

Appendix H

Item Nonresponse Analysis

Appendix H

Item Nonresponse Analysis

Item nonresponse occurs when a responding individual completes the interview but does not answer some of the survey questions. For these items, the individual is a nonrespondent. This differs from unit nonresponse (see chapter 6), in which a sampled individual fails to answer all of the interview questions. In this appendix, a brief analysis of item nonresponse among B&B CATI respondents is given.

An item nonresponse occurs when a full-interview respondent¹ fails to answer an item, and the failure is not due to legitimate skip. The item nonresponse rate is then the sum of the weights of item respondents over the sum of the weights of all eligible individuals. This rate is found using the final study weights. A variable was considered to have high item nonresponse if its weighted item nonresponse rate exceeded 0.15.

All variables with high item nonresponse rates were identified, and those with at least 1,000 eligible sample members were considered for further analysis. The identified variables are given in table H.1, together with counts and unweighted and weighted item nonresponse rates. All of these variables have well less than 9,650 eligible full-interview respondents because of legitimate skips. The table shows that the percent weighted item nonresponse rate varies between 17 percent and 61 percent.

Table H.1. Item nonresponse rates for selected B&B:2000/01 CATI variables

Variable description	Number eligible	Number of item respondents	Number of item nonrespondents	Unweighted item nonresponse rate	Weighted item nonresponse rate
Education tax credits: Claim lifetime learning tax in 2001	4,170	3,460	710	17	17
Spouse information: Spouse's income in 2000	3,090	2,400	690	22	23
Education tax credits: Tax credit help to continue education	2,690	1,720	970	36	35
Current income: Hourly/weekly/monthly wage	2,480	1,720	750	30	33
Spouse information: Spouse repaying student loans	2,480	2,040	440	18	18
Spouse information: Amount spouse owes on student loans	2,480	2,040	440	18	18
Spouse information: Amount spouse borrowed in loans	2,480	2,070	410	17	17
Spouse information: Spouse's monthly student loan payment	2,270	1,810	460	20	21
Current teaching job: Sections taught per day-current job	1,500	1,060	450	30	29
Current income: Time scale of pay—hourly/weekly/monthly ¹	1,290	540	750	58	61

¹Is not applicable for students who reported an annual salary.

NOTE: Statistics are based on sample members for whom specific items were applicable and asked. Details may not sum to total due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

¹There were 9,650 full-interview respondents. Other types of respondents are 370 abbreviated-interview respondents and 10 partial-interview respondents.

Appendix H
Item Nonresponse Analysis

Nonresponse bias analysis was then conducted for each of the variables with a high level of item nonresponse using the same methodology described in chapter 6 for unit nonresponse. The results of these analyses are presented in tables H.2 through H.11.

Table H.2. Comparison of item respondents and nonrespondents for “Claim lifetime learning tax in 2001”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	2,730	2,270	460	66	66	65	0.1113
Non-doctorate-granting	830	690	140	19	19	19	0.0569
Doctorate-granting	1,910	1,590	320	47	47	47	0.0691
Private not-for-profit 4-year	1,400	1,150	250	33	32	34	-0.3628
Non-doctorate-granting	740	610	130	18	18	19	-0.2055
Doctorate-granting	650	540	120	14	14	15	-0.1719
Private for-profit 4-year	50	40	#	2	2	0	0.2514*
Institutional control and enrollment category							
Public							
Fewer than 2,500	50	50	10	1	1	1	0.0614
2,500–4,999	150	130	10	3	4	2	0.3606*
5,000–9,999	450	370	80	8	8	9	-0.0478
10,000–19,999	730	610	120	17	17	17	0.1288
20,000 or more	1,350	1,110	240	36	36	38	-0.3918
Private not-for-profit							
Fewer than 1,000	100	80	20	2	2	2	-0.0553
1,000–2,499	310	250	60	7	7	8	-0.2305
2,500–4,999	370	310	70	9	9	10	-0.2256
5,000–9,999	240	200	40	5	5	5	0.0686
10,000 or more	380	320	60	9	10	10	0.0800
Private for-profit							
Fewer than 999	10	10	0	#	1	0	0.0834
1,000 or more	40	30	#	1	1	#	0.1681
Institution region							
New England	220	190	20	6	6	4	0.3525
Mid East	720	570	140	16	16	18	-0.4442
Great Lakes	720	600	120	17	17	18	-0.0501
Plains	370	310	60	9	9	10	-0.1890
South East	1,000	820	180	21	21	23	-0.3824
South West	430	370	60	11	11	8	0.4323
Rocky Mountains	180	150	30	4	4	3	0.1376
Far West	510	420	80	16	16	15	0.1213
Outlying Area	30	20	10	1	1	1	0.0220
Gender							
Male	1,590	1,350	240	43	44	37	1.2292*
Female	2,590	2,110	470	57	56	63	-1.2292*
Age							
21 or younger	1,110	870	240	25	24	34	-1.7566*
22	1,010	820	200	23	22	28	-0.9216
23	520	440	80	12	12	12	0.0410
24 to 27	630	540	90	17	18	12	1.0043*
28 or older	900	790	110	23	24	15	1.6329*
Race							
White	3,370	2,800	560	78	78	75	0.4780
Black or African American	350	290	70	9	9	11	-0.3499
Asian	190	170	30	6	6	6	0.1178
American Indian/Alaska Native	40	40	#	1	1	1	0.0691
Native Hawaiian/Other Pacific Islander	20	20	10	1	1	1	-0.0149
Other	200	150	50	5	5	7	-0.3001
Hispanic							
Yes	280	240	40	9	10	6	0.6465*
No	3,890	3,220	670	91	90	94	-0.6465*
Citizenship							
U.S. citizen	3,980	3,300	680	93	92	94	-0.2236
Resident alien	120	100	20	5	5	4	0.1557
Foreign/international student	70	60	10	3	3	3	0.0679

See notes at end of table.

Table H.2. Comparison of item respondents and nonrespondents for “Claim lifetime learning tax in 2001”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	2,010	1,650	370	47	46	50	-0.7722
Full-time/full year, more than 1 institution	200	150	50	4	3	7	-0.5808*
Full-time/part year	830	700	120	19	20	16	0.6106
Part-time/full year, 1 institution	460	390	70	13	13	12	0.2391
Part-time/full year, more than 1 institution	80	70	10	2	2	1	0.1279
Part-time/part year	590	500	90	16	16	14	0.3753
Parents' income (for dependent students)							
Less than \$10,000	80	70	20	2	2	2	-0.0866
\$10,000–\$19,999	110	90	30	3	3	4	-0.3239
\$20,000–\$29,999	220	180	40	5	5	6	-0.1105
\$30,000–\$39,999	210	170	40	5	5	6	-0.1827
\$40,000–\$49,999	240	190	50	5	5	6	-0.0809
\$50,000–\$59,999	250	200	60	6	5	8	-0.5255
\$60,000–\$69,999	220	180	40	5	5	5	-0.0163
\$70,000–\$79,999	210	170	50	5	4	6	-0.2901
\$80,000–\$99,999	310	250	60	7	7	9	-0.3501
\$100,000 or more	520	420	100	12	12	14	-0.4066
Student's income (for independent students)							
Less than \$5,000	250	210	50	6	6	6	-0.1002
\$5,000–\$9,999	240	210	30	6	6	4	0.4155
\$10,000–\$19,999	330	280	50	9	9	7	0.3098
\$20,000–\$29,999	250	220	30	6	7	4	0.4314
\$30,000–\$49,999	360	320	40	9	10	6	0.6649
\$50,000 or more	370	320	50	10	10	7	0.6519
Applied for aid							
Yes	2,400	1,990	410	55	55	57	-0.4722
No	1,770	1,470	300	45	46	43	0.4722
Receipt of federal aid							
Yes	2,070	1,720	350	47	47	49	-0.2324
No	2,100	1,740	360	53	53	51	0.2324
Receipt of Pell grant							
Yes	930	780	150	20	21	21	-0.0986
No	3,250	2,690	560	79	80	79	0.0986
Receipt of Stafford loan							
Yes	1,810	1,500	310	42	41	43	-0.2845
No	2,360	1,960	400	59	59	57	0.2845
Receipt of state aid							
Yes	800	650	150	17	16	20	-0.6133
No	3,370	2,820	560	84	84	81	0.6133
Receipt of institution aid							
Yes	1,390	1,130	260	31	30	35	-0.9133*
No	2,780	2,330	440	69	70	65	0.9133*
Receipt of any aid							
Yes	2,960	2,460	500	68	68	68	0.0189
No	1,220	1,010	210	32	32	32	-0.0189
Ever married							
Yes	1,580	1,380	200	37	39	27	2.0063*
No	2,580	2,080	490	64	62	73	-2.0063*
Dependents other than spouse							
Yes	820	720	100	19	20	14	0.9841*
No	3,330	2,740	590	81	80	86	-0.9841*

See notes at end of table.

Table H.2. Comparison of item respondents and nonrespondents for “Claim lifetime learning tax in 2001”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student’s state of legal residence 1999–2000							
New England	200	170	30	5	5	4	0.2729
Mid East	730	580	150	17	16	20	-0.5794
Great Lakes	710	590	120	17	17	18	-0.1482
Plains	350	290	60	8	8	8	0.0400
Southeast	970	800	170	20	20	21	-0.2145
Southwest	430	370	60	11	11	9	0.2434
Rocky Mountains	180	150	30	4	4	3	0.1567
Far West	550	460	90	17	17	16	0.1317
Outlying Areas	60	50	10	2	2	2	0.0973
Current employment status for B&B interview							
Work full-time	2,930	2,500	430	72	73	62	1.9538*
Work part-time	660	520	130	15	15	20	-0.8390
Waiting to report to work/layoff	30	30	10	1	1	1	-0.0220
Not working	510	400	120	12	11	18	-1.1359*
Homemaker	10	10	#	#	#	#	0.0284
Disabled	#	#	0	#	#	0	0.0148
Cumulative amount of Federal loans							
\$0	2,100	1,740	360	53	53	52	0.2301
\$1 to \$2,499	480	410	70	11	11	10	0.2157
\$3,500 to \$7,499	860	700	160	19	20	21	-0.4096
\$7,500 or more	710	600	120	17	17	17	-0.0362

