APPENDIX A. THE GED NORMING: EVIDENCE FROM WISCONSIN

APPENDIX A. THE GED NORMING: EVIDENCE FROM WISCONSIN

After setting rigorous new standards for passing the GED test (40 and 50), the Wisconsin Department of Public Instruction contracted with the GED Testing Service for a 1987 state norming of the test and collaborated in the process. According to Quinn (1997b), the Wisconsin case provides evidence of problems inherent in the GED norming process. While 77 percent of the schools asked to participate in the norming did so, only 38 percent of the seniors who started the five-test battery finished. The state Department of Public Instruction questioned the representativeness of the seniors in the study, particularly on the urban/rural dimension (Martin 1992). The GED Testing Service also said that the 1987 Wisconsin sample may have been biased (GED Testing Service 1993b).

Subsequently, a 1993 norming was conducted in Wisconsin to replicate the 1987 study with a more representative sample. According to Quinn, 46 percent of the schools contacted actually participated, and 81 percent of the students who started the test battery finished it. An analysis of the 1993 data showed that the participating schools were representative of the population of Wisconsin schools with regard to urbanicity, and the examinees were representative of Wisconsin seniors with regard to sex and race (GED Testing Service 1993b).

Student reluctance to take the test may have contributed to the participation problems. Quinn (1997b) provides anecdotal evidence of student unhappiness about taking the GED battery in the 1993 administration of the test, and ACE excluded from its calculations students who scored below the level expected by chance "to remove the deleterious effects resulting from students who may not have taken the examination seriously."[65]

APPENDIX B. TABLES

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Table B–1.—Correlations between the GED and other tests in local areas

Study	Test and location	Correlation
Brant 1975 citing Morgan 1969	Iowa Test of Educational Development Minneapolis, MN	.88
Smith and Goetz 1988	American College Test (ACT) North Harris County, TX	.80
Cervero 1981	Adult Performance Level (APL) Survey Cook County, IL	.81
Sonnenblick 1980	Degrees of Reading Power (DRP) Staten Island and Queens, NY	.77
Farr et al. 1986	Test of Adult Basic Education (TABE) Cheyenne, WY	.68
Littlefield and Dowling 1980	Test of Adult Basic Education (TABE) Chillicothe, OH	.66

SOURCE: Studies in this table.

Table B–2.—Correlations between GED composite and GATB general (G) scores in local areas in four states

Study and state	n	Correlation
Brenna 1969 , Wisconsin	40	.64
Klein and Trione 1970, Nevada	92	.67
Covington et al. 1978, Arizona	70	67
Covington et al. 1978, Minnesota	186	.61

NOTE: The General Aptitude Test Battery (GATB) was designed to measure the work-related skills of applicants for white-collar civil service jobs in the U.S. government. It consists of nine tests of aptitude, including general ability, verbal aptitude, numerical aptitude, and other occupationally related aptitudes such as clerical perception and manual dexterity. Of the nine, general ability and verbal aptitude are the most closely related to the GED.

SOURCE: Studies in this table.

Table B–3.—Standard scores on four ASVAB factors

Test factor, by gender	Attended college			Did not attend college		
	HSG, direct entry	HSG, delayed entry	GED	HSG only	GED	Dropout
Males						
Math reasoning	1.05	.55	.19	-.02	-.28	-.65
Verbal ability	.72	.44	.34	-.02	-.18	-.80
Processing speed	.51	.23	-.06	-.14	-.40	-.83
Mechanical knowledge	.97	.92	.68	.55	.36	-.13
Females						
Math reasoning	.75	.14	-.12	-.19	-.36	-.69
Verbal ability	.71	.45	.29	.12	-.03	-.72
Processing speed	.67	.49	.21	.28	-.08	-.53
Mechanical knowledge	.09	-.12	-.19	-.33	-.39	-.71

NOTE: The numbers in the table are standard deviations above and below the mean for the test.

SOURCE: Garet et al. (1996), exhibits 3, 4.

Table B–4.—Grade point averages of GED recipients and high school graduates

Postsecondary Vocational Programs

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
Enrollees						
Wilson, Davis, and Davis 1981	Lake City Community College, Florida. Enrollees in 5 vocational programs 1976–77	Sample of voc. enrollees	27 GED 77 HSG Age adjusted: GED HSG	2.80 2.56 2.67 2.60	* ns	1.09
Shepherd 1992	12 of 58 NC Community Colleges. Vocational-tech entrants, Fall 1987. At least 12 credit hours 4 years later	All students 3,429 Vocational 798 Technical 2,631	260 GEDs 3,169 HSGs 71 GEDs 727 HSGs 189 GEDs 2,442 HSGs	2.59 2.85 2.37 2.91 2.81 2.79	rn	0.91
Parrish 1994	2-yr colls, AL 4 randomly selected LPN programs out of 10	All full-time fall enrollees 88–90 in the 4 programs	114 GEDs 414 HSGs	2.51 2.32	rn	1.08
Mean GPA GED				*2.58*		
Mean GPA HSG				*2.71*		
Mean Ratio GED/HSG				*0.95*		
Number of Colleges				*17*		
Graduates						
Welch 1980	U. Tenn. - Nashville 1972 entrants in 2-yr AS Nursing programs Graduated by Spring 1978	All 492 graduates	42 GEDs 211 HSGs 244 Transfers	2.73 2.77 2.79	rn	0.99
Swift 1989	12 of 28 postsecondary vocational schools, GA Enrollees in 1 year Nursing program, 1983–86	All 1,254 nursing graduates	282 GEDs 972 HSGs	3.19 3.09	ns	1.03
Ziegler 1992	3 Ohio tech. colls. 5 Tech major areas Grades in (required) social science and communications courses	All AS grads 1978–85	111 GEDs 357 HSGs	3.02 3.08	rn	0.98
Parrish 1994	2-yr colls, AL 4 randomly selected LPN programs out of 10	All full-time fall enrollees 88-90 in the 4 programs	114 GEDs 414 HSGs	2.94 2.98	rn	0.99
Mean GPA GED				*3.09*		
Mean GPA HSG				*3.05*		
Ratio: MeanGED/MeanHSG				*1.01*		
Number of Colleges				*20*		

Table B–4.—Grade point averages of GED recipients and high school graduates (continued)

Postsecondary Vocational Programs (continued)

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
Other (ftn)						
Kothenbeutel 1993	Kirkwook Community College, Iowa 5 technical programs. Enrolled Fall 1985. Data as of Spring 1990	410 remedial test takers. Limited population	56 GEDs 354 HSGs	1.94 2.59	rc	0.75
Ratio: GED/HSG				*0.75*		

ftn. Study focused on restricted population.
* = HSG significantly greater than GED p<.05
^ = GED significantly greater than HSG p<.05
ns = No signifcant difference
rn = Real numbers (not estimates)
rc = Our recalcuation

2-year colleges

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
First Year						
Hannah 1972	3 Junior Colleges, Alabama All enrollees 1965–71 (1st year GPAs)	All GEDs Random HSGs	300 GEDs 300 HSGs	1.87 2.07	ns	0.90
Moore 1973	5 community/junior colleges in Texas. Full-time Entrants, Fall 1971	All GEDs Random HSGs	220 GED 220 HSG	1.61 2.31	*	0.70
Ayers 1978	Surry Community College, NC Enrollees 1977–78. After 1 year	All GEDs Random HSGs	37 GEDs 37 HSGs	2.75 2.93	ns	0.94
Wilson 1977	Tulsa Junior College Oklahoma. Entrants, 1st semester 1981	All GEDs All HSGs	187 GEDs 2322 HSGs	1.92 2.16	rn	0.89
Scales 1990	3 Alabama 2-year colleges. Entrants Fall 1987. Full time, 1st quarter only	All GEDs Random HSGs	47 GEDs 45 HSGs	1.88 2.02	ns	0.93
Schillo 1990	Lorain Co. Community College, Ohio Entrants, Fall 1988–89 Data for school year	All GEDs Random HSGs	40 GEDs 40 HSGs	1.95 2.66	*	0.73
Mean GPA GEDs				*1.85*		
Mean GPA HSGs				*2.26*		
Ratio: MeanGED/MeanHSG				*0.82*		
Number of Colleges				*14*		

