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**2002 PARENT-SENIOR PAIRED DATA
FULL REPORT**

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2002 PARENT-SENIOR PAIRED DATA EXECUTIVE SUMMARY

The attached report summarizes results from an analysis of matched parent/senior 2002 data. The results are based on reports from 502 parent/senior pairs and allow for a unique opportunity to better understand the relationship between seniors' undergraduate experiences, expectations, and plans and the perceptions and expectations of their parents.

Three types of analyses were conducted using the paired data:

1. Parent and senior reports of family income, parent educational attainment, and parent alumni status were compared to verify whether seniors accurately report family resources and parent characteristics;
2. Parent/senior satisfaction levels were summarized and compared to see whether there is congruity between parental satisfaction levels and satisfaction levels of their senior children.
3. Regression analyses utilize information about both seniors and their parents to better understand the relationship among student and parent characteristics and seniors' plans, academic performance, and perceptions.

Key findings of these analyses include:

- *Accuracy of Student Reporting.* Seniors' estimates of family income match parents' estimates less than half the time (48.7%). Seniors whose parents report relatively lower family incomes (\$75,000 or under) are more likely to have over-, rather than under-estimated their family income by at least one income category. Seniors whose parents marked a higher-income category (\$100,000 or more) tend to under-estimate their family income.
- *Parent/Senior Satisfaction Levels.* Parents report higher levels of satisfaction than seniors on almost every satisfaction measure. In general, there is congruity between parent and senior satisfaction levels, with satisfied parents likely to have satisfied kids. When parent/senior discrepancies in satisfaction exist, the most common pattern is for parents to report satisfaction while seniors do not.
- *Seniors' Plans to Pursue Advanced Degrees.* Parents' expectations about more education, cumulative grade point average, and Hispanic racial/ethnic status are all factors that are positively linked to seniors' plans to pursue an advanced degree. Hispanic seniors are 2.7 times as likely as white seniors to report plans for graduate school in the fall following graduation.
- *Family Financing Strategy and Student Academic Performance.* The regression analyses suggest that student borrowing negatively influences student

achievement, while parent borrowing is neutral. Cornell students may be better off if they borrowed less and their parents borrowed more to fund their education.

- *Family Financing Strategy and Perceptions About Impact on the Family.* Student and parent actual borrowing as well as parents' perceptions about family impact are positively linked to seniors' assessment that financing their Cornell undergraduate education has had a considerable or severe impact on their family.
- *What Factors are Linked to Senior Satisfaction Levels?* Seniors who identified as African American are less likely than whites to report being satisfied with their undergraduate experience. Further, GPA is positively associated with satisfaction. Students of alumni are more likely to be satisfied, but students whose parents report that funding their education has had a "considerable" negative effect on the family are less likely to report satisfaction.

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DESCRIPTION OF PARENT & SENIOR SURVEYS

- **Senior Survey.** A survey of the senior class administered in the latter half of the spring semester. The survey asks seniors about their educational and employment plans, involvement in campus activities, satisfaction with the undergraduate experience, and gains in knowledge and abilities. Cornell has administered the survey to the Classes of 1994, 1998 and 2002.
- **Parent Survey.** A survey administered to parents of currently enrolled undergraduate students at Cornell. The survey asks parents about their satisfaction with various aspects of their child's experiences at Cornell, areas of concern, and financial issues related to college. This survey was most recently administered at Cornell in the spring of 2002.

SURVEY ADMINISTRATION AND RESPONSE RATES

- Senior Survey Response rate: 50% (web-based survey)
- Parent Survey Response rate: 55% (paper & pencil mail survey)

PURPOSE OF THIS ANALYSIS

In just over 500 cases, it is possible to match parent survey responses to the responses of their senior children, allowing for a unique opportunity to better understand the relationship between seniors' undergraduate experiences, expectations, and plans and the perceptions and expectations of their parents.

I used this data to conduct three separate analyses. First, I analyzed whether students are generally good reporters of parents' educational background and financial situation. This analysis provides valuable information about the accuracy of student reporting on variables of interest to Cornell's administration and can inform future data collection efforts.

Second, I summarized and compared satisfaction levels of parents and seniors. This analysis provides information about the congruity between parental reports of satisfaction and seniors' own report.

Third, I used information provided by parents to better understand the influence that family context has on seniors' plans, achievement, and perceptions about family impact and overall satisfaction.

RESPONDENT CHARACTERISTICS

Seniors

- More women (55.7%) than men (44.3%) completed the seniors' survey.
- The majority of responding seniors (67.5%) are white. Asian-Americans make up 12.2% of the senior sample, 6.8% are Hispanic, 5.4% are Black/African American, 5% are multi-racial, 3% are international students, and .02% are Native American.
- The majority of seniors (89%) report that they will be involved in paid employment (48.4% of men, 53.1% of women) or will be attending graduate or professional school (31.3% of men, 27.1% of women) in the fall following graduation. Other activities pursued by seniors include military service, travel, volunteer work, additional undergraduate coursework, or no definite plans. These statistics are consistent with the results from Cornell University's Career Services 2002 Postgraduate survey.

Their Parents

- More mothers (62.6%) than fathers (37.4%) completed the parents' survey.
- Most parents of seniors (80.1%) have earned a college or graduate degree. Among responding parents, 77% of mothers have earned at least a college degree, while 84.9% of fathers have done so. Less than a fifth of parents (13.6%) report that either or both parents attended Cornell University.
- The majority of responding parents (67.2%) report annual incomes of \$75,000 or more.

