FINAL REPORT: PHASE TWO OF THE HAA SUCCESS STUDY

Factors Associated with College and Career Success among Horatio Alger Association Scholarship Recipients

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Summary of Key Findings

Influences of the HAA Scholarship and Program Services

- Undergraduate and Alumni Survey respondents most strongly agreed that receiving the award had positive financial effects in terms of taking out fewer loans and reducing debt levels. Scholars also strongly agreed that the HAA award enabled them to attend college.

- Among Undergraduate Scholars, Nationals Scholars more strongly agreed that receiving the award was helpful in completing their undergraduate degree in less time.

- The survey results illustrate that Undergraduate National Scholars express stronger agreement across every area of influence than do Alumni National Scholars, suggesting that the Scholarship award may be increasingly effective at serving today's Scholars.

- The most valuable aspect of attending the National Scholars Conference were goal-related, including the motivation to pursue goals and support for future goals. The next most valuable aspects were of a social nature related to meeting others from similar backgrounds, including learning about others who experienced adversity and simply meeting other Scholars.

- Compared to Other Scholars, National Scholars (both Undergraduate and Alumni) reported that the award had greater impacts on their life across every aspect measured. Across both Undergraduate and Alumni National Scholars, the greatest life impact resulted from receiving the HAA scholarship money and a personal computer, a sense of hope and support, and being named an HAA Scholar. Access to health care or counseling is an aspect of the award that had relatively less impact on Scholars' lives. (Throughout the report, "Other Scholars" includes all HAA Scholarship recipients who were not among the National Scholars, including State and Military Scholars.)

Mentoring

- Nearly one-half (49 percent) of all National Scholars who participated in the Undergraduate Survey reported having a mentor during high school, a significantly larger share than reported among Other Scholars (40 percent).

- Having a mentor during high school, during college, or both, positively affects Undergraduate Scholars across a range of outcomes. Even after controlling for the other variables in the model, Scholars who reported currently having a mentor also reported higher levels of knowledge and critical thinking development during college, development of leadership, interpersonal and career skills during college, and greater ability to cope with the college environment through seeking support from institutional resources.

- Having a mentor during high school also positively influenced Scholars' ability to cope with college through family and friend support. Having a mentor during high school and currently increased the Scholars' ability to overcome adversity through drawing on counselors, services and role models, and through intervention.

- Among Alumni Scholars, having a mentor currently positively affected graduate degree completion, and currently serving as a mentor significantly enhances job satisfaction. Evidence that having a mentor or being a mentor positively influences so many outcomes above and beyond the influence exerted by Scholars' backgrounds, type of HAA Award received, and educational conditions, suggests broad and lasting benefits of the mentoring relationship.

- Forty-four percent of Undergraduate National Scholars had a mentor at the time of the Undergraduate Survey, which exceeded the 33 percent of Other Scholars who currently had a mentor. For Undergraduate National and Other Scholars alike, nearly one in five (19 and 18 percent, respectively) were passing along the help they received over the years by currently serving as a mentor. Among Alumni Scholars, a significantly larger percentage of National Scholars than Other Scholars (31 vs. 22 percent) were serving as mentors at the time of the Alumni Survey.

- Having a mentor during high school is increasingly a reality among National Scholars with significantly more Undergraduate than Alumni National Scholars indicating they had a mentor during high school (49 vs. 43 percent).

Adversity and Resilience

- Among both Undergraduate and Alumni Scholars, National Scholars reported stronger agreement than Other Scholars with notions that adversity made them a better person who is more able to address difficult tasks, that helping others is a means of overcoming past adversities, and that adversity served as a catalyst for taking initiative for dealing with work, school, and community challenges.

- National Scholars were more likely to agree that outside help by a concerned individual or organization was important to overcoming adversity.

- Among Undergraduates and net of background characteristics, National Scholars reported greater ability than Other Scholars to cope with adversity through using available resources and through intervention from family, school, and friends.

- Across all three measured dimensions for overcoming adversity, the distinctions between National and Other Scholars is the result of having a mentor in high school and currently in college, or the result of being an HAA award recipient for a greater number of years (based on number of years between completing the survey in 2012 and the initial scholarship year). This suggests that differences in National and Other Scholars' abilities to overcome adversity are due to differential exposure to mentors and the number of years students received the National Scholarship.

- Altogether, HAA Scholars are distinguished by their resilience in the face of adversity.

Educational Experiences and Outcomes

- National Scholars attended more expensive and more selective institutions compared to Other Scholars, where selectivity is measured according to the ACT scores of entering freshmen.

- Compared to their Alumni counterparts, Undergraduate Survey respondents were more likely to attend public and two-year schools.

- National Scholars are less likely than Other Scholars to have transferred institutions and transfer rates of Undergraduate Scholars are considerably lower than those of Alumni Scholars.

- National Scholars are less likely to work while enrolled in college, harbor less concern over financing college, and report lower levels of expected school debt than Other Scholars.

- The most prominent majors among Undergraduate and Alumni Scholars include the Social Sciences, Arts and Humanities, and Professional fields (e.g., Law, Medical fields, Nursing, Architecture, etc.).

- After taking into account differences in background characteristics, National and Other Scholars have reported comparable outcomes related to development during college in terms of critical thinking, leadership and careers skills, and cultural awareness.

- Nearly three out of four National Scholars have maintained progress to complete their college degree in four years (on-time progress was calculated based on a combination of Scholarship year and current college classification), making National Scholars significantly more likely than Other Scholars to be on time for completing a college degree within four years. Furthermore, controlling for differences in a wide range of key background characteristics, support services, and educational conditions, the type of award received (National vs. Other Scholarship) exerted a larger effect on the likelihood of maintaining on-time degree progress than any other variable examined (even larger than measures of academic motivation and grades).

- Alumni National Scholars were nearly two times more likely than Other Scholars to have completed a Master's degree (32 vs. 17 percent), and more than three times more likely to have completed a Professional Doctorate degree such as an M.D., J.D., D.D.S., or Ed.D. (8 vs. 2 percent).

Undergraduate Scholars in the National Context

- When compared to a national sample of postsecondary enrollees, HAA Undergraduate Scholars reported far lower family incomes. While the majority of respondents in the national comparison sample reported family incomes of over $50,000 per year (56 percent), the majority of HAA Undergraduate Scholars indicated a family income of $20,000 or less per year (60 percent).

- HAA respondents also showed higher educational aspirations than the national sample; higher percentages of HAA Undergraduate Scholars aspired to a masters (45 vs. 32 percent) or doctoral degrees (40 vs. 16 percent).

- As expected, HAA Scholars reported more instances of adversity; a large majority of HAA Undergraduate respondents experienced adversity in high school (92 percent), compared to a much smaller majority in the national sample (58 percent).

- Reflecting their socioeconomic disadvantages, Undergraduate Scholars expected to use family resources to pay for college at a lower rate than national comparison respondents (42 vs. 53 percent), and report working during college at more than two and a half times the rate of college students nationally (66 vs. 25 percent).

- Compared to the national sample of enrolled college students, a smaller percentage of HAA Undergraduate Scholars reported enrolling part-time, fewer reported transferring colleges,

proportionally more attended highly selective colleges, and fewer attended public schools and two-year schools.

Academic Motivation and Self-Efficacy

- Among HAA Undergraduate Scholars, academic motivation is a key construct related to numerous positive educational outcomes. Results indicate higher academic motivation is significantly associated with developing important skills during college, coping with the college environment, overcoming adversity, and maintaining on-time progress towards an undergraduate degree.

- Self-efficacy is a measure of the attitudes an individual has towards his/her own ability to complete a task or reach a goal. Among Undergraduate Scholars, self-efficacy was significantly and positively related to three development scales, three coping with the college environment scales, and a measure of overcoming adversity through material support.

- Among Alumni Scholars, self-efficacy was positively associated with job satisfaction and overall satisfaction with life.

Careers and Professional Success

- Receiving the HAA National Scholarship award versus Other HAA Scholarship has significant influence beyond the college years. In terms of the likelihood of completing a graduate degree, being employed full-time, and annual salary, National Scholars enjoy distinct advantages.

- Significantly higher percentages of National Scholars than Other Scholars reported being employed (84 vs. 79 percent), employed full-time (72 vs. 59 percent), and earning significantly higher incomes or salaries for the most recent year.

- National and Other Alumni Survey respondents were very similar in terms of their level of job satisfaction and the congruence (or relatedness) between their college major and their current or most recent job.

- The qualities Alumni Scholars rated as most important to professional success included persistence, work ethic, communication skills, a college degree, and general knowledge. Attaining a graduate degree, assertiveness, and integrity were rated as less important. On average, Alumni rated all the categories as “very important” to “essential” for achieving professional success.

Civic Engagement and Citizenship

- Few distinctions were found between National and Other Scholars in terms of participation in community involvement, voting behavior, and attitudes towards giving back to society.

- High levels of optimism were found among both Undergraduate and Alumni Scholars in their belief that they will achieve the American Dream. Similarly high levels of optimism were shared among National and Other Scholars.

- National Scholars viewed voting in national elections to carry the highest level of importance for their role as a citizen, ahead of volunteering in the community, promoting racial equality, and working in low-income communities. By comparison, Other Scholars indicated working in low-income communities as relatively more important, while assigning relatively less importance to voting in national elections.

Living a Satisfied and Happy Life

- Alumni National Scholars reported significantly higher levels of life satisfaction than did Other Scholars, highlighting higher overall levels of life satisfaction among National Scholars.

- When asked to select from a list of factors considered to be challenges to living a more fulfilled and happy life, Alumni Scholars most often identified financial security as an important barrier, particularly among Other Scholars. Student loans and other debt were identified among nearly six out of ten Other Scholars (58 percent), which exceeded the 45 percent of National Scholars who did so, suggesting that the National Scholarship award may help offset obstacles later in life related to repaying student loans and other forms of financial debt.

- A lack of time was also identified as a barrier to a fulfilled and happy life among the majority of Alumni National and Other Scholars (66 and 65 percent, respectively).

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Introduction

The Success Study of the Horatio Alger Association (HAA) Scholarship Program is a multiphase research project designed to examine the individual attributes, support structures, and educational experiences that increase the ability of individuals to overcome adversity and to achieve educational and life success. The primary aim of the Success Study is to determine the relative importance of different factors in determining success. By analyzing populations of current and former HAA Scholarship recipients who are distinguished by their exposure to severe adversity and difficult social conditions, findings from the present set of analyses provide new information on the utility of resources and supports for a unique and resilient population of college students.

The present study represents Phase Two of the Success Study, conducted by NORC at the University of Chicago between October 2011 and October 2012, and serves as an important companion to the first phase of the study (Wolniak, Rude, Gebhardt, & Hoffer, 2011; Wolniak, Rude, & Rekoutis, 2012). Phase One of the Success Study examined background conditions of applicants to the HAA Scholarship Program for identifying areas of disadvantage and describing why certain students were able to succeed academically despite disadvantages. Building on that work, Phase Two focuses on HAA Scholars who are currently enrolled in college in pursuit of an undergraduate degree, as well as Alumni Scholars who are no longer in college. By analyzing primary survey data collected among HAA Undergraduate and Alumni Scholars, results from the present study provide new information on the conditions and experiences that determine educational, occupational, and life success among HAA Scholarship Award Recipients. An important aspect of Phase Two of the Success Study is determining if program resources received by HAA Scholars, along with Scholars' own unique set of educational experiences may explain differential outcomes that determine educational, career, and interpersonal success during college and beyond.

Plans for future phases of the Success Study include assessing the overall effectiveness of the HAA Scholarship Program by examining differences between HAA Scholars and comparable non-recipients (i.e., program applicants who were ultimately not selected as HAA Scholars as well as non-applicant populations) across a range of educational, career, and life outcomes spanning both personal and professional domains. Altogether, this multiphase study improves our understanding of how success unfolds over the life course at multiple points in time, from the students' lives prior to applying for the program to the years following college graduation, and the role the HAA Scholarship Program plays in fostering success among scholarship recipients.

Study Aims

Phase Two of the Success Study aims to identify the experiences and conditions that influence postsecondary education, career, and life outcomes among HAA Scholarship Recipients. The study builds on evidence contained in the literature on pathways to college among at-risk students, as well as the concept of resilience in overcoming adversity. The distinguishing characteristics of HAA Scholars include the level of adversity they have experienced and their challenging life circumstances prior to entering college, in combination with demonstrated academic potential and active involvement in their schools and communities. Information on the HAA Scholars as they progress through college offers researchers a unique and valuable opportunity to examine individual attributes, support structures and educational conditions that affect students' abilities to achieve success educationally and in life.

Among students with adverse backgrounds such as exposure to trauma or severe conditions at home, succeeding in college can be an unattainable goal without the help of outside interventions, and success may ultimately depend on a confluence of support structures and services found within the institutional context as well as those provided by programs outside of the formal institutional structure. Studies of at-risk students have identified resilience to be an important mechanism for overcoming adversity and achieving greater educational outcomes, though this notion has rarely been examined among college-going students and has proven difficult to operationalize (Banyard & Cantor, 2004; Wang & Gordon, 1994; Wolniak, et al., 2012).

Studies of entering college students have shown the importance of student and family characteristics, as well as school contexts in understanding perceptions and choices surrounding college enrollment (e.g., Engberg & Wolniak, 2010; Paulsen & St. John, 2002; Perna, 2006, Perna & Titus, 2005), and policy reports have focused on risk factors and support mechanisms for students preparing for and transitioning into college (e.g., Domina, 2009; Horn, Chen, & Adelman, 1998; IHEP, 2011; Kaufman & Bradbury, 1992). Despite these efforts, there exists little empirical evidence on the association between services and supports available to college students, educational conditions, and educational outcomes among students from disadvantaged backgrounds. Furthermore, few studies have examined the manner by which college experiences and external supports may affect post-college outcomes, and we know little about the influence of scholarships or other sponsored programs on socioeconomic outcomes after college. The present study contributes new information to these important areas of research.

Research Questions

Phase Two of the Success Study was designed to address the following three research questions:

Question 1

What similarities and differences exist among HAA Undergraduate and Alumni Scholars? To address this question, comparisons were made within and between HAA Undergraduate and Alumni survey respondents across a host of measures related to: socioeconomic and demographic characteristics; postsecondary education conditions, experiences, and outcomes; careers; life satisfaction and civic engagement; HAA Scholarship program services; and mentoring.

Question 2

How do Undergraduate Scholars compare to the general U.S. sample of undergraduate enrollees in terms of postsecondary enrollment and experiences during college? HAA Undergraduate Survey data were examined in relation to a national sample of college enrollees to benchmark the experiences of HAA Undergraduate Scholars against the average U.S. college student. Comparable measures between the Undergraduate Survey and national comparison data include: family socioeconomic status, adversities experienced during high school, education aspirations, postsecondary enrollment, working while enrolled in college, sources of tuition assistance, and type of college attended.

Question 3

What background characteristics, experiences, and conditions, explain differential outcomes among HAA Undergraduate and Alumni Scholars? Question 3 was addressed by utilizing a multivariate framework to examine combinations of variables described in answering Question 1. Addressing this question will identify the relative strength of different factors for predicting educational and career outcomes, and aspects of the HAA Program services that explain differential outcomes among Scholars.