Rounds to zero. All zeros provided in this table are actual values.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Table H.3. Comparison of item respondents and nonrespondents for “Spouse’s income in 2000”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	2,100	1,630	460	66	67	64	0.6981
Non-doctorate-granting	740	570	180	23	23	23	0.1443
Doctorate-granting	1,350	1,060	290	43	44	40	0.8424
Private not-for-profit 4-year	950	730	220	31	31	34	-0.6716
Non-doctorate-granting	650	500	160	22	22	25	-0.8399
Doctorate-granting	290	230	60	9	9	8	0.1682
Private for-profit 4-year	50	40	10	3	2	3	-0.0265
Institutional control and enrollment category							
Public							
Fewer than 2,500	50	40	10	1	1	1	-0.0195
2,500–4,999	170	130	40	5	5	6	-0.2541
5,000–9,999	390	310	80	10	11	8	0.5557
10,000–19,999	580	460	120	19	21	16	0.8919
20,000 or more	900	690	210	32	31	33	-0.4758
Private not-for-profit							
Fewer than 1,000	130	90	40	3	3	3	0.1226
1,000–2,499	240	180	60	8	7	10	-0.5840
2,500–4,999	290	220	70	10	9	12	-0.6181
5,000–9,999	130	110	30	4	4	4	0.0985
10,000 or more	160	130	30	6	7	5	0.3094
Private for-profit							
Fewer than 999	10	10	#	1	1	1	0.0106
1,000 or more	40	30	10	2	2	2	-0.0371
Institution region							
New England	90	60	30	3	3	5	-0.4965
Mid East	360	270	100	11	10	13	-0.5965
Great Lakes	520	380	140	18	16	22	-1.1713
Plains	310	250	60	10	10	9	0.2669
South East	880	690	200	26	27	24	0.5220
South West	400	320	80	13	13	13	-0.0090
Rocky Mountains	190	170	20	6	7	3	0.7400*
Far West	310	250	60	13	14	11	0.6324
Outlying Area	20	20	#	1	1	1	0.1120
Gender							
Male	1,120	910	220	40	42	35	1.4703*
Female	1,970	1,490	480	60	58	65	-1.4703*
Age							
21 or younger	400	310	90	11	11	11	-0.0405
22	560	440	120	16	17	14	0.6837
23	370	300	80	11	12	10	0.4419
24 to 27	600	480	120	21	22	18	0.7595
28 or older	1,170	880	290	41	39	47	-1.8446*
Race							
White	2,650	2,070	580	83	84	80	0.8017
Black or African American	190	140	50	7	7	8	-0.4327
Asian	80	70	20	4	4	4	0.0371
American Indian/Alaska Native	30	20	10	1	1	1	0.0250
Native Hawaiian/Other Pacific Islander	10	10	#	1	#	1	-0.1008
Other	120	100	30	5	5	6	-0.3304
Hispanic							
Yes	190	150	40	8	9	7	0.4941
No	2,900	2,250	660	92	91	93	-0.4941
Citizenship							
U.S. citizen	2,980	2,320	660	94	95	93	0.3897
Resident alien	80	60	20	4	4	5	-0.3200
Foreign/international student	30	20	10	2	2	2	-0.0698

See notes at end of table.

Table H.3. Comparison of item respondents and nonrespondents for “Spouse’s income in 2000”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	1,180	940	240	36	36	34	0.5007
Full-time/full year, more than 1 institution	90	70	20	3	3	3	-0.0535
Full-time/part year	770	610	160	25	26	21	0.9877
Part-time/full year, 1 institution	440	320	120	16	15	20	-1.1400
Part-time/full year, more than 1 institution	60	50	20	2	2	2	-0.0872
Part-time/part year	550	410	140	20	19	20	-0.2078
Parents’ income (for dependent students)							
Less than \$10,000	30	30	10	1	1	1	-0.1014
\$10,000–\$19,999	50	40	10	2	2	1	0.0531
\$20,000–\$29,999	70	50	20	2	2	2	-0.1515
\$30,000–\$39,999	90	60	30	3	2	4	-0.3084
\$40,000–\$49,999	120	100	20	4	4	2	0.5427*
\$50,000–\$59,999	110	80	30	3	3	4	-0.2434
\$60,000–\$69,999	110	80	30	3	3	4	-0.2082
\$70,000–\$79,999	80	60	20	2	3	1	0.3000
\$80,000–\$99,999	120	90	30	4	4	3	0.1040
\$100,000 or more	150	120	30	5	5	5	0.0895
Student’s income (for independent students)							
Less than \$5,000	160	130	40	5	5	5	0.1547
\$5,000–\$9,999	170	130	30	5	5	4	0.1796
\$10,000–\$19,999	360	300	70	11	12	8	0.8179
\$20,000–\$29,999	310	250	60	10	10	8	0.5194
\$30,000–\$49,999	520	420	100	17	18	16	0.3715
\$50,000 or more	650	460	180	24	22	31	-2.1198*
Applied for aid							
Yes	1,750	1,420	320	54	57	45	2.4983*
No	1,350	970	370	46	44	55	-2.4983*
Receipt of federal aid							
Yes	1,550	1,270	280	48	50	40	2.4034*
No	1,550	1,130	410	52	50	60	-2.4034*
Receipt of Pell grant							
Yes	800	660	140	24	26	19	1.6084*
No	2,290	1,740	550	76	74	82	-1.6084*
Receipt of Stafford loan							
Yes	1,290	1,050	230	40	42	34	1.9540*
No	1,810	1,340	460	60	58	66	-1.9540*
Receipt of state aid							
Yes	570	460	110	16	16	13	0.8179*
No	2,520	1,940	580	85	84	87	-0.8179*
Receipt of institution aid							
Yes	860	690	180	25	26	21	0.9920*
No	2,230	1,710	520	75	74	79	-0.9920*
Receipt of any aid							
Yes	2,240	1,790	450	70	72	64	1.7662*
No	850	610	240	30	28	36	-1.7662*
Dependents other than spouse							
Yes	1,350	1,080	270	44	45	43	0.5005
No	1,720	1,320	400	56	55	58	-0.5005

See notes at end of table.

Table H.3. Comparison of item respondents and nonrespondents for “Spouse’s income in 2000”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence 1999–2000							
New England	90	60	30	3	3	6	–0.6514
Mid East	360	270	100	11	11	12	–0.3491
Great Lakes	520	390	140	17	16	20	–0.9698
Plains	290	220	60	9	9	9	0.0356
Southeast	880	690	190	27	26	24	0.5179
Southwest	410	330	80	13	13	13	0.1764
Rocky Mountains	180	160	20	6	6	4	0.5755
Far West	330	260	70	13	14	12	0.5469
Outlying Areas	40	30	10	2	2	2	0.1179
Current employment status for B&B interview							
Work full-time	2,390	1,890	500	79	80	76	0.8666
Work part-time	320	240	80	9	9	10	–0.2704
Waiting to report to work/layoff	30	20	10	1	1	1	–0.1091
Not working	260	190	70	9	9	9	–0.1372
Homemaker	70	50	20	2	2	3	–0.2295
Disabled	10	#	#	1	#	1	–0.1204
Cumulative amount of Federal loans							
\$0	1,550	1,130	410	52	50	61	–2.3541*
\$1 to \$2,499	440	360	80	13	14	9	1.0432*
\$3,500 to \$7,499	630	510	120	19	20	16	0.9577
\$7,500 or more	470	380	80	15	16	14	0.3531

Rounds to zero.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Table H.4. Comparison of item respondents and nonrespondents for “Tax credit help to continue education”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	1,730	1,110	620	65	65	65	-0.2508
Non-doctorate-granting	540	350	200	19	20	19	0.4102
Doctorate-granting	1,190	760	430	45	45	46	-0.6379
Private not-for-profit 4-year	930	590	340	34	33	34	-0.3588
Non-doctorate-granting	490	310	180	19	19	20	-0.2565
Doctorate-granting	430	280	160	15	15	15	-0.1252
Private for-profit 4-year	30	20	10	2	2	0	0.6094*
Institutional control and enrollment category							
Public							
Fewer than 2,500	40	30	10	1	1	1	0.1426
2,500–4,999	80	60	20	3	3	2	0.5838
5,000–9,999	300	180	120	8	8	9	-0.1215
10,000–19,999	460	300	160	17	17	17	0.0444
20,000 or more	860	550	320	36	35	38	-0.9001
Private not-for-profit							
Fewer than 1,000	60	40	30	2	2	2	-0.2076
1,000–2,499	210	130	80	8	8	8	-0.0075
2,500–4,999	250	160	90	9	9	10	-0.5028
5,000–9,999	160	100	60	5	5	5	0.0535
10,000 or more	250	160	80	10	10	9	0.3055
Private for-profit							
Fewer than 999	10	10	0	#	1	0	0.2091
1,000 or more	20	20	10	1	2	#	0.4006
Institution region							
New England	140	90	40	5	6	5	0.2906
Mid East	490	290	200	18	17	20	-1.1262
Great Lakes	470	300	170	17	17	18	-0.2966
Plains	250	160	90	9	9	9	0.0668
South East	630	400	230	20	19	22	-0.9331
South West	260	180	80	10	11	8	0.9686
Rocky Mountains	120	90	40	5	5	3	0.5576
Far West	310	200	110	16	16	15	0.5236
Outlying Area	20	10	10	1	1	1	-0.0513
Gender							
Male	1,010	680	330	42	44	38	2.4106*
Female	1,670	1,040	640	58	56	62	-2.4106*
Age							
21 or younger	740	420	320	26	23	33	-3.7275*
22	630	370	270	23	20	27	-2.4247*
23	340	230	110	12	12	12	0.2342
24 to 27	410	300	120	17	20	12	2.6521*
28 or older	570	410	160	22	25	16	3.2658*
Race							
White	2,140	1,360	780	76	76	77	-0.3196
Black or African American	250	170	80	11	11	10	0.4868
Asian	110	70	40	6	6	6	-0.0179
American Indian/Alaska Native	20	20	10	1	1	1	0.0944
Native Hawaiian/Other Pacific Islander	20	10	10	1	1	1	-0.1198
Other	140	90	50	6	6	6	-0.1239
Hispanic							
Yes	200	140	60	9	11	6	1.5560*
No	2,490	1,580	910	91	89	94	-1.5560*
Citizenship							
U.S. citizen	2,570	1,640	930	93	92	94	-0.4973
Resident alien	80	60	30	5	5	4	0.4881
Foreign/international student	30	20	10	3	3	3	0.0092

See notes at end of table.

Table H.4. Comparison of item respondents and nonrespondents for “Tax credit help to continue education”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	1,360	850	500	49	48	50	-0.7550
Full-time/full year, more than 1 institution	150	80	70	5	4	6	-0.7881
Full-time/part year	490	330	170	19	20	17	0.9750
Part-time/full year, 1 institution	300	200	100	13	13	12	0.5431
Part-time/full year, more than 1 institution	50	40	10	2	2	2	0.0040
Part-time/part year	350	230	120	14	14	14	0.0210
Parents' income (for dependent students)							
Less than \$10,000	40	30	20	2	1	2	-0.1637
\$ 10,000–\$19,999	80	50	30	3	3	4	-0.3286
\$ 20,000–\$29,999	150	90	60	6	5	6	-0.3437
\$ 30,000–\$39,999	140	90	50	5	5	5	-0.1619
\$ 40,000–\$49,999	160	100	60	5	5	5	-0.1188
\$ 50,000–\$59,999	180	110	70	7	6	8	-0.5123
\$ 60,000–\$69,999	140	80	60	5	4	6	-0.4663
\$ 70,000–\$79,999	130	70	60	4	4	6	-0.9176
\$ 80,000–\$99,999	190	110	80	7	6	9	-1.1374
\$ 100,000 or more	310	170	140	11	9	14	-1.7611*
Student's income (for independent students)							
Less than \$5,000	170	110	60	6	6	6	-0.0469
\$ 5,000–\$9,999	160	110	50	6	7	5	0.7779
\$ 10,000–\$19,999	220	160	60	9	10	7	1.1468
\$ 20,000–\$29,999	160	120	40	6	8	4	1.2170
\$ 30,000–\$49,999	250	180	60	10	12	7	1.6693*
\$ 50,000 or more	210	150	60	9	10	7	1.1474
Applied for aid							
Yes	1,660	1,110	550	60	62	55	2.6030*
No	1,030	610	420	40	38	45	-2.6030*
Receipt of federal aid							
Yes	1,450	970	480	52	55	47	2.7909*
No	1,240	750	490	48	45	53	-2.7909*
Receipt of Pell grant							
Yes	630	430	200	22	23	20	0.8867
No	2,060	1,290	770	78	77	80	-0.8867
Receipt of Stafford loan							
Yes	1,290	870	420	47	50	42	2.7983*
No	1,400	850	550	53	50	58	-2.7983*
Receipt of state aid							
Yes	540	350	200	18	17	19	-0.5179
No	2,140	1,370	770	82	83	82	0.5179
Receipt of institution aid							
Yes	940	580	360	32	31	34	-1.1556
No	1,750	1,140	610	68	69	66	1.1556
Receipt of any aid							
Yes	1,980	1,290	690	70	72	67	2.0158*
No	710	430	280	30	28	34	-2.0158*
Ever married							
Yes	1,030	730	300	37	42	27	5.1391*
No	1,650	990	660	63	58	73	-5.1391*
Dependents other than spouse							
Yes	530	380	150	19	22	15	2.4986*
No	2,140	1,340	810	81	78	85	-2.4986*

See notes at end of table.