Table B–4.—Grade point averages of GED recipients and high school graduates (continued)

2-year colleges (continued)

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
All Years						
Hartung 1948	U. of Tennessee Junior College	All GEDs	53 GEDs	1.37		0.64
		? others	Other vets	2.13		
			Non-vets	2.01		
			Women	2.29		
			Non-GED Av.	2.14		
Hannah 1972	3 Jr. Colleges, Alabama	All GEDs	120 GEDs	2.66	^	1.26
(2nd yr. GPAs)	Enrollees 1965–71	Random HSGs	158 HSGs	2.11		
Wolf 1980	South Plains College, Texas. Enrollees Fall 1970–Fall 1973	"Representative sample"	100 GED	2.61	ns	0.99
			100 HSG	2.64		
			100 non-HSG	2.60		
Spillar 1982	(Community) College of the Mainland, Texas Entrants Fall 1978 3 years later	All GEDs	105 GED	2.71	ns	1.08
		Random HSGs	105 HSG	2.50		
Willett 1982	Elgin Community Coll., Illinois. Entrants 1976 5 years later	Random GEDs	68 GEDs	2.33	ns	0.95
		Random HSGs	68 HSGs	2.44		
Grady 1983	Broward Community College, FL. Entrants Fall 80. >1 course 3 years later	All GEDs	458 GEDs	2.46	ns	0.95
		Random HSGs	458 HSGs	2.58		
		Match age, sex, race				
Klein and Grise 1987	Survey of registrars at 10 of 28 Florida community colleges		GEDs	2.54		0.92
			HSGs	2.75	*	
McElroy 1990	Kankakee Community College, Illinois Enrollees in FY 1990	Random GEDs	50 GEDs	2.93	^	1.06
		Random HSGs	50 HSGs	2.76		
Mean GPA GEDs				*2.52*		
Mean GPA HSGs				*2.57*		
Ratio: MeanGED/MeanHSG				*0.98*		
Number of Colleges				*19*		

Table B–4.—Grade point averages of GED recipients and high school graduates (continued)

2-year colleges (continued)

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
Graduates						
Clark 1987	Community College of Allegheny Co., PA Graduates 1/1985–8/1986	All GEDs Random HSGs	56 GEDs 56 HSGs	3.21 3.03	ns	
Ratio GED/HSG				1.06		
Number of Colleges				1		
Other (ftn.)						
Tiner 1995	Ark. St. U.-Beebe (2-yr.) "Volunteers" with at least 12 hrs About 1994	Sample of 276 students. Self-selecting sample.	54 GED 222 HSG	3.28 2.72	^	1.21
Ratio GED/HSG				1.21		

ftn. Study has methodological problems that raise questions about the reliability/validity of the findings.

* = HSG significantly greater than GED p<.05
^ = GED significantly greater than HSG p<.05
ns = No signifcant difference
rn = Real numbers (not estimates)
rc = Our recalculation

4-year colleges

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
First Year						
Putnam 1947	Vanport Extension Center, Oregon State System. Enrollees, Winter quarter 1947	All GEDs All HSGs	71 GEDs 1129 HSGs	2.42 2.39	rn	1.01
Stinson 1947 in Whitley 1958	Colorado A&M		30 GEDs — HSGs	1.94 2.36		0.82
Dixon 1948	University of Missouri Enrolled 1st semester 1947. Took ACE psych. examination	All GEDs Sample HSGs Match vet sex age marital college term aptitude entrance	257 GEDs 257 HSGs	1.93 2.10		0.92
Roeber 1950	Kansas State Teachers' College Completed at least 1 semester. 1st semester GPAs	All GEDs All ? HSGs	71 GED 397 HSG	2.00 2.33	rc adj	0.86

Table B–4.—Grade point averages of GED recipients and high school graduates (continued)

4-year colleges (continued)

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
First Year (continued)						
Adams 1950	Southwest Texas	GED vets	GEDs	1.79		0.74
in Whitley 1958	State Teachers College	HSGs	HSGs	2.42		
Milligan, Lins,	U. of Wisconsin	All GEDs (1 female)	72 GEDs	1.60	rn	0.75
& Little 1948	Entrants in first year	All male students	All males	2.13	rc	
Colert 1983	Brandon University Canada. Entrants 1982–83. 1st year GPAs	All GEDs Systematic sample HSGs	26 GEDs 27 HSGs	1.68 1.98	ns	0.85
Means 1987	Casper College	All GEDs	GEDs	2.31	rn	0.99
in Johnson 1992	WY. Entrants Fall 1986	All Freshmen	Freshmen	2.34		
Rogers 1987	U. of Arkansas, Fayetteville. Enrollees Fall 1982–Spring 1986 First yr. GPA	All GEDs Random HSGs	178 GEDs 207 HSGs	1.82 2.34	rc	0.78
Van de Ven 1985	University of Wisconsin-	All GEDs	28 GED	1.88	rn	0.85
in Quinn 1986	Green Bay. Entrants Fall 1981. 1st sem. GPA.	All HSGs	211 HSG	2.21	rc	
Quinn 1986	U. Wisconsin - Madison. Enrolled Fall 1979–80 through Fall 1984–85. 1st sem. GPA	All GED All HSG	51 GED 22655 HSG	2.35 2.76	rn	0.85
Mean GPA GED				*1.97*		
Mean GPA HSG				*2.31*		
Ratio: MeanGED/MeanHSG				*0.86*		
Number of Colleges				*11*		

Table B–4.—Grade point averages of GED recipients and high school graduates (continued)

4-year colleges (continued)

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
All Years						
Dixon 1948 (After 1st term)	Univ. of Missouri Entered 1st sem. 1947. Took ACE psych exam. Over 7 semesters.	All GEDs Sample HSGs Match vet sex age marital college term aptitude entrance	257 GEDs 257 HSGs	2.02 2.15		0.94
Andrew 1951	University of Utah. Male entrants Fall 1945–Summer 1950. Probably as of late 1950–early 1951. Completed at least one quarter.	All matchable GEDs. Sample HSGs. Matched on sex, age, college, quarter admitted, ability. Selection methods unclear.	209 GED 209 HSG	0.56 0.89	*	0.63
D'Amico 1957	Indiana University Males admitted 1946–50.	All GEDs Random HSGs	307 GED 307 HSG	2.85 3.16	*	0.90
Roon 1972	Metropolitan State College, Colorado. All those enrolled through 1971.	Random GEDs. Random HSGs, stratified by HS rank. 30/30/40	237 GEDs 660 HSGs	1.84 2.28	rc *	0.81
Quinn 1986	U. Wisconsin - Milwaukee Enrolled Fall 1979–80 through Fall 1984–85.	All GEDs All HSGs After 4 semesters	538 GEDs 12146 HSG	1.98 2.56	rn rc	0.77
Rogers 1987	U. of Arkansas, Fayetteville Enrollees Fall 1982–Spring 1986.	All GEDs Random HSGs	442 GEDs 375 HSGs	2.12 2.36		0.90
Mean GPA GED				*1.90*		
Mean GPA HSG				*2.23*		
Ratio: MeanGED/MeanHSG				*0.85*		
Number of Colleges				*6*		