Data and Analysis

Data Sources

Data for the study include both primary survey data containing information on HAA Undergraduate and Alumni Scholars, and secondary data from the U.S. Department of Education's National Center for Education Statistics (NCES). Secondary data contain important information for understanding the HAA Undergraduate and Alumni Scholars in the national context, including information on postsecondary institutions from the Integrated Postsecondary Education Data System (IPEDS) and information from a national sample of college enrollees from the Education Longitudinal Survey (ELS:2002).

HAA Survey Data

The main data source for Phase Two of the Success Study stemmed from the development and administration of the HAA Undergraduate and Alumni Surveys. Questionnaires were developed in collaboration between NORC and HAA during the fall of 2011. The Undergraduate and Alumni Surveys were administered by HAA using on-line questionnaires. For the Undergraduate Survey, data collection occurred between 12/22/11 and 1/31/12. 4,263 current Undergraduate Scholars were surveyed, resulting in 1,872 completed surveys and a 44 percent response rate.[1] For the Alumni Survey, data were collected between 2/7/12 to 3/16/12. Surveys were administered to 4,207 Alumni, 947 of whom completed the survey, yielding a 23 percent response rate.

Prior to analysis data were conditioned to account for missing or out of range values. Cases with missing values for more than 33 percent of all response fields were removed from the data, resulting in the elimination of 55 and 84 cases from the Undergraduate and Alumni Surveys, respectively. In addition, exploratory and confirmatory factor analyses were performed on select sets of variables. Factor analysis is a statistical method that attempts to describe underlying but unobservable relationships between groups of variable and to verify the reliability (i.e., internal consistency) among the items identified through factor analysis (Johnson & Wichern, 1998). Results from factor analysis provide the basis for reducing data through the development of scaled constructs comprised of similar survey questions.

Together, the Undergraduate and Alumni Surveys provide data on wide range of backgrounds, experiences, attitudes, conditions and outcomes among the surveyed populations of HAA Scholars. As

[1] See Appendix C for a summary report on the Respondent Incentives Experiment conducted to optimize response rates for the Undergraduate Survey.

shown in Table 1, the median scholarship year for the Undergraduate sample was 2009, while Alumni Survey respondents were most often 2005 scholars. From a statistical standpoint, National Scholars were overrepresented among Undergraduate and Alumni survey respondents: roughly 15 percent of Undergraduate Survey respondents were National Scholars (vs. 85 percent Other Scholars[2]), and just under one in three Alumni Survey respondents were National Scholars (vs. 71 percent Other Scholars). This overrepresentation reflects higher response rates among National Scholars.

Table 1: Background Characteristics of HAA Undergraduate and Alumni Scholars

	Undergraduate Scholars	Alumni Scholars
Scholarship year (Median)	2009	2005
Award type		
National	14.54%	29.46%
Other	85.46%	70.54%
Gender (% Female)	65.80%	67.90%
Race/Ethnicity[1]		
Asian	10.65%	12.50%
American Indian/ Alaskan Native	0.98%	0.22%
White	54.40%	57.19%
Black	15.54%	12.72%
Native Hawaiian/ Pacific Islander	0.06%	0.44%
Latino	14.57%	13.61%
Multiracial	3.80%	3.32%
Number of dependents in household (Mean)	2.05	2.02
Family's adjusted gross income (Mean)	$25261	†
First-generation college student	50.93%	44.98%
Education Aspirations		
Associate's or Voc/Tech certificate	0.88%	0.63%
Bachelor's degree	14.10%	72.86%
Master's degree	44.88%	21.01%
Doctorate degree (professional or research)	39.81%	4.50%

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816) and Alumni Survey Data (N=947).

[1]Race/Ethnicity category percentages are not mutually exclusive and will not total to 100%.

† Not applicable.

The samples were predominately female (66 and 68 percent among Undergraduate and Alumni Survey respondents, respectively), and nearly evenly divided between White respondents and respondents from

[2] "Other Scholars" includes all HAA Scholarship recipients who were not among the National Scholars, including State, and Military Scholars.

other racial/ethnic groups (54 and 57 percent White among Undergraduate and Alumni Survey respondents, respectively).

Reflecting the socioeconomic hardships of HAA Scholarship recipients, the Undergraduate Survey respondents reported average family incomes of approximately $25,000, and roughly half were first in their family to attend college (51 percent of Undergraduate Survey respondents and 45 percent of Alumni Survey respondents were first-generation college students). Despite coming from low-income households where attending college was not a foregone conclusion, Undergraduate Survey respondents aspired to high levels of education: roughly 45 percent aspired to complete a master's degree, and 40 percent to a doctorate degree. Alumni Survey respondents more often reported aspirations for at most a bachelor's degree, while roughly one in four hoped to someday complete an advanced degree (21 percent aspired to complete a master's degree and 5 percent had aspirations for a doctorate degree).

Integrated Postsecondary Education Data System

The HAA Undergraduate and Alumni Survey collected information on postsecondary institution attended, based on institutional IDs, which were matched to institutional records contained in the 2008-2009 Integrated Postsecondary Education Data System (IPEDS, see http://nces.ed.gov/ipeds/datacenter/). In total, 98 percent of Undergraduate Survey respondents (1797 out of 1816) had usable IPEDS institutional identifiers, providing information on postsecondary education conditions. The institutional characteristics examined included selectivity, control (public and private), and type (two- and four-year institutions).

Education Longitudinal Study of 2002

ELS:2002 is a survey research project funded by U.S. Department of Education and designed to explore students' transitions from secondary school into postsecondary education or the workforce. The ELS database is the most recent nationally representative information source on U.S. high school students and early college enrollees. The analytic sample for this study is based on the 2006 panel of students who were college enrollees, two years following graduating high school in 2004. Respondents were selected for analysis based on post-secondary enrollment status in 2006; only those respondents who indicated that they were enrolled either part-time or full-time in a post-secondary institution were included in the analysis. Data consisted of more than 10,000 college enrollees, and applying the second follow-up cross-sectional weight (*F2QWT*) resulted in a sample representing approximately 2.4 million students generalizable to the 2006 U.S. population of college students. The ELS:2002 data were used to compare the characteristics of the HAA Undergraduate Survey respondents, comprised of enrolled National and Other Scholarship recipients, against a nationally representative sample of students in terms of

background characteristics (socioeconomics and adversity experiences), educational aspirations, postsecondary enrollment, college financing, and characteristics of the college or university attended.

Analysis

To answer the study's research questions, our approach involved descriptive and multivariate regression techniques for analyzing HAA Undergraduate Survey and Alumni Survey data and ELS:2002 data.

Stage 1

The first stage of analysis included a comprehensive series of comparisons within and between Undergraduate Scholars and Alumni Scholars for addressing Question 1. For this stage of analysis we identified differences in mean values across an array of survey-based measures related to: Background characteristics; Postsecondary education (experiences, conditions, and outcome); Careers; Life satisfaction and civic engagement; HAA program services (services utilized and program influence); and Mentoring.

The within-group comparisons included tests for mean differences in survey responses among HAA Undergraduate Scholars (National Scholarship recipients vs. Other Scholarship recipients), and among HAA Alumni Scholars (National Scholarship recipients vs. Other Scholarship recipients). Tests for statistically significant differences were based on a two-sided *t*-test with at least a 95% confidence level (Gall, Gall, & Borg, 2003).[3] The between-group comparisons consisted of tests for differences among HAA National Scholars (National Undergraduate Scholars vs. National Alumni Scholars), and tests for statistically significant mean differences were based on a Welch's *t*-test for independent samples with unequal variance with at least a 95% confidence level (Welch, 1937, 1947).

Stage 2

The second analytic stage addressed Question 2 by examining HAA applicants in relation to the national population of enrolled college students approximately two years after high school graduation. This analysis examined comparable measures contained in both HAA Undergraduate Survey data and ELS:2002 data, including: Student characteristics (family income, first-generation college student status, postsecondary education aspirations, and experiences with adversity during high school); College enrollment and finances (part-time enrollment, transferred colleges, took a leave of absence, working for pay, and sources of tuition assistance); and Types of colleges attended (two- and four-year, public and

[3] Tests for statistical significance at the at the 95% level ($p < 0.05$) ensure that differences identified may have been falsely detected, or based on random chance, in less than 5 out of every 100 cases.

private, and selectivity). Cross tabulations were used to examine mean differences, or the probability that two populations are the same with respect to the variable tested. Tests for statistically significant mean differences were tested using Welch's *t*-test with at least a 95% confidence level.

Stage 3

The third and final analytic stage involved multivariate regression techniques. Multivariate techniques enabled examination of the unique and simultaneous influence of backgrounds, attitudes, educational conditions and programmatic support services on educational, career, and life outcomes. Results from the multivariate analysis identified the extent to which background characteristics, educational experiences conditions, and programmatic supports explain differential outcomes among HAA Undergraduate and among Alumni Scholars. Results from the analysis addressed if certain aspects of the HAA Program explain differential outcomes among Scholars, net of a variety of confounding factors. Results from this analytic stage allow us to address Questions 1 and 3.

A combination of linear and logistic regression techniques were used depending on the characteristics of the outcome variables specified in any particular analysis equation. Linear regression was employed when estimating models with continuous dependent variables (e.g., Development of critical thinking skills during college, Time to degree completion, Coping with the college environment, etc.), while logistic regression was used to estimate models with dichotomous outcomes (e.g., Graduate degree completion, Full-time employment, etc.). These methods facilitated the examination of mechanisms by which certain types of HAA Scholars achieve successful outcomes through identifying potential indirect influences among predictor variables.

Altogether, these three analytic stages resulted in a rich set of findings that addressed the study's research question with implications for both research and practice. In addition, the findings that stemmed from the analyses highlight numerous areas in need of further inquiry. In the sections that follow we present results from the three analytic stages, followed by a discussion of the overall findings and implications. Throughout the report, it is important to keep in mind that the results are based on Undergraduate and Alumni Scholars who selected to respond to their respective surveys and therefore may not be representative of every Scholars within the Undergraduate and Alumni populations.

Results

The following results are presented in three sections. The first section presents a comprehensive set of comparisons within and between Undergraduate and Alumni Scholars across measures related to adversity, postsecondary education, careers, life satisfaction, and HAA Program services. The second section situates HAA Undergraduate Scholars within the context of the nation by comparing Scholars to a U.S. sample of enrolled college students. The third and final section explains the results from the multivariate examination of factors that predict key outcomes related to educational development, career and life success, and coping with adversity.

Distinctions among HAA Undergraduate and Alumni Scholars

Examining differences within and between HAA Undergraduate and Alumni Scholars identified a host of distinctions. The tables and figures presented in this section present percentages or mean values for variables measured in the Undergraduate and Alumni Surveys across the following areas: Adversity, Postsecondary education; Civic engagement, Alumni careers; Alumni views on citizenship and life happiness; HAA program services; and Mentoring. Significant differences ($p < 0.05$) between National and Other Scholars within the Undergraduate or Alumni samples (i.e., within-group differences) are highlighted with asterisks in the exhibits. Measures that accompany statistically significant differences between Undergraduate National Scholars and Alumni National Scholars (i.e., between-group differences) are highlighted by shading the row containing the particular measure (or by a table note in instances where every measure in a table accompanied significant differences).

Adversity

Perhaps more than any other dimension, HAA Scholars are distinguished by their resilience in the face of adversity. Scholars' experiences with adversity and their reports on the impact of such experiences provide valuable information on the lasting influence of exposure to adversity and coping mechanisms among enrolled college students and alumni. Table 2 clearly indicates the positive framing of adverse experiences among Scholars, particularly among National Scholars. Among both Undergraduate and Alumni Scholars, National Scholars reported stronger agreement with notions that adversity made them a better person who is more able to address difficult tasks, that helping others is a means of overcoming past adversities, and that adversity served as a catalyst for taking initiative for dealing with work, school, and community challenges. National Scholars were also more likely to agree that outside help by a concerned individual or organization was important to overcoming adversity. Across all of the measured

attitudes towards adversity, Undergraduate National Scholars expressed greater agreement than Alumni did. The one exception to these findings was that Alumni National Scholars reported stronger agreement that outside help was instrumental for overcoming adversity.

Table 2: Experiences with Adversity among HAA Undergraduate and Alumni Scholars Alumni Scholars

	Undergraduate Scholars			Alumni Scholars		
	National	Other		National	Other	
Number of adversities experienced (Mean)	2.92	2.16	**	2.48	2.04	**
Attitudes towards adversity (Mean)[1]						
Made me more able and willing to tackle difficult tasks	4.82	4.62	**	4.67	4.52	**
Made me a better person	4.80	4.59	**	4.58	4.47	*
Helping others or giving back to the community makes me feel better about myself and is a way to overcome some of my adversities	4.54	4.44	*	4.38	4.33	*
Adversity prompted me to take initiative and deal with daily financial and emotional challenges at school, work and in the community	4.52	4.30	**	4.28	4.24	*
Overcoming adversity was due to my individual determination and initiative	4.44	4.40		3.94	4.03	
Outside help by a concerned individual or organization, was important to overcoming my adversity	3.88	3.70	**	4.11	3.96	*
Success in overcoming adversity is impacted by the type of adversity a person faces	3.86	3.86		3.57	3.73	*
Luck plays the biggest role in overcoming adversity	2.12	2.17		1.98	2.04	

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816) and Alumni Survey Data (N=947).

NOTES: All values shown in the table significantly differ between National Undergraduate Scholars and National Alumni Scholars at $p < 0.05$.

[1] Range of response options:1=Strongly disagree, 5=Strongly agree.

* $p < 0.05$, ** $p < 0.01$

Postsecondary education

By examining the postsecondary education conditions, experiences, and outcomes of Scholars, we improve our understanding of Scholars' pathways through college and illuminate areas where the HAA Scholarship Program may uniquely contribute to educational success. Tables 3–5 and Figure 1 below present valuable information on the conditions, experiences, and outcomes of enrolled Undergraduate Scholars and Alumni Scholars, and their reflections on the college experience.

Table 3 characterizes the colleges and universities attended by Undergraduate and Alumni Scholars. Among Undergraduate Survey respondents, National Scholars attend more expensive and more selective institutions compared to Other Scholars, where selectivity is measured according to the 75th percentile ACT score among entering freshmen. This distinction among Undergraduate Scholars may reflect differences in the academic abilities (and therefore greater admissibility to selective institutions) of

National Scholars. However, results from Phase One of the Success Study did not yield significant differences between average ACT scores of National and Other Scholars. The results may therefore indicate that receiving the HAA National Scholarship increases Scholars' ability to attend more selective and more expensive institutions. Results also indicate that, compared to their Alumni counterparts, Undergraduate Survey respondents were more likely to attend public institution, and two-year schools.

Table 3: Education Conditions among HAA Undergraduate and Alumni Scholars Alumni Scholars

	Undergraduate Scholars			Alumni Scholars		
	National	Other		National	Other	
Selectivity (Mean)[1]	27.69	26.50	**	27.40	27.45	
Institution type						
2 Year	3.44%	4.95%		0.72%	0.45%	**
4 Year	96.56%	95.05%		99.28%	99.55%	
Control						
Public	65.64%	69.87%		59.35%	69.78%	**
Private	34.35%	30.13%		40.65%	30.21%	**
Cost of attendance						
In-state	$17,955.61	$16,778.59	**	$18,368.47	$17,498.55	*
Out of state	$25,499.35	$23,649.14	**	$25,059.42	$25,898.21	*

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816) and Alumni Survey Data (N=947); 2008-2009 IPEDS Data Center, http://nces.ed.gov/IPEDS/DATACENTER/.