Table H.4. Comparison of item respondents and nonrespondents for “Tax credit help to continue education”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence 1999–2000							
New England	120	80	40	5	5	4	0.4734
Mid East	500	290	210	18	17	21	-1.2878
Great Lakes	470	310	160	17	17	17	-0.1660
Plains	240	160	80	8	8	8	0.1817
Southeast	610	390	220	19	18	21	-0.9714
Southwest	260	180	80	10	11	9	0.6991
Rocky Mountains	130	90	40	5	6	4	0.6213
Far West	330	210	120	16	16	15	0.2632
Outlying Areas	30	20	10	2	2	2	0.1866
Current employment status for B&B interview							
Work full-time	1,850	1,240	610	70	73	64	3.3609*
Work part-time	450	270	180	17	16	19	-0.9908
Waiting to report to work/layoff	20	20	10	1	1	1	0.1973
Not working	330	180	150	12	10	17	-2.6332*
Homemaker	#	#	#	#	#	#	0.0423
Disabled	#	#	#	#	#	#	0.0234
Cumulative amount of Federal loans							
\$0	1,240	750	490	48	46	53	-2.7784*
\$1 to \$2,499	300	200	100	11	11	9	0.6979
\$3,500 to \$7,499	610	400	210	22	23	21	0.5966
\$7,500 or more	520	360	160	19	21	17	1.4840

Rounds to zero. All zeros provided in this table are actual values.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Table H.5. Comparison of item respondents and nonrespondents for “Hourly/weekly/monthly wage”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	1,530	1,040	490	64	63	65	-0.5913
Non-doctorate-granting	470	310	160	18	18	18	-0.1663
Doctorate-granting	1,060	730	340	46	45	47	-0.5044
Private not-for-profit 4-year	920	670	250	35	36	33	1.0331
Non-doctorate-granting	470	320	150	20	18	22	-1.3186
Doctorate-granting	450	350	90	15	18	10	2.4241*
Private for-profit 4-year	30	10	20	2	1	2	-0.4348
Institutional control and enrollment category							
Public							
Fewer than 2,500	20	20	#	1	1	#	0.1573
2,500–4,999	70	50	30	3	2	3	-0.2405
5,000–9,999	240	160	80	8	7	8	-0.2809
10,000–19,999	450	290	160	18	18	19	-0.1431
20,000 or more	750	520	230	35	34	35	-0.0842
Private not-for-profit							
Fewer than 1,000	70	50	20	2	3	2	0.2237
1,000–2,499	220	160	60	9	9	8	0.2240
2,500–4,999	230	160	70	9	9	10	-0.3085
5,000–9,999	150	100	50	6	5	6	-0.3320
10,000 or more	250	200	50	9	11	7	1.2259
Private for-profit							
Fewer than 999	#	#	#	#	#	#	-0.0584
1,000 or more	30	10	10	1	1	2	-0.3834
Institution region							
New England	140	100	40	7	7	6	0.1206
Mid East	470	330	140	18	18	17	0.4751
Great Lakes	380	250	140	16	14	20	-1.9217
Plains	200	130	70	8	8	10	-0.6210
South East	620	420	200	22	23	22	0.3260
South West	240	160	80	10	9	11	-0.6199
Rocky Mountains	100	80	20	3	4	3	0.1122
Far West	310	240	80	15	17	12	1.8344*
Outlying Area	20	10	#	1	1	#	0.2944
Gender							
Male	880	550	330	41	36	51	-5.1618*
Female	1,590	1,170	420	59	65	49	5.1618*
Age							
21 or younger	710	570	140	27	32	18	4.5815*
22	570	410	160	21	22	19	0.9888
23	300	190	110	12	10	16	-1.9783*
24 to 27	370	250	120	16	17	15	0.4705
28 or older	530	310	220	23	19	31	-4.0625*
Race							
White	1,930	1,360	570	74	75	74	0.3233
Black or African American	220	140	90	10	9	11	-0.5113
Asian	160	110	50	8	8	9	-0.1496
American Indian/Alaska Native	20	20	#	1	1	#	0.3259*
Native Hawaiian/Other Pacific Islander	10	10	10	1	1	1	0.0329
Other	130	90	40	6	6	6	-0.0211
Hispanic							
Yes	160	110	50	8	8	6	0.5941
No	2,320	1,610	710	92	92	94	-0.5941
Citizenship							
U.S. citizen	2,330	1,620	710	90	90	92	-0.6309
Resident alien	90	70	30	6	6	4	0.5580
Foreign/international student	50	40	20	4	4	4	0.0729

See notes at end of table.

Appendix H
Item Nonresponse Analysis

Table H.5. Comparison of item respondents and nonrespondents for “Hourly/weekly/monthly wage”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	1,230	920	310	48	52	38	4.8458*
Full-time/full year, more than 1 institution	140	100	40	4	4	4	0.0370
Full-time/part year	450	290	150	19	17	23	-1.8350
Part-time/full year, 1 institution	280	180	100	13	12	15	-0.9936
Part-time/full year, more than 1 institution	50	30	20	1	1	2	-0.2757
Part-time/part year	330	200	140	15	13	19	-1.7784
Parents' income (for dependent students)							
Less than \$10,000	40	30	10	1	1	1	-0.0522
\$10,000–\$19,999	80	50	30	3	3	4	-0.3664
\$20,000–\$29,999	120	80	40	5	4	6	-0.6767
\$30,000–\$39,999	120	90	30	4	5	4	0.0883
\$40,000–\$49,999	130	100	30	5	6	4	0.5672
\$50,000–\$59,999	150	120	30	6	6	5	0.6321
\$60,000–\$69,999	140	90	40	5	5	6	-0.1854
\$70,000–\$79,999	120	90	30	5	5	4	0.2574
\$80,000–\$99,999	210	160	50	8	9	6	1.0731
\$100,000 or more	310	240	70	12	13	9	1.5415
Student's income (for independent students)							
Less than \$5,000	200	130	60	8	8	6	0.6776
\$5,000–\$9,999	160	120	40	6	7	5	0.6491
\$10,000–\$19,999	180	130	50	7	8	6	0.4926
\$20,000–\$29,999	130	80	50	5	5	5	-0.1381
\$30,000–\$49,999	180	100	80	8	6	12	-1.9012*
\$50,000 or more	240	120	120	11	8	17	-2.6587*
Applied for aid							
Yes	1,320	970	350	50	51	46	1.8096
No	1,160	760	400	51	49	54	-1.8096
Receipt of federal aid							
Yes	1,130	830	310	44	45	40	1.6588
No	1,340	890	450	56	55	60	-1.6588
Receipt of Pell grant							
Yes	540	400	140	20	22	18	1.3843
No	1,940	1,330	610	80	78	82	-1.3843
Receipt of Stafford loan							
Yes	950	690	260	37	38	36	0.8265
No	1,520	1,030	490	63	62	64	-0.8265
Receipt of state aid							
Yes	460	340	120	16	17	14	0.8809
No	2,020	1,380	630	84	83	86	-0.8809
Receipt of institution aid							
Yes	810	610	200	29	32	23	2.8667*
No	1,660	1,110	550	71	68	77	-2.8667*
Receipt of any aid							
Yes	1,650	1,150	500	63	62	65	-0.8851
No	820	570	250	37	38	35	0.8851
Ever married							
Yes	870	560	320	34	31	41	-3.1920*
No	1,580	1,160	420	66	69	59	3.1920*
Dependents other than spouse							
Yes	460	300	160	18	17	21	-1.1835
No	1,990	1,420	570	82	83	79	1.1835

See notes at end of table.

Table H.5. Comparison of item respondents and nonrespondents for “Hourly/weekly/monthly wage”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence 1999–2000							
New England	130	90	40	6	6	6	–0.1038
Mid East	460	320	140	17	17	18	–0.3219
Great Lakes	380	250	130	16	14	18	–1.1095
Plains	190	130	60	8	3	9	–0.5255
Southeast	610	420	200	22	23	21	0.3953
Southwest	240	160	80	10	9	12	–0.7650
Rocky Mountains	90	70	20	3	3	4	–0.1189
Far West	340	260	80	17	19	13	1.9770*
Outlying Areas	40	30	10	2	3	1	0.5722
Current employment status for B&B interview							
Work full-time	910	290	620	39	16	87	–23.2064*
Work part-time	360	250	110	14	14	14	0.1508
Cumulative amount of Federal loans							
\$0	1,340	890	450	57	55	60	–1.6497
\$1 to \$2,499	260	180	80	10	10	9	0.0467
\$3,500 to \$7,499	480	350	130	18	19	17	0.4751
\$7,500 or more	390	290	90	16	17	14	1.1279

Rounds to zero.