Seniors and Parents

- *Gender of parents and students.* The gender of the undergraduate student does not appear to have influenced which parent (mother or father) completed the parents' survey.
- *Total Borrowing by Seniors and Their Parents.* In 31.6% of cases, neither seniors nor their parents borrowed money to pay for seniors' undergraduate education. About a fifth of students (19.9%) borrowed something (\$1-\$30,000 or more) to fund their education while their parents did not borrow money, and, in 13.3% of cases, parents' and seniors' combined borrowing totaled \$50,000 or more.

PART 1 ACCURACY OF STUDENT REPORTING

In many institutional survey settings, students are often asked to provide information about their parents. Of particular interest to educators are measures of household resources, typically gauged by parental income, and parents' level of education. Data in which parent responses can be linked to student responses provide the opportunity to gauge whether students are accurate reporters of their parents' income and level of education. I also checked to see how accurate seniors are in reporting parents' alumni status.

How Well Do Seniors Estimate Their Parent's Income?

In this analysis, seniors' estimates of family income are compared with a parent's response. The analysis assumes that parents have more detailed knowledge of family finances, and are therefore more likely to provide an accurate estimate of family income. Both seniors and parents were asked to pick an income category that best described the family's total annual before tax income from all sources. The family income categories included:

- 1) Under \$25,000;
- 2) \$25,000 - \$49,999;
- 3) \$50,000-\$74,999;
- 4) \$75,000 - \$99,999;
- 5) \$100,000 - \$124,999;
- 6) \$125,000 - \$149,999;
- 7) \$150,000 - \$174,999;
- 8) \$175,000 - \$199,999;
- 9) \$200,000 or more

Table 1 shows the percentage of responding seniors whose income category choice either matched that of the reporting parent, or differed from it.

Type of Discrepancy	Percent
No Discrepancy	48.7
Senior off by one category	31.2
Senior off by two categories	10.6
Senior off by three categories	4.5
Senior off by four of more categories	5.0

Less than half of seniors (48.7%) marked the same income category as their parents. Most seniors (79.9%) either chose the same family income category as their parents, or chose the income category above or below the category marked by the reporting parent. Where discrepancies in reporting exist, students whose parents report relatively lower

family incomes (\$75,000 or under) are more likely to have over-, rather than under-estimated their family income by at least one category. Students whose parents marked a higher-income category (\$100,000 or more) tend to under-estimate their family income.

Are Seniors Good Reporters of Parental Educational Levels?

Seniors do a better job of reporting parents' education levels than they do of accurately reporting family income. Seniors were asked about both their mother's and father's completed formal education. Senior reports matched mothers' educational reports in 84.6% of cases. With respect to mothers' education, the only noticeable discrepancy occurs when seniors report a graduate degree where mothers report a bachelor's degree (6% of cases). Otherwise, discrepancies with respect to mother's education are minimal.

With respect to fathers' educational attainment, senior reports matched father educational reports in 82.2% of cases. The biggest discrepancy occurs when fathers' report completing some college while seniors (5.4%) report that their father earned a high school degree or a bachelor's degree. A small number of seniors (4.2%) report that their father has a master's degree when he reports a bachelor's degree as his highest attained degree. In other cases, discrepancies with respect to father's education are minimal.

Are Seniors Good Reporters of Parental Alumni Status?

In most cases, seniors report the same parental alumni status that parents mark. Among responding fathers, 14.4% report that they, the other parent, or both parents are Cornell Alumni. In the vast majority of father/senior cases (91.7%), fathers and seniors report the same parental alumni status. Most discrepancies result from fathers reporting that they are Cornell alums while seniors report that neither parent attended Cornell.

Among responding mothers, 8.9% report that they, the other parent, or both parents are Cornell Alumni. Again, in the majority of cases (95.4%), mothers and seniors report the same parental alumni status. As with father/senior reports, most discrepancies result from mothers reporting that they are Cornell alums while seniors report that neither parent attended Cornell.

PART II PARENTS AND SENIORS: HOW DO THEY COMPARE IN RATINGS OF SATISFACTION?

1. Satisfaction with Cornell's Undergraduate Experience

A) Overall Satisfaction Levels

Both parents and seniors were asked to rate their satisfaction with the undergraduate experience at Cornell. Possible responses by parents and seniors were: very dissatisfied (1), generally dissatisfied (2), ambivalent (3), generally satisfied (4), and very satisfied (5).

As a group, parents report being slightly more satisfied with their child's Cornell undergraduate experience than seniors are themselves. Parents' mean level of satisfaction was 4.42, while seniors reported a mean overall level of satisfaction of 4.02. A paired-sample t-test indicates that this difference in satisfaction levels is statistically significant ($p < .01$). It should be noted that overall satisfaction levels for both parents and seniors were high. Approximately 90% of responding parents reported being generally or very satisfied and 82% of seniors reported being generally or very satisfied.

In addition, there is congruity among the overall satisfaction levels of seniors and those of their parents. In 76% of senior/parent reports, both seniors and parents report being generally or very satisfied with the undergraduate experience at Cornell. It is notable that the occurrence of parents and children who both report being very or generally dissatisfied is quite rare (less than 1%).