NOTE: Shaded rows indicate statistically significant mean differences between National Undergraduate Scholars and National Alumni Scholars.

[1]Institutonal selectivity is based on the 75th percentile ACT score among entering freshmen.

* $p < 0.05$, ** $p < 0.01$

Within the institutional contexts described above, Table 4 shows that National Scholars are less likely than Other Scholars to have transferred institutions and that transfer rates of Undergraduate Scholars are considerably lower than those of Alumni Scholars. Among Undergraduate Survey respondents, National Scholars appear in better financial circumstances than Other Scholars: National Scholars are less likely to work while enrolled in college, harbor less concern over financing college, and report lower levels of expected school debt (less than $10,000 among National Scholars vs. between $10,000 and $19,000 among Other Scholars). Roughly seven out of ten Undergraduate Scholars reported receiving another award or scholarship during college, a significantly lower share than the 80 percent of Alumni Scholars who received other awards at some point during college. The other awards Scholars received were affiliated with programs such as the Gates Millennium Scholars Program, the Dell Scholars Program, the Daniels Fund Scholarship Program, the Hispanic College Scholarship Fund, and many others.

Table 4: Education Experiences among Undergraduate and Alumni Scholars

	Undergraduate Scholars			Alumni Scholars		
	National	Other		National	Other	
Transferred institutions	7.44%	13.09%	*	19.16%	12.44%	*
Reduced course load	7.31%	7.98%		9.65%	7.48%	
Leave of absence	9.51%	7.63%		†	†	
Work, on- or off-campus	60.46%	66.52%	*	†	†	
Major concerns over college financing	17.42%	22.49%	*	†	†	
School debt, expected (Mean)[1]	2.80	3.37	**	†	†	
School debt, total (Mean)[1]	†	†		5.80	5.12	
Received other awards or scholarships	70.83%	71.36%		80.29%	80.51%	

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816) and Alumni Survey Data (N=947).

NOTE: Shaded rows indicate statistically significant mean differences between National Undergraduate Scholars and National Alumni Scholars.

[1] Response options: 1 = $0; 2 = $1 - $9,999; 3 = $10,000 - $19,999; 4 = $20,000 - $29,999, 5 = $30,000 - $39,999; 6 = $40,000 - $49,999; 7 = $50,000 - $59,999; 8 = $60,000 - $69,999; 9 = $70,000 - $79,999; 10 = $80,000 - $89,999; 11 = $90,000 - $99,999; 12 = $100,000 or more.

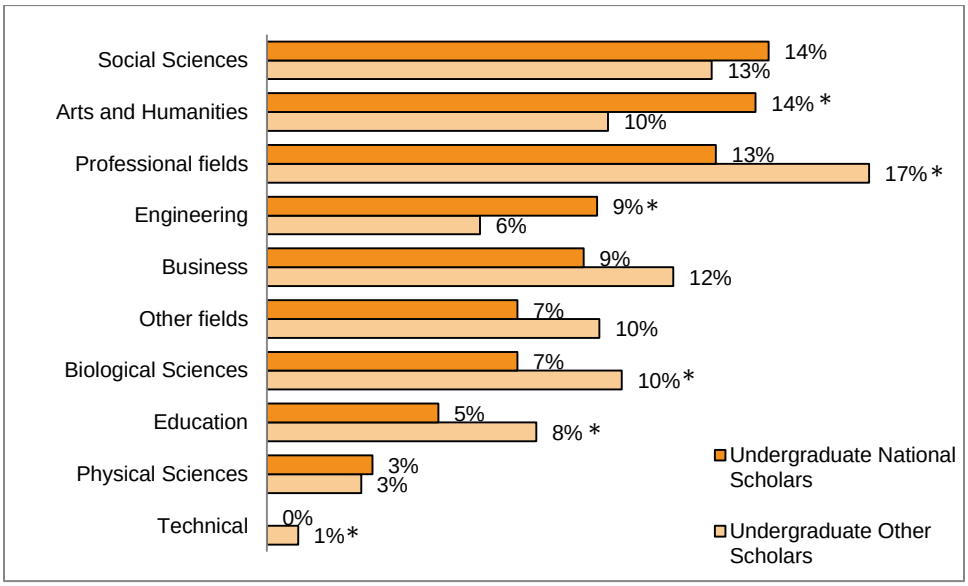
* $p < 0.05$, ** $p < 0.01$

† Not applicable

The college majors of Undergraduate and Alumni Scholars provide a glimpse into the career development of HAA Scholarship recipients, and a preview of future earnings potential given the vast literature showing the significant earnings advantages of college graduates who studied scientific and technical fields (Grubb, 1992, 1997; Knox, Lindsay, & Kolb, 1993; Rumberger & Thomas, 1993; Thomas 2000, 2003). Fields of study that accompany the largest earnings premiums tend to have a relatively specific and well-defined body of content knowledge and skills, and focus on methods of inquiry that require a high level of quantitative or scientific skills. Such fields tend also to be more directly linked to (or congruent with) specific jobs or occupations.

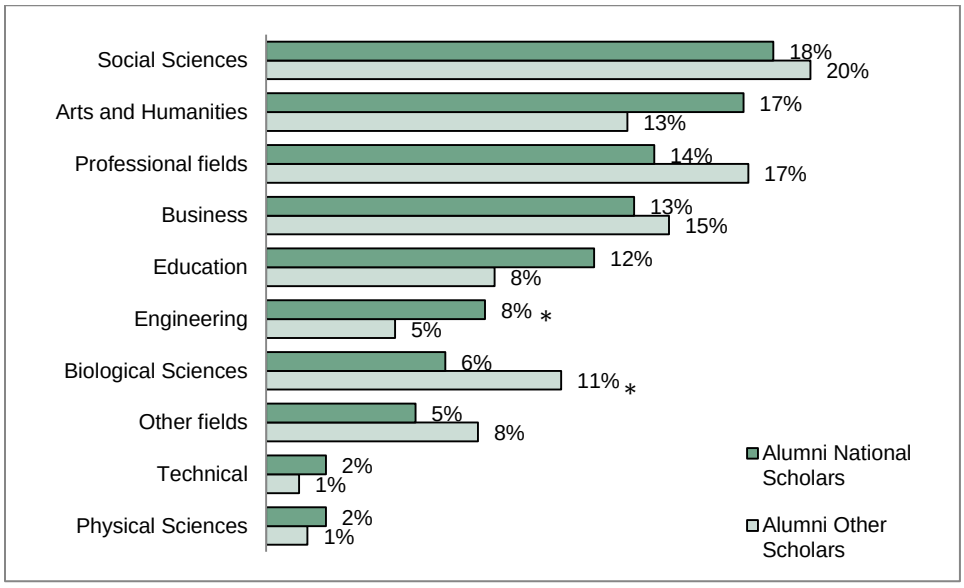
Exhibit 1 illustrates that Social Sciences, Arts and Humanities, and Professional fields (e.g., Law, Medical fields, Nursing, Architecture, etc.), are the most prominent majors selected by Undergraduate and Alumni Scholars. Among Undergraduate Survey respondents, National Scholars were more likely than Other Scholars to concentrate their studies in the Arts and Humanities (14 vs. 10 percent), and Engineering (9 vs. 6 percent) fields, and less likely to study a Professional field (13 vs. 17 percent), Biological Sciences (7 vs. 10 percent), or Education (5 vs. 8 percent). Comparing the majors of Alumni National Scholars and Undergraduate National Scholars indicated that Alumni National Scholars were more likely than their undergraduate counterparts to major in Business (13 vs. 9 percent) or Education (12 vs. 5 percent).

Figure 1: College Majors among Undergraduate and Alumni Scholars



SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816).

* $p < 0.05$



SOURCE: 2012 HAA Alumni Survey Data (N=947).

* $p < 0.05$

In terms of educational outcomes, Table 5 provides important information on the grades, on-time progression towards a degree, and degrees attained among Undergraduate and Alumni Survey respondents. Among Undergraduates, National and Other Scholars reported similarly high grade point averages, and low levels of part-time enrollment. In addition, nearly three out of four National Scholars have maintained progress to complete their college degree in four years (on-time progress was calculated based on a combination of Scholarship year and current college classification). With 65 percent of Other Scholars reporting on-time degree progress, it appears that National Scholars are significantly more likely to be on time for completing a college degree within four years. The opposite finding appeared among Alumni, in which National Scholars took an average of 4.4 years to complete a bachelor's degree compared to 4.0 years among Other Scholars. Alumni National Scholars were nearly two times more likely than Other Scholars to have completed a Master's degree (32 vs. 17 percent), and more than three times more likely to have completed a Professional Doctorate degree such as an M.D., J.D., D.D.S., or Ed.D. (8 vs. 2 percent).

Table 5. Educational Outcomes among Undergraduate and Alumni Scholars

	Undergraduate Scholars		
	National	Other	
College GPA (Mean)	3.42	3.43	
On-time degree progress	73.10%	65.37%	**
Part-time enrollment	7.32%	7.98%	

	Alumni Scholars		
	National	Other	
Time to degree (Mean years)	4.39	4.00	**
Education attainment			
Bachelor's	58.06%	79.04%	**
Master's	31.54%	16.62%	**
Research Doctorate	1.08%	0.45%	
Professional Doctorate	7.89%	2.25%	**

SOURCE: 2012 HAA Undergraduate Survey Data (N=1816) and Alumni Survey Data (N=947).

* $p < 0.05$, ** $p < 0.01$

Civic Engagement

Turning our attention to Undergraduate and Alumni Survey respondents' participation in community involvement, voting behavior, and attitudes towards giving back to society, we observed few distinctions between National and Other Scholars. As shown in Table 6, roughly four in five Undergraduate and Alumni Scholars reported participating in community services. Voting behavior among Undergraduate Scholars was similar between National and Other Scholars; approximately 72 percent of both groups were registered vote, and reported comparable frequencies of voting in local, state, or national elections. Largely due to the older age group represented by the Alumni Survey respondents, higher percentages of Alumni were registered to vote and more often voted in elections. Interestingly, Alumni National Scholars were significantly more likely to be registered to vote and reported more frequent voting than did Alumni Other Scholars.

Table 6 also illustrates high levels of optimism among both Undergraduate and Alumni Scholars in their belief that they will achieve the American Dream. Similarly high levels of optimism was shared among National and Other Scholars.

Table 6. Attitudes towards the Community, Voting, and Achieving the American Dream among Undergraduate and Alumni Scholars

	Undergraduate Scholars			Alumni Scholars		
	National	Other		National	Other	
Community service participation (Mean)	79.09%	81.19%		81.72%	78.44%	
Registered to vote	72.09%	72.54%		94.27%	90.51%	*
Voting frequency (Mean)[1]	2.44	2.55		3.99	3.58	**
Best way to give back (Mean)[2]						
Financial contributions or gifts	3.56	3.57		3.54	3.51	
Mentoring	4.31	4.22	*	4.18	4.19	
Volunteering or other public service	4.58	4.53		4.43	4.43	
Believe you will achieve the American Dream	98.58%	98.01%		96.67%	95.38%	

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816) and Alumni Survey Data (N=947).

NOTE: Shaded rows indicate statistically significant mean differences between National Undergraduate Scholars and National Alumni Scholars.

[1] Range of response options: 1 = Never; 5 = Very often.

[2] Range of response options: 1= Strongly disagree; 5 = Strongly agree.

* $p < 0.05$, ** $p < 0.01$

Alumni Careers

The HAA Alumni Survey asked respondents to provide information on a variety of aspects of their careers and attitudes towards achieving professional success. Responses to such questions provided insights on the potential long-term influence of the HAA Scholarship Program.

Table 7 indicates that among Alumni Survey respondents, significantly higher percentages of National Scholars than Other Scholars reported being employed (84 vs. 79 percent), employed full-time (72 vs. 59 percent), and earning significantly higher incomes or salaries for the most recent year. Among all Alumni Survey respondents, National Scholars reported earning an average of $35,000 to $39,999 in the most recent year, whereas Other Scholars reported earning an average of $25,000 to $29,999 annually. While these differences in earnings do not take in to account confounding factors such as education attainment, occupational fields, or years in the workforce which can explain these distinctions, the findings do provide evidence that National Scholars were earning significantly more than Other Scholars at the time of the Alumni Survey. In terms of Scholars' level of job satisfaction and the congruence (i.e., relatedness)

between their current or most recent job and college major, National and Other Alumni Survey respondents were very similar.

Table 7: Alumni Employment, Earnings, and Job satisfaction

	Alumni Scholars		
	National	Other	
Employed	84.06%	79.34%	*
Employed Full-time	71.74%	59.28%	**
Job satisfaction (Mean)[1]	4.07	4.02	
Major-job field congruence (Mean)[2]	3.08	3.00	
Earnings (Mean)[3]	6.37	4.23	**

SOURCE: 2012 HAA Alumni Survey Data (N=947).

[1] Range of response options: 1 = Very dissatisfied; 5 = Very satisfied.

[2] Range of response options: 1 = Not at all related; 5 = Highly related.

[3] Response options: 1 = $14,999 or less; 2 = $15,000 - $19,999; 3 = $20,000 - $29,999; 4 = $25,000 - $29,999, 5 = $30,000 - $34,999; 6 = $35,000 - $39,999; 7 = $40,000 - $49,999; 8 = $50,000 - $59,999; 9 = $60,000 - $69,999; 10 = $70,000 - $79,999; 11 = $80,000 - $89,999; 12 = $90,000 - $99,999; 13 = $100,000 - $109,000; 14 = $110,000 or above.

* $p < 0.05$, ** $p < 0.01$

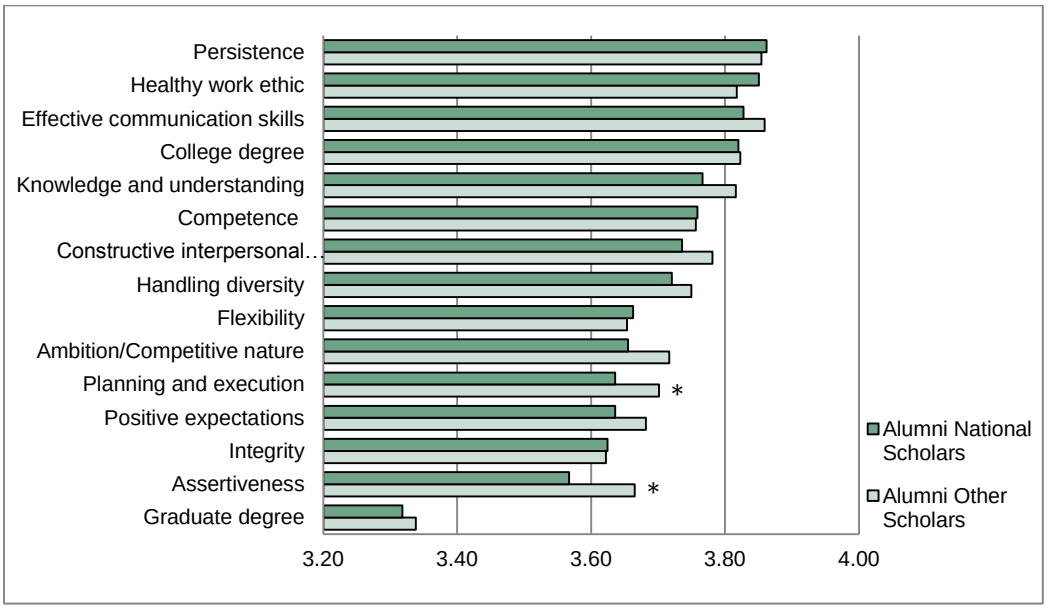
Figure 2 presents the level of importance Alumni Survey respondents assigned to factors necessary to succeed professional in today's workforce. On a four-point scale (1=Not important to 4=Essential), factors that Alumni rated as most important to professional success included persistence, work ethic, communication skills, a college degree, and general knowledge. Attaining a graduate degree, assertiveness, and integrity were rated as least important. However, when viewing these results it is important to keep in mind that, on average, Alumni rated every one of the categories shown as "very important" to "essential" for achieving professional success.