†Not Applicable.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Table H.6. Comparison of item respondents and nonrespondents for “Spouse repaying student loans”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	1,680	1,390	290	67	68	64	0.7361
Non-doctorate-granting	570	470	100	22	22	22	-0.1260
Doctorate-granting	1,120	920	190	45	46	42	0.8621
Private not-for-profit 4-year	760	630	140	31	31	34	-0.5661
Non-doctorate-granting	520	420	100	22	21	26	-0.9292
Doctorate-granting	250	200	40	9	10	8	0.3631
Private for-profit 4-year	30	20	10	2	2	2	-0.1700
Institutional control and enrollment category							
Public							
Fewer than 2,500	40	30	10	2	1	1	-0.0290
2,500–4,999	130	120	20	5	6	4	0.3254
5,000–9,999	290	240	50	10	10	8	0.2726
10,000–19,999	460	380	80	19	19	20	-0.1244
20,000 or more	760	620	130	33	33	31	0.2914
Private not-for-profit							
Fewer than 1,000	100	80	20	3	3	3	-0.0377
1,000–2,499	190	160	40	8	8	8	-0.1222
2,500–4,999	230	180	50	9	9	12	-0.6637
5,000–9,999	110	200	10	5	5	3	0.3448
10,000 or more	130	110	20	6	6	7	-0.0872
Private for-profit							
Fewer than 999	10	#	#	#	#	1	-0.1483
1,000 or more	30	20	10	1	1	2	-0.0217
Institution region							
New England	71	60	20	3	3	4	-0.2472
Mid East	272	200	70	10	9	14	-0.8455
Great Lakes	429	350	80	18	18	17	0.1674
Plains	262	220	50	10	10	13	-0.6088
South East	690	580	110	26	27	22	0.8376
South West	322	280	50	13	14	9	0.9039
Rocky Mountains	162	150	20	6	6	6	0.0818
Far West	248	200	50	13	13	15	-0.4280
Outlying Area	19	20	#	1	1	1	0.1388
Gender							
Male	950	800	150	41	42	40	0.4052
Female	1,530	1,240	290	59	58	60	-0.4052
Age							
21 or younger	320	280	50	12	12	10	0.4756
22	460	390	70	17	18	14	0.7619
23	310	260	50	12	12	11	0.2467
24 to 27	480	410	80	21	21	16	0.9280
28 or older	900	700	200	39	36	50	-2.4123*
Race							
White	2,130	1,770	360	83	84	78	0.9978
Black or African American	140	100	40	7	6	12	-1.1493*
Asian	70	60	10	4	5	3	0.3180
American Indian/Alaska Native	20	20	#	1	1	1	0.0120
Native Hawaiian/Other Pacific Islander	10	10	#	1	#	1	-0.0348
Other	100	80	20	5	4	5	-0.1437
Hispanic							
Yes	140	120	30	8	8	8	-0.0282
No	2,330	1,920	410	92	92	92	0.0282
Citizenship							
U.S. citizen	2,380	1,960	420	94	95	93	0.1885
Resident alien	70	50	10	4	4	4	-0.0867
Foreign/international student	30	20	10	2	2	2	-0.1018

See notes at end of table.

Table H.6. Comparison of item respondents and nonrespondents for “Spouse repaying student loans”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	960	790	170	37	37	34	0.5475
Full-time/full year, more than 1 institution	70	60	10	3	3	4	-0.1850
Full-time/part year	620	520	100	25	25	23	0.3967
Part-time/full year, 1 institution	350	280	70	16	15	19	-0.7943
Part-time/full year, more than 1 institution	50	40	10	2	1	2	-0.1722
Part-time/part year	430	350	80	19	19	18	0.2073
Parents' income (for dependent students)							
Less than \$10,000	20	20	10	1	1	2	-0.1275
\$10,000–\$19,999	40	30	10	2	2	3	-0.1989
\$20,000–\$29,999	60	50	10	2	2	2	-0.0528
\$30,000–\$39,999	80	70	10	3	3	2	0.2141
\$40,000–\$49,999	100	90	10	4	4	2	0.3409
\$50,000–\$59,999	90	80	10	3	4	2	0.2571
\$60,000–\$69,999	90	70	20	4	4	4	-0.0726
\$70,000–\$79,999	70	50	20	3	3	3	-0.0537
\$80,000–\$99,999	110	90	20	4	4	4	0.0723
\$100,000 or more	130	110	20	5	5	4	0.3255
Student's income (for independent students)							
Less than \$5,000	140	110	20	6	6	4	0.3641
\$5,000–\$9,999	140	110	30	5	5	5	0.0601
\$10,000–\$19,999	290	240	40	11	11	9	0.3459
\$20,000–\$29,999	230	190	40	9	9	9	-0.0034
\$30,000–\$49,999	380	310	70	16	16	16	-0.0571
\$50,000 or more	530	410	110	23	22	30	-1.4142
Applied for aid							
Yes	1,390	1,150	240	54	55	52	0.6011
No	1,090	890	200	46	45	48	-0.6011
Receipt of federal aid							
Yes	1,220	1,010	210	48	48	45	0.5619
No	1,250	1,030	230	52	52	55	-0.5619
Receipt of Pell grant							
Yes	630	530	110	24	24	23	0.2219
No	1,840	1,510	330	76	76	77	-0.2219
Receipt of Stafford loan							
Yes	1,020	830	180	40	40	39	0.1501
No	1,460	1,200	260	60	60	61	-0.1501
Receipt of state aid							
Yes	450	370	90	16	16	16	0.0532
No	2,020	1,670	350	84	84	84	-0.0532
Receipt of institution aid							
Yes	710	600	120	26	26	24	0.3907
No	1,760	1,440	320	74	74	76	-0.3907
Receipt of any aid							
Yes	1,790	1,480	310	70	70	69	0.3118
No	690	560	130	30	30	32	-0.3118
Dependents other than spouse							
Yes	1,020	830	190	41	40	46	-1.0602
No	1,430	1,200	230	59	60	54	1.0602

See notes at end of table.

Table H.6. Comparison of item respondents and nonrespondents for “Spouse repaying student loans”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence 1999–2000							
New England	80	60	20	3	3	4	-0.1989
Mid East	270	200	70	10	9	15	-1.1113
Great Lakes	430	350	80	17	17	18	-0.0764
Plains	240	190	50	9	9	12	-0.6802
Southeast	690	590	100	26	27	21	1.0505
Southwest	320	270	50	13	14	9	0.8478
Rocky Mountains	150	140	10	6	6	5	0.2114
Far West	270	220	50	13	13	15	-0.2916
Outlying Areas	40	30	10	2	3	1	0.2486
Current employment status for B&B interview							
Work full-time	1,870	1,560	310	77	77	76	0.2937
Work part-time	270	210	60	10	9	13	-0.6247
Waiting to report to work/layoff	30	30	10	1	1	2	-0.2235
Not working	220	180	40	9	10	9	0.1841
Homemaker	60	50	10	2	3	1	0.4240*
Disabled	#	#	#	#	#	#	-0.0537
Cumulative amount of Federal loans							
\$0	1,250	1,030	230	52	52	55	-0.5423
\$1 to \$2,499	340	290	50	13	14	11	0.5627
\$3,500 to \$7,499	510	410	100	20	19	21	-0.4318
\$7,500 or more	370	310	60	15	15	13	0.4115

Rounds to zero.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Table H.7. Comparison of item respondents and nonrespondents for “Amount spouse owes on student loans”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	1,680	1,390	290	67	68	64	0.7425
Non-doctorate-granting	570	470	100	22	22	22	-0.1103
Doctorate-granting	1,120	920	190	45	46	42	0.8528
Private not-for-profit 4-year	760	630	140	31	31	34	-0.5722
Non-doctorate-granting	520	420	100	22	21	26	-0.9333
Doctorate-granting	250	200	40	9	10	8	0.3612
Private for-profit 4-year	30	20	10	2	2	2	-0.1704
Institutional control and enrollment category							
Public							
Fewer than 2,500	40	30	10	1	1	1	-0.0292
2,500–4,999	130	120	20	5	6	4	0.3243
5,000–9,999	290	240	50	10	10	8	0.2908
10,000–19,999	460	380	80	19	19	20	-0.1282
20,000 or more	760	620	130	33	33	31	0.2848
Private not-for-profit							
Fewer than 1,000	100	80	20	3	3	3	-0.0384
1,000–2,499	190	160	40	8	8	8	-0.1238
2,500–4,999	230	180	50	9	9	12	-0.6655
5,000–9,999	110	100	10	5	5	3	0.3438
10,000 or more	130	110	20	6	6	7	-0.0884
Private for-profit							
Fewer than 999	10	#	#	#	#	1	-0.1484
1,000 or more	30	20	10	1	1	2	-0.0220
Institution region							
New England	70	60	20	3	3	4	-0.2478
Mid East	270	200	70	10	9	14	-0.8272
Great Lakes	430	350	80	18	18	17	0.1638
Plains	260	210	50	10	10	13	-0.6107
South East	690	580	110	26	27	22	0.8322
South West	320	280	50	13	14	9	0.9011
Rocky Mountains	160	150	20	6	6	6	0.0805
Far West	250	200	50	13	13	15	-0.4306
Outlying Area	20	20	#	1	1	1	0.1385
Gender							
Male	950	800	150	41	42	40	0.3968
Female	1,530	1,240	290	59	58	60	-0.3968
Age							
21 or younger	320	280	50	12	12	10	0.4933
22	460	390	70	17	18	14	0.7583
23	3010	260	50	12	12	11	0.2443
24 to 27	480	410	80	21	21	16	0.9237
28 or older	900	700	200	39	36	50	-2.4196*
Race							
White	2,130	1,770	360	83	84	78	0.9809
Black or African American	140	100	40	7	6	12	-1.1504*
Asian	70	60	10	4	5	3	0.3170
American Indian/Alaska Native	20	20	#	1	1	1	0.0118
Native Hawaiian/Other Pacific Islander	10	10	#	1	#	1	-0.0349
Other	100	80	20	5	4	5	-0.1245
Hispanic							
Yes	140	120	30	8	8	8	-0.0298
No	2,330	1,920	410	92	92	92	0.0298
Citizenship							
U.S. citizen	2,380	1,970	420	94	95	93	0.1897
Resident alien	70	50	10	4	4	4	-0.0875
Foreign/international student	30	20	10	2	2	2	-0.1022

See notes at end of table.

Table H.7. Comparison of item respondents and nonrespondents for “Amount spouse owes on student loans”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	960	790	170	37	37	34	0.5400
Full-time/full year, more than 1 institution	70	60	10	3	3	4	-0.1855
Full-time/part year	620	520	100	25	25	23	0.4118
Part-time/full year, 1 institution	350	280	70	16	15	19	-0.7973
Part-time/full year, more than 1 institution	50	40	10	2	1	2	-0.1725
Part-time/part year	430	350	80	19	19	18	0.2034
Parents' income (for dependent students)							
Less than \$10,000	20	20	10	1	1	2	-0.1276
\$10,000–\$19,999	40	30	10	2	2	3	-0.1992
\$20,000–\$29,999	60	50	10	2	2	2	-0.0532
\$30,000–\$39,999	80	70	10	3	3	2	0.2135
\$40,000–\$49,999	100	90	10	4	4	2	0.3400
\$50,000–\$59,999	90	80	10	3	4	2	0.2564
\$60,000–\$69,999	90	70	20	4	4	4	-0.0733
\$70,000–\$79,999	70	50	20	3	3	3	-0.0542
\$80,000–\$99,999	110	90	20	4	4	4	0.0715
\$100,000 or more	130	110	20	5	5	4	0.3245
Student's income (for independent students)							
Less than \$5,000	140	110	20	6	6	4	0.3629
\$5,000–\$9,999	140	110	30	5	5	5	0.0591
\$10,000–\$19,999	290	240	40	11	11	9	0.3638
\$20,000–\$29,999	230	190	40	9	9	9	-0.0053
\$30,000–\$49,999	380	310	70	16	16	16	-0.0603
\$50,000 or more	530	410	110	23	22	30	-1.4186
Applied for aid							
Yes	1,390	1,150	240	54	55	52	0.6102
No	1,090	890	200	46	45	48	-0.6102
Receipt of federal aid							
Yes	1,220	1,010	210	48	49	45	0.5722
No	1,250	1,030	230	52	52	55	-0.5722
Receipt of Pell grant							
Yes	630	530	110	24	24	23	0.2371
No	1,840	1,510	330	76	76	77	-0.2371
Receipt of Stafford loan							
Yes	1,020	830	180	40	40	39	0.1622
No	1,460	1,200	260	60	60	61	-0.1622
Receipt of state aid							
Yes	450	370	90	16	16	16	0.0701
No	2,020	1,670	350	84	84	85	-0.0701
Receipt of institution aid							
Yes	710	600	110	26	26	24	0.4055
No	1,760	1,440	320	74	74	76	-0.4055
Receipt of any aid							
Yes	1,790	1,480	300	70	70	69	0.3178
No	690	560	130	30	30	32	-0.3178
Dependents other than spouse							
Yes	1,020	830	190	41	40	46	-1.0475
No	1,430	1,200	230	59	60	54	1.0475

See notes at end of table.

