columns provides coefficients from a single regression, which is run on data from all waves of the NLSY when respondents were between the ages of 25 and 45. The regression includes all of the controls used throughout the analysis as well as a full set of age dummies and the interaction of the age dummies with the impatience measure. The interaction terms therefore measure the gap in the outcome by impatience status at each age.

There is no strong prediction that any of these outcomes should differ between the patient and the impatient at any particular age. Therefore, we report in this table and in the associated figures, the p-value from a test of the null hypothesis that the sum of the interaction terms is zero. This test is more conservative than a test that the interaction terms are all equal to zero because it allows for the possibility that early-career earnings are actually higher for the impatient who are investing less in human capital. For each outcome, this null hypothesis is easily rejected at conventional significance levels.

### **A-2.4 Complete Set of Regression Results with Controls**

Tables A-9 through A-15 provide more complete results (including coefficients for nearly all controls) for the specifications that appear in the main tables.

### **A-2.5 Reasons for Leaving School**

Table A-16 shows the full set of responses provided by those individuals who left school at some point without completing a degree (and provided a reason for leaving), separately by impatient status. There is essentially no difference in financial difficulties across groups, although the impatient are slightly more likely to report poor grades (2.8 vs. 1.8 percent) or that they “didn’t like school” (12.6 vs. 10.5 percent). A test of the null that the distribution of reasons is the same between the two groups cannot be rejected (p-value = 0.49).

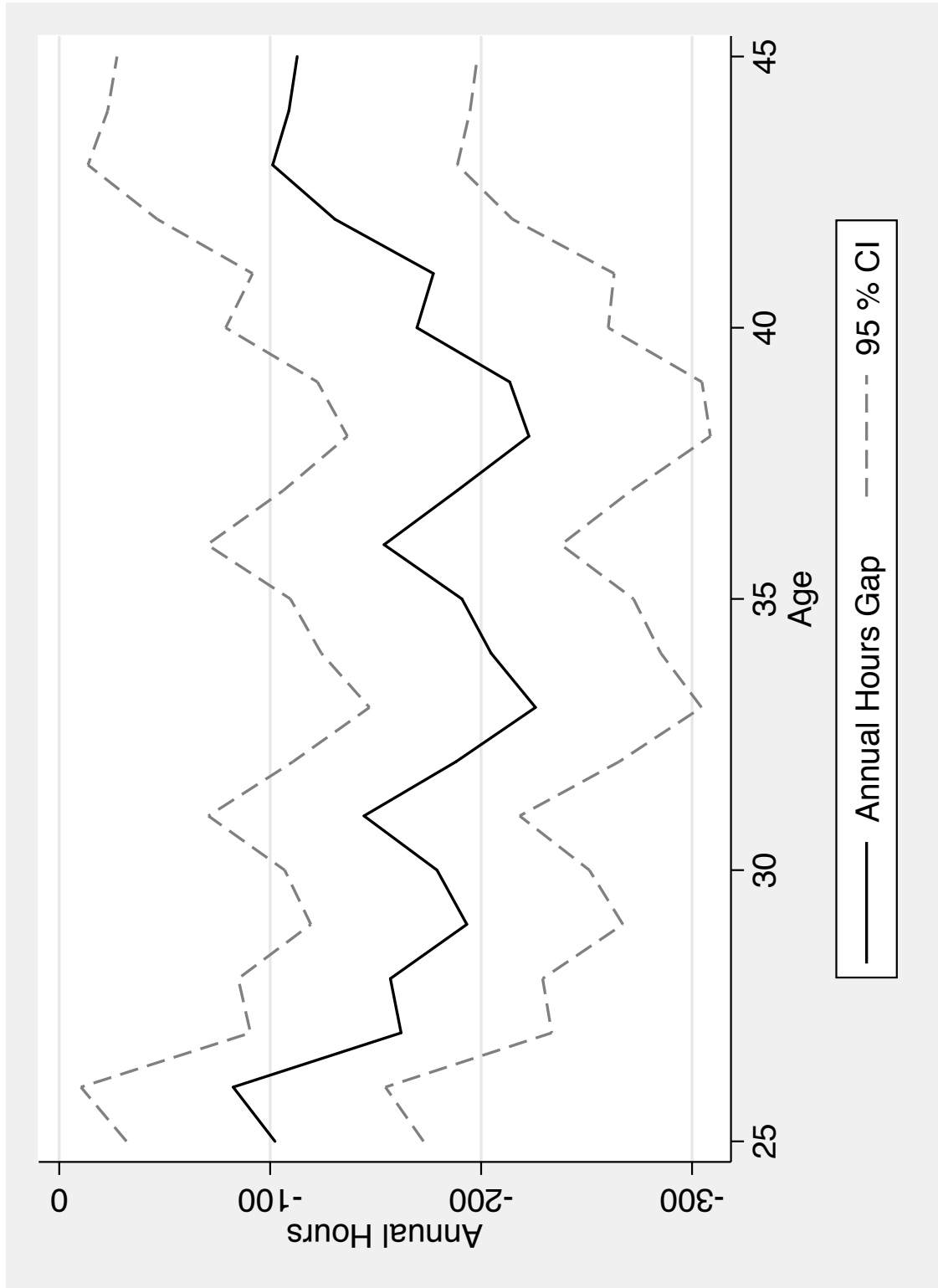
### **A-2.6 Weighted Results**

Table A-17 provides weighted versions of the key results using 1979 sampling weights. These weighted regressions produce results that are qualitatively unchanged from the unweighted regressions presented in the main tables.

### **A-2.7 Comparison of College Dropout Results with and without AFQT**

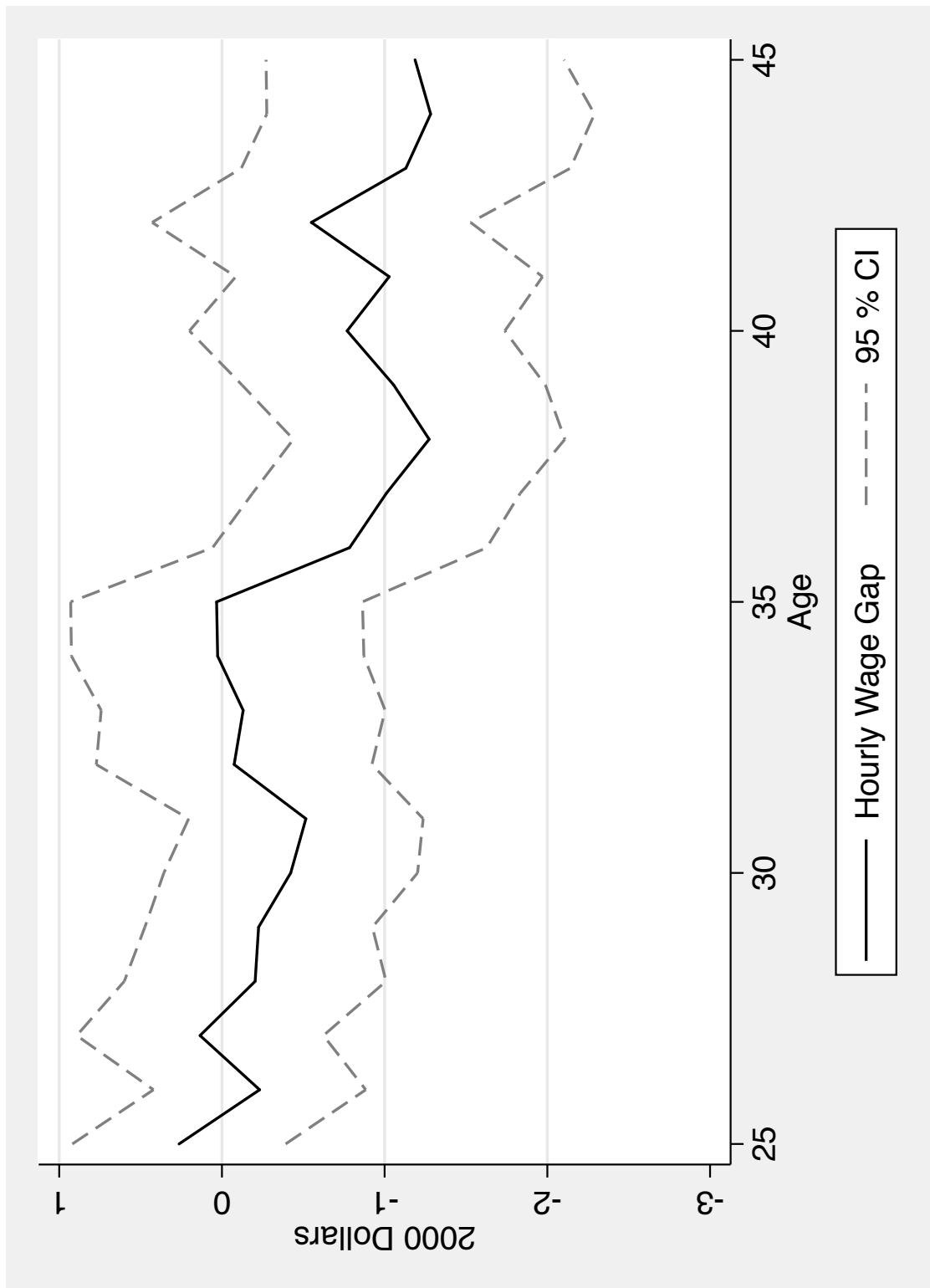
Tables A-18 through A-19 provide a complete set of college dropout results (Tables 3 and 4) with and without AFQT as a control.