Alumni Views on Citizenship and Keys to a Happy Life

From their vantage point from beyond the college years, Alumni Scholars' survey responses provide unique insights into their attitudes towards citizenship and achieving happiness in life among a population of HAA Scholars who, as young people, weathered difficult family circumstances and exposure to adversity. When asked to reflect on their role as a citizen, Alumni Scholars indicated the level of importance they assign to a set of behaviors valuable to the community and society. On a four-point scale (1=Not important, 2=Somewhat important, 3=Important, 4=Essential), National Scholars viewed voting in national elections to carry the highest level of importance for their role as a citizen, ahead of volunteering in the community, promoting racial equality, and working in low-income communities (see

Table 8). Other Scholars, by comparison, indicated working in low-income communities as relatively more important, while assigning relatively less importance to voting in national elections.

Figure 2: Alumni Scholars' Keys to Professional Success



SOURCE: 2012 HAA Alumni Survey Data (N=947).

NOTE: 1 = Not important, 2 = Somewhat important, 3 = Very important, 4 = Essential.

* $p < 0.05$

Table 8. Citizenship Factors among Alumni Scholars

	Alumni Scholars		
	National	Other	
Importance in your role as a citizen (Mean)[1]			
Using career-related skills to work in low-income communities	2.63	2.80	*
Promoting racial equity and respect	2.81	2.90	
Voting in national elections	3.10	2.89	**
Volunteering with community groups or agencies	2.98	2.96	

SOURCE: 2012 HAA Alumni Survey Data (N=947).

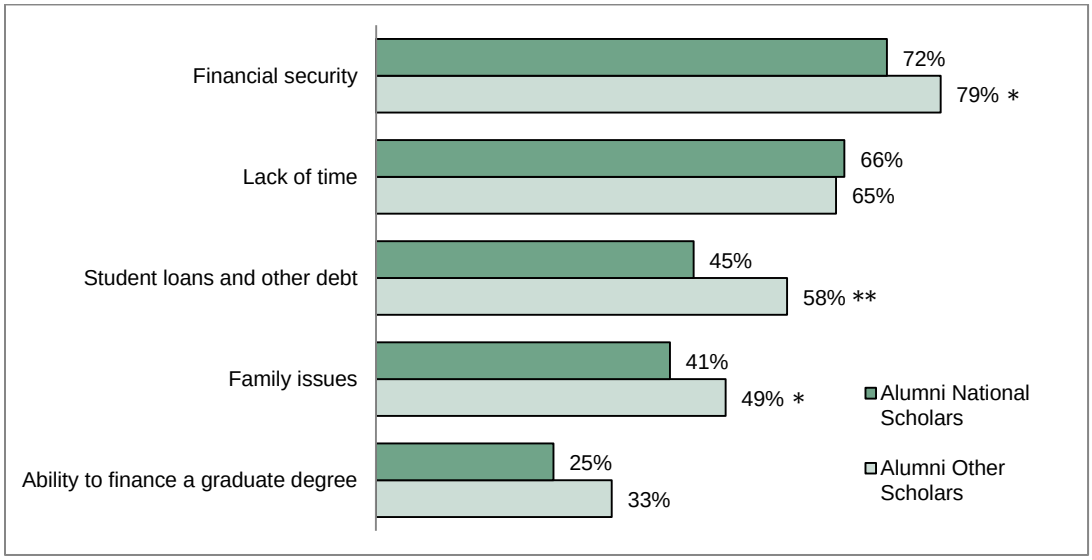
[1] Response options: 1 = Not important; 4 = Essential.

When asked to select from a list of factors considered to be challenges to living a more fulfilled and happy life, Alumni Scholars most often identified financial security as an important barrier, particularly among Other Scholars: 72 percent of National Scholars identified financial security as a barrier compared to 79 percent of Other Scholars (see Figure 3). A lack of time was also identified as a barrier to a fulfilled and happy life among the majority of Alumni National and Other Scholars (66 and 65 percent,

respectively). Student loans and other debt were identified among nearly six out of ten Other Scholars (58 percent), which exceeded the 45 percent of National Scholars who did so, suggesting that the National Scholarship award may help offset obstacles later in life related to repaying student loans and other forms of financial debt.

While not shown in the exhibits, the Alumni Survey contained a series of questions that together formed a scaled measure of overall satisfaction with life. The items that formed the construct were adapted from Diener, Emmons, Larsen, and Griffen (1985), and asked Alumni to rate their agreement with statements such as: In most ways my life is close to my ideal; The conditions of my life are excellent; I am satisfied with life; If I could live my life over, I would change almost nothing; etc. When combined in to a single construct, National Alumni reported significantly higher levels of life satisfaction than did Other Scholars, highlighting higher overall levels of life satisfaction among National Scholars; a unique finding given the uniquely harsh conditions and exposure to adversity among National Scholars. Mirroring past research related to college student support services (e.g., Banyard & Cantror, 2004; Frankel, Gale, & Walton, 2009; Green, Oades, & Grant, 2006; Mechur Karp, 2011), the finding may reflect that the additional support provided to National Scholars acts as a catalyst for perceiving life as more satisfactory. However, it is important to keep in mind that overall averages such as these do not take into account other confounding influences. Results from the multivariate analyses discussed below provide additional insights into the combination of background characteristics, supports, and educational and employment outcomes that account for the differences in life satisfaction among National and Other Scholars.

Figure 3: Alumni Scholars' Barriers to a Fulfilled and Happy Life



SOURCE: 2012 HAA Alumni Survey Data (N=947).

* $p < 0.05$, ** $p < 0.01$.

HAA Program Services

The HAA Scholarship Program is an individualized, multifaceted, and comprehensive effort to support its scholarship recipients as they enter and progress towards the successful completion of a college degree. In additional to monetary scholarship awards, Scholars receive additional support in the form of laptops, internship opportunities, and other financial matching gifts provided through college and university partnerships. For Scholars who continue to face the kinds of adversity they experienced prior to college, the HAA program provides additional support through access to a crisis hotline. Sections of the Undergraduate and Alumni Surveys were designed to assess the kinds of influence the HAA award has had on Scholars in terms of college attendance, finances, and career preparation. The surveys also collected information on the extent that the HAA award has affected Scholars' lives across a range of areas.

Among the ways that the HAA awards have influenced Scholars, Table 9 illustrates that Undergraduate and Alumni Survey respondents most strongly agreed that receiving the award had positive financial effects in terms of taking out fewer loans and reducing debt levels. Scholars also strongly agreed that the HAA award enabled them to attend college. Among Undergraduate Scholars, Nationals Scholars more strongly agreed that receiving the award was helpful in completing their undergraduate degree in less time. The survey results illustrate that Undergraduate National Scholars express stronger agreement across every area of influence than do Alumni National Scholars, suggesting that the Scholarship award may be increasingly effective at serving today's Scholars.

Similar trends appeared when Scholars were asked about the broader life impacts of receiving the HAA Scholarship (see Table 9). Compared to Other Scholars, National Scholars (both Undergraduate and Alumni) reported that the award had greater impacts on their life across every aspect measured. In addition, with one exception, Undergraduate National Scholars indicated that receiving the award had a greater impact than did Alumni National Scholars (the exception pertained to work experience, in which no differences were found). Across both Undergraduate and Alumni National Scholars, the greatest life impact resulted from receiving the HAA scholarship money and a personal computer, a sense of hope and support, and being named a Horatio Alger Scholars. Access to health care or counseling is an aspect of the award that had relatively less impact on Scholars' lives.

Table 9. HAA Influences and Impacts among Undergraduate and Alumni Scholars

	Undergraduate Scholars			Alumni Scholars		
	National	Other		National	Other	
Influences of HAA Award (Mean)[1]						
Enabled me to attend college	4.49	4.28	**	4.21	4.05	*
Allowed me to take out fewer loans	4.76	4.49	**	4.62	4.48	*
Reduced my level of debt	4.74	4.54	**	4.60	4.47	*
Afforded me the opportunity to attend a more expensive college/university	4.13	3.68	**	3.56	3.41	*
Helped me complete (or advance) my undergraduate degree in less time	3.65	3.40	**	3.33	3.19	
Helped my career preparation	†	†		3.89	3.59	**
Helped me succeed professionally	†	†		4.02	3.73	**
Life impact from aspect of HAA Award (Mean)[2]						
Mentoring from a Horatio Alger Alumni or Member	2.89	1.97	**	2.52	1.65	**
Scholarship money	3.87	3.78	**	3.71	3.63	**
A sense of hope and support	3.74	3.46	**	3.61	3.13	**
Work experiences	2.61	2.12	**	2.67	2.15	**
Access to healthcare or counseling	2.15	1.74	**	1.84	1.58	**
A personal computer	3.79	1.65	**	2.21	1.82	**
College readiness workshops	2.83	1.64	**	2.43	1.58	**
Seeing other successful Horatio Alger Scholars/Alumni	3.53	2.40	**	3.31	2.14	**
Being named a Horatio Alger Scholar	3.73	3.44	**	3.64	3.32	**
Access to support through the HAA headquarters office	3.01	2.21	**	2.55	1.79	**
Access to support through the HAA counseling help line	2.75	2.27	**	1.98	1.77	*
Developing friendships with other scholars	†	†		3.07	1.61	**

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816) and Alumni Survey Data (N=947).

NOTE: Shaded rows indicate statistically significant mean differences between National Undergraduate Scholars and National Alumni Scholars.

[1] Range of response options: 1 = Strongly disagree; 5 = Strongly agree.

[2] Range of response options: 1 = Not at all; 4 = To a great extent.

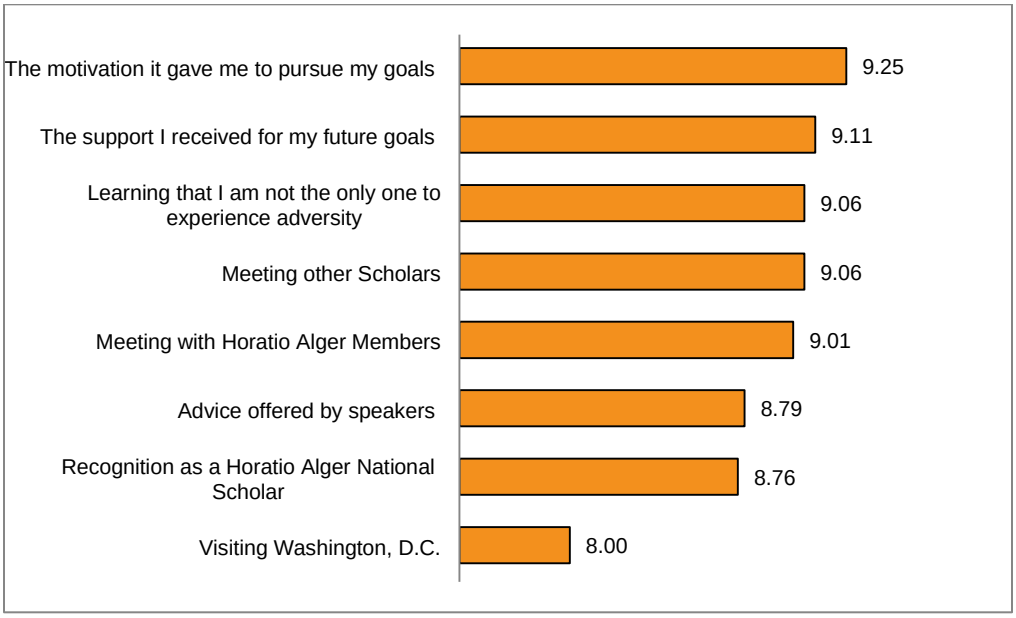
* $p < 0.05$, ** $p < 0.01$

† Not applicable

Unique among National Scholars is the opportunity to attend the HAA National Scholars Conference. Included in the Undergraduate Survey was a question that asked National Scholars to rank the enjoyment and value of different aspects of the National Scholars Conference. On a ten-point scale (1=Least valuable, 10=Most valuable), Figure 4 shows the average responses among Undergraduate National Scholars. The most valuable aspect of attending the National Scholars Conference were goal-related, including the motivation to pursue goals and support for future goals. The next most valuable aspects

were of a social nature related to meeting others from similar backgrounds, including learning about others who experienced adversity and simply meeting other Scholars.

Figure 4. HAA Undergraduate Scholars' Views on Attending the National Conference



SOURCE: 2012 HAA Undergraduate Survey Data (National Scholars Respondents who attended the National Scholars Conference, N=228).

NOTE: Respondents were asked to rank aspects of the National Scholars Conference, where: 1 = Least valuable;
10 = Most valuable.

Mentoring is central tenet of the HAA's mission, and a sizable share of Scholars had mentors during high school and continue to rely on mentors once in college and beyond. As shown in Table 10, nearly one-half (49 percent) of all National Scholars who participated in the Undergraduate Survey reported having a mentor during high school, a significantly larger share than reported among Other Scholars (40 percent). As reported at the time of the Undergraduate Survey, 44 percent of National Scholars currently have a mentor, which exceeded the 33 percent of Other Scholars who currently had a mentor. For Undergraduate National and Other Scholars alike, nearly one in five (19 and 18 percent, respectively) were passing along the help they received over the years by currently serving as a mentor. Among Alumni Scholars, a significantly larger percentage of National Scholars than Other Scholars (31 vs. 22 percent) were serving as mentors at the time of the Alumni Survey.

Table 10. Mentoring among Undergraduate and Alumni Scholars

	Undergraduate Scholars			Alumni Scholars		
	National	Other		National	Other	
Had a mentor during high school	49.43%	40.49%	**	43.01%	42.22%	
Have a mentor currently	43.85%	32.81%	**	31.41%	33.03%	
Currently serve as mentor	19.23%	18.09%		31.18%	22.11%	**

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816) and Alumni Survey Data (N=947).

NOTES: All values shown in the table significantly differ between National Undergraduate Scholars and National Alumni Scholars at $p < 0.05$.