Table H.7. Comparison of item respondents and nonrespondents for “Amount spouse owes on student loans”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence 1999–2000							
New England	80	60	20	3	3	4	-0.1995
Mid East	270	200	70	10	9	15	-1.0930
Great Lakes	430	350	80	17	17	18	-0.0798
Plains	240	190	50	9	9	12	-0.6819
Southeast	690	590	100	26	27	21	1.0450
Southwest	320	270	50	13	14	9	0.8450
Rocky Mountains	150	140	10	6	6	5	0.2103
Far West	270	220	50	13	13	15	-0.2942
Outlying Areas	40	30	10	2	3	1	0.2481
Current employment status for B&B interview							
Work full-time	1,870	1,560	310	77	77	76	0.2985
Work part-time	270	210	60	10	9	13	-0.6266
Waiting to report to work/layoff	30	30	10	1	1	2	-0.2237
Not working	220	180	40	9	10	9	0.1821
Homemaker	60	50	10	2	3	1	0.4234*
Disabled	#	#	#	#	#	#	-0.0537
Cumulative amount of Federal loans							
\$0	1,250	1,030	230	52	52	55	-0.5528
\$1 to \$2,499	340	290	50	13	14	11	0.5599
\$3,500 to \$7,499	510	410	100	20	19	21	-0.4155
\$7,500 or more	370	310	60	15	15	13	0.4084

Rounds to zero.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Appendix H
Item Nonresponse Analysis

Table H.8. Comparison of item respondents and nonrespondents for “Amount spouse borrowed in loans”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	1,680	1,410	2,710	67	68	63	0.8360
Non-doctorate-granting	570	480	90	22	22	22	0.0436
Doctorate-granting	1,120	930	180	45	46	42	0.7924
Private not-for-profit 4-year	760	630	130	31	30	34	-0.6470
Non-doctorate-granting	520	430	90	22	21	26	-0.9166
Doctorate-granting	250	210	40	9	10	8	0.2696
Private for-profit 4-year	30	20	10	2	2	3	-0.1890
Institutional control and enrollment category							
Public							
Fewer than 2,500	40	30	10	1	1	1	0.0350
2,500–4,999	130	120	10	5	6	4	0.3228
5,000–9,999	290	240	50	10	10	8	0.2503
10,000–19,999	460	390	80	19	19	20	-0.0736
20,000 or more	760	630	130	33	33	31	0.3017
Private not-for-profit							
Fewer than 1,000	100	80	20	3	3	3	-0.0369
1,000–2,499	190	160	30	8	8	8	-0.1152
2,500–4,999	230	180	40	9	9	12	-0.6424
5,000–9,999	110	100	10	5	5	3	0.3108
10,000 or more	130	110	20	6	6	7	-0.1634
Private for-profit							
Fewer than 999	10	#	#	#	#	1	-0.1499
1,000 or more	30	20	10	1	1	2	-0.0391
Institution region							
New England	70	60	20	3	3	4	-0.2802
Mid East	270	210	60	10	9	13	-0.6513
Great Lakes	430	360	70	18	18	17	0.1660
Plains	260	210	50	10	10	13	-0.5707
South East	690	590	100	26	27	23	0.7642
South West	320	280	50	13	14	9	0.7463
Rocky Mountains	160	150	20	6	6	6	0.0633
Far West	250	200	40	13	13	15	-0.4063
Outlying Area	20	20	#	1	1	#	0.1687
Gender							
Male	950	810	140	41	42	40	0.4018
Female	1,530	1,260	270	59	58	61	-0.4018
Age							
21 or younger	30	280	40	12	12	10	0.4998
22	460	400	70	17	18	13	0.8095
23	310	270	40	12	12	11	0.2525
24 to 27	480	420	80	21	21	16	0.9283
28 or older	900	700	190	39	36	51	-2.4901*
Race							
White	2,130	1,800	340	83	84	79	0.8761
Black or African American	140	100	40	7	6	11	-0.9610
Asian	70	60	10	4	5	3	0.2603
American Indian/Alaska Native	20	20	#	1	1	1	-0.0033
Native Hawaiian/Other Pacific Islander	10	10	#	1	#	1	-0.0401
Other	100	80	20	5	4	5	-0.1321
Hispanic							
Yes	140	120	20	8	8	8	0.0666
No	2,330	1,950	390	92	92	92	-0.0666
Citizenship							
U.S. citizen	2,380	1,990	390	94	94	94	0.1115
Resident alien	70	50	10	4	4	5	-0.1345
Foreign/international student	30	20	10	2	2	2	0.0229

See notes at end of table.

Table H.8. Comparison of item respondents and nonrespondents for “Amount spouse borrowed in loans”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	960	810	150	37	37	34	0.5188
Full-time/full year, more than 1 institution	70	60	10	3	2	4	-0.2157
Full-time/part year	620	520	90	25	25	22	0.4472
Part-time/full year, 1 institution	350	280	70	16	15	19	-0.7378
Part-time/full year, more than 1 institution	50	40	10	2	1	2	-0.1605
Part-time/part year	430	350	70	19	19	18	0.1480
Parents' income (for dependent students)							
Less than \$10,000	20	20	#	1	1	1	-0.0216
\$10,000–\$19,999	40	30	10	2	2	3	-0.1725
\$20,000–\$29,999	60	50	10	2	2	2	-0.0298
\$30,000–\$39,999	80	70	10	3	3	2	0.2366
\$40,000–\$49,999	100	90	10	4	4	3	0.2877
\$50,000–\$59,999	90	80	100	3	4	2	0.2685
\$60,000–\$69,999	90	80	10	4	4	4	0.0284
\$70,000–\$79,999	70	60	10	3	3	3	-0.0494
\$80,000–\$99,999	110	100	20	4	4	4	0.0491
\$100,000 or more	130	110	20	5	5	4	0.2602
Student's income (for independent students)							
Less than \$5,000	140	110	20	6	6	4	0.2907
\$5,000–\$9,999	140	110	30	5	5	5	0.0242
\$10,000–\$19,999	290	250	40	11	11	9	0.4727
\$20,000–\$29,999	230	190	40	9	9	10	-0.1018
\$30,000–\$49,999	380	320	60	16	16	16	-0.0550
\$50,000 or more	530	420	110	23	22	31	-1.4880
Applied for aid							
Yes	1,390	1,170	220	54	55	50	0.8481
No	1,090	900	190	46	45	50	-0.8481
Receipt of federal aid							
Yes	1,220	1,030	190	48	49	44	0.7318
No	1,250	1,040	220	52	51	56	-0.7318
Receipt of Pell grant							
Yes	630	540	90	24	25	22	0.4371
No	1,840	1,530	320	76	75	78	-0.4371
Receipt of Stafford loan							
Yes	1,020	850	170	40	41	38	0.3662
No	1,460	1,220	240	60	60	62	-0.3662
Receipt of state aid							
Yes	450	370	80	16	16	15	0.1769
No	2,020	1,690	330	84	84	85	-0.1769
Receipt of institution aid							
Yes	710	610	100	26	26	23	0.5828
No	1,760	1,460	310	74	74	77	-0.5828
Receipt of any aid							
Yes	1,790	1,500	280	70	70	69	0.2533
No	690	560	130	30	30	31	-0.2533
Ever married							
Yes	0	0	0	0	0	0	0.0000
No	2,450	2,070	380	100	100	100	0.0000
Dependents other than spouse							
Yes	1,020	840	180	41	40	47	-1.1658
No	1,430	1,220	210	59	60	53	1.1658

See notes at end of table.

Table H.8. Comparison of item respondents and nonrespondents for “Amount spouse borrowed in loans”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence 1999–2000							
New England	80	60	20	3	3	4	-0.2358
Mid East	270	210	60	10	9	14	-0.9069
Great Lakes	430	350	80	17	17	18	-0.0663
Plains	240	190	50	9	9	12	-0.6314
Southeast	690	590	90	26	27	21	0.9664
Southwest	320	270	50	13	14	10	0.6914
Rocky Mountains	150	140	10	6	6	5	0.1940
Far West	270	220	50	13	13	15	-0.2745
Outlying Areas	40	30	10	2	3	1	0.2631
Current employment status for B&B interview							
Work full-time	1,870	1,580	290	77	77	76	0.2477
Work part-time	270	220	60	10	9	13	-0.6266
Waiting to report to work/layoff	30	30	10	1	1	2	-0.0868
Not working	220	190	30	9	10	9	0.1317
Homemaker	60	50	10	2	3	1	0.3885*
Disabled	#	#	#	#	#	#	-0.0546
Cumulative amount of Federal loans							
\$0	1,250	1,040	220	52	52	56	-0.7154
\$1 to \$2,499	340	290	50	13	14	10	0.6585
\$3,500 to \$7,499	510	420	90	20	19	21	-0.2920
\$7,500 or more	370	310	60	15	15	13	0.3490

Rounds to zero.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Table H.9. Comparison of item respondents and nonrespondents for “Spouse’s monthly student loan payment”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	1,540	1,230	310	67	68	65	0.6588
Non-doctorate-granting	560	460	110	22	22	23	-0.3323
Doctorate-granting	1,120	920	200	45	46	41	1.0189
Private not-for-profit 4-year	700	560	140	31	31	33	-0.4928
Non-doctorate-granting	520	420	100	22	21	25	-0.8947
Doctorate-granting	250	200	40	9	10	8	0.3801
Private for-profit 4-year	30	20	10	2	2	2	-0.1720
Institutional control and enrollment category							
Public							
Fewer than 2,500	40	30	10	1	1	1	-0.0323
2,500–4,999	130	110	20	5	6	4	0.4161
5,000–9,999	260	210	60	9	9	9	-0.0047
10,000–19,999	430	340	90	20	19	20	-0.0943
20,000 or more	690	550	140	33	33	31	0.3740
Private not-for-profit							
Fewer than 1,000	90	70	20	3	3	3	-0.0417
1,000–2,499	180	140	40	8	8	8	-0.0731
2,500–4,999	210	160	50	9	9	12	-0.7228
5,000–9,999	110	90	20	5	5	3	0.3774
10,000 or more	120	100	20	6	6	6	-0.0327
Private for-profit							
Fewer than 999	10	#	#	#	#	1	-0.1575
1,000 or more	20	20	10	1	1	2	-0.0085
Institution region							
New England	70	50	20	3	3	4	-0.2216
Mid East	250	180	70	10	9	14	-0.9895
Great Lakes	390	300	80	18	18	17	0.1924
Plains	230	170	60	10	9	13	-0.8049
South East	650	540	110	27	28	22	1.3194
South West	290	240	50	13	14	10	0.8340
Rocky Mountains	140	130	20	6	6	6	0.0601
Far West	230	180	50	13	12	15	-0.5641
Outlying Area	20	10	#	1	1	1	0.1742
Gender							
Male	850	700	160	41	41	40	0.2129
Female	1,410	1,120	300	59	59	60	-0.2129
Age							
21 or younger	290	230	60	12	12	11	0.2530
22	420	340	80	17	18	14	0.7865
23	280	230	50	12	12	11	0.2062
24 to 27	440	360	80	20	21	16	1.0546
28 or older	850	650	200	40	38	49	-2.3002*
Race							
White	1,960	1,580	380	83	84	79	1.0693
Black or African American	130	90	40	7	6	12	-1.2531*
Asian	70	60	10	4	5	3	0.3943
American Indian/Alaska Native	20	20	#	1	1	1	-0.0193
Native Hawaiian/Other Pacific Islander	10	#	#	#	#	1	-0.0587
Other	90	70	20	5	4	5	-0.1324
Hispanic							
Yes	140	110	30	8	8	8	0.0220
No	2,130	1,700	430	92	92	92	-0.0220
Citizenship							
U.S. citizen	2,190	1,750	440	95	95	94	0.2431
Resident alien	60	40	20	4	4	4	-0.1094
Foreign/international student	20	20	10	2	2	2	-0.1337

See notes at end of table.