Figure A-1: Annual Hours Gap at each age, by Patience



Source: Authors' calculations from NLSY79 1979-2004. Impatience measure described in text. The sum of annual gaps is 3,409 hours with a standard error of 188 (p-value < 0.001).

Figure A-2: Annual Hourly Wage Gap at each age, by Patience



Source: Authors' calculations from NLSY79 1979-2004. Impatience measure described in text. The (non-hours-weighted) sum of annual wage gaps is 11.42 with a standard error of 2.00 (p-value < 0.001).

Table A-1: Summary Statistics - Covariates

Variable	Obs	Full Sample		Patient		Impatient		Difference	p-value
		Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.		
Age in 1979	10046	17.82	2.34	17.82		17.86		0.707	
Mother's highest grade completed	9457	11.65	2.77	11.69		11.30		0.001	
Father's highest grade completed	8661	11.90	3.60	11.97		11.33		0.000	
Male	10046	0.49	0.50	0.48		0.64		0.000	
African-American	10046	0.14	0.35	0.13		0.21		0.000	
Family income in 1979	8125	47677	36766	48264		42357		0.000	
Poverty status in 1979	9545	0.15	0.35	0.14		0.20		0.000	
Urbanicity in 1979	9420	0.78	0.41	0.78		0.81		0.091	
Lived with both parents at age 14?	10035	0.75	0.43	0.76		0.70		0.000	
Access to magazines at age 14?	9979	0.67	0.47	0.68		0.59		0.000	
Access to newspapers at age 14?	10007	0.84	0.37	0.84		0.79		0.000	
Had a library card at age 14?	10004	0.75	0.43	0.76		0.71		0.007	
Ever impatient 1980-1985?	10046	0.10	0.30	1.00		0.00		n/a	

Source: NLSY 1979-2008. Observations weighted using sample weights. Sample includes those eligible for inclusion in the regressions.

Table A-2: Predictors of Impatience - Probit Coefficients

Variable	(1) Impatience
Male	0.331*** (0.034)
African-American	0.172*** (0.041)
Other race	0.084 (0.075)
Mother HS Dropout	-0.005 (0.043)
Mother Some College	0.010 (0.066)
Mother College Grad	0.035 (0.077)
Father HS Dropout	0.099** (0.045)
Father Some College	0.070 (0.070)
Father College Grad	-0.112* (0.067)
Library card at 14	-0.033 (0.040)
Magazines at 14	-0.071* (0.039)
Newspapers at 14	-0.027 (0.043)
Urban in 1979	0.109** (0.044)
Live with both parents at 14	-0.096** (0.039)
Family Income - 1st Quartile	-0.094* (0.056)
Family Income - 3rd Quartile	-0.064 (0.056)
Family Income - 4th Quartile	-0.068 (0.061)
Poverty Status 1979	0.146*** (0.051)
Age (in 1979) fixed effects	Y
Observations	10,046
Pseudo R-squared	0.04

Data: NLSY 1979-2008. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Includes a full set of demographic, geographic, and family background controls. See Table 1 for complete list of controls.

Table A-3: Key Results by Race and Gender

Sample	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		
	Under 17 in 1979	No HS Diploma by 21	Under 17 in 1979	No HS Diploma by 21	Enrolled in College	No Degree	Enrolled in College	No Degree	Enrolled in College <= 1 Year Credit, No Degree	Enrolled in College <= 1 Year Credit, No Degree	Enrolled in College <= 1 Year Credit, No Degree	Enrolled in College <= 1 Year Credit, No Degree	Enrolled in College <= 1 Year Credit, No Degree	Enrolled in College <= 1 Year Credit, No Degree	Enrolled in College <= 1 Year Credit, No Degree	Enrolled in College <= 1 Year Credit, No Degree	
Impatient	0.102*** (0.032)	0.022 (0.072)	0.022 (0.072)	0.022 (0.072)	0.077*** (0.024)	0.080* (0.046)	0.071*** (0.024)	0.080* (0.046)	0.031 (0.044)	0.031 (0.044)	0.031 (0.044)	0.031 (0.044)	0.031 (0.044)	0.090*** (0.033)	0.090*** (0.033)	0.086 (0.063)	0.086 (0.063)
Impatient**Black Male		0.081 (0.105)	0.081 (0.105)	0.081 (0.105)		0.006 (0.073)		0.006 (0.073)	0.019 (0.073)	0.019 (0.073)	0.019 (0.073)	0.019 (0.073)	0.019 (0.073)	0.019 (0.073)	0.155 (0.112)	0.155 (0.112)	0.155 (0.112)
Impatient**Black Female		0.174* (0.104)	0.174* (0.104)	0.174* (0.104)		-0.061 (0.076)		-0.061 (0.076)	0.036 (0.076)	0.036 (0.076)	0.036 (0.076)	0.036 (0.076)	0.036 (0.076)	0.036 (0.076)	0.000 (0.118)	0.000 (0.118)	0.000 (0.118)
Impatient**Non-Black Male		0.083 (0.086)	0.083 (0.086)	0.083 (0.086)		0.015 (0.060)		0.015 (0.060)	0.080 (0.057)	0.080 (0.057)	0.080 (0.057)	0.080 (0.057)	0.080 (0.057)	0.080 (0.057)	-0.050 (0.077)	-0.050 (0.077)	-0.050 (0.077)
p-value from H <sub>0</sub> : All interaction terms = 0	--	0.424	0.424	0.424	--	0.759	--	0.759	0.540	0.540	0.540	0.540	0.540	--	0.257	0.257	0.257
Observations	2,322	2,322	2,322	2,322	4,658	4,658	4,658	4,658	4,658	4,658	4,658	4,658	4,658	2,218	2,218	2,218	2,218
R-squared	0.148	0.151	0.151	0.151	0.148	0.148	0.148	0.148	0.124	0.124	0.124	0.124	0.124	0.091	0.091	0.091	0.091

Data: NLSY 1979-2008. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Includes a full set of demographic, geographic, and family background controls. See Table 1 for complete list of controls.