* $p < 0.05$, ** $p < 0.01$

Comparing Undergraduate and Alumni Survey respondents indicated that having a mentor during high school is increasingly a reality among National Scholars with significantly more Undergraduate than Alumni National Scholars indicating they had a mentor during high school (49 vs. 43 percent). As one might expect, a significantly larger percentage of Undergraduate National Scholars also reported currently having a mentor than did Alumni National Scholars (44 vs. 31 percent). In addition, life after college may be more conducive to serving as a mentor for someone else, as evident in the larger percentage of Alumni National Scholars who reported being a mentor currently in comparison to Undergraduate National Scholars (31 vs. 19 percent).

HAA Undergraduate Scholars Compared to a National Sample of College Enrollees

To understand how Scholars who participated in the HAA Undergraduate Survey relative to the average U.S. postsecondary student, we examined information on Undergraduate Scholars in comparison to nationally representative sample of freshmen and sophomore college students contained in ELS:2002 data. Measures comparable across HAA Undergraduate Survey and ELS:2002 data include indicators of socioeconomics, education aspirations, experiences with adversity, college enrollment, sources of assistance for paying college tuition, and postsecondary institutional characteristics (i.e., type, control, and selectivity). Each of these dimensions is discussed below.

Socioeconomics, Aspirations, and Adversity

HAA scholars appear to be financially less well-off but more educationally motivated than the national sample of college students. When compared to a national sample of post-secondary enrollees, HAA Undergraduate Scholars reported far lower family incomes. While the majority of respondents in the national comparison sample reported family incomes of over $50,000 per year (56 percent), the majority

of HAA Undergraduate Scholars indicated a family income of $20,000 or less per year (60 percent). In addition, consistent with expectations, HAA Scholars reported more instances of adversity; a large majority of HAA Undergraduate respondents experienced adversity in high school (92 percent), compared to a much smaller majority in the national sample (58 percent).[4] Despite these barriers, HAA respondents also showed higher educational aspirations than the national sample; higher percentages of HAA Undergraduate Scholars aspired to a masters (45 vs. 32 percent) or doctoral degrees (40 vs. 16 percent). Furthermore, 51 percent of HAA Undergraduate Survey respondents reported they will be the first in their family to earn a college degree (associate's or bachelor's degree), mirroring the national percentage of undergraduates for whom neither parent had a two- or four-year college degree.

Table 11: Socioeconomics, Aspirations, and Adversity among HAA Undergraduate Scholars and a National Sample of College Students

	HAA Undergraduate Scholars	National Undergraduate Sample	
Family income (2001 dollars)			
$10,000 or less	25.59%	3.54%	**
$10,001 - $20,000	34.86%	6.81%	**
$20,001 - $35,000	31.05%	15.47%	**
$35,000 - $50,000	7.52%	18.07%	**
More than $50,000	0.98%	56.10 %	**
Education Aspirations			
Less than Associate's degree	†	0.21%	
Associate's degree or certificate	0.88%	12.04%	**
Bachelor's degree	14.10%	14.51%	
Master's degree	44.88%	32.43%	**
Doctoral degree	39.81%	15.79%	**
First-generation college graduate	50.93%	50.79%	
Experienced adversity in high school	92.33%	57.71%	**
Number of adversities experienced (Mean)	2.09	0.91	**

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816); ELS: 2002/06 Restricted Data (Weighted Student Sample N = 2,384,290; Unweighted Sample N = 10,510).

* Significant group mean differences between HAA Undergraduate Scholars and National Undergraduate Sample at $p < 0.01$.

** Significant group mean differences between HAA Undergraduate Scholars and National Undergraduate Sample at $p < 0.01$.

† Not applicable.

[4] For the national undergraduate sample, adversity was measured by creating dichotomous and count variables out of ELS data that aligned with the adversity measures contained in the HAA Undergraduate Survey, including: parent or guardian divorce; parent/guardian job loss; death of a parent/guardian, close friend, or relative; serious illness or becoming disabled for the respondent or a family member; and being a victim of violence (ELS: 2002/06).

College Enrollment and Paying Tuition

HAA Undergraduate Scholars reported they expect to use their own savings and to rely on grants to pay for college at much higher rates than students in the national comparison sample: about 73 percent of HAA respondents expected to use their own savings, compared to less than half in the national sample (44 percent), and nearly 97 percent of HAA Undergraduate Survey respondents plan to use grants, compared to only 55 percent of the national sample. Reflecting their socioeconomic disadvantages, Undergraduate Scholars expected to use family resources at a lower rate than national comparison respondents (42 vs. 53 percent), and report working during college at more than two and a half times the rate of college students nationally (66 vs. 25 percent). In terms of enrollment, compared to the national sample, a smaller percentage of HAA Undergraduate Scholars reported enrolling part-time (8 vs. 15 percent) and fewer reported transferring college (12 vs. 17 percent). HAA Undergraduate Scholars therefore distinguish themselves by maintaining progress towards completing an undergraduate degree by more often avoiding the challenges and enrollment delays associated with transferring schools or taking classes on a part-time basis.

Table 12: Enrollment and Finances among HAA Undergraduate Scholars and a National Sample of College Students

	HAA Undergraduate Scholars	National Undergraduate Sample	
Enrolled Part-Time	7.88%	15.31%	**
Transferred colleges at any point	12.30%	16.85%	**
Took a leave of absence at any point	7.90%	7.45%	
Work for pay while enrolled in college	65.63%	24.73%	**
Sources of tuition assistance - Family	41.63%	53.25%	**
Sources of tuition assistance - Own savings	72.63%	43.88%	**
Sources of tuition assistance - Grants	96.59%	55.15%	**
Sources of tuition assistance - Loans	54.96%	40.81%	**

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816); ELS: 2002/06 Restricted Data (Weighted Student Sample N = 2,384,290; Unweighted Sample N = 10,510).

* Significant group mean differences between HAA Undergraduate Scholars and National Undergraduate Sample at $p < 0.05$.

** Significant group mean differences between HAA Undergraduate Scholars and National Undergraduate Sample at $p < 0.01$.

Characteristics of the Postsecondary Institution Attended

In general, HAA Undergraduate Survey respondents reported attending more selective colleges than respondents in the national comparison sample; proportionally more HAA Undergraduate Scholars attended highly selective schools (43 vs. 35 percent) and fewer attended inclusive schools (6 vs. 14

percent). The rate of attendance at moderately selective schools was indistinguishable between HAA Undergraduate Scholars and the national sample (51 percent for both groups). In addition, compared to HAA Undergraduate Scholars, the national comparison sample were more likely to attend public schools (69 vs. 76 percent) and two-year schools: only about 5 percent of HAA Undergraduate Survey respondents reported that they attended a two-year institution, compared to about 39 percent of the national college student sample.

Table 13: Type of College Attended among HAA Undergraduate Scholars and a National Sample College Students

	HAA Undergraduate Scholars	National Undergraduate Sample	
Type			
Four-year institution	95.27%	57.81%	**
Two-year institution	4.73%	38.86%	**
Less than two-year institution	†	3.34%	†
Control			
Public	69.25%	76.10%	**
Private, not-for-profit	30.75%	17.93%	**
Private, for-profit	†	5.98%	†
Selectivity[1]			
Inclusive	5.71%	13.51%	**
Moderately selective	50.85%	51.00%	
Highly selective	43.44%	35.49%	**

SOURCE: 2012 HAA Undergraduate Survey Data (N = 1,816); ELS: 2002/06 Restricted Data (Weighted Student Sample N = 2,384,290; Unweighted Sample N = 10,510).

[1] Values correspond to 25th Percentile ACT scores: "Inclusive" = Less than 18; "Moderately selective" = 19 to 21; "Highly selective" = 22 and above.

* Significant group mean differences between HAA Undergraduate Scholars and National Undergraduate Sample at $p < 0.01$.

** Significant group mean differences between HAA Undergraduate Scholars and National Undergraduate Sample at $p < 0.01$.

† Not applicable.

Predicting Educational and Career Outcome among Undergraduate and Alumni Scholars

Results from the multivariate analyses provide valuable information on the extent that Scholars' backgrounds, receipt of the HAA Scholarship, program services, and educational experiences affect educational and career outcomes. The value of multivariate modeling stems from the ability to control for confounding influences in order to isolate the unique effect of a particular variable (or set of variables) on key outcome measures. In this way, the relationships unveiled through multivariate analyses are otherwise

unobservable through the kinds of descriptive analyses previously discussed in this report. Thus, results from this third and final analytic stage provided rich information on the unique influences of backgrounds, attitudes, educational conditions and programmatic support on Scholars' educational, career, and life outcomes, and illustrate the mechanisms by which predictor variables exert influence.

The multivariate regression equations we have estimated were adapted from prominent college impact models (i.e., Astin, 1993; Pascarella, 1985; Tinto, 1975; and Weidman 1989) and included the following sets of predictor variables:

- *Background characteristics*: Gender, Race/Ethnicity, First-generation college student, Attitudes and motivational traits related to education (Education Aspirations, Self-Efficacy, Academic Motivation), Number of adversities experienced, and HAA Scholar status (National vs. Other);
- *Support and intervention*: Mentoring (having a mentor during high school, have a mentor at the time of the survey, and currently serve as a mentor (among Alumni only)), Number of years of receiving the HAA award (among Undergraduate Scholars only); and interaction terms related to the number of years Undergraduate Scholars received the National (vs. Other) Scholarship Award, and the number of adversities experienced among National (vs. Other) Scholars;
- *Educational conditions* (among Undergraduate Scholars only): College major, Working while enrolled, Concerns over college financing, Level of school debt (expected debt among Undergraduate Scholars, and realized debt among Alumni Scholars), Receipt of awards other than the HAA Scholarship, and type of institution attended (Selectivity and Control);
- *Education attainment and employment* (among Alumni Scholars only): Completion of a graduate degree, Employment status, Labor market earnings, and Job satisfaction.

The outcomes examined among Undergraduate Scholars include the following measures:

- *On-time progress towards a college degree*: A dichotomous measure constructed according to the year that Undergraduate Survey respondents were awarded the HAA Scholarship, in combination with respondents' current college classification. Undergraduate Scholars were counted as "on-time" if: (1) Scholarship year = 2011 and classification = freshmen, sophomore, junior, or senior; (2) Scholarship year = 2010 and classification = sophomore, junior, or senior; (3) Scholarship year = 2009 and classification = sophomore or junior; or (4) Scholarship year = 2008 and classification = senior.

- *Dimensions of student development* (Cooperative Institutional Research Program, College Senior Survey, 2011[5]):
  - Development of knowledge and critical thinking: a four-item scale, *alpha*=0.839;
  - Development of leadership interpersonal and career skills: a seven-item scale, *alpha*=0.832;
  - Development of cultural awareness: a four-item scale, *alpha*=0.856.
- *Dimensions of coping with the college environment* (Ackermann & Morrow, 2007):
  - Coping through planning and self-management: a six-item scale, *alpha*=0.767;
  - Coping through support from institutional resources: a four-item scale, *alpha*=0.830;
  - Coping through support from family and friends: a three-item scale, *alpha*=0.728.
- *Means of overcoming adversity*
  - Overcoming adversity through mentoring, counseling, services and role models: a six-item scale, *alpha*=0.824;
  - Overcoming adversity through intervention from family, school, or friends: a three-item scale, *alpha*=0.847;
  - Overcoming adversity through material support: a three-item scale, *alpha*=0.697.

Among Alumni Scholars, the following outcome variables were examined:

- *Graduate degree completion*: a single dichotomous measure of completing a master's or doctoral degree.
- *Employed full-time*: a single dichotomous measure of full-time (versus part-time or no) employment.
- *Annual salary*: a 14-category measure of income or salary from the most recent year: 1 = $14,000 or less; 2 = $15,000–$19,999; 3 = $20,000–$24,999; 4 = $25,000–$29,000; 5 = $30,000–$34,999; 6 = $35,000–$39,999; 7 = $40,000–$49,999; 8 = $50,000–$59,999; 9 = $60,000–$69,999; 10 = $70,000–$79,999; 11 = $80,000–$89,999; 12 = $90,000–$99,999; 13 = $100,000–$109,999; 14 = $110,000 or above.
- *Overall satisfaction with life* (Diener, et al., 1985): a five-item scale, *alpha*=0.884.

The full set of estimated coefficients resulting from the multivariate analyses are presented in Appendix A (Undergraduate Scholars) and Appendix B (Alumni Scholars). Based on the full set of estimated parameters, the following main findings emerged.

[5] For more information on the CIRP College Senior Survey instrument, see: http://www.heri.ucla.edu/researchersToolsCodebooks.php

Effects of receiving the National vs. Other Scholarship award

The multivariate analyses of the Undergraduate and Alumni Survey data resulted in four key findings related to differential effects of receiving the HAA National vs. Other Scholarship awards. First, despite controlling for differences in a wide range of key background characteristics (including education aspirations, and academic motivation), support services and levels of intervention received, and educational conditions (such as major, working while enrolled, and institutional characteristics), Undergraduate National Scholars are significantly more likely than Other Scholars to have maintained on-time progress towards completing their bachelor's degree. The type of award received (National vs. Other Scholarship) exerted a larger effect on the likelihood of maintaining on-time degree progress than any other variable in the model (including measure of academic motivation and grades); Undergraduate Scholars who received the National award were nearly three-times more likely than Other award recipients to be progressing on time towards their bachelor's degree.

Second, in terms of their strategies for overcoming adversity, net of background characteristics, the Undergraduate National Scholars report greater ability than Other Scholars to cope with adversity through using available resources and through intervention from family, school, and friends. However, across all three measured dimensions for overcoming adversity, the distinctions between National and Other Scholars is the result of having a mentor in high school and currently, or the result of being an HAA award recipient for a greater number of years (based on number of years between completing the survey in 2012 and the initial scholarship year, ranging from year 2000 to 2011). After accounting for differences in support from mentors and the level of intervention, National and Other Scholars are indistinguishable. This finding therefore indicates that differences in overcoming adversity between National and Other Scholars are due to differential exposure to mentors and the number of years students' received the National Scholarship.

Third, after taking into account differences in background characteristics, the type of HAA award received has negligible influence on outcomes related to development during college. In other words, holding background differences constant, Undergraduate National and Undergraduate Other Scholars do not significantly differ in terms of the their development during college in areas related to critical thinking, leadership and careers skills, and cultural awareness.

Fourth, among Alumni Scholars, receiving the HAA National Scholars award versus the Other HAA Scholarship has significant influence well beyond the college years. In terms of the likelihood of completing a graduate degree, being employed full-time, and annual salary, National Scholars enjoy distinct advantages over Other Scholars. For example, National (vs. Other) Scholars were more than nine-

times more likely to have completed a graduate degree at the time of the Alumni Survey and were more than three-times more likely to report full-time employment. The only Alumni outcome where receiving the National Scholarship award did not exert a positive influence was in terms of satisfaction with one's current job; after controlling for educational conditions and employment measures, National Scholars reported lower levels of job satisfaction than Other Scholars. Altogether, evidence clearly shows the strong and lasting benefits associated with receiving the National Scholarship, above and beyond myriad other attitudinal, educational, and even employment factors.