Table B–4.—Grade point averages of GED recipients and high school graduates (continued)

4-year colleges (continued)

Author	College/program Students/year	Population or sample	Number	GPA	See ftns.	Ratio GED/HSG
Graduates						
Whitley 1958	Florida State U. Entrants 1948–49 thru 1952–53. Graduates	All GEDs 15% systematic HSGs	31 GEDs 59 HSGs	2.37 2.48		0.96
Sultan 1989	Miss St. U & U of Southern Miss 1982–87 Graduates	All GEDs Sample HSG Match sex, majors, yr grd	37 GEDs 37 HSGs	3.13 3.04	ns	1.03
Mean GPA GED				*2.75*		
Mean GPA HSG				*2.76*		
Ratio: MeanGED/MeanHSG				*1.00*		
Number of Colleges				*3*		
Other						
Keller 1958	East Tennesee State College. Graduates. Average of grades in History, Literature, Composition and Rhetoric, and Math	Random GEDs HSGs	150 GEDs 150 HSGs	2.53 2.49		

* = HSG significantly greater than GED p<.05
^ = GED significantly greater than HSG p<.05
ns = No signifcant difference
rn = Real numbers (not estimates)
rc = Our recalculation

Table B–5.—Postsecondary graduation rates of GED recipients and high school graduates

Postsecondary Vocational Programs

Author	College, Program	Population Sample	Number	Percent Graduating	GED/HSG Ratio
Tyler 1956	Institute Applied Arts & Sciences, Buffalo Entrants 1947–52.	All GEDs All HSGs	58 GED 2,154 HSG	62.0 72.0	0.86
Murphy 1973 in Rogers 1987		LPN students 1960–1972	46 GEDs 40 HSGs	78.0 61.0	1.28
Wilson, Davis, & Davis 1981	Lake City Community College, FL Duration unclear. 5 voc programs.	Voc. enrollees 1976–77. Selection unclear	27 GEDs 77 HSGs	63.0 60.0	1.05
Pawasarat & Quinn 1986	Milwaukee Area Technical College. Entrants 1980–83; by 1985. 7 or more credits, 1st semester.	All GEDs All others	501 GED 3,300 HSG 827 HSDrops	38.0 59.0 31.0	0.64
Swift 1989	12 of 28 postsecondary vocational schools, GA 1983–86	All practical nursing studs Age, race?	282 GED 972 HSG 1,254 total	68.0 70.0	0.97
Carr 1994	Kentucky Tech Institutions 3 health programs	All leavers (376) random stayers (375) enrolled 1989–92	GED HSG	40.0 62.0	0.65
Parrish 1994	2-year colls, AL 4 randomly selected LPN programs out of 10	All full-time fall enrollees 1988–90 in the 4 programs	114 GEDs 414 HSGs	44.7 52.4	0.85
Mean GED				*56.2*	
Mean HSG				*62.3*	
Ratio: Mean GED/Mean HSG				*0.90*	
Number of colleges				*20*	

Table B–5.—Postsecondary graduation rates of GED recipients and high school graduates (continued)

2-year colleges

Author	College, Program	Population Sample	Number	Percent Graduating	GED/HSG Ratio
Willet 1982	Elgin Community College IL Entrants, in 1976, 5 years later.	Random Random	68 GEDs 68 HSGs	22.0 27.9	0.79
Grady 1983	Broward Community College, FL Entrants, Fall 1980. >1 course. 3 years later.	All GEDs Random HSGs Match age, sex, race.	458 GEDs 458 HSGs	3.5 7.2	0.49
Klein & Grise 1987	Survey of registrars at 10 of 28 Florida community colleges.	All GEDs All HSGs	GEDs HSGs	26.0 49.0	0.53
Pawasarat & Quinn 1986	Milwaukee Area Technical College. Entrants 1980–83; by 1985.	All GEDs All others 7 or more credits	1578 GEDs 9500 HSG 248 HSDrops	8.0 30.0 10.0	0.27
Mean GED				*14.9*	
Mean HSG				*28.5*	
Ratio: Mean GED/Mean HSG				*0.52*	
Number of colleges				*13*	

4-year colleges

Author	College, Program	Population Sample	Number	Percent Graduating	GED/HSG Ratio
Bledsoe 1953	University of Georgia	All GEDs All 1946 Freshmen	GED Full cohort.	27.0 34.0	0.79
Bledsoe 1953	Middle Tennessee State College. Freshmen in 1946;	All GEDs All 1946 Freshmen	GED Full cohort.	24.0 31.0	0.77
D'Amico 1957	Indiana University Males admitted 1946–1950 Complete 1+ courses	All GEDs Random HSG GED 35/45	307 GED 307 HSG	25.4 29.6	0.86
Whitley 1958	Florida State University Entrants 1948–9/1952–3	All 15 percent chosen systematically	89 GED 194 HSG	34.8 30.4	1.14
Mean GED				*27.8*	
Mean HSG				*31.3*	
Ratio: Mean GED/Mean HSG				*0.89*	
Number of colleges				*4*	

Table B–5.—Postsecondary graduation rates of GED recipients and high school graduates (continued)

4-year colleges (continued)

Author	College, Program	Population Sample	Number	Percent Graduating	GED/HSG Ratio
Other*					
Bledsoe 1953	University of Tennessee	All GEDs	GED	17.0	0.40
	Freshmen 1946; 5 years later.	All 1946 Freshmen Cohort rate informal estimate.	Full cohort	42.0	
Tyler 1956	Champlain College, VT	Selection unknown	170 GED	14.0	1.27
	Period unknown.		78 HSG	11.0	
Tyler 1956	Indiana University	Selection unknown	221 GED	34.0	0.87
	Period unknown.		221 HSG	39.0	
Mean GED				*21.7*	
Mean HSG				*30.7*	
Ratio: Mean GED/Mean HSG				*0.71*	
Number of colleges				*3*	

* The “other” studies have methodological problems that raise questions about the validity/reliability of the findings.

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons

Outcome/Author	Measure	Male/ Female	Difference (Percent)* Age or year	Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Labor Force Participation										
Simple Comparisons										
Passmore (1987)	% in labor force	M	1985	-4.6	8.4	71.7	76.3	84.7		table 1
Smith et al. (1995)	% in labor force	M	16 to 64 in '92	-3.1	3.6	86.2	89.3	92.9		table 31–3 & 31–5
Reder (1994)	% in labor force	M	16–64	-9.0	2.0	73.0	82.0	84.0		fig. 9
Smith et al. (1995)	% in labor force	F	16 to 64 in '92	-9.4	1.9	59.9	69.3	71.2		table 31–3 & 31–5
Reder (1994)	% in labor force	F	16–64	-8.0	17.0	44.0	52.0	69.0		fig. 9
Reder (1994)	% in labor force	Ad	16–64	-12.0	4.0	60.0	72.0	76.0		fig. 9
Controlled Comparisons										
Passmore (1984)	probability	M	1985	-3.6	9.8	cc	3.6	13.4	Controls: Race, sex, marital status, college attend., region	table 1
Reder (1994)	probability	M	16–64	ns	ns				Ftn. 1	
Reder (1994)	probability	F	16–64	ns	ns				Ftn. 1	
Sum (1996)	probability	Ad	16–64	-1.4	0.7	-2.1	-0.7	cc	Ftn. 2	appendix 7 B p. 241
Reder (1994)	probability	Ad	16–64	ns	ns				Ftn. 1	
Employment										
Simple Comparisons										
Passmore (1987)	% employed	M	20–27 in 1985	-8.4	13.6	55.9	64.3	77.9	Excl: In school 85	table 1
Alsalam et. al, (1993)	% employed	M	25–33 in 1990	3.0	11.0	86	83	94	Excl: Diploma or GED age 20 or after. Those with 2 or more years of college	table 34–1
Alsalam et. al, (1993)	% employed	M	25–33 in 1990	-1.0	4.0	86	87	91	Excl: Diploma or GED before age 20. Those with 2 or more years of college	table 34–1
Reder (1994)	% employed	M	16–64 in 1992	-14.0	6.0	62.0	76.0	82.0		fig. 10
Smith et. al. (1995)	% employed	M	16–64 in 1992	1.1	10.9	76	74	85	Diploma graduates exclude those with any college.	table 31–5