B) Satisfaction with the Academic Experience

Both parents and seniors were asked to rate their satisfaction with specific aspects of the undergraduate academic experience, including the quality of academic instruction, the quality of academic advising, and tutorial help or other academic experiences. Seniors were asked a greater number of questions meant to tap their satisfaction with specific aspects of the academic environment at Cornell. Because the number and wording of questions presented to seniors and their parents on this topic varied, I analyzed the congruity of parent/senior responses to a single question in this section that asked them to rate their satisfaction with the overall quality of instruction at Cornell. Both parents and seniors were asked to rate their satisfaction on a four-point scale (1=very dissatisfied; 4=very satisfied). Thirty-four parents (6.7%) who responded "Don't Know" to the question are excluded from the comparative analysis.

Similar to the response pattern observed for overall satisfaction levels, as a group, parents tend to be more satisfied than seniors with the quality of instruction provided by Cornell. Parents reported a mean satisfaction level of 3.5 (out of 4) while seniors reported a mean satisfaction level of 3.2. A paired-sample t-test indicates that this difference is statistically significant ($p < .01$).

As with overall satisfaction, seniors and their parents typically agree about the quality of instruction at Cornell. In 89.2% of senior/parent reports, both seniors and parents report being generally or very satisfied with the overall quality of instruction provided by Cornell. Again, less than 1% of the parent/senior pairs report being generally or very dissatisfied.

C) Satisfaction with Campus Services and Facilities

Both parents and seniors were asked to rate their satisfaction with specific campus services and facilities. Although seniors were asked about greater numbers of facilities and services than their parents, there are eight questions in common across the two surveys that can be used to describe the relationship between senior and parent

satisfaction with campus services and facilities. The eight common questions include questions about student housing, campus security, career counseling and placement, student health services, the financial aid office, financial aid awards, financial services, and the responsiveness of the administration to parent/student concerns. Both parents and seniors were asked to rate their satisfaction on a four-point scale (1=very dissatisfied; 4=very satisfied). Parents who responded “Don’t Know” to a question and seniors who indicated no experience with a particular service or facility were excluded from the comparative analysis.

Similar to other satisfaction measures, as a group, parents tend to report higher levels of satisfaction with specific campus services and facilities than seniors. There are two exceptions to this pattern. Parents and seniors report similar (and relatively low) satisfaction with career counseling and placement services and with financial aid awards (see Table 2). With respect to satisfaction levels associated with the financial aid office, future analyses could attempt to link university records about which families received institutional aid and which families did not to better understand these ratings.

Table 2 also shows that a large subset (approximately one-third in most cases) of the parent/senior sample reported “Don’t Know” or no experience with career counseling and placement services, student health and counseling services, the financial aid office, financial aid awards, or Cornell’s administration.

Table 2: Mean Levels of Parent/Senior Satisfaction with Campus Services and Facilities

Type of Service/Facility	% of Sample w/ Opinion	% of Sample		
		Parents	Seniors	
Student Housing	93%	3.15	2.91	**
Campus Security Office/Campus Police	92%	3.39	2.97	**
Career Counseling and Placement	61%	2.86	2.76	
Student Health and Counseling Services	72%	3.12	2.70	**
Financial Aid Office	59%	3.11	2.79	**
Your Financial Aid Award(s)	59%	2.83	2.72	
Financial Services (Bursars office, Student Accounts, etc.)	87%	3.21	2.91	**
Administration’s responsiveness to parent/student concerns	60%	3.09	2.47	**

** Statistically significant difference at $p < .01$; Differences in means were calculated using a paired-sample t-test.

1= very dissatisfied; 4= very satisfied

Table 3 documents parent/senior satisfaction levels, highlighting where parents and their children rate services and facilities similarly (both generally/very satisfied or both generally/very dissatisfied), and where differences in satisfaction levels exist (Parent Satisfied/Senior Not Satisfied, Senior Satisfied/Parent Not Satisfied). For this analysis,

both parent and senior responses were collapsed to identify overall satisfaction or dissatisfaction. As in the previous analysis, parents and seniors with no opinion about a particular service or facility or with no experience with a particular service or facility are excluded from the comparison.

In most cases, satisfaction levels are similar for parents and their children, with both parents and seniors reporting either satisfaction or dissatisfaction with a particular campus service or facility. However, it is notable that in a substantial portion of the sample (typically a quarter to a third), parents and seniors disagree about their satisfaction with particular services or facilities. Often, seniors report being dissatisfied while parents report being satisfied. For example, over a third of seniors are dissatisfied with the administration's responsiveness to student concerns, while their parents report being satisfied with Cornell's administration. Almost a quarter of seniors report dissatisfaction with health and counseling services when their parents report satisfaction with this aspect of the Cornell experience, and about a fifth of seniors are dissatisfied with the financial aid office, although their parents report being satisfied.

Table 3: Congruity of Parent/Senior Satisfaction with Campus Services and Facilities

Type of Service/Facility	% of Sample Where:			
	Both Generally/Very Satisfied	Parent Satisfied/Senior Not Satisfied	Senior Satisfied/Parent Not Satisfied	Both Generally/Very Dissatisfied
Student Housing	72.9	15.3	6.5	5.4
Campus Security Office/Campus Police	81.2	15.2	1.6	1.9
Career Counseling and Placement	53.1	14.1	13.4	19.3
Student Health and Counseling Services	60.9	23.3	5.5	10.2
Financial Aid Office	62.2	19.7	9.5	8.5
Your Financial Aid Award(s)	49.3	15.4	15.8	19.5
Financial Services (Bursars office, Student Accounts, etc.)	72.0	13.4	9.6	5.0
Administration's responsiveness to parent/student concerns	49.2	36.2	5.0	9.6

D) Satisfaction with Campus Life

Both parents and seniors were asked to rate their satisfaction with specific aspects of campus life, including the quality of social life on campus, campus safety, the sense of community on campus and in the senior's residence/neighborhood, and the quality of ethnic/racial diversity on campus. Seniors were asked about eleven specific aspects of campus life while parents were asked to rate satisfaction with seven aspects of their senior's campus life. Five similar or identical questions about campus life were asked of both seniors and their parents. Parents and seniors were asked to rate their satisfaction on a four-point scale (1=very dissatisfied; 4=very satisfied). Parents who responded "Don't Know" to a question and seniors who indicated no experience with a particular aspect of campus life are excluded from the comparative analysis.