Table H.9. Comparison of item respondents and nonrespondents for “Spouse’s monthly student loan payment”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	850	680	180	35	36	34	0.2465
Full-time/full year, more than 1 institution	70	50	20	3	3	4	-0.2060
Full-time/part year	570	460	110	24	25	23	0.2761
Part-time/full year, 1 institution	320	250	70	16	15	19	-0.7873
Part-time/full year, more than 1 institution	50	40	10	2	1	2	-0.1913
Part-time/part year	410	340	80	21	21	18	0.6620
Parents’ income (for dependent students)							
Less than \$10,000	20	10	10	1	1	2	-0.1287
\$10,000–\$19,999	40	30	10	2	1	3	-0.2451
\$20,000–\$29,999	50	40	10	2	2	2	-0.0773
\$30,000–\$39,999	60	50	10	3	3	2	0.1316
\$40,000–\$49,999	80	70	10	4	4	3	0.3052
\$50,000–\$59,999	80	70	10	3	4	2	0.2443
\$60,000–\$69,999	80	60	20	4	4	4	-0.0413
\$70,000–\$79,999	70	50	20	3	2	3	-0.2103
\$80,000–\$99,999	100	80	20	4	4	4	0.0639
\$100,000 or more	120	100	20	5	6	4	0.3829
Student’s income (for independent students)							
Less than \$5,000	120	90	20	5	6	5	0.2063
\$5,000–\$9,999	120	90	30	5	4	5	-0.0674
\$10,000–\$19,999	250	200	50	10	10	9	0.1404
\$20,000–\$29,999	210	170	40	9	9	9	0.0440
\$30,000–\$49,999	360	300	70	16	17	16	0.2273
\$50,000 or more	520	400	120	25	24	29	-0.9759
Applied for aid							
Yes	1,220	970	250	52	52	52	0.0806
No	1,040	840	200	48	48	48	-0.0806
Receipt of federal aid							
Yes	1,070	850	220	46	46	46	-0.0232
No	1,200	960	240	54	55	54	0.0232
Receipt of Pell grant							
Yes	540	430	110	22	22	23	-0.1501
No	1,730	1,380	350	78	78	77	0.1501
Receipt of Stafford loan							
Yes	890	690	190	38	37	40	-0.5345
No	1,380	1,120	260	62	63	60	0.5345
Receipt of state aid							
Yes	400	310	90	15	14	16	-0.3566
No	1,870	1,510	370	85	86	84	0.3566
Receipt of institution aid							
Yes	630	510	120	25	26	24	0.2969
No	1,640	1,300	340	75	75	76	-0.2969
Receipt of any aid							
Yes	1,610	1,290	320	69	69	69	-0.0090
No	660	520	140	31	31	31	0.0090
Dependents other than spouse							
Yes	930	740	190	41	40	46	-1.2412
No	1,310	1,070	240	59	60	54	1.2412

See notes at end of table.

Table H.9. Comparison of item respondents and nonrespondents for “Spouse’s monthly student loan payment”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student’s state of legal residence 1999–2000							
New England	70	60	20	3	3	4	-0.1875
Mid East	250	180	70	10	9	15	-1.2487
Great Lakes	380	300	90	17	17	18	-0.1606
Plains	210	160	50	9	8	12	-0.8074
Southeast	640	540	100	27	28	21	1.4805
Southwest	290	240	50	13	14	10	0.7701
Rocky Mountains	140	120	20	6	6	5	0.2372
Far West	240	190	50	13	13	15	-0.3911
Outlying Areas	30	30	10	2	3	1	0.3074
Current employment status for B&B interview							
Work full-time	1,720	1,400	330	77	78	76	0.3792
Work part-time	250	180	70	9	9	12	-0.7918
Waiting to report to work/layoff	30	20	10	1	1	2	-0.2175
Not working	200	160	40	10	10	9	0.2231
Homemaker	50	50	10	2	3	1	0.4634*
Disabled	#	#	#	#	#	#	-0.0565
Cumulative amount of Federal loans							
\$0	1,200	960	240	55	55	54	0.0423
\$1 to \$2,499	300	250	60	13	13	11	0.3986
\$3,500 to \$7,499	450	350	100	19	18	21	-0.6774
\$7,500 or more	310	250	60	14	14	13	0.2365

Rounds to zero.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Appendix H
Item Nonresponse Analysis

Table H.10. Comparison of item respondents and nonrespondents for “Sections taught per day—current job”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	1,020	730	290	68	69	65	0.9440
Non-doctorate-granting	430	300	120	27	28	26	0.5400
Doctorate-granting	590	420	170	40	41	39	0.4040
Private not-for-profit 4-year	480	330	150	32	31	34	-0.8670
Non-doctorate-granting	330	230	100	22	21	25	-1.0493
Doctorate-granting	150	100	50	10	10	9	0.1823
Private for-profit 4-year	#	#	#	#	#	#	-0.0770
Institutional control and enrollment category							
Public							
Fewer than 2,500	20	20	10	1	1	0	0.1017
2,500–4,999	80	60	20	6	6	6	0.1237
5,000–9,999	230	170	60	13	14	11	0.8714
10,000–19,999	310	230	90	21	21	20	0.1723
20,000 or more	370	260	110	27	27	28	-0.3251
Private not-for-profit							
Fewer than 1,000	60	40	20	3	3	5	-0.6041
1,000–2,499	120	100	30	8	9	5	1.1645
2,500–4,999	150	100	60	10	8	13	-1.3248
5,000–9,999	80	50	20	5	5	5	0.2264
10,000 or more	70	50	20	6	6	7	-0.3290
Private for-profit							
Fewer than 999	#	#	0	#	#	0	0.0181
1,000 or more	#	0	#	#	0	#	-0.0951
Institution region							
New England	80	50	30	6	6	6	0.0400
Mid East	270	180	80	16	17	15	0.3263
Great Lakes	240	170	60	18	19	16	0.6883
Plains	150	100	40	9	9	9	-0.1996
South East	430	320	120	25	25	24	0.3632
South West	180	120	50	13	13	14	-0.3551
Rocky Mountains	50	40	10	3	3	3	0.0406
Far West	110	60	50	10	9	13	-1.3076
Outlying Area	10	10	0	1	1	0	0.4040
Gender							
Male	370	310	60	28	32	19	3.7080*
Female	1,130	750	390	72	68	81	-3.7080*
Age							
21 or younger	360	240	120	22	21	24	-0.8458
22	420	300	120	26	26	24	0.7371
23	220	170	60	16	17	12	1.4465
24 to 27	240	170	70	18	17	20	-0.9659
28 or older	270	190	80	19	19	20	-0.3720
Race							
White	1,280	920	360	82	84	76	2.1173
Black or African American	120	80	40	9	9	10	-0.2173
Asian	20	10	10	1	1	2	-0.4571
American Indian/Alaska Native	10	10	#	1	1	1	-0.0841
Native Hawaiian/Other Pacific Islander	10	#	#	1	#	1	-0.2559
Other	80	50	30	7	6	9	-1.1029
Hispanic							
Yes	130	90	40	13	12	15	-1.1161
No	1,380	970	400	87	88	85	1.1161
Citizenship							
U.S. citizen	1,470	1,040	440	96	96	97	-0.4949
Resident alien	30	20	10	3	4	2	0.4810
Foreign/international student	#	#	#	1	1	1	0.0139

See notes at end of table.

Table H.10. Comparison of item respondents and nonrespondents for “Sections taught per day—current job”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	710	490	220	44	42	47	-1.4680
Full-time/full year, more than 1 institution	50	40	20	3	3	3	0.0501
Full-time/part year	430	310	120	28	29	26	0.7231
Part-time/full year, 1 institution	140	100	40	11	11	11	0.0705
Part-time/full year, more than 1 institution	20	20	#	2	2	1	0.4841
Part-time/part year	150	100	40	13	13	12	0.1401
Parents' income (for dependent students)							
Less than \$10,000	30	20	10	2	2	2	0.0255
\$10,000–\$19,999	40	30	10	3	3	3	0.1995
\$20,000–\$29,999	70	50	20	4	4	5	-0.4716
\$30,000–\$39,999	80	50	30	6	5	6	-0.3169
\$40,000–\$49,999	90	70	20	6	6	4	0.8390
\$50,000–\$59,999	100	70	30	6	6	6	-0.0533
\$60,000–\$69,999	100	70	30	7	7	7	0.1211
\$70,000–\$79,999	90	60	30	5	6	5	0.2454
\$80,000–\$99,999	100	70	30	6	6	5	0.2879
\$100,000 or more	150	100	50	9	9	9	0.0360
Student's income (for independent students)							
Less than \$5,000	120	90	40	8	8	8	0.1865
\$5,000–\$9,999	110	80	30	8	7	9	-0.5451
\$10,000–\$19,999	140	100	40	9	9	9	0.0265
\$20,000–\$29,999	110	80	30	7	7	7	-0.0913
\$30,000–\$49,999	120	80	30	8	8	7	0.3577
\$50,000 or more	70	50	20	6	5	8	-0.8470
Applied for aid							
Yes	1,040	720	320	69	68	73	-1.4705
No	470	340	130	31	33	27	1.4705
Receipt of federal aid							
Yes	900	630	280	60	59	63	-1.0389
No	600	430	170	40	41	37	1.0389
Receipt of Pell grant							
Yes	460	330	130	30	29	32	-0.7415
No	1,050	730	310	70	71	68	0.7415
Receipt of Stafford loan							
Yes	770	530	240	52	50	55	-1.5828
No	740	530	210	49	50	45	1.5828
Receipt of state aid							
Yes	370	260	110	21	21	22	-0.3446
No	1,130	800	330	79	79	78	0.3446
Receipt of institution aid							
Yes	550	400	150	33	34	32	0.7520
No	960	660	300	67	66	68	-0.7520
Receipt of any aid							
Yes	1,140	800	340	73	73	74	-0.2587
No	370	260	110	27	27	26	0.2587
Ever married							
Yes	700	510	190	44	45	41	1.4111
No	790	550	240	56	55	59	-1.4111
Dependents other than spouse							
Yes	380	270	110	25	24	27	-0.9323
No	1,120	790	330	75	76	73	0.9323

See notes at end of table.