Table A-4: Key Results by Age at Survey Entry

Sample	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	Full Sample	No HS	Full Sample	No HS	Enrolled in College	No Degree	Enrolled in College	No Degree	Enrolled in College	<= 1 Year Credit, No Degree	Enrolled in College	<= 1 Year Credit, No Degree	Ed>=15	No Bachelor's Degree	Ed>=15	No Bachelor's Degree
Impatient	0.072*** (0.015)		0.090*** (0.026)		0.077*** (0.024)		0.160*** (0.042)		0.071*** (0.024)		0.141*** (0.044)		0.090*** (0.033)		0.165*** (0.066)	
Impatient*Age 17-18			-0.020 (0.038)				-0.128* (0.067)				-0.140** (0.067)				-0.020 (0.097)	
Impatient*Age 19-20			-0.047 (0.037)				-0.104* (0.061)				-0.042 (0.061)				-0.155* (0.087)	
Impatient*Age 21-22			-0.007 (0.046)				-0.128* (0.068)				-0.142** (0.069)				-0.130 (0.095)	
p-value from H0: All interaction terms = 0	--		0.629		--		0.131		--		0.079		--		0.212	
Observations	9,370		9,370		4,658		4,658		4,658		4,658		2,218		2,218	
R-squared	0.178		0.178		0.148		0.149		0.124		0.126		0.091		0.094	

Data: NLSY 1979-2008. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. See Table 1 for complete list of controls.



Table A-5: Key Results - Age 14-18 in 1979 Subsample

	(1) <u>Under 17 in</u> 1979 No HS Diploma by 21	(2) <u>Enrolled In</u> <u>College</u> No Degree	(3) <u>Enrolled in</u> <u>College</u> <= 1 Year Credit, No Degree	(4) <u>Ed&gt;=15</u> No Bachelor's Degree	(5) <u>Enrolled in</u> <u>College</u> Log Hourly Wage (2004)
Impatient	0.103*** (0.032)	0.099*** (0.033)	0.076** (0.034)	0.157*** (0.049)	-0.057 (0.078)
Has Bachelor's Degree					0.312*** (0.033)
Bachelor's*Impatient					0.163 (0.115)
Male	0.022 (0.017)	0.015 (0.019)	0.002 (0.018)	-0.015 (0.021)	0.263*** (0.031)
African-American	-0.098*** (0.023)	0.041 (0.025)	-0.033 (0.024)	0.080** (0.034)	-0.080** (0.038)
Other race	-0.019 (0.040)	0.001 (0.045)	-0.017 (0.045)	-0.068 (0.057)	-0.055 (0.084)
Mother HS Dropout	0.094*** (0.023)	0.018 (0.026)	0.028 (0.027)	0.044 (0.039)	0.014 (0.043)
Mother Some College	-0.054** (0.024)	-0.044 (0.029)	-0.056** (0.027)	0.033 (0.031)	0.062 (0.046)
Mother College Grad	-0.027 (0.027)	-0.110*** (0.032)	-0.112*** (0.027)	-0.026 (0.027)	-0.017 (0.051)
Father HS Dropout	0.057** (0.023)	0.022 (0.028)	0.038 (0.028)	0.048 (0.038)	-0.078* (0.044)
Father Some College	-0.015 (0.029)	-0.086** (0.034)	-0.088*** (0.031)	0.018 (0.037)	-0.016 (0.048)
Father College Grad	-0.047* (0.026)	-0.138*** (0.030)	-0.122*** (0.027)	-0.019 (0.029)	0.009 (0.046)
Library card at 14	-0.015 (0.020)	-0.022 (0.025)	-0.011 (0.024)	-0.043 (0.030)	0.101*** (0.038)
Magazines at 14	-0.082*** (0.021)	-0.033 (0.024)	-0.032 (0.024)	-0.024 (0.033)	0.059 (0.036)
Newspapers at 14	-0.046** (0.023)	-0.053** (0.027)	-0.048* (0.028)	-0.037 (0.039)	0.017 (0.041)
Urban in 1979	0.017 (0.021)	0.054** (0.024)	0.034 (0.024)	0.069*** (0.025)	0.078** (0.037)
Live with both parents at 14	-0.106*** (0.022)	-0.073*** (0.024)	-0.074*** (0.024)	-0.009 (0.032)	0.007 (0.038)
Family Income - 1st Quartile	0.014 (0.040)	-0.027 (0.042)	0.003 (0.045)	-0.068 (0.069)	0.027 (0.070)
Family Income - 3rd Quartile	-0.008 (0.032)	-0.019 (0.036)	-0.026 (0.036)	-0.011 (0.053)	0.008 (0.057)
Family Income - 4th Quartile	-0.013 (0.034)	-0.065* (0.037)	-0.039 (0.036)	-0.088* (0.051)	0.038 (0.059)
Poverty Status 1979	0.101*** (0.035)	0.009 (0.038)	0.002 (0.038)	0.005 (0.053)	0.032 (0.062)
Age (in 1979) fixed effects	Y	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y	Y
Patient mean	0.184	0.416	0.294	0.128	--
Percent diff	56.0%	23.7%	25.9%	122.7%	--
Observations	2,322	2,609	2,609	1,248	1,652
R-squared	0.148	0.123	0.099	0.110	0.180

Table A-6: Alternative Definitions of Impatience

<u>Sample</u>	(1)	(2)	(3)	(4)
	<u>Under 17 in 1979</u> No HS Diploma by 21	<u>Expects to Finish HS</u> No HS Diploma by 21	<u>Enrolled In College</u> No Degree	<u>Expects College Degree</u> No Degree
Ever impatient in 1980-1985	0.102*** (0.032)	0.099*** (0.033)	0.077*** (0.024)	0.068*** (0.021)
Fraction interviews impatient in 1980-1985	0.541*** (0.121)	0.534*** (0.126)	0.340*** (0.106)	0.302*** (0.093)
Average impatience residuals, 1980-1985	0.518*** (0.123)	0.514*** (0.128)	0.327*** (0.107)	0.284*** (0.094)
Fraction interviews impatient in full sample	1.275*** (0.212)	1.248*** (0.218)	0.780*** (0.176)	0.705*** (0.149)
Average impatience residuals in Full Sample	1.196*** (0.213)	1.178*** (0.220)	0.631*** (0.177)	0.565*** (0.150)
Payment required to wait one month for \$1000 (in \$100s)	0.020*** (0.006)	0.018*** (0.006)	0.017*** (0.006)	0.024*** (0.006)
Patient mean	0.187	0.166	0.425	0.476
Observations	2,331	2,219	4,658	5,143

Data: NLSY 1979-2008. Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Includes a full set of demographic, geographic, and family background controls. See Table 1 for complete list of controls. Each value is the coefficient from a separate regression. Residuals are from a regression (for each year) of impatience on: interview length (missing in 1992 and 1993), interviewer race, interviewer gender, interviewer same race, interviewer same gender, labor force status, hourly wage, and family size.