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Age or year	Difference (Percent)* Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Employment										
Simple Comparisons (continued)										
Alsalam et. al (1993)	% employed	M	25–33 in 1990	0.7	8.5	86	85	94	Excludes those with more than 2 years of college, in military, self-employed, enrolled in college full-time, or having a health condition that would prevent them from working.	table 34–1
Maloney (1991a)	% employed	F	20–27 in 1985	-18.7	12.5	35.5	54.2	66.7		table 1
Alsalam et. al (1993)	% employed	F	25–33 in 1990	-17.0	7.0	52	69	76	Excl: Diploma or GED age 20 or after. Those with 2 or more years of college	table 34–1
Alsalam et. al (1993)	% employed	F	25–33 in 1990	-12.0	-1.0	52	64	63	Excl: Diploma or GED before age 20. Those with 2 or more years of college	table 34–1
Reder (1994)	% employed	F	16–64 in 1992	-11.0	18.0	37.0	48.0	66.0		fig. 11
Smith et. al. (1995)	% employed	F	16–64 in 1992	-12.4	3.0	49	62	65	Diploma graduates exclude those with any college.	table 31–5
Alsalam et. al (1993)	% employed	F	25–33 in 1990	-14.3	9.2	52	66	75	Excludes those with more than 2 years of college, in military, self–employed, enrolled in college full–time, or having a health condition that would prevent them from working.	table 34–1
Reder (1994)	% employed	Ad	16–64 in 1992	-15.0	7.0	51.0	66.0	73.0		fig. 9
Reder (1994)	% employed full time	M	16–64 in 1992	-23.0	3.0	42.0	65.0	68.0		fig. 10
Reder (1994)	% employed full time	F	16–64 in 1992	0.0	22.0	18.0	18.0	40.0		fig. 11
Reder (1994)	% employed full time	Ad	16–64 in 1992	-18.0	4.0	31.0	49.0	53.0		fig. 9
Controlled Comparisons										
Passmore (1987)	% employed	M	1985	-5.3	15.4	cc	5.3	20.7	Ftn. 3	table 1
Sum (1996)	prob. employed	Ad	16-64	-0.9	4.4	-0.053	-0.044	cc	Ftn. 2	appendix 7B p. 241
Sum (1996)	prob. full time employ	Ad	16–64	-5.5	-0.8	-0.047	0.008	cc	Ftn. 2	appendix

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Difference (Percent)* Age or year	Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Unemployment										
Simple Comparisons										
Cameron and Heckman (1993)	%unemployed	M	25	-1.0	-5.0	6.0	7.0	2.0		table 5A
Cameron and Heckman (1993)	%unemployed	M	28	1.0	-2.0	5.0	4.0	2.0		table 5A
Smith et. al. (1995)	% of LF unemployed	M	16–64	-4.3	-8.5	12	17	8	Diploma graduates exclude those with any college.	table 31–3
Reder (1994)	% unemployed	M	16–64	5.0	-4.0	11.0	6.0	2.0		fig. 10
Maloney (1993)	% unemployed	F	23–31	-0.4	-7.9	37.9	38.3	30.4		table 1
Smith et. al. (1995)	% of LF unemployed	F	16–64	6.7	-1.8	18	11	9	Diploma graduates exclude those with any college.	table 31–3
Reder (1994)	% unemployed	F	16–64	3.0	-1.0	7.0	4.0	3.0		fig. 11
Reder (1994)	% unemployed	Ad	16–64	3.0	-3.0	9.0	6.0	3.0		fig. 9
Controlled Comparisons										
Sum (1996)	prob. unempl.	Ad	16-64	0.0	-4.7	0.047	0.047	cc	Ftn. 2	appendix 7B p. 241
Wages										
Simple Comparisons										
Passmore (1987)	hourly (1985 $)	M	1985	-6.7	15.6	5.13	5.50	6.36	Excl: In school 85	table 1
Alsalam and Conaty (1989)	hourly	M	1986	-6.4	2.5	5.98	6.39	6.55	All 1980 Sophomores	table 5
Cameron and Heckman (1993)	hourly (1988 $)	M	25	-6.7	16.2	6.84	7.33	8.52		table 5
Cameron and Heckman (1993)	hourly (1988 $)	M	28	-10.9	21.2	7.51	8.43	10.22		table 5
Smith et. al. (1995)	weekly 1992 $	M	16–65	-11.9	1.5	407	462	469	Diploma graduates exclude those with any college.	table 31–2
Reder (1994)	hourly (1992 $)	M	16–64	-19.3	8.9	7.87	9.75	10.62	Excl: Postsecondary degree	
Alsalam and Conaty (1989)	hourly	F	1986	-12.6	2.3	4.58	5.24	5.36		table 5
Cameron (1994)	hourly	F	25	-11.1	19.1	6.19	6.96	8.29		table 7
Cameron (1992)	hourly	F	28	-9.7	34.0	6.32	7.00	9.38		table 6B
Maloney (1993)	hourly	F	1988	-10.7	6.3	4.83	5.41	5.75		p. 14
Smith et. al. (1995)	weekly 1992 $	F	16–65	-1.7	12.6	281	286	322	Diploma graduates exclude those with any college.	table 31–2
Reder (1994)	hourly (1992 $)	F	16–64	-9.9	29.2	5.00	5.55	7.17	Excl: Postsecondary degree	

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Difference (Percent)* Age or year	Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Wages										
Simple Comparisons (continued)										
Sum (1996)	weekly '92 $	Ad	16–65	-13.5	-0.2	373	431	430	Excl: Not employed full-time and some postsecondary education	table 4.3, p. 117
Controlled Comparisons										
Passmore (1987)	hourly ('85$)	M	1985	-7.1	19.3	cc	0.39	1.45	Excl: Enrolled in school in 1985. Controls: Race, ever married, ever attended college, and region of residence. Ftn. 3	table 1
Cameron and Heckman (1993)	log hourly	M	25	-5.8	8.8	cc	0.06	0.14	Excl: Enrolled in college and persons not working	table 6, 9.
Cameron and Heckman (1993)	log hourly	M	28	-6.0	11.9	cc	0.06	0.17	Excl: Enrolled in college and persons not working	table 9
Garet, Jing, & Kutner (1996)	log hourly	M	28	-9.5	8.3	cc	0.10	0.18	Excl: Those with more two or more years of college. Controls: Race/ethnicity, weeks worked unemployment rate. Ftn. 4	table 17A
Sum (1996)	log weekly	M	16–65 in 1992	-11.6	12.2	-0.238	-0.122	cc	Full-time employed adults, prose literacy	appendix 7B p. 250
Reder (1994)	log hourly	M	16–65 in Oregon in 1992	-10.4	12.7				A measure of functional literacy, level of parent's education, literacy material available in the home, years in occupation, age, and squared age, Reder's coding of the contrasts do not fit the format of this table.	table 10
Cameron (1994)	log hourly	F	28	-7.8	16.2	cc	0.08	0.23	Exclu: >12 yrs. education	table 8
Garet, Jing, & Kutner (1996)	log hourly	F	28	2.4	4.5	cc	-0.02	0.02	Excl: Those with more two or more years of college. Controls: Race/ethnicity, weeks worked, unemployment rate. Ftn. 4	table 17A
Sum (1996)	log weekly	F	16–65 in 1992	-12.9	2.2	-0.2	-0.022	cc	Full-time employed adults, prose literacy	appendix 7Bp. 250