As we see with other satisfaction measures, as a group, parents tend to report higher levels of satisfaction with aspects of campus life than seniors (see Table 4).

Table 4: Mean Levels of Parent and Senior Satisfaction with Aspects of Campus Life

Type of Service/Facility	% of Sample w/ Opinion	Parents	Seniors	
Social Life on Campus	80%	3.26	3.00	**
Campus Safety/Security	88%	3.41	3.30	**
Campus Community	79%	3.25	2.65	**
Student's Residential Community	83%	3.39	3.02	**
Ethnic/Racial Diversity	70%	3.33	2.83	**

** Statistically significant difference at $p < .01$; Differences in means were calculated using a paired-sample t-test.

1= very dissatisfied; 4= very satisfied

Table 5 documents parent/senior satisfaction levels, highlighting where parents and their children rate particular aspects of campus life similarly (both generally/very satisfied), and where differences in satisfaction levels exist (Parent Satisfied/Senior Not Satisfied, Senior Satisfied/Parent Not Satisfied). For this analysis, both parent and senior responses were collapsed to identify general satisfaction (generally or very satisfied) and general dissatisfaction (generally or very dissatisfied). As in the previous analysis, parents and seniors with no opinion about a particular service or facility, or with no experience with a particular service or facility are excluded from the comparison.

As with satisfaction levels for campus services and facilities, satisfaction levels associated with aspects of campus life are similar for both parents and their children. There are two aspects of campus life in which a substantial subset of parents and children report differences in satisfaction. Over a third of seniors are dissatisfied with the sense of community on campus, while their parents report being satisfied with Cornell's campus community. In addition, about a fifth of seniors are dissatisfied with the ethnic and racial

diversity on campus, although their parents report being satisfied with this aspect of campus life.

Type of Service/Facility	% of Sample Where:			
	Both Generally/Very Satisfied	Parent Satisfied/Senior Not Satisfied	Senior Satisfied/Parent Not Satisfied	Both Generally/Very Dissatisfied
Social Life on Campus	76.3	14.2	4.5	5.0
Campus Safety/Security	91.4	4.8	2.5	1.4
Campus Community	57.8	30.3	4.0	7.8
Student's Residential Community	73.9	17.7	4.3	4.1
Ethnic/Racial Diversity	70.3	20.4	3.7	5.7

PART III THE RELATIONSHIP BETWEEN SENIORS' EXPERIENCES, EXPECTATIONS AND PLANS AND THEIR PARENTS' EXPERIENCES AND EXPECTATIONS

The matched senior/parent data also allow Cornell administrators to better understand the role that parents' resources and expectations play in shaping the perceptions, experiences, and future plans of Cornell seniors. In this section of the report, I use regression techniques to assess the importance of a variety of senior and parent characteristics and expectations in shaping seniors' plans, academic performance, satisfaction with their Cornell education, and other perceptions.

▪ ***Parents' Expectations About Pursuit of Advanced Degrees and Student Plans to Pursue Graduate or Professional Education***

About a third (34.0%) of seniors reported that pursuit of full-time graduate or professional education would be a principal activity or something they would "probably" be doing in the fall following graduation. What student and parent characteristics and perceptions explain these plans? I used binary logistic regression to test the effects of students' sex, race, and cumulative grade point average in order to better understand the role that student background and performance might play in formulating plans for graduate school. I also tested the effects of parent's expectations about a student's pursuit of an advanced degree, parent's own educational attainment, family income, parent borrowing, and whether or not a parent believed Cornell was "worth it" given the impact on the family's finances.

Not surprisingly, parent expectations are linked to seniors' plans to pursue graduate or professional education in the fall following graduation. What was surprising is the strength of this effect. The effect of parent's expectations on the likelihood that a student reported that they would, or probably would, pursue an advanced degree far outweighed

that of any other statistically significant effect. Seniors whose parents have these expectations are about eleven times more likely (Odds=11.6) to report fairly immediate plans for graduate or professional school. To put this in perspective, for the average senior, the likelihood that a senior will report plans for graduate school in the fall after graduation rises from 27% to 80% if the reporting parent says they expect a child will go to graduate school. Of course, given the timing of the parent survey (the survey was fielded in spring 2002) this result may simply reflect a parent's knowledge about a senior's plans for more schooling that are already underway.

Grade point average (another statistically significant effect) also increases the likelihood that seniors plan to pursue graduate education. The effect of grade point average is not as dramatic as the link between parents' expectations and student plans. The likelihood that the average senior with a 3.0 cumulative GPA will report plans for graduate school is 73%. This likelihood increases to 89% for seniors with a 4.0 cumulative GPA, holding all else equal.

Plans to pursue an advanced degree were not connected to a student's gender. There was a pattern by race, however, with Hispanic seniors almost three times as likely as whites (Odds=2.7) to report plans for graduate school in the fall following graduation. Whether the reporting parent had an advanced degree, or believed Cornell was "worth it" mattered little in explaining the variation in student plans for more schooling. See appendix table A1 for further documentation of the regression model that underlies this analysis.