Table A-7: Alternative Impatience Measure - 2006 Hypothetical Question

Sample	(1)	(2)	(3)	(4)	(5)
	<u>Expects to</u> <u>Finish HS</u>	<u>Enrolled In</u> <u>College</u>	<u>Enrolled in</u> <u>College</u>	<u>Ed&gt;=15</u>	<u>Enrolled in</u> <u>College</u>
	No HS Diploma by 21	No Degree	<= 1 Year Credit, No Degree	No Bachelor's Degree	Log Hourly Wage (2004)
Impatient - Hypothetical	0.018*** (0.006)	0.017*** (0.006)	0.016*** (0.006)	0.007 (0.007)	-0.032*** (0.011)
Has Bachelor's Degree					0.281*** (0.048)
Bachelor's*Impatient					-0.009 (0.018)
Male	0.017 (0.022)	0.025 (0.021)	0.013 (0.019)	-0.031 (0.022)	0.260*** (0.031)
African-American	-0.057* (0.033)	0.052* (0.031)	-0.029 (0.029)	0.058 (0.040)	-0.073* (0.043)
Other race	0.024 (0.052)	0.033 (0.053)	-0.023 (0.054)	0.012 (0.087)	0.058 (0.080)
Mother HS Dropout	0.048 (0.030)	0.039 (0.031)	0.087*** (0.030)	-0.039 (0.042)	0.006 (0.044)
Mother Some College	-0.053 (0.032)	-0.024 (0.031)	-0.029 (0.028)	0.053 (0.035)	0.027 (0.045)
Mother College Grad	-0.015 (0.035)	-0.085** (0.033)	-0.067** (0.028)	-0.044 (0.028)	-0.001 (0.049)
Father HS Dropout	0.046 (0.031)	-0.023 (0.033)	-0.022 (0.032)	0.057 (0.043)	-0.046 (0.045)
Father Some College	0.003 (0.036)	-0.109*** (0.035)	-0.088*** (0.033)	-0.024 (0.038)	0.002 (0.049)
Father College Grad	-0.036 (0.033)	-0.145*** (0.032)	-0.134*** (0.028)	-0.038 (0.032)	0.025 (0.047)
Library card at 14	-0.022 (0.027)	-0.043 (0.029)	-0.017 (0.028)	-0.014 (0.034)	0.101*** (0.037)
Magazines at 14	-0.042 (0.029)	-0.062** (0.028)	-0.094*** (0.028)	-0.032 (0.038)	0.012 (0.037)
Newspapers at 14	-0.062* (0.032)	0.005 (0.034)	0.034 (0.034)	0.020 (0.045)	-0.005 (0.046)
Urban in 1979	-0.007 (0.027)	0.060** (0.028)	0.041 (0.026)	0.036 (0.028)	0.090** (0.038)
Live with both parents at 14	-0.094*** (0.030)	-0.093*** (0.028)	-0.076*** (0.027)	-0.094** (0.038)	0.007 (0.039)
Family Income - 1st Quartile	0.030 (0.061)	-0.011 (0.048)	0.020 (0.047)	-0.073 (0.068)	-0.028 (0.073)
Family Income - 3rd Quartile	0.030 (0.044)	0.035 (0.041)	0.086** (0.039)	-0.053 (0.058)	-0.021 (0.054)
Family Income - 4th Quartile	0.037 (0.047)	-0.052 (0.041)	0.020 (0.037)	-0.114** (0.053)	-0.012 (0.056)
Poverty Status 1979	0.139*** (0.049)	0.041 (0.044)	0.072* (0.043)	-0.019 (0.058)	-0.083 (0.065)
Age (in 1979) fixed effects	Y	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y	Y
Observations	1,251	2,060	2,060	1,070	1,625
R-squared	0.133	0.152	0.122	0.101	0.174

Data: NLSY 1979-2008. Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Measure of impatience is based on survey response to the question, "How much would you need to be paid to delay a \$1000 prize for one month?" Responses scaled by \$100. Data definitions provided in Data Appendix. Includes a full set of demographic, geographic, and family background controls. See Table 1 for complete list of controls.

Table A-8: Regression Estimates for Lifetime Cost Figures

Age	Earnings		Annual Hours		Hourly Wages		Earnings - Purged of Completed Ed		
	Gap	Standard Error	Gap	Standard Error	Gap	Standard Error	Gap	Standard Error	
25	-1039	611	-102	36	0.26	0.33	-458	601	
26	-2102	579	-82	37	-0.23	0.33	-1346	559	
27	-2578	658	-162	36	0.13	0.39	-1667	637	
28	-2695	693	-157	37	-0.20	0.41	-1717	671	
29	-3315	671	-193	38	-0.23	0.36	-2217	633	
30	-3300	751	-179	37	-0.42	0.40	-2102	719	
31	-2689	776	-144	38	-0.52	0.37	-1387	743	
32	-3162	787	-188	39	-0.07	0.43	-1718	745	
33	-3589	804	-226	40	-0.13	0.45	-2016	759	
34	-3704	850	-205	41	0.03	0.46	-2186	798	
35	-3444	904	-191	41	0.03	0.46	-1911	854	
36	-3509	944	-154	43	-0.78	0.43	-1952	887	
37	-4246	953	-189	42	-1.01	0.42	-2671	897	
38	-5419	947	-223	44	-1.27	0.43	-3803	898	
39	-5220	957	-214	46	-1.06	0.48	-3404	909	
40	-4713	1003	-170	46	-0.77	0.49	-2757	946	
41	-4746	1009	-177	44	-1.03	0.48	-2660	942	
42	-4327	1044	-131	43	-0.55	0.50	-2374	968	
43	-3794	1081	-101	45	-1.13	0.52	-1860	1011	
44	-4384	1067	-109	44	-1.28	0.51	-2446	1005	
45	-4559	1059	-113	44	-1.19	0.47	-2672	1005	
Total	-\$76,533	4025	-3409	188	-11.42	2.00	-45324	3806	
Percent of earnings gap explained by schooling				40.8%					
Patient mean total earnings (full panel)				\$583,877					
Ratio of earnings gap to patient mean earnings				-13.1%					

Data: NLSY 1979-2008. Standard errors are heteroskedasticity-robust.

Table A-9: Present-Biased Behaviors and Impatience

	(1)	(2)	(3)	(4)	(5)
	Bank Account	Ever Smoker	Hangovers	Never Attrit from NLSY	Early Military Exit
Impatient	-0.105*** (0.015)	0.057*** (0.019)	0.068** (0.033)	-0.063*** (0.015)	0.074 (0.063)
Male	-0.024*** (0.009)	0.041*** (0.012)	0.127*** (0.017)	-0.037*** (0.009)	-0.096** (0.043)
African-American	-0.133*** (0.012)	-0.062*** (0.015)	-0.121*** (0.021)	0.205*** (0.011)	-0.114*** (0.044)
Other race	-0.056** (0.022)	-0.068** (0.027)	-0.011 (0.040)	0.061*** (0.021)	-0.099 (0.072)
Mother HS Dropout	-0.092*** (0.012)	0.034** (0.015)	0.013 (0.023)	0.028** (0.011)	0.080* (0.043)
Mother Some College	0.015 (0.016)	-0.028 (0.022)	0.048* (0.029)	-0.009 (0.017)	0.093 (0.072)
Mother College Grad	0.035** (0.017)	-0.068*** (0.026)	0.022 (0.038)	0.011 (0.019)	0.139* (0.076)
Father HS Dropout	-0.048*** (0.012)	-0.012 (0.016)	-0.024 (0.022)	-0.016 (0.012)	-0.111** (0.044)
Father Some College	0.006 (0.017)	-0.010 (0.023)	-0.073*** (0.024)	-0.001 (0.017)	0.055 (0.069)
Father College Grad	0.047*** (0.015)	-0.026 (0.022)	0.015 (0.034)	-0.022 (0.016)	-0.053 (0.062)
Library card at 14	0.018* (0.011)	-0.005 (0.014)	0.009 (0.020)	-0.001 (0.011)	-0.014 (0.046)
Magazines at 14	0.101*** (0.011)	-0.021 (0.014)	-0.025 (0.019)	0.023** (0.010)	0.000 (0.040)
Newspapers at 14	0.063*** (0.013)	0.045*** (0.016)	0.041* (0.023)	-0.031*** (0.012)	-0.054 (0.057)
Urban in 1979	0.002 (0.011)	0.016 (0.015)	0.061*** (0.021)	0.047*** (0.011)	0.083 (0.107)
Live with both parents at 14	0.047*** (0.011)	-0.054*** (0.014)	-0.022 (0.021)	0.005 (0.011)	-0.013 (0.039)
Family Income - 1st Quartile	0.033** (0.016)	0.048** (0.023)	0.064** (0.026)	-0.022 (0.016)	0.008 (0.043)
Family Income - 3rd Quartile	0.046*** (0.015)	-0.042** (0.020)	-0.025 (0.033)	0.095*** (0.015)	-0.023 (0.060)
Family Income - 4th Quartile	0.072*** (0.016)	-0.072*** (0.021)	0.034 (0.034)	0.156*** (0.016)	0.059 (0.111)
Poverty Status 1979	-0.127*** (0.015)	-0.040* (0.021)	-0.064** (0.027)	-0.111*** (0.015)	0.012 (0.071)
Age (in 1979) fixed effects	Y	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y	Y
Patient mean	0.722	0.498	0.239	0.786	0.382
Percent diff	-14.5%	11.3%	28.2%	-8.0%	19.3%
Observations	10,046	7,268	10,038	10,046	621
R-squared	0.206	0.026	0.018	0.154	0.158