Effects of Academic Motivation and Self-efficacy

Across each of the outcomes included in the multivariate analysis, academic motivation exerted strong and positive influence, regardless of what other variables were included in the model. Academic motivation is an eight-item scale (*alpha*=0.739, Wabash National Study of Liberal Arts Education, WNSLAE)[6] comprised of Undergraduate Scholars' level of agreement to questions related to educational attitudes and behaviors, such as: I am willing to work hard in a course to learn the material even if it won't lead to a higher grade; In high school, I frequently did more reading in a class than was required simply because it interested me; Getting the best grades I can is very important to me; and I enjoy the challenge of learning complicated new material. Results indicate that stronger agreement with these motivational questions is significantly associated with maintaining on-time progress towards an undergraduate degree, developing important skills during college, coping with the college environment through seeking support from institutional resources and through planning and self-management, and overcoming adversity through intervention, material support, and using mentoring counseling, services, and role models. Among HAA Undergraduate Scholars, academic motivation is a key construct related to numerous positive educational outcomes.

Self-efficacy is a measure of the attitudes an individual has towards his/her own ability to complete a task or reach a goal. This psychological construct, along with related measures of locus of control and self-direction, have been broadly examined in studies of college impact (e.g., Pascarella & Terenzini, 2005). This seven-item scale (*alpha*=0.749 among Undergraduate Scholars and 0.775 among Alumni Scholars) measured respondents' level of agreement with questions such as: I feel good about myself; I don't have enough control over the direction my life is taking (reverse coded); In my life, good luck is more important than hard work; Every time I try to get ahead something or somebody stops me (reverse coded). Among Undergraduate Scholars, self-efficacy was significantly and positively related to the three development scales, and the three coping with the college environment scales, as well as overcoming

[6] For more information on the Academic Motivation scale, see: http://www.liberalarts.wabash.edu/study-instruments/#motivation

adversity through material support. Only in terms of on-time progress towards completing a degree was self-efficacy found to have a negative, though somewhat small, affect. Among Alumni Scholars, self-efficacy was positively associated with job satisfaction and overall satisfaction with life.

Effects of Mentors and Mentoring

Having a mentor during high school, during college (at the time the Undergraduate Survey was administered), or both, positively affect Undergraduate Scholars across a range of outcomes. Even after controlling for the other variables in the model, Scholars who reported currently having a mentor also reported higher levels of knowledge and critical thinking development during college, development of leadership, interpersonal and career skills during college; and greater ability to cope with the college environment through seeking support from institutional resources. Having a mentor during high school also positively influenced Scholars' ability to cope with college through family and friend support. Having a mentor during high school and currently increased the Scholars' ability to overcome adversity through drawing on counselors, services and role models, and through intervention.

Among Alumni Scholars, having a mentor currently positively affected graduate degree completion, and currently *serving* as a mentor significantly enhances job satisfaction. Evidence that having a mentor or being a mentor positively influences so many outcomes above and beyond the influence exerted by Scholars' backgrounds, type of HAA Award received, and educational conditions, suggests broad and lasting benefits of the mentoring relationship.

Discussion

Main Findings

Phase Two of the Horatio Alger Association Success Study was designed to uncover the conditions and experiences that influence educational, occupational, and life success among HAA Scholars, while focusing on how the HAA Scholarship Program fosters success through program services and scholarship awards. Results show that the support received by HAA Scholars, along with Scholars' own unique set of educational experiences significantly influence educational, career, and interpersonal outcomes, and that the HAA Scholarship program affects Scholars not only during college, but also into life after college. The analyses addressed research questions related to the similarities and differences between HAA Undergraduate and Alumni Scholars, how HAA Undergraduate Scholars compare to the general U.S. sample of undergraduate college students, and what combinations of background characteristics, experiences and conditions explain differential outcomes during and after college. By analyzing data collected from the HAA Undergraduate and Alumni Surveys, and complimented by ELS:2002 data for national comparison, we have identified main findings in four key areas.

First, numerous distinctions resulted from comparing HAA National and Other Scholars within Undergraduate and Alumni populations. Second, comparisons between Undergraduate and Alumni National Scholars highlight similarities and differences in the attitudes and behaviors of current and former National Scholars. Findings from the within and between group comparisons together answer the research question: *What similarities and differences exist among HAA Undergraduate and Alumni Scholars?*

The third set of findings emerged from examining HAA Undergraduate Scholars relative to a national sample of college enrollees. Results from the national comparison analysis address the research question: *How do Undergraduate Scholars compare to the general U.S. sample of undergraduate enrollees in terms of postsecondary enrollment and experiences during college?*

The fourth set of findings highlight how different factors predict Scholars' educational and career outcomes, including measures of support (the type of award received (National vs. Other Scholarship), the number of years Undergraduate National Scholars have received the award, and mentoring experiences. These results answer the research question: *What background characteristics, experiences, and conditions, explain differential outcomes among HAA Undergraduate and Alumni Scholars?*

Below we summarize the main findings across each of the four key areas.

National Scholars Compared to Other Scholars

Positive attitudes towards adversity as evidence of resilience

National Scholars distinguish themselves from Other Scholars by transforming the adversities they have experienced into positive attitudes and productive actions. Among both Undergraduate and Alumni Scholars, National Scholars reported distinctly stronger agreement than Other Scholars with notions that adversity made them a better person who is more able to address difficult tasks, that helping others is a means of overcoming past adversities, and that adversity served as a catalyst for taking initiative for dealing with work, school, and community challenges. This finding is consistent with evidence from Phase One of the Success Study, indicating that reframing adversity in positive ways is a key component of individual resilience (Wolniak et al., 2011), and contributes new evidence that such positive reframing is an individual attribute extending even beyond the college years. National Scholars were also more likely to agree that outside help by a concerned individual or organization was important to overcoming adversity, and Undergraduate National Scholars reported greater ability to cope with adversity through using available resources and through intervention from family, school, and friends. These results underscore the benefits of functioning within the context of a surrounding network of different supports.

These results are consistent with the HAA Scholarship Program's selection criteria, in which applicants are more likely to receive the National Scholarship if they experienced greater levels of adversity while demonstrating resilience in their lives prior to college. Evidence of long-term differences between Alumni National and Alumni Other Scholars' attitudes towards diversity and coping strategies suggests that the HAA Scholarship program is effectively identifying and nurturing resilience as a lasting personality trait rather than a short-term response to an immediate crisis.

Enhanced educational opportunity, progress, and attainment

The HAA National Scholarship Award appears to facilitate attending more expensive and more selective institutions, based on differences in the enrollment of National versus Other Scholars. In addition, National Scholars were significantly more likely to have completed a graduate degree and more likely to have maintained on-time progress towards completing their bachelor's degree, even after statistically controlling for a host of background and educational characteristics that influence education attainment. Among Undergraduate Scholars, Nationals Scholars more strongly agreed that receiving the award was helpful in affording them the opportunity to attend college and complete or advance towards their undergraduate degree in less time. Aside from these distinctions, Undergraduate National and

Undergraduate Other Scholars were similar in their grade point averages and low levels of part-time enrollment.

Exercising citizenship through voting and working in low-income communities

Alumni National Scholars viewed voting in national elections as a highly important expression of their citizenship, ahead of volunteering in the community, promoting racial equality, and working in low-income communities. Alumni National Scholars were also significantly more likely to be registered to vote and to vote more frequently than Other Scholars. Other Scholars reported working in low-income communities as relatively more important aspect of their citizenship, while assigning relatively less importance to voting in national elections. For Other Scholars, the importance they assigned to working directly in low-income communities may indicate a propensity for affecting change in their close environment and immediate social context.

National Scholarship relieves financial burdens of college

Among both Undergraduate and Alumni Scholars, Nationals Scholars more strongly agreed that receiving the award was helpful in affording them the opportunity to attend a more expensive college or university, to take out fewer loans, and reduce levels of debt. These differences carry long-term benefits: Alumni National Scholars less often identified Student loans and other debt to be obstacles to living a fulfilled and happy life, suggesting the National Scholarship award may help offset obstacles later in life related to repaying student loans and other forms of financial debt.

Life satisfaction and the lasting influence of receiving the HAA award

Compared to Other Scholars, National Scholars (both Undergraduate and Alumni) reported that the award had greater impacts on their life across every aspect measured. Among Alumni, National Scholars reported significantly higher overall levels of life satisfaction than did Other Scholars. This is an important finding given the uniquely harsh conditions and exposure to adversity experienced by National Scholars. It may be that individuals who are more resilient are also more likely to achieve higher levels of satisfaction in life.

Mentors and mentoring

Among Undergraduates, National Scholars were more likely than Other Scholars to have a mentor, and among Alumni, National Scholars were more likely than Other Scholars to be serving as a mentor. This is particularly important given the findings that having a mentor is a key mechanism through which National Scholars' formed their attitudes towards overcoming adversity. Similar shares of Undergraduate National and Other Scholars (nearly one in five) were currently serving as a mentor.

Long-term employment and salary benefits of receiving the National Scholarship

National Scholars enjoy distinct advantages over Other Scholars in terms of being employed, being employed full-time, and annual incomes or salaries. National Scholars were over three-times more likely than Other Scholars to report being employed full-time, even after controlling for differences in individual and educational factors known to influence earnings (such as gender, education attainment, and college major).

Shared characteristics among National and Other Scholars

National and Other Scholars were similar across a variety of important measures, including development during college, voting behavior, currently serving as a mentor, job satisfaction, the levels of congruence between their college major and job field, and the strong belief they will achieve the American Dream.

Once differences in background characteristics were controlled for, the type of HAA award received did not influence students' development during college. In other words, holding background differences constant, Undergraduate National and Undergraduate Other Scholars did not significantly differ in terms of the their development during college in areas related to critical thinking, leadership and careers skills, and cultural awareness. And while Alumni National and Other Scholars were comparable in their average levels of reported job satisfaction, once we controlled for differences in Scholars' education and employment (e.g., major, graduate degree attainment, major-job congruence, earnings), National Scholars reported lower levels of job satisfaction than Other Scholars.

Undergraduate National Scholars Compared to Alumni National Scholars

Positive attitudes towards adversity among Undergraduate National Scholars

Across nearly every measured attitude towards adversity, Undergraduate National Scholars expressed greater agreement than Alumni on topics such as: Adversity prompted me to take initiative and deal with daily financial and emotional challenges at school, work and in the community; Overcoming adversity was due to my individual determination and initiative; and Success in overcoming adversity is impacted by the type of adversity a person faces. The one exception to this finding was that Alumni National Scholars reported stronger agreement that outside help was instrumental for overcoming adversity.

It may be that Undergraduate National Scholars are less removed from the adversities they faced during high school and therefore harbor stronger feelings toward factors such as the role adversity played in their ability to tackle difficult tasks, be a better person, help others, and taking initiative to deal with daily challenges. Because the questions illustrate positive and productive attitudes stemming from adverse experiences, the evidence may suggest increased resilience among today's National Scholars.

National Scholars are increasingly attending public and two-year colleges and less often majoring in Business or Education

Compared to Alumni National Scholars, Undergraduate National Scholars were more likely to attend public and two-year institutions, indicating emerging trends in the educational conditions and choices of National Scholars. Alumni National Scholars were more likely than their undergraduate counterparts to major in Business or Education. Among both undergraduates and alumni, National Scholars were more likely than Other Scholars to major in Engineering, less likely to major in Business and Biological Sciences, and similar in their tendencies to study Physical Sciences. These trends are important given the impact that college major is known to have on long-term labor market earnings.

Undergraduate National Scholars express stronger life impact of the HAA Award

The survey results indicated that Undergraduate National Scholars believe receiving the HAA Scholarship had a stronger influence on aspects of their life than Alumni National Scholars believe. This finding appeared for every measure other than gaining work experience (in which no differences were found), including: mentoring, scholarship money, a sense of hope and support, access to healthcare and counseling, a personal computer, college readiness workshops, seeing other HAA Scholars or Alumni, being named an HAA Scholar, and access to support through the HAA office and help line. These findings suggest that the Scholarship award may be increasingly effective at serving today's Scholars. Both Undergraduate and Alumni National Scholars reported the greatest life impact from receiving the HAA scholarship money, a gained sense of hope and support, and by being named a Horatio Alger Scholar. When considering these results, it is important to note that the size and scope of the National Scholarship award has increased over time such that today's Undergraduate Scholars are receiving more monetary and other support than did their Alumni counterparts. It may be that greater impact reported by Undergraduate National Scholars reflects such changes.

Having a mentor during high school is increasingly common among Undergraduate National Scholars

Compared to Alumni National Scholars, Undergraduate National Scholars were more likely to report having a mentor during high school. This result suggests that having access to a mentor during high school is more common among today's National Scholars than it was among former National Scholars. Results also suggest that life after college may be more conducive to serving as a mentor based on the larger percentage of Alumni National Scholars who reported being a mentor. These are important distinctions given the evidence that having a mentor positively affects numerous outcomes.

Undergraduate Scholars Compared to College Enrollees Nationwide

When compared to a national sample of enrolled college students, HAA Undergraduate Survey respondents were distinguished across numerous dimensions. Compared to the national sample, HAA Scholars have fewer financial resources and reported more experience with adversity. Despite their socioeconomic disadvantages and exposure to adversity, HAA Scholars are increasingly independent and academically motivated: Scholars are more reliant on their own resources or on grants to pay for college than their peers nationwide, less likely to enroll part-time, more likely to attend selective postsecondary institutions, and more likely to aspire to complete an advanced degree. Ultimately, comparisons between HAA Undergraduate Scholars and a national sample of college enrollees highlight the unique and resilient qualities of Scholars who succeed despite numerous disadvantages. Evidence from other sections of this report suggest that the HAA is simultaneously doing well to award Scholarships to resilient students, but also continuing to foster resilience by way of the National Scholarship, mentoring opportunities, and other program supports.

Explaining Educational and Career Success among Scholars

Widespread Influence of Academic Motivation and Self-efficacy

Academic motivation is a key to widespread success among Scholars. For HAA Undergraduate Scholars, academic motivation exerted a strong and positive influence on a host of educational outcomes, above and beyond other background characteristics (such as adversity experiences), award status (National vs. Other Scholarship recipient), support and intervention (having a mentor or receiving the National Scholar for more years), and educational conditions (majors, working while enrolled, finances, and the institutional context). The more strongly Scholars express academic motivation, the more likely they are to maintain on-time progress towards an undergraduate degree, develop skills during college, and cope with the college environment and overcome adversity through various means.

Among Undergraduate Scholars, self-efficacy accompanied significant and positive relationships with developing during college, coping with the college environment, and overcoming adversity. Furthermore, self-efficacy was positively associated with Alumni Scholars' job satisfaction and overall satisfaction with life.

Mentors and mentoring matter

Evidence shows that having a mentor or being a mentor has broad and lasting benefits. Having a mentor during high school, during college (at the time the Undergraduate Survey was administered), or both, positively affects Undergraduate Scholars across a range of outcomes, and effects are evident above and beyond the influence exerted by Scholars' backgrounds, type of HAA Award received, and their

educational conditions. After controlling for other variables in the model, Scholars who reported currently having a mentor also reported: higher levels of knowledge and critical thinking development during college; development of leadership, interpersonal and career skills during college; and greater ability to cope with the college environment through seeking support from institutional resources. This finding dovetails with other recent research on Lifestyle Support for Academic Success (LSAS) conducted on HAA Undergraduate Scholars, which identified differences in Scholars' awareness for seeking outside assistance (Rekoutis & Dimitropoulou, 2012). Having a mentor during high school also positively influenced Scholars' ability to cope with college through family and friend support. Having a mentor during high school and currently increased the Scholars' ability to overcome adversity through drawing on mentors, counselors, services and role models, and through intervention. Among Alumni Scholars, having a mentor positively affected graduate degree completion, and currently serving as a mentor significantly enhanced job satisfaction.