Table H.10. Comparison of item respondents and nonrespondents for “Sections taught per day—current job”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence							
1999–2000							
New England	70	40	30	5	5	4	0.0892
Mid East	270	180	90	17	18	17	0.2028
Great Lakes	250	190	70	19	19	18	0.3560
Plains	120	90	30	7	7	5	0.6483
Southeast	430	310	120	24	25	24	0.1197
Southwest	170	120	50	13	13	14	-0.3820
Rocky Mountains	50	40	10	3	3	3	0.1068
Far West	120	70	50	11	9	15	-1.7000
Outlying Areas	10	10	#	2	2	#	0.5593*
Current employment status for B&B interview							
Work full-time	1,360	970	380	91	90	91	-0.2527
Work part-time	70	50	20	5	5	4	0.4418
Waiting to report to work/layoff	10	10	0	1	1	0	0.2272
Not working	40	20	20	4	3	5	-0.5067
Homemaker	10	10	0	#	#	0	0.0903
Cumulative amount of Federal loans							
\$0	600	430	170	40	41	38	0.9937
\$1 to \$2,499	260	170	80	15	16	15	0.1149
\$3,500 to \$7,499	400	280	120	28	28	27	0.2893
\$7,500 or more	240	170	80	17	16	20	-1.3979

Rounds to zero. All zeros provided in this table are actual values.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Table H.11. Comparison of item respondents and nonrespondents for “Time scale of pay—hourly/weekly/monthly”

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Institutional sector							
Public 4-year	810	320	490	63	61	65	-2.0440
Non-doctorate-granting	260	100	160	18	17	18	-0.3207
Doctorate-granting	550	220	340	46	44	47	-1.8344
Private not-for-profit 4-year	460	220	240	35	37	33	2.8054
Non-doctorate-granting	290	140	150	23	25	23	1.4579
Doctorate-granting	180	80	90	11	13	10	1.4469
Private for-profit 4-year	20	#	20	2	1	2	-0.7497
Institutional control and enrollment category							
Public							
Fewer than 2,500	10	10	#	1	1	#	0.5552
2,500–4,999	40	10	30	3	1	3	-1.1477
5,000–9,999	140	60	80	8	8	8	-0.0281
10,000–19,999	250	100	160	19	19	19	0.0687
20,000 or more	370	150	230	33	32	34	-1.4920
Private not-for-profit							
Fewer than 1,000	50	30	20	3	4	2	1.3439
1,000–2,499	120	60	60	9	10	8	1.1896
2,500–4,999	130	60	70	10	10	10	0.2419
5,000–9,999	80	30	50	6	6	6	-0.3369
10,000 or more	100	50	50	7	8	7	0.3669
Private for-profit							
Fewer than 999	#	#	#	#	#	#	-0.0933
1,000 or more	20	#	10	2	1	2	-0.6681
Institution region							
New England	70	30	40	6	6	6	-0.4574
Mid East	240	100	140	17	19	17	1.3078
Great Lakes	230	100	130	19	17	20	-1.9522
Plains	120	60	70	10	10	10	0.4432
South East	330	130	200	22	23	22	0.5786
South West	130	50	80	10	8	11	-2.2838
Rocky Mountains	40	20	20	3	3	3	-0.1798
Far West	130	60	70	12	14	11	1.7496
Outlying Area	10	10	#	1	1	#	0.7939
Gender							
Male	490	160	330	44	33	51	-11.1173*
Female	800	380	420	56	67	49	11.1173*
Age							
21 or younger	310	180	140	23	33	17	9.7241*
22	310	150	160	21	24	19	2.7459
23	180	70	110	15	12	16	-2.4961
24 to 27	190	70	120	16	16	16	0.0116
28 or older	300	80	220	25	15	32	-9.9855*
Race							
White	1,020	450	570	76	78	74	2.7546
Black or African American	130	50	90	11	11	11	0.1064
Asian	70	20	50	7	4	9	-3.1094*
American Indian/Alaska Native	10	10	#	1	1	#	0.6151
Native Hawaiian/Other Pacific Islander	10	#	10	1	1	1	0.1788
Other	60	20	40	5	5	6	-0.5456
Hispanic							
Yes	80	30	50	7	8	6	1.3063
No	1,220	510	710	93	92	94	-1.3063
Citizenship							
U.S. citizen	1,220	520	710	91	91	91	-0.3423
Resident alien	50	20	30	5	5	5	0.4517
Foreign/international student	30	10	20	4	4	4	-0.1095

See notes at end of table.

Table H.11. Comparison of item respondents and nonrespondents for “Time scale of pay—hourly/weekly/monthly”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Attendance status							
Full-time/full year, 1 institution	610	310	300	45	57	38	11.8537*
Full-time/full year, more than 1 institution	70	30	40	4	4	4	-0.4853
Full-time/part year	240	90	150	20	15	23	-4.5966*
Part-time/full year, 1 institution	150	50	100	14	11	15	-2.5997
Part-time/full year, more than 1 institution	30	10	20	1	#	2	-0.9117*
Part-time/part year	190	60	140	16	13	18	-3.2604
Parents' income (for dependent students)							
Less than \$10,000	20	10	10	1	2	1	0.6395*
\$10,000–\$19,999	50	20	30	4	3	4	-0.5192*
\$20,000–\$29,999	70	30	40	6	5	6	-0.9832
\$30,000–\$39,999	60	30	30	4	5	4	0.7944
\$40,000–\$49,999	70	40	30	5	7	4	1.7741
\$50,000–\$59,999	80	50	30	6	8	5	1.7748
\$60,000–\$69,999	70	30	40	5	4	6	-1.0113
\$70,000–\$79,999	60	30	30	5	7	4	1.8085
\$80,000–\$99,999	100	50	50	7	9	6	1.9046
\$100,000 or more	140	80	70	11	14	9	3.3712
Student's income (for independent students)							
Less than \$5,000	110	50	60	8	10	6	2.1374
\$5,000–\$9,999	70	30	40	6	7	5	0.7952
\$10,000–\$19,999	80	30	50	6	6	7	-0.1246
\$20,000–\$29,999	60	20	50	4	2	5	-1.7866
\$30,000–\$49,999	110	30	80	10	7	12	-3.2168
\$50,000 or more	140	20	120	12	5	17	-7.3581*
Applied for aid							
Yes	660	310	350	48	52	45	3.7668
No	630	230	400	52	49	55	-3.7668
Receipt of federal aid							
Yes	580	270	300	43	47	40	4.2548
No	720	270	450	58	53	60	-4.2548
Receipt of Pell grant							
Yes	270	130	140	19	23	17	3.7764*
No	1030	410	610	81	77	83	-3.7764*
Receipt of Stafford loan							
Yes	500	240	260	38	41	36	3.5187
No	800	310	490	62	59	64	-3.5187
Receipt of state aid							
Yes	240	120	120	15	18	13	3.1255*
No	1,060	430	630	85	82	87	-3.1255*
Receipt of institution aid							
Yes	410	210	200	28	37	23	8.5329*
No	880	330	550	72	63	77	-8.5329*
Receipt of any aid							
Yes	880	380	500	65	65	65	0.0878
No	420	160	250	35	35	35	-0.0878
Ever married							
Yes	460	150	310	35	25	41	-9.5585*
No	810	400	420	65	75	59	9.5585*
Dependents other than spouse							
Yes	230	80	160	18	13	21	-4.7552*
No	1,040	470	570	82	87	79	4.7552*

See notes at end of table.

Table H.11. Comparison of item respondents and nonrespondents for “Time scale of pay—hourly/weekly/monthly”—Continued

Variable description	Sample size			Percent estimate			Bias
	Total	Respondent	Nonrespondent	Total	Respondent	Nonrespondent	
Student's state of legal residence 1999–2000							
New England	70	20	40	5	4	6	-1.3318
Mid East	250	110	140	18	20	18	1.3114
Great Lakes	220	90	130	17	16	18	-0.9344
Plains	120	60	60	9	9	9	0.4107
Southeast	320	120	200	22	21	22	-0.3971
Southwest	130	50	80	11	9	12	-1.8302
Rocky Mountains	40	20	20	3	2	4	-0.8048
Far West	140	70	80	13	15	12	1.7147
Outlying Areas	20	10	10	2	4	1	1.8615
Current employment status for B&B interview							
Work full-time	910	290	620	74	55	86	-20.1531*
Work part-time	360	250	110	26	46	14	20.1531*
Cumulative amount of Federal loans							
\$0	720	270	450	58	53	60	-4.2938
\$1 to \$2,499	130	60	80	9	8	9	-0.7430
\$3,500 to \$7,499	260	120	130	19	21	17	2.0223
\$7,500 or more	190	90	90	15	18	13	3.0145

Rounds to zero.

†Not Applicable.

*Bias is significant at the $.05/(c-1)$ level, where c is the number of categories within the primary variable.

NOTE: Details may not sum to 100 due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B: 2000/01).

Appendix I
Using the B&B:2000/01 Survey Weights

Appendix I

Using the B&B:2000/01 Survey Weights

The B&B sampling design consisted of three stratified stages. A stratified sample of postsecondary institutions was selected with probabilities proportional to a composite measure of size at the first stage, a stratified systematic sample of students was selected from sample institutions at the second stage, and a stratified sample of individuals identified as confirmed or potential baccalaureate recipients was selected at the third stage. With three sample stages and stratified sampling at each stage, the B&B data were obtained from a complex sampling design and require specialized software for appropriate estimation. In this appendix, sample code from SUDAAN, one such package, is provided to show how the estimation can be done. Also provided are the names and locations of available weight variables, and a description of a design effects based approach that can be used as a rough guide in situations in which appropriate software is not available.

I.1 B&B:2000/01 Weight Variables and Location

The B&B:2000/01 weight variables can be found in two files on the ECB: the Weights file and the Analysis file.

The Analysis file contains, in addition to many other variables, the final Taylor series weight variable BB01AWT, together with its analysis strata variable BB01ASTR and analysis PSU variable BB01APSU.

The Weights file contains the above three Analysis file variables and also contains BRR weights BB1BRR01 through BB1BRR64, and the initial NPSAS institution weight INSTWT. The student ID variable ZRID is provided for merging, as well as an indicator of B&B:2000/01 respondent status, B01INT.

I.2 Using the B&B:2000/01 Survey Weights in Practice

Most commonly used statistical computing packages (e.g., SAS and SPSS) assume independent, identically distributed observations from a population of infinite size. When the data come from a finite population and have been collected using a complex sampling design, then the assumptions of the commonly used packages usually lead to an underestimate of the sampling variance, producing artificially small confidence intervals and nonconservative hypothesis test results (i.e., rejecting the null hypothesis when it is in fact true more often than indicated by the nominal Type I error level) (Carlson et al, 1993).¹

¹Carlson, B.L., Johnson, A.E., and Cohen, S.B. (1993). An evaluation of the use of personal computers for variance estimation with complex survey data. *Journal of Official Statistics*, 9: 795-814.