Table A-10: Impatience and Time-Inconsistent High School Dropout Behavior

Sample	(1)	(2)	(3)	(4)
	Under 17 in 1979	Wants to Finish HS	Expects to Finish HS	Under 17 in 1979
Outcome	No HS Diploma by 21	No HS Diploma by 21	No HS Diploma by 21	No HS Diploma by 2008
Impatient	0.103*** (0.032)	0.098*** (0.032)	0.099*** (0.033)	0.054** (0.026)
Male	0.022 (0.017)	0.026 (0.017)	0.019 (0.017)	0.027** (0.013)
African-American	-0.098*** (0.023)	-0.089*** (0.023)	-0.067*** (0.023)	-0.053*** (0.018)
Other race	-0.019 (0.040)	-0.010 (0.041)	0.001 (0.042)	-0.023 (0.033)
Mother HS Dropout	0.094*** (0.023)	0.090*** (0.023)	0.071*** (0.023)	0.040** (0.017)
Mother Some College	-0.054** (0.024)	-0.052** (0.024)	-0.050** (0.024)	-0.042*** (0.012)
Mother College Grad	-0.027 (0.027)	-0.028 (0.028)	-0.030 (0.027)	-0.011 (0.014)
Father HS Dropout	0.057** (0.023)	0.053** (0.024)	0.060** (0.023)	0.080*** (0.017)
Father Some College	-0.015 (0.029)	-0.014 (0.029)	-0.008 (0.028)	0.017 (0.018)
Father College Grad	-0.047* (0.026)	-0.046* (0.026)	-0.040 (0.025)	-0.007 (0.012)
Library card at 14	-0.015 (0.020)	-0.012 (0.020)	-0.006 (0.020)	-0.014 (0.016)
Magazines at 14	-0.082*** (0.021)	-0.078*** (0.021)	-0.054** (0.021)	-0.050*** (0.016)
Newspapers at 14	-0.046** (0.023)	-0.038 (0.023)	-0.048** (0.023)	-0.032* (0.018)
Urban in 1979	0.017 (0.021)	0.017 (0.021)	0.006 (0.021)	0.007 (0.016)
Live with both parents at 14	-0.106*** (0.022)	-0.109*** (0.022)	-0.102*** (0.022)	-0.027 (0.017)
Family Income - 1st Quartile	0.014 (0.040)	0.003 (0.040)	-0.009 (0.041)	0.019 (0.034)
Family Income - 3rd Quartile	-0.008 (0.032)	-0.004 (0.032)	-0.006 (0.033)	-0.032 (0.025)
Family Income - 4th Quartile	-0.013 (0.034)	-0.009 (0.034)	-0.004 (0.034)	-0.037 (0.026)
Poverty Status 1979	0.101*** (0.035)	0.105*** (0.035)	0.105*** (0.036)	0.046 (0.029)
Age (in 1979) fixed effects	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y
Patient mean	0.184	0.179	0.162	0.076
Percent diff	56.0%	54.7%	61.1%	71.1%
Observations	2,322	2,292	2,210	2,322
R-squared	0.148	0.142	0.126	0.106

Table A-11: Impatience and Time-Inconsistent College Dropout Behavior

Sample	(1)	(2)	(3)	(4)	(5)	(6)
	<u>Desires</u> <u>College</u> <u>Degree</u>	<u>Expects</u> <u>College</u> <u>Degree</u>	<u>Enrolled In</u> <u>College</u>	<u>Desires</u> <u>Bachelor's</u> <u>Degree</u> No Bachelor's Degree	<u>Expects</u> <u>Bachelor's</u> <u>Degree</u> No Bachelor's Degree	<u>Enrolled In 4-</u> <u>year School</u> <u>No</u> <u>Bachelor's</u> <u>Degree</u>
Outcome	No Degree	No Degree	No Degree	No Degree	No Degree	No Degree
Impatient	0.072*** (0.018)	0.068*** (0.021)	0.077*** (0.024)	0.072*** (0.020)	0.077*** (0.024)	0.055* (0.030)
Male	-0.004 (0.012)	-0.001 (0.013)	-0.011 (0.014)	-0.012 (0.012)	-0.005 (0.015)	-0.020 (0.017)
African-American	0.023 (0.015)	0.044*** (0.017)	0.042** (0.019)	0.060*** (0.015)	0.090*** (0.019)	0.085*** (0.023)
Other race	-0.024 (0.027)	0.000 (0.031)	0.008 (0.033)	0.012 (0.028)	0.036 (0.037)	0.014 (0.045)
Mother HS Dropout	0.061*** (0.015)	0.049*** (0.017)	0.026 (0.020)	0.068*** (0.016)	0.066*** (0.020)	0.058** (0.026)
Mother Some College	-0.067*** (0.020)	-0.050** (0.021)	-0.045** (0.021)	-0.037* (0.021)	-0.024 (0.023)	-0.006 (0.025)
Mother College Grad	-0.139*** (0.022)	-0.124*** (0.022)	-0.117*** (0.023)	-0.158*** (0.023)	-0.118*** (0.024)	-0.111*** (0.025)
Father HS Dropout	0.036** (0.016)	0.039** (0.018)	0.017 (0.021)	0.048*** (0.017)	0.045** (0.022)	0.055** (0.027)
Father Some College	-0.077*** (0.022)	-0.076*** (0.023)	-0.074*** (0.025)	-0.050** (0.023)	-0.050* (0.027)	0.001 (0.029)
Father College Grad	-0.177*** (0.019)	-0.155*** (0.020)	-0.126*** (0.021)	-0.147*** (0.021)	-0.116*** (0.023)	-0.086*** (0.024)
Library card at 14	-0.039*** (0.014)	-0.023 (0.017)	-0.027 (0.019)	-0.018 (0.016)	-0.012 (0.020)	-0.000 (0.023)
Magazines at 14	-0.073*** (0.014)	-0.067*** (0.016)	-0.059*** (0.018)	-0.089*** (0.015)	-0.091*** (0.018)	-0.083*** (0.023)
Newspapers at 14	-0.037** (0.016)	-0.056*** (0.019)	-0.068*** (0.021)	-0.025 (0.017)	-0.048** (0.022)	-0.082*** (0.028)
Urban in 1979	0.040** (0.016)	0.059*** (0.018)	0.057*** (0.019)	0.063*** (0.018)	0.081*** (0.021)	0.053** (0.022)
Live with both parents at 14	-0.078*** (0.014)	-0.070*** (0.016)	-0.069*** (0.018)	-0.065*** (0.015)	-0.059*** (0.018)	-0.046** (0.022)
Family Income - 1st Quartile	-0.066*** (0.020)	-0.063*** (0.022)	-0.061** (0.026)	-0.110*** (0.020)	-0.104*** (0.024)	-0.123*** (0.032)
Family Income - 3rd Quartile	0.011 (0.019)	0.016 (0.022)	0.001 (0.025)	0.003 (0.020)	-0.014 (0.025)	-0.063** (0.031)
Family Income - 4th Quartile	-0.065*** (0.020)	-0.067*** (0.023)	-0.059** (0.025)	-0.095*** (0.022)	-0.118*** (0.026)	-0.124*** (0.031)
Poverty Status 1979	0.019 (0.018)	0.029 (0.021)	0.009 (0.023)	0.037* (0.019)	0.035 (0.023)	0.003 (0.028)
Age (in 1979) fixed effects	Y	Y	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y	Y	Y
Patient mean	0.539	0.476	0.425	0.549	0.450	0.359
Percent diff	13.4%	14.3%	18.1%	13.0%	17.1%	15.4%
Observations	6,089	5,143	4,658	4,880	3,739	3,091
R-squared	0.186	0.186	0.148	0.227	0.239	0.169