▪ *Family Financing Strategy and Student Academic Performance*

An increasingly important issue in higher education is centered on the financial burden often faced by undergraduates and their families. The parent/senior paired data allow for an examination of how family financing strategies, particularly borrowing by both seniors and their parents, may influence student academic performance as measured by overall grade point average. Information about students' GPA came from institutional sources, not the self-report of the student.

To address this question, I used ordinary least-squares regression to test the effects of senior characteristics, like gender and race, on academic performance. I also included information about the amount of money personally borrowed by students to fund their education:

- no borrowing;
- student borrowed less than \$10,000;
- student borrowed between \$10,000 and \$19,999;
- student borrowed between \$20,000 and \$29,000;
- student borrowed more than \$30,000.

In addition, seniors' assessment of the impact paying for their education has had on their family (not applicable/none/slight, moderate, considerable, severe), and seniors' assessment that their work schedule does not allow them sufficient study time (those who

agree or strongly agree are contrasted with those who disagree, strongly disagree, or said the question was not applicable to them) was included in the model. After examining the effects of student characteristics, I tested the effects of parents' borrowing, as well as parents' perception that paying for seniors' education had a moderate, considerable, or severe impact on the family.

The Effect of Student Borrowing. What we find when we statistically control for all of these various effects is that student funding strategies are more strongly linked to academic performance than a parent's borrowing. Seniors in two borrowing categories, those who have borrowed between \$10,000 and \$19,999 and those who have borrowed more than \$30,000 have GPAs that are slightly lower than average, even after accounting for the effects of gender, race, and student employment. To better assess the effects of student borrowing on achievement, one can compare the predicted GPA of borrowers versus non-borrowers for the average student. Students that borrow nothing have a mean predicted GPA of 3.33. In comparison, students that borrow between \$10,000 and \$20,000 have a mean predicted GPA of 3.19 while students that borrow more than \$30,000 have a mean predicted GPA of 3.14. How much parents themselves borrow for a student's education does not appear connected to academic performance.

One possible explanation for this relationship is the link between student borrowing and family income levels. In theory, borrowing by both students and parents is a function of family income and other financial resources. Bivariate correlations suggest that student borrowing and family income (as reported by parents) are negatively related (Pearson correlation=-0.162, $p=.001$). In other words, seniors that reported borrowing more to attend Cornell tend to have parents that report lower relative family incomes than students who borrow less. Further, the correlations indicate that there is a positive relationship between parent and senior borrowing (Pearson correlation=0.320 $p=.000$). These relationships suggest that the effect of student borrowing on student achievement may capture the performance of students who come from relatively less-privileged family backgrounds. To better address this question, I re-estimated the models, excluding information about parent or student borrowing, but including family income information. This analysis shows that there is no relationship between family income and student achievement in this sample of seniors.

The overall analysis suggests that there is something about student borrowing, apart from its value as a family background indicator that negatively influences student achievement. When taken together, the results indicate that students might be better off if they borrowed less and their parents borrowed more to fund their Cornell education.

Student Perceptions About Employment and Studying. Another factor that accounts for differences in student academic performance is outside employment. Students who agreed or strongly agreed with the statement "My work schedule does not leave sufficient study time" were also the students with slightly lower GPAs. As a practical matter, this effect is relatively minor. For example, among high borrowing students (i.e. those that personally borrowed over \$30,000 for their education), agreeing or strongly agreeing that

working does not leave enough time for studying lowers the mean predicted GPA from 3.14 to 3.06, a pretty small overall change.

The Effects of Student Gender and Race. Both gender and race are linked to student undergraduate achievement. Women seniors have slightly higher cumulative GPAs, on average, than senior men. Further, students classified as underrepresented minorities have lower GPAs, on average, than white students, while international students tend to have higher GPAs, on average, than white students. (Keep in mind that these models do not control for the effects of college or undergraduate major on student performance.)

To sum up, the combined parent and senior data make clear that the funding strategy utilized by students and their parents is linked to student grades. The strategy utilized by students (i.e. the amount of borrowing and working for pay during college) is negatively related to student academic performance, while borrowing by parents appears neutral in its influence on student achievement. See appendix table A2 for further documentation of the regression model that underlies this analysis.

▪ ***Family Financing Strategy and Perceptions About Impact on the Family***

How is total borrowing by seniors and their parents connected to seniors' perceptions that funding their undergraduate education has had a detrimental impact on their family? To address this question, I used multinomial logistic regression to better understand how student characteristics like gender and race, as well as senior overall borrowing are linked to assessments that funding a Cornell education has had some sort of impact on their families. In addition to including information about seniors in the models, I also included information about parents' borrowing and parent perceptions about impact on the family to better understand the factors that may be linked to seniors' perceptions of impact.

Seniors were asked: "What has been the impact on your family of paying for your education (tuition, fees, room and board) at this institution?" Possible responses were:

- None/slight;
- Moderate;
- Considerable;
- Severe;
- Not Applicable

Statistical concerns necessitated collapsing the categories in the dependent variable to 1) Severe/Considerable; 2) Moderate, and 3) None/Slight/Not Applicable. The models compare the likelihood that a particular factor influences the probability that a senior reports "severe/considerable" family impact or "moderate" family impact relative to None/Slight/Not Applicable.