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Age or year	Difference (Percent)* Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Wages										
Controlled Comparisons (continued)										
Reder (1994)	log hourly	F	16–65 in Oregon in '92	-10.5	28.6				A measure of functional literacy, level of parent's education, literacy material available in the home years in occupation, age, and squared age. Reder's coding of the contrasts do not fit the format of this table.	table 11
Sum (1996)	log weekly	Ad		-5.1	8.9	-0.140	-0.089	cc	Controls: Prose proficiency	appendix 7B p. 251
Sum (1996)	log weekly	Ad		-9.3	6.6	-0.159	-0.066	cc	Controls: Composite proficiency	appendix 7B p. 252
Reder (1994)	log hourly	Ad		-10.7	17.5				A measure of functional literacy, level of parent's education, literacy material available in the home, years in occupation, age, and squared age. Reder's coding of the contrasts do not fit the format of this table.	table 9
Time Worked										
Simple Comparisons										
Cameron and Heckman (1993)	annual hours	M	25	0.5	9.6	1,747	1,738	1,906		table 5
Cameron and Heckman (1993)	annual hours	M	28	6.8	21.2	1,836	1,720	2,084		table 5
Alsalam et. al (1993)	weeks worked	M	25–33 in 1990	5.1	17.9	41	39	46	Excl: Diploma or GED age 20 or after and those with 2 or more years of college.	table 34–1
Alsalam et. al (1993)	weeks worked	M	25–33 in 1990	13.9	33.3	41	36	48	Excl: Diploma or GED before age 20 and those with 2 or more years of college.	table 34–1
Smith et. al. (1995)	weeks worked	M	16-64	-1.0	2.1	48	48	49	Diploma graduates exclude those with any college.	table 31–4
Reder (1994)	weeks worked	M	16-64	-20.9	2.3	34	43	44	Excl: Any college	
Maloney (1993)	annual hours	F	23–31 in 1988	-31.0	39.2	613	888	1,237		
Cameron (1994)	weeks worked	F	25	-37.5	21.4	18	29	35	Excl: Any college	table 7, panel B

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Age or year	Difference (Percent)* Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Time Worked										
Simple Comparisons (continued)										
Alsalam et. al (1993)	weeks worked	F	25–33 in 1990	-23.3	-3.3	23	30	29	Excl: Diploma or GED age 20 or after and those with 2 or more years of college.	table 34–1
Alsalam et. al (1993)	weeks worked	F	25–33 in 1990	-34.3	5.7	23	35	37	Excl: Diploma or GED before age 20 and those with 2 or more years of college.	table 34–1
Smith et. al. (1995)	weeks worked	F	16-64	-3.2	1.7	46	47	48	Diploma graduates exclude those with any college.	table 31–4
Reder (1994)	weeks worked	F	16-64	6.9	37.9	31	29	40	Excl: Any college	
Cameron (1992)	hrs. per week	F	25	-1.1	1.3	37.5	37.9	38.4		table 6A
Cameron (1992)	hrs. per week	F	28	-5.8	-4.3	37.2	39.5	37.8		table 6B
Cameron (1992)	hrs. per week	F	30	-2.6	-2.3	37.4	38.4	37.5		
Controlled Comparisons										
Cameron and Heckman (1993)	annual hours (log)	M	25	-4.0 ns	10.7***	cc	0.041	0.143	Controls: Race/ethnicity, work experience, job tenure, unemployment rate, postsecondary education	table 9
Cameron and Heckman (1993)	annual hours (log)	M	28	5.4ns	15.4***	cc	-0.053	0.090		
Cameron and Heckman (1993)	annual hours (log)	M	25	6.0ns	19.6***	cc	-0.058	0.121	Controls: AFQT	table 10
Cameron and Heckman (1993)	annual hours (log)	M	28	16.2*	27.1***	cc	-0.150	0.090		
Reder (1994)	weeks worked	M	16-64	-8.6 ns	20.0*				Ftn. 1	
Cameron (1994)	annual hours (log)	F	25	-6.7 ns	20.3***	cc	0.069	0.254	Controls: Kids in household, toddler present, baby present, 2 years of college interacted with GED and diploma, college graduate, spouse present, spouse, income, local unemployment rate, age effects.	table 11
Cameron (1994)	annual hours (log)	F	28	-13.5 ns	18.4**	cc	0.145	0.314		
Cameron (1994)	annual hours (log)	F	30	-3.5 ns	23.5**	cc	0.036	0.247		
Cameron (1994)	annual hours (log)	F	25	-1.9 ns	19.0***	cc	0.019	0.193	Controls: AFQT	table 12
Cameron (1994)	annual hours (log)	F	28	-10.1ns	19.1***	cc	0.107	0.282		
Cameron (1994)	annual hours (log)	F	30	-2.1 ns	22.8**	cc	0.021	0.226		

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Difference (Percent)* Age or year	Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Time Worked										
Controlled Comparisons (continued)										
Maloney (1993)	annual hours	F	1988	-13.8**	13.0**	cc	0.149	0.271	Controls: Race/ethnicity, urbanicity, region, health, local unemployment rate, work experience, job tenure, ASVAB, age, age squared, residence with parents, marital status, number and age of children, household nonlabor nontransfer income, spouse's earn	table 5
Maloney (1993)	annual hours	F	1988	-1.6 ns	5.9**	cc	0.016	0.073		table 6
Cao et. al (1993)	annual hours	F	22-29	-2.4 ns	2.5 ns	-79.1	-39.8	cc	Ftn. 8	table 4A
Cao et. al (1993)	annual hours	F	22–29	-1.6 ns	1.7 ns	-53.8	-27.6	cc	Ftn. 8 + yrs. schooling	table 4B
Cao et. al (1993)	annual hours	F	22–29	0.3 ns	2.4 ns	-33.6	-38.1	cc	Ftn. 8 + AFQT	table 4C
Reder (1994)	weeks worked	F	16–64	-21.5 ***	38.5 ***				Ftn. 1	
Cameron (1992)	hrs. per week (log)	F	25	-6.7	20.3	cc	0.069	0.254	Ftn. 6	table 12
Cameron (1992)	hrs. per week (log)	F	28	-13.5	18.4	cc	0.145	0.314	Ftn. 6	table 12
Cameron (1992)	hrs. per week (log)	F	30	-3.5	23.5	cc	0.036	0.247	Ftn. 6	table 12
Reder (1994)	weeks worked	Ad	16-64	ns	sig				Ftn. 1	
Work Experience										
Simple Comparisons										
Cameron and Heckman (1993)	Total (weeks)	M	25	15.1	21.4	243	211	256		table 5
Cameron and Heckman (1993)	Total (weeks)	M	28	21.5	24.2	355	293	363		table 5
Cameron (1994)	Total (weeks)	F	25	-38.4	27.5	130	212	270		table 7
Cameron (1994)	Total (weeks)	F	25	-38.6	24.0	130	212	263	Excl: >12 yrs. ed.	table 7B
Cameron (1993)	Total (weeks)	F	28	-37.5	34.5	170	273	367		table 6B
Cameron (1993)	Total (weeks)	F	28	-37.0	27.3	170	271	344	Excl: >12 yrs. ed.	table 6B
Maloney (1993)	Total (years)	F	1,988	-30.6	33.3	2.5	3.6	4.8		table 1
Job Tenure										
Simple Comparisons										
Cameron and Heckman (1993)	weeks	M	25	28.2	44.5	96	75	109		table 5
Cameron and Heckman (1993)	weeks	M	28	42.4	82.8	130	91	167		table 5