Table A-12: Impatience and College Dropout Dynamics

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	Enrolled in College	Ed>=14	Ed>=15	Gave reason for dropping out	Gave reason for dropping out Dropped out due to	Enrolled in College Log Hourly Wage (2004)
	<= 1 Year Credit, No Degree	14 Years, No Degree	No Bachelor's Degree	Dropped out due to financial difficulties	academic difficulties	
Impatient	0.071*** (0.024)	0.005 (0.026)	0.090*** (0.033)	0.003 (0.030)	0.007 (0.012)	-0.074 (0.056)
Has Bachelor's Degree						0.289*** (0.027)
Bachelor's*Impatient						0.187** (0.089)
Male	-0.016 (0.013)	-0.004 (0.013)	-0.027* (0.015)	0.043** (0.017)	0.010 (0.007)	0.266*** (0.025)
African-American	-0.027 (0.018)	0.051** (0.020)	0.084*** (0.026)	0.075*** (0.023)	-0.009 (0.009)	-0.105*** (0.031)
Other race	-0.028 (0.033)	0.045 (0.038)	0.002 (0.049)	0.012 (0.039)	0.009 (0.017)	0.039 (0.061)
Mother HS Dropout	0.039* (0.020)	0.030 (0.022)	0.010 (0.029)	-0.017 (0.023)	0.004 (0.008)	-0.005 (0.034)
Mother Some College	-0.063*** (0.020)	-0.025 (0.018)	0.022 (0.023)	-0.050* (0.026)	0.010 (0.011)	0.008 (0.036)
Mother College Grad	-0.120*** (0.019)	-0.035* (0.019)	-0.028 (0.020)	-0.011 (0.031)	-0.008 (0.012)	-0.021 (0.040)
Father HS Dropout	0.012 (0.021)	0.018 (0.022)	0.037 (0.028)	0.012 (0.024)	0.001 (0.008)	-0.064* (0.035)
Father Some College	-0.086*** (0.023)	-0.015 (0.021)	0.006 (0.027)	-0.012 (0.029)	0.017 (0.012)	0.005 (0.038)
Father College Grad	-0.117*** (0.019)	-0.021 (0.019)	-0.040* (0.021)	-0.011 (0.026)	0.016 (0.010)	0.022 (0.037)
Library card at 14	-0.012 (0.018)	-0.016 (0.020)	-0.015 (0.023)	-0.022 (0.023)	-0.016 (0.010)	0.102*** (0.030)
Magazines at 14	-0.062*** (0.018)	-0.020 (0.019)	-0.032 (0.025)	-0.030 (0.021)	-0.004 (0.009)	0.074** (0.029)
Newspapers at 14	-0.036 (0.022)	-0.010 (0.025)	-0.073** (0.032)	-0.032 (0.026)	-0.011 (0.010)	-0.004 (0.035)
Urban in 1979	0.035** (0.018)	0.014 (0.017)	0.052*** (0.019)	-0.016 (0.025)	0.019** (0.008)	0.072** (0.030)
Live with both parents at 14	-0.057*** (0.018)	-0.025 (0.019)	-0.040* (0.024)	-0.057*** (0.022)	0.003 (0.009)	0.014 (0.030)
Family Income - 1st Quartile	-0.043* (0.026)	-0.035 (0.029)	-0.101*** (0.035)	-0.032 (0.030)	0.018 (0.011)	0.021 (0.052)
Family Income - 3rd Quartile	0.005 (0.024)	0.002 (0.028)	-0.028 (0.035)	-0.029 (0.029)	0.024** (0.010)	0.009 (0.044)
Family Income - 4th Quartile	-0.035 (0.024)	-0.033 (0.026)	-0.058* (0.032)	-0.041 (0.030)	0.015 (0.010)	0.024 (0.045)
Poverty Status 1979	0.019 (0.023)	-0.004 (0.024)	0.051* (0.028)	-0.022 (0.029)	0.014 (0.010)	-0.018 (0.047)
Age (in 1979) fixed effects	Y	Y	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y	Y	Y
Patient mean	0.292	0.129	0.132	0.211	0.028	--
Percent diff	24.3%	3.7%	24 68.0%	1.2%	24.5%	--
Observations	4,658	3,001	2,218	2,549	2,549	2,589
R-squared	0.124	0.060	0.091	0.033	0.016	0.175



Table A-13: Impatience and AFQT

Sample	(1)	(2)	(3)	(4)	(5)	(6)
	Full Sample	<u>Expects to</u> <u>Finish HS</u>	<u>Enrolled In</u> <u>College</u>	<u>Enrolled in</u> <u>College</u>	<u>Ed&gt;=15</u>	<u>Enrolled in</u> <u>College</u>
	AFQT	No HS Diploma by 21	No Degree	<= 1 Year Credit, No Degree	No Bachelor's Degree	Log Hourly Wage (2004)
Impatient	-0.217*** (0.0261)	0.0733** (0.0311)	0.0446* (0.0229)	0.0397* (0.0229)	0.0729** (0.0327)	-0.0421 (0.0549)
Has Bachelor's Degree						0.208*** (0.0273)
Bachelor's*Impatient						0.173* (0.0882)
Male	-0.0426*** (0.0158)	0.0124 (0.0163)	0.00565 (0.0133)	-9.85e-05 (0.0127)	-0.0191 (0.0153)	0.254*** (0.0243)
African-American	-0.608*** (0.0207)	-0.155*** (0.0233)	-0.103*** (0.0197)	-0.162*** (0.0189)	0.000731 (0.0281)	0.0192 (0.0329)
Other race	-0.207*** (0.0399)	-0.00411 (0.0402)	-0.0256 (0.0331)	-0.0604* (0.0332)	-0.0283 (0.0478)	0.0732 (0.0602)
Mother HS Dropout	-0.277*** (0.0206)	0.0299 (0.0221)	0.000119 (0.0189)	0.0146 (0.0191)	0.00350 (0.0287)	0.0176 (0.0330)
Mother Some College	0.156*** (0.0270)	-0.0275 (0.0238)	-0.0341 (0.0207)	-0.0526*** (0.0192)	0.0213 (0.0224)	0.00480 (0.0362)
Mother College Grad	0.259*** (0.0284)	0.0110 (0.0268)	-0.0815*** (0.0220)	-0.0863*** (0.0189)	-0.0165 (0.0199)	-0.0414 (0.0401)
Father HS Dropout	-0.218*** (0.0216)	0.0291 (0.0228)	-0.00743 (0.0198)	-0.0109 (0.0198)	0.0192 (0.0280)	-0.0467 (0.0342)
Father Some College	0.108*** (0.0295)	0.00443 (0.0282)	-0.0594** (0.0233)	-0.0717*** (0.0214)	0.00745 (0.0269)	-0.00799 (0.0372)
Father College Grad	0.269*** (0.0256)	0.00541 (0.0249)	-0.0938*** (0.0205)	-0.0868*** (0.0186)	-0.0335 (0.0211)	0.00979 (0.0366)
Library card at 14	0.189*** (0.0194)	0.0111 (0.0193)	-0.00629 (0.0180)	0.00793 (0.0179)	0.000573 (0.0232)	0.0885*** (0.0295)
Magazines at 14	0.264*** (0.0190)	-0.0234 (0.0208)	-0.0246 (0.0171)	-0.0295* (0.0173)	-0.0101 (0.0246)	0.0429 (0.0282)
Newspapers at 14	0.215*** (0.0222)	-0.0362 (0.0223)	-0.0336 (0.0206)	-0.00305 (0.0212)	-0.0617* (0.0318)	-0.0268 (0.0348)
Urban in 1979	-0.0323 (0.0199)	0.000135 (0.0202)	0.0397** (0.0182)	0.0187 (0.0171)	0.0483** (0.0188)	0.0793*** (0.0300)
Live with both parents at 14	0.00278 (0.0192)	-0.106*** (0.0214)	-0.0741*** (0.0172)	-0.0612*** (0.0171)	-0.0427* (0.0237)	0.0274 (0.0299)
Family Income - 1st Quartile	0.0493* (0.0277)	-0.0163 (0.0386)	-0.0544** (0.0248)	-0.0366 (0.0247)	-0.0983*** (0.0348)	0.0321 (0.0511)
Family Income - 3rd Quartile	-0.0222 (0.0264)	-0.0125 (0.0310)	-0.0161 (0.0239)	-0.0108 (0.0236)	-0.0424 (0.0345)	0.0303 (0.0429)
Family Income - 4th Quartile	0.0634** (0.0274)	0.00789 (0.0327)	-0.0598** (0.0241)	-0.0360 (0.0230)	-0.0605* (0.0319)	0.0319 (0.0439)
Poverty Status 1979	-0.219*** (0.0256)	0.0678** (0.0339)	-0.0229 (0.0227)	-0.0115 (0.0221)	0.0334 (0.0271)	0.0145 (0.0454)
AFQT	-- --	-0.156*** (0.0113)	-0.202*** (0.0103)	-0.190*** (0.0104)	-0.115*** (0.0164)	0.192*** (0.0201)
Age (in 1979) fixed effects	Y	Y	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y	Y	Y
Patient mean	0.324	0.166	0.425	0.292	0.132	--
Percent diff	--	44.2%	25 10.5%	13.6%	55.2%	--
Observations	9,827	2,219	4,658	4,658	2,218	2,589
R-squared	0.426	0.195	0.211	0.187	0.116	0.205