What student characteristics are connected to seniors' perceptions that attending Cornell has had a severe or considerable impact on their family? One important student factor was the overall level of borrowing by the senior. Seniors who reported a personal level of

borrowing of \$10,000 to \$19,999 to pay for their Cornell education are three times as likely as seniors who borrowed nothing to say that financing their education has had a severe or considerable effect on their family. Seniors who report a personal level of borrowing in the \$20,000 to \$29,999 range are *fourteen times* as likely to say that financing their education has had a severe or considerable effect on their family, when compared with seniors who borrowed nothing in order to attend Cornell. Student gender or race is not linked to seniors' perceptions about severe or considerable family impact.

*What **parent** characteristics are connected to seniors' perceptions that attending Cornell has had a **severe or considerable impact** on their family?* Two parent characteristics positively influence the likelihood that seniors will report severe/considerable financial impact. First, parents' own perceptions of family impact matter. Specifically, those seniors whose parents reported that financing their child's education has had a severe/considerable financial impact on the family were also much more likely (16.5 times) to report that funding their education has had a severe/considerable impact on the family than seniors whose parents reported none or slight impact. Seniors whose parents reported a moderate family impact were 2.5 times as likely to report a severe/considerable impact, when compared with seniors whose parents reported no or slight impact on the family.

Second, actual parent borrowing is connected to seniors' perceptions of impact. Seniors whose parents' report borrowing between \$20,000 and \$50,000 to fund their child's education are four times as likely as seniors whose parents' borrowed nothing to report a severe or considerable family impact.

*What **student** characteristics are connected to seniors' perceptions that attending Cornell has had a **moderate impact** on their family?* Again, the level of borrowing by seniors is linked to the likelihood that they report moderate family impact. Here, seniors who borrowed between \$20,000 and \$29,999 to finance their education are five times as likely as seniors that borrowed nothing to report a moderate impact on their family. Seniors who borrowed \$30,000 or more are less likely than seniors who borrowed nothing to report a moderate level of family impact. Consistent with the results for severe or considerable family impact, seniors' race or gender is not connected to their perceptions about moderate family impact.

*What **parent** characteristics are connected to seniors' perceptions that attending Cornell has had a **moderate impact** on their family?* Consistent with results for severe/considerable impact, parents' perceptions about the level of impact on the family are linked with seniors' perceptions. Seniors whose parents report severe/considerable impact are almost eight times as likely (7.8) to report moderate family impact when compared with seniors whose parents reported none/slight family impact. Seniors whose parents report moderate impact are twice as likely to report moderate family impact when compared with seniors whose parents reported none or slight family impact.

Overall, the results from these models suggest that student perceptions about the burden financing their education has placed on their families are shaped by both actual levels of

overall borrowing and parents' own perceptions about family impact. See appendix tables A3-A4 for further documentation of the regression model that underlies this analysis.

▪ ***The Components of Seniors' Overall Satisfaction***

What factors are correlated with seniors' overall satisfaction with their undergraduate experience? I tested the effects of a number of senior and parent characteristics to better understand how the behavior and perceptions of seniors, coupled with the behavior and perceptions of their parents, may influence satisfaction levels.

Specifically, I used logistic regression to test the effects of senior characteristics--like gender, race, and cumulative grade point average--on seniors' overall satisfaction at Cornell. (Note that this satisfaction measure was collapsed into two categories: generally/very satisfied or otherwise.) I included information about the amount of money personally borrowed by students to fund their education (no borrowing, student borrowed less than \$10,000, student borrowed more than \$10,000 but less than \$20,000, student borrowed more than \$20,000 but less than \$30,000, and student borrowed more than \$30,000), and seniors' assessment of the impact paying for their education has had on their family (not applicable/none/slight, moderate, considerable, severe). After assessing the effects of student characteristics, I added information about parents' overall satisfaction with their child's undergraduate experience; parent borrowing; parents' perception that paying for their child's education had a moderate, considerable, or severe impact on the family; parent alumni status, and the frequency of parent/student communication and visits while the student attended Cornell to the model.

Student Components of Senior's Overall Satisfaction. Seniors who identified as African American are less likely to report being satisfied with their undergraduate experience. This result is statistically significant--the likelihood that seniors are satisfied with their undergraduate experience decreases by a factor of .298 if they identify as black. To help put this finding into perspective, the model suggests that black seniors have a 70.6% chance of reporting that they are satisfied, while white seniors, on average, have an 88.9% chance of reporting satisfaction, all else being equal. In addition, seniors with higher cumulative GPAs are more likely to report being satisfied with their undergraduate experience. For example, the likelihood that an average senior with a 3.0 cumulative GPA is satisfied with his or her undergraduate experience is 66%, while the likelihood that an average senior with a 4.0 cumulative GPA is satisfied rises to 80%. Gender, the level of student borrowing, or seniors' perceptions that their education has placed a financial burden on the family are not important factors explaining senior satisfaction levels.

Parental Components of Seniors' Overall Satisfaction. Parental satisfaction with Cornell is positively related to a senior's satisfaction, although this relationship is not statistically significant at conventional levels ($p=.098$). A parent's alumni status is also connected to senior satisfaction--seniors whose parents report being Cornell alums are almost four times as likely (3.6) to report being satisfied with their undergraduate experience as other seniors. This means that an average student has an 86.6% likelihood of reporting

satisfaction with Cornell if a parent is not an alum, versus a 95.8% chance of reporting satisfaction with Cornell if a parent is an alum. Finally, while parent borrowing has little relationship to senior satisfaction levels, parents who report a “considerable” financial impact on the family of a student’s Cornell attendance have seniors who are less likely to report being satisfied with their undergraduate experience. Here, the average senior whose parent reported considerable financial impact on the family had an 84.7% chance of reporting satisfaction, compared with a 94.5% chance for seniors whose parents reported little or no financial impact on the family. Thus, even though alumni status of parent and financial impact on the family are statistically significant factors that are related to student performance, as a practical matter the predicted probabilities show that their influence on satisfaction levels, all else equal, is not critical. Even if these factors are absent, students still have a high likelihood of reporting overall satisfaction. See appendix table A5 for further documentation of the regression model that underlies this analysis.