Implications

Altogether, the results from Phase Two of the Success Study indicate the program is doing well to enhance postsecondary education opportunities, and among National Scholars, to enhance students' abilities to attend more selective college while lessening financial burdens. Evidence also indicates that through a variety of services that comprise an extensive support system, the HAA Scholarship Program is setting up its National Scholars for long-term success in the labor market and in life, including greater earnings and satisfaction with life, while helping Scholars maintain resilience for years beyond the adversities experienced during high school. The following implications stem from the study's findings.

- Across both Undergraduate and Alumni National Scholars, the greatest life impact resulted from receiving the HAA scholarship money and a personal computer, a sense of hope and support, and being named a Horatio Alger Scholar. Access to health care or counseling had relatively less impact on Scholars' lives. This evidence suggests that increasing the monetary amount of the National Scholarship award, even at the expense of health care or counseling services, may increase the program's impact. While additional analyses should be conducted before such a decision is implemented, the evidence presented here suggests that increasing the National Award is a viable strategy to consider. Additional research could identify if the positive impacts of increasing the financial award may also extend to State Scholars.

- Given evidence that levels of academic motivation and self-efficacy are positively associated with numerous educational and long-term employment outcomes, above and beyond a host of other factors, it may be useful to incorporate direct measures of academic motivation and self-efficacy into

the Scholarship Program's selection criteria. Series of questions could be included in the Scholarship Application and incorporated into selection procedures.

- Having a mentor and serving as a mentor were associated with a variety of positive outcomes during and after college. Experiences with mentors and mentoring are therefore a critical aspect of the HAA Scholarship Program. More research is warranted to identify different aspects of the Scholar-Mentor relationship so that the HAA Program can direct resources into facilitating this important and highly impactful activity.

- College scholarship programs rarely have significant affects beyond the college years and into the labor market. The sizeable positive earnings premium accompanying the National Scholarship award is notable and significant, particularly given that the earnings differences were found above and beyond those associated with gender, college major, and degree attainment. The strength of these finding calls for additional research on the career trajectories and employer-employee matching that is occurring as Scholars leave college and enter the labor market. By administering a survey targeted at employed Alumni Scholars, it would be possible to identify the mechanisms that have enabled National Scholars to realize greater earnings.

- The more closely related or congruent Scholars college majors were to their jobs, the more likely they were to have full-time employment, to earn higher salaries, and to be satisfied with their jobs. Building on the previous recommendation, further study of Scholars' career trajectories would identify ways in which the HAA Scholarship Program could support the close alignment of college majors and career fields through resources such as career counseling and advising, and professional networking within specific industries or occupations.

- While much of the discussion contained in this report focuses on differences between National and Other Scholars, results also show important evidence that National and Other Scholars are similar in many ways. For example, across the majority of models predicting undergraduate outcomes, no differences were found between National and Other Scholars once background characteristics and educational conditions were held constant. Furthermore, National and Other Scholars were similar in terms of college grades, part-time enrollment, attitudes towards giving back through financial contribution, as well as major-job field congruence, job satisfaction, and currently serving as a mentor. This evidence suggests that expanding the number of HAA State, Military, and Other Scholarship awards will further promote positive outcomes across a wider population of students. However, it is important to note that the present study did not contain a "true" comparison population

of applicants who were awarded neither National nor Other Scholarships. Thus, it was not possible to determine how or if Other Scholars differ from non-recipients. Future phases of the Success Study will benefit from including a true comparison population of HAA applicants who did not receive any HAA scholarship.

- The evidence that Undergraduate National Scholars are increasingly attending public rather than private, and two-year rather than four-year institutions, calls for careful monitoring of Scholars' progression through college, and assessment to identify if certain institutional climates differentially affect Scholars educational outcomes.

The HAA Success Study is an ambitious effort to uncover the myriad factors that support and enhance resilience and successful educational and life trajectories of individuals from adverse backgrounds. Implementing recommendations from the present study, and continuing to evaluate the HAA Scholarship Program through future phases of the Success Study holds the promise of further enhancing the educational opportunities and success among the important and resilient group of HAA Scholars.

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Appendix A. Multivariate Results among Undergraduate Scholars

Table A1. On-Time Progress Towards Degree Completion

	Model I		Model II		Model III	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Background Characteristics and HAA Award						
Female (Male=0)	-.084	.920	-.074	.929	.027	1.028
Race/ethnicity (White=0)						
Asian	-.344	.709	-.342	.710	-.478	.620 *
Black	-.025	.975	-.019	.981	-.073	.929
Latino	.025	1.025	.034	1.035	-.035	.966
Multiracial	.397	1.488	.373	1.452	.329	1.390
First-generation college student	-.141	.868	-.150	.861	-.139	.870
Ed Aspirations - MA or DOC (BA or less=0)	.125	1.133	.115	1.121	.132	1.141
Self efficacy	-.262	.769 **	-.257	.773 **	-.225	.798 *
Academic motivation	.332	1.393 **	.345	1.412 **	.349	1.418 **
Number of adversities experienced	.003	1.003	.054	1.055	.078	1.081
Award type (National = 1, Other=0)	.398	1.489 *	1.219	3.383 **	1.049	2.855 *
Support & Intervention						
Had a mentor during high school			-.092	.912	-.082	.921
Have a mentor currently			.009	1.009	-.030	.970
Award type X Number of adversities			-.293	.746 *	-.264	.768
Educational Conditions						
Major (Science & Engineering=0)						
Professional					-.224	.799
Business					-.198	.821
Arts & Humanities					-.141	.868
Education					-.195	.823
Soc Sci					-.412	.662 *
Other					-.072	.931
Tech					1.348	3.850
Work, on- or off-campus					-.804	.447 **
Major concerns over college financing					-.057	.945
School debt, expected					-.030	.970
Received other awards or scholarships					.224	1.251
Selectivity					.009	1.009
Control (Public=1, Private=0)					-.334	.716 *
Model R-sq [1]		.028		.034		.093

SOURCE: 2012 HAA Undergraduate Survey Data (N=1309)

NOTES: On-time progress towards a college degree is measured based on year that Scholars initially received the HAA Award, in combination with college classification (freshman, sophomore, junior, senior).

[1]Model R-sq is based on the Nagelkerke measure of goodness-of-fit.

*p<0.05, ** p<0.01

Table A.2. Development of Knowledge and Critical Thinking Skills During College

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	-.029	-.017	-.051	-.030	-.049	-.029
Race/ethnicity (White=0)						
Asian	-.013	-.005	-.035	-.014	-.044	-.017
Black	.069	.030	.072	.031	.082	.036
Latino	.073	.031	.067	.029	.067	.029
Multiracial	.107	.026	.141	.034	.140	.034
First-generation college student	-.018	-.011	-.037	-.023	-.024	-.015
Ed Aspirations - MA or DOC (BA or less=0)	.085	.036	.091	.038	.086	.036
Self efficacy	.299	.240 **	.255	.205 **	.252	.203 **
Academic motivation	.288	.208 **	.336	.243 **	.346	.250 **
Number of adversities experienced	-.001	-.002	-.004	-.007	-.006	-.010
Award type (National = 1, Other=0)	-.105	-.046	-.002	-.001	.001	.000
Support & Intervention						
Had a mentor during high school			-.009	-.006	-.004	-.002
Have a mentor currently			.135	.079 **	.129	.076 **
Award type X Number of years in program			-.020	-.027	-.025	-.033
Award type X Number of adversities			-.011	-.015	-.006	-.009
Years since award			.168	.313 **	.166	.308 **
Educational Conditions						
Major (Science & Engineering=0)						
Professional					.057	.030
Business					.197	.092 **
Arts & Humanities					.146	.063 *
Education					.004	.002
Soc Sci					.025	.012
Other					.098	.042
Tech					.226	.030
Work, on- or off-campus					.098	.067 **
Major concerns over college financing					-.006	-.003
School debt, expected					.004	.013
Received other awards or scholarships					-.007	-.005
Selectivity					.008	.031
Control (Public=1, Private=0)					.014	.009
Model R-sq		.136		.233		.241

SOURCE: 2012 HAA Undergraduate Survey Data (N=1312)
NOTES: Development of knowledge and critical thinking skills during college is a four-item, factorially derived scale (Alpha = 0.839).

*p<0.05, ** p<0.01

Table A.3. Development of Leadership, Interpersonal, and Career Skills during College

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	.021	.015	.006	.004	.008	.005
Race/ethnicity (White=0)						
Asian	.002	.001	-.014	-.006	.004	.002
Black	.085	.043	.083	.043	.090	.046
Latino	.060	.030	.052	.026	.068	.034
Multiracial	.122	.034	.147	.042	.156	.044
First-generation college student	.001	.001	-.013	-.009	-.005	-.003
Ed Aspirations - MA or DOC (BA or less=0)	.087	.042	.092	.045	.101	.049 *
Self efficacy	.278	.260 **	.244	.228 **	.240	.225 **
Academic motivation	.262	.221 **	.296	.249 **	.299	.251 **
Number of adversities experienced	-.025	-.045	-.029	-.052	-.033	-.060 *
Award type (National = 1, Other=0)	-.016	-.008	.019	.010	.063	.032
Support & Intervention						
Had a mentor during high school			.017	.012	.026	.018
Have a mentor currently			.105	.072 **	.101	.069 *
Award type X Number of years in program			.008	.012	-.006	-.010
Award type X Number of adversities			-.014	-.023	-.010	-.017
Years since award			.121	.261 **	.112	.242 **
Educational Conditions						
Major (Science & Engineering=0)						
Professional					.057	.030
Business					.197	.092 **
Arts & Humanities					.146	.063 *
Education					.004	.002
Soc Sci					.025	.012
Other					.098	.042
Tech					.226	.030
Work, on- or off-campus					.098	.067 **
Major concerns over college financing					-.006	-.003
School debt, expected					.004	.013
Received other awards or scholarships					-.007	-.005
Selectivity					.001	.007
Control (Public=1, Private=0)					.014	.009
Model R-sq		.160		.232		.247

SOURCE: 2012 HAA Undergraduate Survey Data (N=1312)

NOTES: Development of leadership, interpersonal, and career skills during college is a seven-item, factorially derived scale (Alpha = 0.832).

*p<0.05, ** p<0.01

Table A.4. Development of Cultural Awareness During College

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	-.004	-.002	-.020	-.011	-.026	-.015
Race/ethnicity (White=0)						
Asian	.177	.069 *	.163	.063 *	.143	.055 *
Black	.237	.102 **	.236	.101 **	.259	.111 **
Latino	.116	.048	.107	.045	.118	.049
Multiracial	.037	.009	.064	.015	.072	.017
First-generation college student	.051	.031	.035	.021	.041	.025
Ed Aspirations - MA or DOC (BA or less=0)	.056	.023	.063	.026	.071	.029
Self efficacy	.204	.160 **	.168	.132 **	.166	.131 **
Academic motivation	.247	.174 **	.280	.198 **	.299	.211 **
Number of adversities experienced	.037	.056 *	.033	.051	.023	.036
Award type (National = 1, Other=0)	.087	.037	.070	.030	.113	.048
Support & Intervention						
Had a mentor during high school			.048	.029	.060	.036
Have a mentor currently			.085	.049	.075	.043
Award type X Number of years in program			.053	.067	.036	.045
Award type X Number of adversities			-.036	-.049	-.030	-.041
Years since award			.122	.221 **	.113	.206 **
Educational Conditions						
Major (Science & Engineering=0)						
Professional					.045	.020
Business					.204	.080 **
Arts & Humanities					.298	.108 **
Education					.130	.039
Soc Sci					.209	.084 **
Other					.213	.076 **
Tech					.361	.040
Work, on- or off-campus					.089	.051
Major concerns over college financing					.084	.040
School debt, expected					.004	.013
Received other awards or scholarships					.011	.006
Selectivity					.019	.073 *
Control (Public=1, Private=0)					.041	.023
Model R-sq		.096		.155		.179

SOURCE: 2012 HAA Undergraduate Survey Data (N=1312)

NOTES: Development of cultural awareness during college is a four-item, factorially derived scale (Alpha = 0.856).

*p<0.05, ** p<0.01

Table A.5. Coping with the College Environment through Planning and Self Management

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	.165	.117 **	.165	.117 **	.159	.113 **
Race/ethnicity (White=0)						
Asian	.037	.018	.044	.021	.074	.035
Black	.040	.021	.039	.020	.031	.016
Latino	-.074	-.038	-.067	-.035	-.040	-.021
Multiracial	.064	.019	.057	.017	.055	.016
First-generation college student	.000	.000	.007	.005	.005	.004
Ed Aspirations - MA or DOC (BA or less=0)	-.003	-.002	-.007	-.004	.004	.002
Self efficacy	.247	.238 **	.249	.240 **	.248	.239 **
Academic motivation	.361	.314 **	.355	.309 **	.350	.304 **
Number of adversities experienced	-.010	-.019	-.012	-.022	-.015	-.029
Award type (National = 1, Other=0)	.072	.038	-.053	-.028	.005	.003
Support & Intervention						
Had a mentor during high school			-.066	-.048	-.056	-.041
Have a mentor currently			.065	.046	.065	.046
Award type X Number of years in program			.024	.038	.010	.015
Award type X Number of adversities			.019	.032	.021	.036
Years since award			-.028	-.064 *	-.032	-.072 **
Educational Conditions						
Major (Science & Engineering=0)						
Professional					.140	.076 **
Business					.198	.095 **
Arts & Humanities					.009	.004
Education					-.006	-.002
Soc Sci					.006	.003
Other					.091	.040
Tech					-.125	-.017
Work, on- or off-campus					.028	.020
Major concerns over college financing					.037	.022
School debt, expected					.020	.071 **
Received other awards or scholarships					.035	.023
Selectivity					-.001	-.005
Control (Public=1, Private=0)					.026	.018
Model R-sq		.202		.205		.217

SOURCE: 2012 HAA Undergraduate Survey Data (N=1312)

NOTES: Coping with the college environment through planning and self-management is a six-item, factorially derived scale (Alpha = 0.767).

*p<0.05, ** p<0.01

Table A.6. Coping with the College Environment through Seeking Support from Institutional Resources

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	.005	.003	.002	.001	-.005	-.003
Race/ethnicity (White=0)						
Asian	.086	.037	.077	.033	.123	.052
Black	.177	.084 **	.143	.068 *	.121	.057 *
Latino	-.018	-.008	-.044	-.020	-.018	-.008
Multiracial	.078	.020	.074	.019	.056	.015
First-generation college student	-.049	-.033	-.048	-.032	-.053	-.036
Ed Aspirations - MA or DOC (BA or less=0)	-.046	-.021	-.052	-.023	-.031	-.014
Self efficacy	.090	.077 **	.064	.056 *	.072	.062 *
Academic motivation	.362	.282 **	.355	.277 **	.334	.260 **
Number of adversities experienced	-.012	-.021	-.029	-.050	-.033	-.055
Award type (National = 1, Other=0)	.046	.022	-.190	-.089	-.133	-.063
Support & Intervention						
Had a mentor during high school			.054	.035	.056	.037
Have a mentor currently			.255	.161 **	.257	.162 **
Award type X Number of years in program			.060	.084	.054	.076
Award type X Number of adversities			.020	.031	.016	.024
Years since award			-.006	-.012	-.006	-.012
Educational Conditions						
Major (Science & Engineering=0)						
Professional					.004	.002
Business					.039	.017
Arts & Humanities					-.017	-.007
Education					-.059	-.020
Soc Sci					-.046	-.021
Other					.032	.013
Tech					-.346	-.042
Work, on- or off-campus					-.024	-.015
Major concerns over college financing					.065	.034
School debt, expected					.016	.050
Received other awards or scholarships					.041	.024
Selectivity					-.020	-.084 **
Control (Public=1, Private=0)					-.013	-.008
Model R-sq		.100		.129		.135

SOURCE: 2012 HAA Undergraduate Survey Data (N=1310)

NOTES: Coping with the college environment through seeking support from institutional resources is a five-item, factorially derived scale (Alpha = 0.830).