Table A-14: Impatience, ADHD, and HS Dropout Behavior - Add Health Data

	(1)	(2)	(3)	(4)
Ever Impatient	0.031*** (0.006)	0.030*** (0.006)	0.022*** (0.006)	0.020*** (0.006)
Ever ADHD (Wave IV)		0.040*** (0.015)		0.054*** (0.015)
Male			0.026*** (0.005)	0.025*** (0.005)
Hispanic			0.027*** (0.009)	0.029*** (0.009)
Black			0.031*** (0.008)	0.034*** (0.008)
Native American			0.097* (0.053)	0.100* (0.053)
Asian			0.021* (0.011)	0.024** (0.011)
Other Race			0.027 (0.033)	0.027 (0.033)
Multiple Race			0.047*** (0.016)	0.049*** (0.016)
Mother < High School			0.050*** (0.011)	0.051*** (0.011)
Mother Some College			-0.009 (0.009)	-0.009 (0.009)
Mother College Grad			-0.038*** (0.006)	-0.038*** (0.006)
Father < High School			0.033*** (0.012)	0.033*** (0.012)
Father Some College			-0.018* (0.009)	-0.018* (0.009)
Father College Grad			-0.028*** (0.007)	-0.029*** (0.007)
Family Income (1995, thousands)			-0.0001*** (0.00005)	-0.0002*** (0.00005)
Live with both parents (Wave I)			-0.023*** (0.007)	-0.022*** (0.007)
Month of Birth Dummies	NO	NO	YES	YES
Patient mean	0.086	0.086	0.086	0.086
Percent diff	36.0%	34.8%	25.2%	23.8%
Observations	26 11,631	11,631	11,631	11,631
R-squared	0.002	0.003	0.051	0.052

Table A-15: Additional Results Consistent with  $\beta$ -Impatience

	(1)	(2)	(3)
	Regret Index	Number of Job Switches	Fraction Job Switches with > Wages
Impatient	0.090** (0.035)	0.346** (0.149)	-0.024** (0.011)
Male	-0.066*** (0.018)	0.213** (0.087)	0.043*** (0.007)
African-American	-0.020 (0.024)	0.299*** (0.111)	-0.041*** (0.009)
Other race	0.062 (0.049)	-0.397** (0.195)	0.005 (0.018)
Mother HS Dropout	0.017 (0.023)	0.184 (0.114)	-0.021** (0.009)
Mother Some College	-0.033 (0.028)	-0.136 (0.161)	-0.011 (0.015)
Mother College Grad	-0.012 (0.036)	0.075 (0.185)	-0.031* (0.017)
Father HS Dropout	-0.007 (0.024)	-0.020 (0.120)	0.013 (0.009)
Father Some College	-0.006 (0.030)	-0.135 (0.170)	0.016 (0.015)
Father College Grad	0.045 (0.034)	0.026 (0.159)	0.026* (0.015)
Library card at 14	-0.030 (0.023)	0.168 (0.104)	0.004 (0.008)
Magazines at 14	-0.051** (0.022)	-0.030 (0.106)	0.010 (0.008)
Newspapers at 14	0.008 (0.027)	0.201* (0.118)	0.015* (0.009)
Urban in 1979	0.009 (0.023)	-0.030 (0.113)	0.013 (0.009)
Live with both parents at 14	0.002 (0.022)	-0.146 (0.108)	-0.005 (0.008)
Family Income - 1st Quartile	0.068* (0.038)	0.197 (0.173)	0.006 (0.013)
Family Income - 3rd Quartile	0.027 (0.030)	-0.070 (0.153)	0.025** (0.012)
Family Income - 4th Quartile	0.004 (0.030)	-0.122 (0.159)	0.017 (0.013)
Poverty Status 1979	0.019 (0.033)	0.343** (0.161)	0.010 (0.011)
Completed education	Yes	Yes	Yes
Age (in 1979) fixed effects	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y
Patient mean	-0.043	4.85	0.215
Percent diff	$\bar{\bar{27}}$	7.1%	-11.1%
Observations	6,714	6,771	5,607
R-squared	0.030	0.126	0.050

Table A-16: Reasons for Dropping Out

Reason Given For Not Completing Degree Program	Patient	Impatient
Marriage	2.9	0.8
Pregnancy	3.6	3.9
Didn't Like School	10.5	12.6
Poor Grades	1.8	2.8
Home Responsibilities	2.8	2.8
Chose to work	16.9	19.3
Financial Difficulties	19.6	19.7
Entered Military	1.4	2.4
Expelled or Suspended	0.8	0.4
School too dangerous	0.1	0.0
Moved away	4.4	2.8
Other	35.3	32.7

Data: NLSY 1979-2008. Sample consists of respondents who left school without completing a degree and who provided a reason for leaving. The numbers represent the percentage of each sub-sample listing each reason. The p-value from a test of the null hypothesis that the distribution of reasons is the same for the patient and the impatient is 0.49.