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Difference (Percent)* Age or year	Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Job Tenure										
Simple Comparisons (continued)										
Cameron (1994)	weeks	F	25	-2.2	58.8	68	70	111		table 7A
Cameron (1994)	weeks	F	25	-6.8	69.2	68	73	124	Excl: Not working, >12 yrs. ed.	table 7B
Cameron (1993)	weeks	F	28	-15.9	62.7	81	96	157		table 6B
Cameron (1993)	weeks	F	28	-19.7	65.7	81	101	167	Excl: Not working, >12 yrs. ed.	table 6B
Annual Earnings										
Simple Comparisons										
Cameron and Heckman (1993)	'88 $	M	25	-11.9	29.2	10,379	11,777	15,214	Excl: 2 or more year of higher education	table 5
Cameron and Heckman (1993)	'88 $	M	28	-10.8	45.1	12,412	13,922	20,196		table 5
Alsalam et. al (1993)	1993 $ (median)	M	25–33 in 1990	-6.5	31.4	17,822	19,066	25,048	Excl: Diploma or GED age 20 or or after. Those with 2 or more years of college	table 34–1
Alsalam et. al (1993)	1993 $ (median)	M	25–33 in 1990	-1.4	11.8	17,822	18,069	20,202	Excl: Diploma or GED before age 20. Those with 2 or more years of college	table 34–1
High School and Beyond	1991 $	M	27 approx.	-5.8	28.4	18,040	19,158	24,591	All 1980 Sophomores	tabulation
Smith et. al. (1995)	1992 $	M	16–64	-16	3.8	18,194	21,672	22,494	Diploma graduates exclude those with any college.	table 31–1
Cave and Bos (1995)	1988–93 $ (2 years)	M		-19**		13,286	16,318			table 5, panel 2
Alsalam et. al (1993)	1993 $ (median)	F	25–33 in 1990	-29.1	10.5	9,895	13,955	15,415	Excl: Diploma or GED age 20 or after. Those with 2 or more years of college	table 34–1
Alsalam et. al (1993)	1993 $ (median)	F	25-33 in 1990	-17.1	9.8	9,895	11,929	13,103	Excl: Diploma or GED before age 20. Those with 2 or more years of college	table 34–1
High School and Beyond	1991 $	F	27 approx.	-28.7	58.5	7,768	10,902	17,277	All 1980 Sophomores	tabulation
Smith et. al (1995)	1992 $	F	16–64	-5.2	15.3	11,145	11,754	13,554	Diploma graduates exclude those with any college.	table 31–1
Cave and Bos (1995)	1988–93 $ (2 years)	F		-27.1**		5,994	8,220			table 5, panel 2
Sum (1996)	1992 $ (mean)	Ad	16–65	-30.7	11.7	10,440	15,070	16,840	Excl: Not employed	table 5, panel 2
Cave and Bos (1995)	1988–93 $ (2 years)	Ad		-20.2	**		9,405	11,788		

Table B–6.—Labor market outcomes for GED recipients, high school graduates, and dropouts: Simple and controlled comparisons (continued)

Outcome/Author	Measure	Male/ Female	Difference (Percent)* Age or year	Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or page
Annual Earnings										
Controlled Comparisons										
Sum (1996)	log annual	M	16–64	-13.2	14.7	-0.279	-0.147	cc	Same as above	appendix 7B p. 255
Cave and Bos (1995)	1988–93 $ (2 years)	M		-28.9 ns		12,955	18,221			table 6, panel 2
Sum (1996)	log annual	F	16–64	-21.1	5.9	-0.270	-0.059	cc	Same as above	appendix 7B p. 255
Cave and Bos (1995)	1988–93 $ (2 years)	F		-54.0 ns		5,113	11,117			table 6, panel 2
Sum (1996)	log annual	Ad	16–64	-15.2	10.0	-0.252	-0.100	cc	Control: Prose proficiency, educational attainment, race/ethnicity, marital status, disability, enrollment status, region of residence. Excl: Not employed	appendix 7B p. 256
Cave and Bos (1995)	'88-'93 $ (2 years)	Ad		-34.0 ns		8,985	13,605			table 6, panel 2

NOTE: Simple comparisons are ones that make no adjustments for differences between the groups in characteristics that could influence labor market outcomes. The controlled comparisons make statistical (regression) adjustments for variables such as race, parent's education, and so forth. In many cases the population has been restricted to, for example, persons who did not complete any postsecondary education. The restriction in effect controls for the effect of any postsecondary education on earnings. The restriction also eliminates any indirect effect of high school completion status on earnings through postsecondary education.

* The difference between percents or proportions is expressed as percentage points. Other differences are expressed as percentages.

Control Variables

[1]A measure of functional literacy, level of parent's education, literacy material available in the home, years in occupation, age, and squared age. Reder's coding of the contrasts do not fit the format of this table.

[2]Prose literacy, gender, race/ethnicity indicators, enrollment status, region of residence, marital status, whether born abroad, whether having lived in U.S. more or less than 5 years, disability status.

[3]Enrolled in school in 1985. Gender, race, ever married, ever attended college, and region of residence.

[4]Those with up to two years of college. Race/ethnicity, weeks worked, unemployment rate.

[5]Race/ethnicity, work experience, job tenure, unemployment rate, postsecondary education, AFQT.A140+A94

[6] Year, college, race/ethnicity, unemployment rate, spouse's income, number and age of children.

[7] Race/ethnicity, urbanicity, region, health, local unemployment rate, work experience, job tenure, ASVAB, age, age squared, residence with parents, marital status, number and age of children, household nonlabor nontransfer income, spouse's earnings

[8]Race, region, 2-years of higher education completed interacted with high school completion status, and 4 years of education completed.