Statistical strategies that have been developed to address this issue include first-order Taylor series expansion, balanced repeated replication, and the Jackknife approach. The first two of these approaches are described briefly in chapter 6; all are covered in-depth in Wölter (1985).²

Special-purpose software packages that have been developed for analysis of complex sample survey data include SUDAAN, WesVar, and Stata. Evaluations of the relative performances of these packages are reported by Cohen (1997).³ SUDAAN is a commercial product developed by RTI, and information regarding the features of this package is available from <http://www.rti.org/sudaan>. Information regarding WesVar, a product of Westat, Inc., is available from the website <http://www.westat.com/wesvar>; and information regarding Stata, a product of Stata Corporation, is available at <http://www.stata.com>. NCES also has developed a software tool called the DAS for analysis of complex survey data. Information about using the DAS is available from <http://nces.ed.gov/das>.

For Taylor series approximation of standard errors using SUDAAN or Stata, analysis strata and analysis PSUs for the baccalaureate recipients of the B&B study are provided in the B&B:2000/01 ECB Weights file by variables **BB01ASTR** and **BB01APSU**, respectively. The study weights used with these strata and PSUs are the final weights (the rounded w_{5i} of chapter 6) given by the variable **BB01AWT**.

Below is an example of generic SUDAAN code to produce estimates and standard errors using Taylor Series approximation for baccalaureate recipients. The symbols `/*` and `*/` in the code indicate the beginning and end of a comment. The data set must already be sorted by analysis strata and analysis PSUs within strata.

```
proc descript data=/* insert dataset filename*/ design=wr;
  nest bb01astr bb01apsu;
  weight bb01awt;
  var /*insert NPSAS:2000 or B&B:2000/2001 variables*/;
  subpopn /* insert domain of interest if domain is a subset of baccalaureates*/;
  print nsum mean semean / style=nchs;
run;
```

For BRR approximation of standard errors using SUDAAN or WesVar, there are 64 separate BRR weights, and these are provided in the B&B:2000/01 ECB Weights file by the variables **BB1BRR01** through **BB1BRR64**.

Below is an example of generic SUDAAN code to produce BRR standard errors for baccalaureate recipients. For the BRR approach, the data set does not need to be sorted by analysis strata and PSUs.

```
proc descript data=/* insert dataset filename*/ design=brr;
  repwgt bb1brr01-bb1brr64;
  weight bb01awt;
  var /*insert NPSAS:2000 or B&B:2000/2001 variables*/;
```

²Wölter, K.N. (1985). *Introduction to variance estimation*. New York, Springer-Verlag.

³Cohen, S.B. (1997). An evaluation of alternative PC-based software packages developed for the analysis of complex survey data. *The American Statistician*, 57:285–292.

```
subpopn /* insert domain of interest if domain is a subset of baccalaureates*/;  
print nsum mean semean / style=nchs;  
run;
```

I.3 Using Design Effects Without Analysis Software

If one must perform an analysis of B&B:2000/01 data using a software package that does not allow for complex survey data analysis, the design effects in appendix G can provide a rough guide to the adjustment needed for the resulting standard errors. See appendix G for more details.

Appendix J
GEM Adjustment Procedure

Appendix J

GEM Adjustment Procedure

Weight adjustments are obtained using a generalized exponential model (GEM) with weight adjustment at adjustment step j for individual i having the following form:

$$a_{ji}(\lambda_j) = \frac{l_{ji}(u_{ji} - c_{ji}) + u_{ji}(c_{ji} - l_{ji}) \exp(A_{ji} \mathbf{x}_{ji}' \lambda_j)}{(u_{ji} - c_{ji}) + (c_{ji} - l_{ji}) \exp(A_{ji} \mathbf{x}_{ji}' \lambda_j)}$$

where the l_{ji} , u_{ji} are lower and upper bounds on a_{ji} , the c_{ji} are pre-specified centering constants such that $l_{ji} < c_{ji} < u_{ji}$, \mathbf{x}_{ji} is a $px1$ covariate-vector, and $A_{ji} = u_{ji} - l_{ji} / (u_{ji} - c_{ji})(c_{ji} - l_{ji})$ is a scale factor.¹ The p -dimensional parameter vector λ_j is estimated by solving

$$\sum_{i \in A} \mathbf{x}_{ji} w_{ji} a_{ji}(\lambda_j) - T_x = 0 \quad (1)$$

where T_x is a control total vector and A is the set of individuals whose weights are being adjusted.

To fit a GEM, at adjustment step j , individuals are first stratified and then grouped according to extreme weights within strata: low-extreme, normal, or high-extreme weights. Depending on the strata and extreme weight group they are in, each individual is then assigned a bounds adjustment multiple. Furthermore, across all strata, each extreme weight group is given group-specific bounds. Each individual's final adjustment bounds for model fitting is obtained by multiplying their individual adjustment multiple by the group-specific bounds. The GEM can then be fit with individual weight adjustments constrained to lie within the obtained bounds

The first step in finding individual bounds was to stratify individuals by institutional sector, the five level cross of institutional control, and highest level of offering.² These strata were used in the sampling design, as outlined in section 2.1, and so should group similar weights together.

For each stratum, individuals were then further partitioned into extreme weight groups: low-extreme, normal, and high-extreme. This partitioning was accomplished using a standard nonparametric approach to outlier detection based on the interquartile range. Within stratum k for $k=1, \dots, 5$, the interquartile range, IQR_k is as follows:

¹To see the relationship to a logit model, let the lower bound l_{ji} equal 1, the centering constant c_{ji} equal 2, and let the upper bound u_{ji} go to infinity. In the limit there is $a_{ji} = 1 + \exp(\mathbf{x}_{ji}' \lambda_j)$, a logit model in which a_{ji} is the reciprocal of a response probability.

²At institution where degree was received.

$$IQR_{jk} = \hat{P}_{jk,75} - \hat{P}_{jk,25},$$

the difference of the estimated 75th and 25th percentiles (the third and first quartiles). Using $\hat{P}_{jk,50}$, the estimated stratum k sample median, outlier bounds b_{jk1} , b_{jk2} were computed where

$$b_{jk1} = \hat{P}_{jk,50} - 3IQR_{jk}$$

$$b_{jk2} = \hat{P}_{jk,50} + 3IQR_{jk}$$

and the weights in stratum k could then be grouped: w_{ji} is considered low-extreme if $w_{ji} < b_{jk1}$, w_{ji} is considered high-extreme if $w_{ji} > b_{jk2}$, and w_{ji} is considered normal otherwise. The individual i bounds adjustment multiple, m_{ji} , is then obtained as follows:

$$m_{ji} = \frac{b_{jk1}}{w_{ji}} \quad \text{if } w_{ji} \text{ is low-extreme}$$

$$= 1 \quad \text{if } w_{ji} \text{ is normal}$$

$$= \frac{b_{jk2}}{w_{ji}} \quad \text{if } w_{ji} \text{ is high-extreme}$$

and so $m_{ji} > 1$ for low-extreme weights and $m_{ji} < 1$ for high-extreme weights. This has the desirable effect of increasing the lower bound for low-extreme weights and decreasing the upper bound for high-extreme weights.

To obtain the extreme weight group bounds, let g give the grouping, with $g=1$ being low-extreme, $g=2$ being normal, and $g=3$ being high-extreme. The group bounds are then a lower bound l_{jg}^* , and an upper bound u_{jg}^* , and also a centering constant c_j^* . To reduce the total number of bounds in the model and so simplify the fitting process, $l_{j2}^* = l_{j3}^*$, and $u_{j1}^* = u_{j2}^*$ was always constrained. Extreme weight group bounds were then further constrained depending on whether the adjustment step was for nonresponse or poststratification.

The additional constraints on the extreme weight group bounds for nonresponse adjustment are that $l_{j1}^* = l_{j2}^* = l_{j3}^* = 1$ because individual weight adjustments were restricted to be greater than 1. This is desirable as nonresponse adjustments represent the inverse of response probabilities. The centering constant c_j^* is then set equal to the reciprocal of the estimated weighted response rate.

The additional constraints on the extreme weight group bounds for poststratification, the fourth adjustment step, are that centering constant $c_4^* = 1$ in order to not adjust the weights too far away from the original design weight. This forces $l_{4g}^* < 1$

and $u_{4g}^* > 1$, which are consistent with the control totals being either larger or smaller than the estimated totals based on the design weights.

Subject to all of the above constraints, the extreme weight group bounds used in adjusting the B&B initial weights are provided in table J.1. All further specifications of these bounds were made to ensure model convergence.

Table J.1. Bounds and centering constants for group weight adjustments for each GEM adjustment step

Adjustment step	Lower Bounds			Centering constant c_j^*	Upper bounds		
	Low-extreme l_{j1}^*	Normal l_{j2}^*	High extreme l_{j3}^*		Low-extreme u_{j1}^*	Normal u_{j2}^*	High extreme u_{j3}^*
Location adjustment, $j=1$	1.00	1.00	1.00	1.09	1.10	3.00	3.00
Refusal adjustment, $j=2$	1.00	1.00	1.00	1.08	1.80	2.00	2.00
Other nonresponse adjustment, $j=3$	1.00	1.00	1.00	1.05	2.20	2.20	2.20
Poststratification adjustment, $j=4$	0.70	0.70	0.90	1.00	1.10	1.30	1.30

SOURCE: U.S. Department of Education, National Center for Education Statistics, 2000–2001 Baccalaureate and Beyond Longitudinal Study (B&B:2000/01).

Once the group bounds had been determined, individual weight adjustment bounds were found by multiplying the individual bounds adjustment multiples by the appropriate group specific bounds:

$$l_{ji} = l_{jg}^* m_{ji}$$

$$c_{ji} = c_j^* m_{ji}$$

$$u_{ji} = u_{jg}^* m_{ji}$$

where g is determined by the group to which w_{ji} belongs.

GEM adjustment for nonresponse and poststratification also differs by choice of covariate vector \mathbf{x}_{ji} , and the composition of control total vector T_x .

For nonresponse adjustment, the components of \mathbf{x}_{ji} are the predictors of nonresponse. Vector T_x is in this case the full sample (respondents and nonrespondents) weight totals for the levels of the predictors in \mathbf{x}_{ji} . Solution of equation (1) is then equivalent to finding the λ_j for which $\sum_{i \in A} x_{ji} w_{ji} a_{ji}(\lambda_j) = T_x$ where A is the set of all

respondents. That is, the lambda is found such that its associated adjustments have the property that sums of adjusted weights for respondents equal sums of the current weights over the entire sample. Since nonrespondents have adjusted weights set equal to zero, it is then also true that over all sampled individuals, sums of adjusted weights equal those of current weights.

For poststratification adjustment, the components of x_{ji} are the levels of the selected variables for which population level control totals are available. In this case, vector T_x contains these IPEDS totals, and the resulting weights have been adjusted to preserve the totals.