Table A-17: Key Results - Weighted

	(1) Under 17 in 1979 No HS Diploma by 21	(2) Enrolled In College No Degree	(3) Enrolled in College <= 1 Year Credit, No Degree	(4) Ed>=15 No Bachelor's Degree	(5) Enrolled in College Log Hourly Wage (2004)
Impatient	0.089** (0.037)	0.066** (0.032)	0.055* (0.029)	0.098** (0.039)	-0.069 (0.059)
Has Bachelor's Degree					0.284*** (0.032)
Bachelor's*Impatient					0.183* (0.097)
Male	0.004 (0.018)	-0.001 (0.017)	-0.001 (0.016)	-0.036** (0.017)	0.301*** (0.029)
African-American	-0.106*** (0.026)	0.042* (0.022)	-0.030 (0.021)	0.091*** (0.028)	-0.106*** (0.034)
Other race	0.023 (0.052)	-0.039 (0.044)	-0.087** (0.039)	-0.006 (0.048)	0.025 (0.070)
Mother HS Dropout	0.100*** (0.026)	0.026 (0.026)	0.045* (0.025)	-0.003 (0.034)	-0.009 (0.041)
Mother Some College	-0.049* (0.027)	-0.047* (0.025)	-0.056** (0.023)	0.028 (0.025)	0.015 (0.041)
Mother College Grad	-0.047* (0.025)	-0.103*** (0.026)	-0.112*** (0.022)	-0.032 (0.020)	-0.010 (0.048)
Father HS Dropout	0.050** (0.025)	0.012 (0.026)	0.021 (0.026)	0.028 (0.034)	-0.061 (0.041)
Father Some College	0.012 (0.032)	-0.110*** (0.029)	-0.108*** (0.027)	-0.019 (0.030)	0.030 (0.042)
Father College Grad	-0.026 (0.026)	-0.154*** (0.025)	-0.140*** (0.022)	-0.056** (0.023)	-0.015 (0.043)
Library card at 14	0.000 (0.022)	-0.020 (0.023)	-0.008 (0.022)	0.013 (0.025)	0.058* (0.035)
Magazines at 14	-0.077*** (0.025)	-0.074*** (0.022)	-0.076*** (0.022)	-0.023 (0.027)	0.069** (0.034)
Newspapers at 14	-0.049* (0.027)	-0.061** (0.028)	-0.038 (0.027)	-0.055 (0.036)	-0.004 (0.044)
Urban in 1979	0.024 (0.022)	0.049** (0.022)	0.042** (0.020)	0.034 (0.022)	0.094*** (0.035)
Live with both parents at 14	-0.120*** (0.026)	-0.079*** (0.023)	-0.045** (0.022)	-0.064** (0.028)	0.045 (0.038)
Family Income - 1st Quartile	0.007 (0.048)	-0.066* (0.038)	-0.059* (0.035)	-0.075 (0.050)	0.010 (0.085)
Family Income - 3rd Quartile	-0.047 (0.041)	-0.019 (0.033)	-0.003 (0.031)	-0.050 (0.043)	0.004 (0.053)
Family Income - 4th Quartile	-0.052 (0.042)	-0.090*** (0.032)	-0.061** (0.030)	-0.088** (0.040)	0.042 (0.054)
Poverty Status 1979	0.080* (0.044)	0.019 (0.032)	0.031 (0.031)	0.018 (0.039)	0.017 (0.071)
Age (in 1979) fixed effects	Y	Y	Y	Y	Y
Region (in 1979) fixed effects	Y	Y	Y	Y	Y
Patient mean	0.184	0.425	0.292	0.132	--
Percent diff	48.4%	15.9%	18.7%	76.6%	--
Observations	2,322	4,658	4,658	2,218	2,589
R-squared	0.143	0.134	0.118	0.078	0.170

Results are weighted using 1979 sampling weights.

Table A-18: College Dropout Results - With and Without AFQT

Panel A: Table 3 from main paper

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	<u>Desires</u> <u>College</u> <u>Degree</u>	<u>Expects</u> <u>College</u> <u>Degree</u>	<u>Enrolled In</u> <u>College</u>	<u>Desires</u> <u>Bachelor's</u> <u>Degree</u> No Bachelor's	<u>Expects</u> <u>Bachelor's</u> <u>Degree</u> No Bachelor's	<u>Enrolled In 4-</u> <u>year School</u> No Bachelor's
Outcome	No Degree	No Degree	No Degree	Bachelor's Degree	Bachelor's Degree	Bachelor's Degree
Impatient	0.072*** (0.018)	0.068*** (0.021)	0.077*** (0.024)	0.072*** (0.020)	0.077*** (0.024)	0.055* (0.030)
Patient Mean	0.539	0.476	0.425	0.549	0.450	0.359
Percent Diff	13.4%	14.3%	18.1%	13.0%	17.1%	15.4%
Observations	6,089	5,143	4,658	4,880	3,739	3,091
R-squared	0.186	0.186	0.148	0.227	0.239	0.169

Panel B: Corresponding specifications adding AFQT as a control

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	<u>Desires</u> <u>College</u> <u>Degree</u>	<u>Expects</u> <u>College</u> <u>Degree</u>	<u>Enrolled In</u> <u>College</u>	<u>Desires</u> <u>Bachelor's</u> <u>Degree</u> No Bachelor's	<u>Expects</u> <u>Bachelor's</u> <u>Degree</u> No Bachelor's	<u>Enrolled In 4-</u> <u>year School</u> No Bachelor's
Outcome	No Degree	No Degree	No Degree	Bachelor's Degree	Bachelor's Degree	Bachelor's Degree
Impatient	0.031* (0.017)	0.025 (0.020)	0.045* (0.023)	0.033* (0.019)	0.041* (0.023)	0.017 (0.028)
Patient Mean	0.539	0.476	0.425	0.549	0.450	0.359
Percent Diff	5.8%	5.3%	10.6%	6.0%	9.1%	4.7%
Observations	6,089	5,143	4,658	4,880	3,739	3,091
R-squared	0.266	0.264	0.211	0.304	0.310	0.238

See notes on Table 3 in the main paper for additional sample information.

Table A-19: College Dropout Dynamics Results - With and Without AFQT

Panel A: Table 4 from main paper

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	<u>Enrolled in College</u>	<u>Ed&gt;=14</u>	<u>Ed&gt;=15</u>	<u>Gave reason for dropping out</u>	<u>Gave reason for dropping out</u> Dropped out	<u>Enrolled in College</u>
Outcome	<= 1 Year Credit, No Degree	14 Years, No Degree	No Bachelor's Degree	Dropped out due to financial difficulties	due to academic difficulties	Log Hourly Wage (2004)
Impatient	0.071*** (0.024)	0.005 (0.026)	0.090*** (0.033)	0.003 (0.030)	0.007 (0.012)	-0.074 (0.056)
Has Bachelor's Degree						0.289*** (0.027)
Bachelor's*Impatient						0.187** (0.089)
Patient Mean	0.292	0.129	0.132	0.211	0.028	--
Percent Diff	24.3%	3.7%	68.0%	1.2%	24.5%	--
Observations	4,658	3,001	2,218	2,549	2,549	2,589
R-squared	0.124	0.060	0.091	0.033	0.016	0.175

Panel B: Corresponding specifications adding AFQT as a control

	(1)	(2)	(3)	(4)	(5)	(6)
Sample	<u>Enrolled in College</u>	<u>Ed&gt;=14</u>	<u>Ed&gt;=15</u>	<u>Gave reason for dropping out</u>	<u>Gave reason for dropping out</u> Dropped out	<u>Enrolled in College</u>
Outcome	<= 1 Year Credit, No Degree	14 Years, No Degree	No Bachelor's Degree	Dropped out due to financial difficulties	due to academic difficulties	Log Hourly Wage (2004)
Impatient	0.040* (0.023)	-0.010 (0.025)	0.073** (0.033)	0.002 (0.030)	0.006 (0.012)	-0.042 (0.055)
Has Bachelor's Degree						0.208*** (0.027)
Bachelor's*Impatient						0.173* (0.088)
Patient Mean	0.292	0.129	0.132	0.211	0.028	--
Percent Diff	13.7%	-7.8%	55.3%	0.9%	21.4%	--
Observations	4,658	3,001	2,218	2,549	2,549	2,589
R-squared	0.187	0.087	0.116	0.033	0.017	0.205

See notes on Table 4 in the main paper for additional sample information..

## References

- Agarwal, Sumit, and Bhashkar Mazumder. 2013. “Cognitive Abilities and Household Financial Decision Making.” *American Economic Journal: Applied Economics*, 5(1): 193–207.