Table B–7.—Effects of years of schooling, higher education, and cognitive skills on wages

Outcome/Author	Measure	Male/ Female	Age or year	Difference (Percent)* Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or Page
Years of Schooling										
Cameron and Heckman (1993)	log hourly wage	M	25	1.6	0.7	cc	-0.02	-0.01	Yrs. HS	table 15
Cameron and Heckman (1993)	log hourly wage	M	28	-1.5	6.7	cc	0.02	0.08	Yrs. HS	table 15
Murnane et al. (1995)	log hourly wage	M	1991	-2.0	-2.0	cc	0.02		Yrs. HS	table 2
Cameron (1994)	log hourly wage	F	25	-9.7	9.1	cc	0.10	0.19	Yrs. HS	table 8
Cameron (1994)	log hourly wage	F	28	-7.8	16.2	cc	0.08	0.23	Yrs. HS	table 8
Cameron (1994)	log hourly wage	F	30	-6.7	18.4	cc	0.07	0.24	Yrs. HS	table 8
Cao et. al (1993)	hourly wage	F	22–29	-1.50	-0.33	cc				table 4A
Cao et. al (1993)	hourly wage	F	22–29	-0.47	0.13	cc			Yrs. HS	table 4B
Higher Education										
Cameron and Heckman (1993)	hourly wage (88 dollars)	M	25	-6.7	16.2	6.84	7.33	8.52	w/o postsec. completion	table 5
Cameron and Heckman (1993)	log hourly wage	M	25	-5.8	8.8	cc	0.06	0.14	with postsec. completion	table 6, 9.
Cameron and Heckman (1993)	hourly wage (88 dollars)	M	28	-10.9	21.2	7.51	8.43	10.22	w/o postsec completion	table 5
Cameron and Heckman (1993)	log hourly wage	M	28	-6.0	11.9	cc	0.06	0.17	with postsec. completion	table 9
Garet, Jing, & Kutner (1996)	log hourly wage	M	28	-5.4	1.2	cc	0.06	0.07	GED/HSG plus some college.	table 17A
Garet, Jing, & Kutner (1996)	log hourly wage	M	28	-9.7	-2.0	cc	0.10	0.08	GED/HSG plus 2 yrs. college.	table 17A
Cameron (1994)	hourly wage	F	25	-11.1	19.1	6.19	6.96	8.29		table 7A
Cameron (1994)	log hourly wage	F	25	-9.7	9.1	cc	0.10	0.19	Exclu: >12 yrs. education	table 8
Cameron (1992)	hourly wage	F	28	-9.7	34.0	6.32	7.00	9.38		table 6B
Cameron (1994)	log hourly wage	F	28	-7.8	16.2	cc	0.08	0.23	Exclu: >12 yrs. education	table 8
Maloney (1991a)	hourly wage	F	1985	-10.7	8.9	4.50	5.04	5.49	Exclu: >12 yrs. education	table 1
Maloney (1993)	Hourly wage (88 dollars)	F	79-87	-10.7	6.3	4.83	5.41	5.75	Exclu: >12 yrs. education	table 1
Maloney (1993)	hourly wage	F	1988	-10.7	6.3	4.83	5.41	5.75	Exclu: >12 yrs. education	table 1

Table B–7.—Effects of years of schooling, higher education, and cognitive skills on wages (continued)

Outcome/Author	Measure	Male/ Female	Age or year	Difference (Percent)* Dropout vs. GED	HSG vs. GED	Dropout Mean or Coeff	GED Mean or Coeff	Diploma Mean or Coeff	Exclusions/ Controls	Table or Page
Garet, Jing, & Kutner (1996)	log hourly wage	F	28	-3.0	5.7	cc	0.03	0.085	GED/HSG plus some college.	table 17A
Garet, Jing, & Kutner (1996)	log hourly wage	F	28	-23.7	-7.7	cc	0.27	0.19	GED/HSG plus 2 yrs. college.	table 17A
Cameron and Heckman (1993)	log hourly wage	M	25	-5.8	8.8	cc	0.06	0.14	w/o AFQT	table 6, 9.
Cameron and Heckman (1993)	log hourly wage	M	28	-6.0	11.9	cc	0.06	0.17	w/o AFQT	table 9
Cameron and Heckman (1993)	log hourly wage	M	25	3.9	7.3	cc	-0.04	0.03	with AFQT	table 10
Cameron and Heckman (1993)	log hourly wage	M	28	2.0	10.5	cc	-0.02	0.08	with AFQT	table 10
Cameron (1994)	log hourly wage	F	25	-9.7	9.1	cc	0.10	0.19	w/o AFQT	table 8
Cameron (1994)	log hourly wage	F	28	-7.8	16.2	cc	0.08	0.23	w/o AFQT	table 8
Cameron (1994)	log hourly wage	F	30	-6.7	18.4	cc	0.07	0.24	w/o AFQT	table 8
Cameron (1994)	log hourly wage	F	25	-3.5	6.4	cc	0.04	0.10	with AFQT	table 9
Cameron (1994)	log hourly wage	F	28	1.9	13.4	cc	-0.02	0.11	with AFQT	table 9
Cameron (1994)	log hourly wage	F	30	12.4	18.3	cc	-0.12	0.05	with AFQT	table 9
Garet, Jing, & Kutner (1996)	log hourly wage	M	28	-9.5	8.3	cc	0.10	0.18	w/o ASVAB	table 17A
Garet, Jing, & Kutner (1996)	log hourly wage	M	28	-4.5	5.5	cc	0.05	0.10	with ASVAB	table 17B
Garet, Jing, & Kutner (1996)	log hourly wage	F	28	-2.3	-4.6	cc	0.023	-0.024	w/o ASVAB	table 17A
Garet, Jing, & Kutner (1996)	log hourly wage	F	28	-0.5	-7.0	cc	0.005	-0.068	with ASVAB	table 17B
Maloney (1993)	log hourly wage	F		-3.2	5.0	cc	0.033	0.082	w/o ASVAB	table 3
Maloney (1993)	log hourly wage	F		0.2	4.2	cc	-0.002	0.039	with ASVAB	table 3
Cao et. al (1993)	hourly wage	F	22–29			-1.50	-0.33	cc	w/o AFQT	table 4A
Cao et. al (1993)	hourly wage	F	22–29			-0.47	-0.22	cc	with AFQT	table 4C

* Percentage differences.

APPENDIX C. TECHNICAL ISSUES

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Does the GED credential improve the labor market opportunities of those who hold it? In comparison to what? To what would have been the case if they had not prepared for, taken, and passed the GED Tests? To what would have been the case if they had graduated from high school? To show a GED effect, we need evidence of how well GED certificate holders are doing in the labor market compared to how they would have done had they not received the GED. To see whether any effects are equivalent to those of a high school diploma, we need to know how the GEDs would have done had they graduated from high school. These hypothetical conditions are termed "counter-factual," because they describe events that did not happen. The challenge for empirical research in dealing with such questions is to approximate the counter-factual condition. Possibilities include (1) comparing GED recipients to other individuals with similar characteristics who did not get the GED or who graduated from high school (cross-sectional evidence), and (2) the comparing the same individuals (and comparison groups) before and after they received the GED (longitudinal evidence). This study examines both cross-sectional and longitudinal evidence from large-scale national surveys.

Four types of survey sample data have been used to study the relationship between passing the GED Tests and labor market outcomes.

1. Follow-up Surveys of GED Test-takers or Passers

These might be called one-step longitudinal studies. There is usually no baseline survey, other than the administration of the test and collection of a modicum of background data at that time. A follow-up survey is conducted some time later. There are usually no additional follow-up surveys after the first one. The strength of these surveys is that they focus on the group of interest. For example, it is common for surveys to follow up individuals who took the GED Tests. However, most follow-up surveys do not include a comparison group. Therefore, inferring the effect of taking the GED can only be done by comparing the GED examinee's status before and after taking the GED. The problem with this approach is that it is normal for individuals to get promotions and salary increases. There is no benchmark or basis for estimating how well the GED test-takers would have done if they had not taken the GED. A variation is to ask the recipients to provide their own judgments about whether getting the GED caused an improvement in employment. This approach is problematic because GED test-takers may not be a reliable source for this judgment.

2. Panel Surveys

These include (1) the National Longitudinal Survey of the Labor Market Experiences of Youth (NLSY), (2) High School and Beyond (HS&B), (3) the National Education Longitudinal Study of Eighth Graders in 1988 (NELS), (4) the

Beginning Postsecondary Student Longitudinal Study (BPS), and (5) the October Current Population Survey.