PART IV CONCLUDING REMARKS

The parent/senior paired data offer a unique opportunity to better understand how parents’ behavior, expectations, or perceptions are connected to seniors’ plans, academic achievement, and perceptions about family impact and overall satisfaction. These data were used to accomplish three different tasks. One task was to check the accuracy of student reports of family income and parental alumni status and educational attainment. The value added of this analysis is that it provides information about the quality of the data used for institutional decision-making.

A second analytical task involved comparing parent and senior satisfaction levels. I compared both overall satisfaction and parent/senior satisfaction with specific aspects of Cornell University. While it is always important to understand how satisfied students are with various aspects of the undergraduate experience, a detailed understanding of parents’ satisfaction and the links between students’ and parents’ satisfaction levels deepens our knowledge about where Cornell excels and where there is room for improvement. This analysis also highlights areas of discrepancy. It may be that, as an institution, we do a better job of selling ourselves to parents than to students in some areas.

The third analytical task involved determining the extent to which parents’ expectations and perceptions are linked to selected student outcomes. The paired data provide an opportunity to more holistically examine the characteristics and circumstances that potentially influence student plans following graduation, academic achievement, and perceptions about family impact and overall satisfaction. These analyses demonstrate that student outcomes are a function of both student and family characteristics. Taken as a whole, the regression results suggest that parental perceptions about the burden that financing a Cornell education has placed on the family tend to be more important than parents’ actual level of borrowing in shaping selected student outcomes.

**2002 PARENT-SENIOR PAIRED DATA
APPENDIX TABLES**

Table A1: Factors that are Linked to Student Plans to Pursue Graduate or Professional Education

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Student Sex	-	n.s.	
Student Race- African/American	+	n.s.	
Student Race- Asian American	+	n.s.	
Student Race- Hispanic	+	*	Hispanic seniors are more likely to report plans for grad/prof. school in the fall following graduation than white seniors.
International Student	+	n.s.	
Student Race- Multiracial	-	n.s.	
GPA	+	**	As GPA increases, students are more likely to report plans for grad/prof. school.
Parent expects child to obtain advanced degree	+	*	Seniors whose parents report that he/she expects his/her child to attend grad/prof. school are more likely to report having plans to attend grad/prof. school in the fall following graduation.
Parent has advanced degree	+	n.s.	
Parent believes Cornell is "worth it"	+	n.s.	

Source: Parent/Senior paired data; N= 502

+ p < .10; * p < .05; ** p < .001

n.s.= not significant

Binary logistic regression is used to better understand the relationship between the variables listed in the table, and seniors' plans (i.e. attending grad/prof. school vs. doing something else) for the fall following graduation.

Table A2: Factors that are Linked to Student Academic Performance

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Student Sex	+	*	Being female is associated with a higher GPA.
Student Race-Asian American	+	n.s.	
Student Race-Underrepresented Minority	-	**	Seniors in the underrepresented minority category tend to have lower GPAs than white seniors.
Student Race-Multiracial	-	n.s.	
International Student	+	*	Seniors in the international category tend to have higher grades than white seniors.
Student Borrowed < \$10,000	+	n.s.	
Student Borrowed \$10,000 - \$19,999	-	*	Seniors who have borrowed between \$10,000 and \$19,999 tend to have lower grades than seniors who have borrowed nothing.
Student Borrowed \$20,000 - \$30,000	-	n.s.	
Student Borrowed > \$30,000	-	**	Seniors who have borrowed \$30,000 or more tend to have lower grades than seniors who have borrowed nothing.
Student borrowed something	-	n.s.	
Student reports “moderate” family impact	+	n.s.	
Student reports “considerable” family impact	+	n.s.	
Student reports “severe” family impact	+	n.s.	
Student work schedule does not allow enough study time	-	*	Seniors who agree or strongly agree that their work schedule does not provide enough study time tend to have lower

Table A2: Factors that are Linked to Student Academic Performance

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Parent borrowed < \$10,000	-	n.s.	grades.
Parent borrowed \$10,000 - \$19,999	-	n.s.	
Parent borrowed \$20,000 - \$49,000	+	n.s.	
Parent borrowed > \$50,000	+	n.s.	
Parent reports “moderate” family impact	-	n.s.	
Parent reports “considerable” family impact	-	n.s.	
Parent reports “severe” family impact	-	n.s.	

Source: Parent/Senior paired data; N= 502
 + p < .10; * p < .05; ** p < .001
 n.s. = not significant

Ordinary least squares linear regression is used to better understand the relationship between the variables listed in the table, and senior grades.