These surveys provide good data for before-and-after comparisons and they avoid recall bias. Respondents are asked about items such as employment, hours worked, weeks worked, salaries, and earnings for the current week or the past year and then surveyed again in one, two, or more years and asked the same questions again. Most longitudinal surveys also provide a rich array of control variables such as measures of academic achievement, family background information, labor force experience, and so forth. They offer as comparison groups both high school graduates and individuals who dropped out of high school and did not get a GED. As was noted for follow-up surveys, labor market rewards typically improve with age and experience. To isolate the effects of the GED from the effects of age and experience requires that they be modeled correctly. An alternative comparison group is high school graduates. This group includes many who went on to postsecondary education and may differ from GEDs in ways related to postsecondary education. Therefore in making comparisons, it is important to exclude those with college experience or control for level of education after high school. Some longitudinal studies, such as the NLSY, follow individuals for 12 or more years. This allows time to measure such differences between GED recipients and other dropouts in, for example, the growth of wage rates.

3. Cross-Sectional Surveys

The strength of cross-sectional surveys is that they typically offer a wide age distribution and a wide range of post-GED periods of time in the labor market. The National Adult Literacy Survey (NALS), for example, is a sample of individuals 16- to 64-years-old who may have taken the GED over a period as long as 40 years. A cross-sectional study provides comparison groups similar to longitudinal studies. However, labor market outcomes are available at only one point in time, and of course, people's labor market experiences vary over time.

4. Experiments

Studies that use any of the three types surveys discussed above, including longitudinal studies, are plagued by the fact that there may be differences, that are important for labor market outcomes, between those who take and pass the GED Tests and those who do not and that are not reflected in the long list of variables available to the analyst. Experiments through randomization provide a means of controlling for the unmeasurable differences between those who get a GED and those who do not. Social experiments are usually difficult to conduct, because researchers can neither force individuals to participate who do not want to nor can they prevent individuals from participating who do want to (and are eligible). However, researchers have taken advantage of the fact that there are sometimes more applicants than a program can accommodate, and a fair way to decide who gets in is through random selection. This makes it possible to

compare the experiences of program participants with other similar people who also wanted to participate but who were denied access just by chance. Another way of conducting an experiment, in this case a "natural experiment," is to compare outcomes for similar categories of individuals who can be separated into treatment and control groups by virtue of systematic coincidences, such as laws and rules of states they happen to live in. One experiment that considered GED outcomes was based on random selection among applicants (Cave and Bos 1995). Another compared outcomes for GED test-takers in states with different standards for passing the test (Tyler et al. 1997).

APPENDIX D. GED FOLLOW-UP SURVEYS

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In Fall 1981, Cervero and Peterson (1982) conducted a national survey of successful GED candidates who had first taken the tests in the Spring of 1980. Like most of the GED follow-up surveys, this one had a low response rate and methodological shortcomings that caused the authors to urge caution in generalizing from the data.[66] The study found that 18 months after taking the tests, approximately 60 percent of the respondents were employed full-time or part-time, and approximately 40 percent were out of the labor market or unemployed.[67] Nevertheless, the proportion of GEDs working full-time for pay increased from 39 to 48 percent in those 18 months. All other employment status categories (e.g., unemployed, not in the labor force) fell between 1 and 3 percentage points. The perceived results of taking the GED were not as great as expected, but a significant proportion of respondents thought the tests had helped them. For example, 52 percent said it had helped them qualify for a job and 20 percent said it had helped them win a job promotion.

Kroll and Qi (1995) conducted another national follow-up survey, in this case of examinees (rather than just GED recipients). As in the previous study, there were methodological problems that caused the authors to advise against generalizing from the data.[68] Among the strengths of this study was the fact that it provided both before and after measures and GED/non-GED comparisons. The results of the Kroll and Qi survey were rather similar to those of Cervero and Peterson. For example, they found that 2 years after taking the test, 61 percent of their respondents were employed full-time or part-time, and 39 percent were out of the labor market or unemployed. Their data also suggest some labor market benefits of GED test taking. Among GED recipients, those who had their current jobs before taking the tests reported post-test hourly wages that were 14 percent higher than pretest wages. Comparable GED examinees who did not pass the test had a 10 percent increase. GED recipients who got new jobs after the test (jobs that did not require a GED) had wages 17 percent higher than before, while their unsuccessful GED counterparts saw only a 3 percent increase. Finally, GED recipients who got new jobs that required GED certification reported wages that were 24 percent higher than their previous wages; for this group there could be no nonGED comparison.[69]

Several state and local follow-up surveys used similar methods and also reported GED benefits. For example, the Iowa Department of Education (1992) surveyed GED recipients two, five, and ten years after their completion of the tests in 1980, 1985, and 1988. Controlling for inflation, reported personal income of GED graduates declined 6 percent between the time of passing the tests and the survey administration in 1990, while the mean income of all Iowans declined 10 percent between 1980 and 1990. (The comparison with all Iowans would have been better had it been limited to the GED 1980 cohort.)

In 1981, Moore (1982) surveyed both successful and unsuccessful candidates for the GED in Kentucky five years after they had taken the tests. Again, there were methodological problems, including a 28 percent response rate among successful GEDs in the sample and a very low 15 percent rate among the unsuccessful candidates. Moore's data show that successful GED candidates who responded to the survey were more likely to report before and after improvement in employment status (54 percent) than were unsuccessful candidates (30 percent).

Eight state or local follow-up surveys collected data on the employment status of GED recipients before and after they earned their credentials. In all eight of these studies we have data on two important status variables—full-time employment and unemployment (table D–1). On average, across the 8 studies, the full-time employment rate of GEDs increased from 46.1 percent before certification to 57.0 percent afterward. In two of the studies (Darkenwald and Valentine 1985 and Iowa Department of Education 1992) GED full-time employment rates increased substantially more than statewide rates over the periods in question. The average GED unemployment rate across the 8 studies fell from 18.6 percent to 14.3 percent.

Table D–1.—Employment status of GED recipients

Author, GED employment status	Percentage rate: Before, At time of testing	Percentage rate: After, At time of survey
Reed 1985, Maryland		
Employed full-time	40	54
Unemployed, looking	23	18
Carbol 1985, Alberta		
Employed full-time	53	58
Employed part time	13	12
Unemployed, looking	16	15
Unemployed, not looking	8	3
Darkenwald & Valentine 1985, New Jersey		
Employed full-time	31	49
Employed part time	21	16
Unemployed, looking	35	22
Unemployed, not looking	14	14
Goodwin 1991, New York		
Employed full-time	46	42
Employed part-time	13	14
Unemployed, looking	12	16
Not in labor force	27	28
Hayes 1991, Wisconsin		
Employed full-time	43	49
Employed part time	16	18
Unemployed, looking	15	13
Unemployed, not looking	24	17
Iowa Department Education 1992		
Employed	54	71
Unemployed, looking	19	9
Martin 1992, Wisconsin		
1986 GEDs in 1990		
Employed full-time	53	73
Employed part-time	19	12
Unemployed, looking	12	9
Unemployed, not looking	16	6
Martin 1992, Wisconsin		
1989 GEDs in 1990		
Employed full-time	49	60
Employed part-time	19	12
Unemployed, looking	17	12
Unemployed, not looking	16	15

NOTE: Martin's employment rates have been recalculated. Martin's rates for 1986 and 1989 used the same sample base, but the item nonresponse rate (the percentage of survey items not answered) seems to have been much higher for reports of employment status before the test than for current employment status. Using the entire sample as a base provided an inflated denominator for calculating employment rates before the test, thereby making pretest rates look much lower than they must have been. Here rates have been recalculated based on number of respondents to each question.

SOURCE: Studies in this table.