Table A3: Factors that are Linked to Senior Reports of “Severe” or “Considerable” Family Financial Impact

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Student Sex	-	n.s.	
International Student	+	n.s.	
Student Race- Multiracial	-	n.s.	
Student Race- Underrepresented Minority	-	n.s.	
Student Race- Asian-American	+	n.s.	
Student Borrowed < \$10,000	+	n.s.	
Student Borrowed \$10,000 - \$19,999	+	*	Seniors who have borrowed at this level are more likely to report severe or considerable family financial impact than seniors who have borrowed nothing.
Student Borrowed \$20,000 - \$30,000	+	**	Seniors who have borrowed at this level are more likely to report severe or considerable family financial impact than seniors who have borrowed nothing.
Student Borrowed > \$30,000	+	n.s.	
Student borrowed something	+	+	Seniors who have borrowed something are more likely to report severe or considerable family financial impact than seniors who have borrowed nothing.
Parent reports “severe/considerable” family impact	+	**	Seniors whose parents report that financing their college has had a severe or considerable impact on the family finances are more likely to also report a severe or considerable impact when compared with seniors whose parents reported “no” or “slight” financial impact.

Table A3: Factors that are Linked to Senior Reports of “Severe” or “Considerable” Family Financial Impact

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Parent reports “moderate” family impact	+	*	Seniors whose parents report that financing their college has had a moderate impact on the family finances are more likely to report a severe or considerable impact when compared with seniors whose parents reported “no” or “slight” financial impact.
Parent borrowed < \$10,000	+	n.s.	
Parent borrowed \$10,000 - \$19,999	-	n.s.	
Parent borrowed \$20,000 - \$49,000	+	*	
Parent borrowed > \$50,000	+	n.s.	

Source: Parent/Senior paired data; N= 502

+ p < .10; * p < .05; ** p < .001

n.s. = not significant

Multinomial logistic regression is used to better understand the relationship between the variables listed in the table, and seniors’ reports of “severe” or “considerable” family financial impact.

Table A4: Factors that are Linked to Senior Reports of “Moderate” Family Financial Impact

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Student Sex	-	n.s.	
International Student	+	n.s.	
Student Race- Multiracial	+	n.s.	
Student Race- Underrepresented Minority	-	n.s.	
Student Race- Asian-American	+	n.s.	
Student Borrowed < \$10,000	-	n.s.	
Student Borrowed \$10,000 - \$19,999	+	n.s.	
Student Borrowed \$20,000 - \$30,000	+	*	Seniors who have borrowed at this level are more likely to report moderate family financial impact than seniors who have borrowed nothing.
Student Borrowed > \$30,000	-	**	Seniors who have borrowed at this level are less likely to report moderate family financial impact than seniors who have borrowed nothing.
Student borrowed something	+	n.s.	
Parent reports “severe/considerable” family impact	+	**	Seniors whose parents report that financing their college has had a severe or considerable impact on the family finances are more likely to report a moderate impact when compared with seniors whose parents reported “no” or “slight” financial impact.
Parent reports “moderate” family impact	+	*	Seniors whose parents report that financing their college has had a moderate impact on the family finances are more likely to themselves report a moderate impact when

Table A4: Factors that are Linked to Senior Reports of “Moderate” Family Financial Impact

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Parent borrowed < \$10,000	+	n.s.	compared with seniors whose parents reported “no” or “slight” financial impact.
Parent borrowed \$10,000 - \$19,999	-	n.s.	
Parent borrowed \$20,000 - \$49,000	+	+	Seniors whose parents report borrowing in this range to pay for their child’s education are more likely to report a “moderate” financial impact.
Parent borrowed > \$50,000	+	n.s.	

Source: Parent/Senior paired data; N= 502

+ p < .10; * p < .05; ** p < .001

n.s. = not significant

Multinomial logistic regression is used to better understand the relationship between the variables listed in the table, and seniors’ reports of “moderate” family financial impact.

Table A5: Factors that are Linked to Seniors' Overall Satisfaction

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Student Sex	+	n.s.	
Student Race-African/American	-	*	African American seniors are less likely than white students to report being satisfied with their undergraduate experience.
Student Race-Asian American	+	n.s.	
Student Race-Hispanic	+	n.s.	
Student Race-Other	+	n.s.	
Student Race-Multiracial	-	n.s.	
GPA	+	*	As GPA increases, students are more likely to report satisfaction.
Student reports "moderate" family impact	-	n.s.	
Student reports "considerable" family impact	+	n.s.	
Student reports "severe" family impact	-	n.s.	
Student Borrowed < \$10,000	+	n.s.	
Student Borrowed \$10,000 - \$19,999	+	n.s.	
Student Borrowed \$20,000 - \$30,000	+	n.s.	
Student Borrowed > \$30,000	+	n.s.	
Student borrowed something	-	n.s.	
Parents' Overall Satisfaction	+	+	Seniors' whose parents report being generally or very satisfied are more likely to also report being generally or very satisfied.

Table A5: Factors that are Linked to Seniors' Overall Satisfaction

Variables Included in the Model	Direction of Relationship	Statistical Significance	Explanation
Parent borrowed < \$10,000	+	n.s.	
Parent borrowed \$10,000 - \$19,999	+	n.s.	
Parent borrowed \$20,000 - \$49,000	+	n.s.	
Parent borrowed > \$50,000	-	n.s.	
Senior/Parent Communication	+	n.s.	
Parent is alum	+	*	Seniors whose parents also attended Cornell are more likely to report being generally or very satisfied.
Parent reports "moderate" family impact	-	n.s.	
Parent reports "considerable" family impact	-	*	Seniors whose parents report a considerable family financial impact are less likely to report being generally or very satisfied.
Parent reports "severe" family impact	-	n.s.	

Source: Parent/Senior paired data; N= 502

+ p < .10; * p < .05; ** p < .001

n.s.= not significant

Binary logistic regression is used to better understand the relationship between the variables listed in the table, and the propensity for seniors to report satisfaction with their undergraduate experience.