*p<0.05, ** p<0.01

Table A.7. Coping with the College Environment through Seeking Support from Family and Friends

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	.491	.293 **	.494	.295 **	.489	.292 **
Race/ethnicity (White=0)						
Asian	-.244	-.098 **	-.248	-.100 **	-.226	-.091 **
Black	-.060	-.027	-.083	-.037	-.070	-.031
Latino	-.119	-.051	-.143	-.062 *	-.127	-.055
Multiracial	.038	.009	.036	.009	.044	.011
First-generation college student	-.034	-.021	-.032	-.020	-.031	-.020
Ed Aspirations - MA or DOC (BA or less=0)	-.058	-.024	-.058	-.025	-.051	-.021
Self efficacy	.147	.120 **	.139	.113 **	.133	.108 **
Academic motivation	.062	.045	.044	.032	.047	.035
Number of adversities experienced	-.024	-.038	-.043	-.068 *	-.039	-.062 *
Award type (National = 1, Other=0)	-.010	-.005	-.276	-.123	-.280	-.124
Support & Intervention						
Had a mentor during high school			.138	.085 **	.147	.090 *
Have a mentor currently			.056	.033	.051	.030
Award type X Number of years in program			.063	.084	.063	.083
Award type X Number of adversities			.034	.048	.034	.049
Years since award			-.033	-.062 *	-.034	-.063 *
Educational Conditions						
Major (Science & Engineering=0)						
Professional					.131	.060 *
Business					.152	.062 *
Arts & Humanities					.091	.034
Education					.129	.040
Soc Sci					-.020	-.008
Other					.059	.022
Tech					-.334	-.038
Work, on- or off-campus					-.043	-.026
Major concerns over college financing					-.050	-.025
School debt, expected					.013	.038
Received other awards or scholarships					.032	.018
Selectivity					.006	.026
Control (Public=1, Private=0)					.013	.008
Model R-sq		.115		.126		.127

SOURCE: 2012 HAA Undergraduate Survey Data (N=1312)

NOTES: Coping with the college environment through seeking support from family and friends is a three-item, factorially derived scale (Alpha = 0.728).

*p<0.05, ** p<0.01

Table A.8. Overcoming Adversity through Mentoring, Counseling, Services, and Role models

	Model I			Model II		
	B	Beta		B	Beta	
Background Characteristics and HAA Award						
Female (Male=0)	.156	.103	**	.163	.107	**
Race/ethnicity (White=0)						
Asian	.161	.064	*	.143	.057	*
Black	.325	.164	**	.293	.148	**
Latino	.156	.076	**	.127	.061	*
Multiracial	.206	.056	*	.217	.059	*
First-generation college student	.038	.026		.039	.027	
Ed Aspirations - MA or DOC (BA or less=0)	-.028	-.014		-.035	-.017	
Self efficacy	.018	.016		-.004	-.004	
Academic motivation	.361	.293	**	.343	.279	**
Number of adversities experienced	-.016	-.028		-.035	-.061	*
Award type (National = 1, Other=0)	.341	.173	**	.180	.091	
Support & Intervention						
Had a mentor during high school				.182	.125	**
Have a mentor currently				.135	.090	**
Award type X Number of years in program				.049	.083	
Award type X Number of adversities				.007	.011	
Years since award				-.021	-.045	
Model R-sq		.164			.195	

SOURCE: 2012 HAA Undergraduate Survey Data (N=1279)

NOTES: Overcoming adversity through mentoring, counseling, services and role models is a six-item, factorially derived scale (Alpha = 0.824).

*p<0.05, ** p<0.01

Table A.9. Overcoming Adversity through Intervention

	Model I			Model II		
	B	Beta		B	Beta	
Background Characteristics and HAA Award						
Female (Male=0)	-.005	-.003		-.005	-.003	
Race/ethnicity (White=0)						
Asian	.306	.105	**	.303	.104	**
Black	.415	.175	**	.379	.160	**
Latino	.069	.027		.054	.021	
Multiracial	.030	.007		.038	.008	
First-generation college student	.020	.011		.019	.011	
Ed Aspirations - MA or DOC (BA or less=0)	-.154	-.061	*	-.156	-.062	*
Self efficacy	.047	.035		.027	.020	
Academic motivation	.303	.204	**	.282	.190	**
Number of adversities experienced	-.001	-.002		-.006	-.008	
Award type (National = 1, Other=0)	.147	.059	*	.038	.015	
Support & Intervention						
Had a mentor during high school				.114	.064	*
Have a mentor currently				.171	.094	**
Award type X Number of years in program				.070	.097	
Award type X Number of adversities				-.041	-.054	
Years since award				-.023	-.043	
Model R-sq		.085			.102	

SOURCE: 2012 HAA Undergraduate Survey Data (N=1111)
NOTES: Overcoming adversity through family, school, or friends' intervention is a three-item, factorially derived scale (Alpha = 0.847).
*p<0.05, ** p<0.01

Table A.10. Overcoming Adversity through Material Support

	Model I			Model II		
	B	Beta		B	Beta	
Background Characteristics and HAA Award						
Female (Male=0)	.112	.068	**	.118	.072	**
Race/ethnicity (White=0)						
Asian	.125	.049		.136	.053	*
Black	.228	.105	**	.222	.102	**
Latino	.155	.070	**	.149	.067	**
Multiracial	.049	.012		.044	.011	
First-generation college student	.071	.046		.077	.049	*
Ed Aspirations - MA or DOC (BA or less=0)	-.127	-.057	*	-.130	-.058	*
Self efficacy	.065	.055	*	.069	.058	*
Academic motivation	.280	.211	**	.266	.200	**
Number of adversities experienced	.024	.039		.025	.041	
Award type (National = 1, Other=0)	.286	.130	**	.161	.073	
Support & Intervention						
Had a mentor during high school				.038	.024	
Have a mentor currently				.003	.002	
Award type X Number of years in program				.085	.126	**
Award type X Number of adversities				-.038	-.055	
Years since award				-.049	-.098	**
Model R-sq		.095			.102	

SOURCE: 2012 HAA Undergraduate Survey Data (N=1554)

NOTES: Overcoming adversity through material support is a three-item, factorially derived scale (Alpha = 0.697).

*p<0.05, ** p<0.01

Appendix B. Multivariate Results among Alumni Scholars

Table B.1. Completion of a Graduate Degree

	Model I		Model II		Model III	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Background Characteristics and HAA Award						
Female (Male=0)	.179	1.195	.306	1.359	.054	1.056
Race/ethnicity (White=0)						
Asian	.209	1.232	.181	1.199	.194	1.214
Black	.104	1.109	.023	1.023	-.120	.887
Latino	-.490	.613	-.468	.627	-.352	.703
Multiracial	-.073	.929	-.123	.884	.528	1.696
First-generation college student	-.098	.907	-.070	.932	-.153	.858
Self efficacy	.286	1.331 *	.231	1.260	.074	1.077
Number of adversities experienced	-.092	.912	.038	1.039	-.003	.997
Award type (National = 1, Other=0)	1.292	3.639 **	2.154	8.615 **	2.231	9.311 **
Support & Intervention						
Had a mentor during high school			-.246	.782	-.448	.639
Have a mentor currently			.661	1.936 **	.572	1.772 *
Currently serve as mentor			.184	1.202	.059	1.061
Award type X Number of adversities experienced			-.374	.688 *	-.361	.697 *
Educational Conditions						
Major (Science & Engineering=0)						
Professional					1.111	3.038 **
Business					-.493	.611
Arts & Humanities					-.004	.996
Education					2.007	7.440 **
Soc Sci					1.071	2.917 **
Other					-.120	.887
Tech					-.146	.864
Major-job field congruence					.535	1.708 **
School debt, total					.152	1.165 **
Received other awards or scholarships					.229	1.257
Model R-sq [1]		.112		.147		.359

SOURCE: 2012 HAA Alumni Survey Data (N=636)

[1]Model R-sq is based on the Nagelkerke measure of goodness-of-fit.

*p<0.05, ** p<0.01

Table B.2. Employed Full-Time

	Model I		Model II		Model III	
	B	Exp(B)	B	Exp(B)	B	Exp(B)
Background Characteristics and HAA Award						
Female (Male=0)	-.068	.934	-.009	.991	.080	1.083
Race/ethnicity (White=0)						
Asian	-.456	.634	-.438	.645	-.370	.691
Black	.147	1.159	.139	1.150	.578	1.783 *
Latino	-.171	.842	-.148	.863	.146	1.158
Multiracial	-.004	.996	-.013	.987	-.017	.984
First-generation college student	.168	1.183	.194	1.214	.282	1.325
Ed Aspirations - MA or DOC (BA or less=0)	-.360	.698	-.374	.688	-.496	.609
Self efficacy	.170	1.185	.158	1.172	.035	1.035
Number of adversities experienced	-.149	.862 *	-.041	.960	.023	1.024
Award type (National = 1, Other=0)	.567	1.763 **	1.515	4.548 **	1.150	3.158 *
Support & Intervention						
Had a mentor during high school			-.156	.855	-.171	.843
Have a mentor currently			.218	1.244	.104	1.110
Currently serve as mentor			-.003	.997	-.078	.925
Award type X Number of adversities experienced			-.381	.683 *	-.297	.743
Educational Conditions						
Major (Science & Engineering=0)						
Professional					-.206	.814
Business					.900	2.458 **
Arts & Humanities					.290	1.336
Education					.219	1.245
Soc Sci					-.512	.600
Other					.873	2.393
Major-job field congruence					.330	1.391 **
School debt, total					-.177	.838 **
Received other awards or scholarships					.153	1.165
Grad degree completion (MA or more=1)					1.443	4.232 **
Model R-sq [1]		.046		.062		.265

SOURCE: 2012 HAA Alumni Survey Data (N=630)

[1]Model R-sq is based on the Nagelkerke measure of goodness-of-fit.

*p<0.05, ** p<0.01

Table B.3. Annual Salary

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	-1.184	-.160 **	-1.078	-.145 **	-.919	-.124 **
Race/ethnicity (White=0)						
Asian	.062	.006	.052	.005	.085	.008
Black	.011	.001	-.053	-.005	.269	.027
Latino	-.870	-.085 *	-.880	-.086 *	-.464	-.045
Multiracial	.327	.018	.248	.013	.394	.021
First-generation college student	.504	.073	.544	.079 *	.556	.081 **
Ed Aspirations - MA or DOC (BA or less=0)	.086	.008	.078	.007	-.360	-.033
Self efficacy	.566	.116 **	.521	.107 **	.211	.043
Number of adversities experienced	-.333	-.120 **	-.141	-.051	-.049	-.018
Award type (National = 1, Other=0)	1.470	.189 **	2.959	.381 **	2.069	.267 **
Support & Intervention						
Had a mentor during high school			.180	.026	.298	.043
Have a mentor currently			.296	.040	-.104	-.014
Currently serve as mentor			.083	.010	-.038	-.005
Award type X Number of adversities experienced			-.641	-.243 **	-.430	-.163 *
Educational Conditions						
Major (Science & Engineering=0)						
Professional					.526	.057
Business					1.603	.163 **
Arts & Humanities					-.316	-.033
Education					-.236	-.021
Soc Sci					-.754	-.089
Other					.554	.037
Tech					3.111	.095 **
Major-job field congruence					.722	.231 **
School debt, total					-.088	-.082 *
Received other awards or scholarships					-.155	-.018
Education Attainment & Employment Measures						
Grad degree completion (MA or more=1)					2.013	.260 **
Model R-sq		0.09		.101		.270

SOURCE: 2012 HAA Alumni Survey Data (N=627)

NOTES: Annual Salary was based on a 14-point earnings measure, where: 1 = $14,999 or less; 2 = $15,000 - $19,999; 3 = $20,000 - $24,999; 4 = $25,000 - $29,999, 5 = $30,000 - $34,999; 6 = $35,000 - $39,999; 7 = $40,000 - $49,999; 8 = $50,000 - $59,999; 9 = $60,000 - $69,999; 10 = $70,000 - $79,999; 11 = $80,000 - $89,999; 12 = $90,000 - $99,999; 13 = $100,000 - $109,999; 14 = $110,000 or above.

*p<0.05, ** p<0.01

Table B.4. Satisfaction with Current Job

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	-.058	-.024	-.057	-.024	-.005	-.002
Race/ethnicity (White=0)						
Asian	-.109	-.033	-.148	-.044	-.172	-.052
Black	-.442	-.138 **	-.505	-.158 **	-.409	-.128 **
Latino	-.405	-.123 **	-.405	-.123 **	-.340	-.103 *
Multiracial	-.912	-.140 **	-.957	-.147 **	-.849	-.131 **
First-generation college student	.014	.007	-.004	-.002	-.033	-.015
Ed Aspirations - MA or DOC (BA or less=0)	.043	.012	.019	.006	-.001	.000
Self efficacy	.569	.365 **	.544	.349 **	.446	.286 **
Number of adversities experienced	-.048	-.052	-.099	-.108 **	-.086	-.093
Award type (National = 1, Other=0)	-.016	-.007	-.326	-.132	-.484	-.196 *
Support & Intervention						
Had a mentor during high school			.027	.012	.018	.008
Have a mentor currently			.088	.037	.077	.033
Currently serve as mentor			.273	.106 **	.245	.095 *
Award type X Number of adversities experienced			.122	.140	.159	.183 *
Educational Conditions						
Major (Science & Engineering=0)						
Professional					-.121	-.041
Business					-.387	-.127 *
Arts & Humanities					.058	.018
Education					-.336	-.096 *
Soc Sci					-.347	-.126 *
Other					-.345	-.071
Tech					-.104	-.011
Major-job field congruence					.206	.195 **
School debt, total					-.023	-.061
Received other awards or scholarships					-.052	-.019
Employment Measures						
Earnings (low quartile (Under $15,000=0)						
Quartile 2 ($15,000 - $40,000)					.406	.172 **
Quartile 3 ($40,001 - $60,000)					.448	.174 **
Quartile 4 (More than $60,000)					.536	.207 **
Model R-sq		.159		0.171		0.251

SOURCE: 2012 HAA Alumni Survey Data (N=512)

NOTES: Job satisfaction is based on a single question asking about satisfaction with current job, on a five-point scale: 1=Very Dissatisfied to 5=Very Satisfied.

*p<0.05, ** p<0.01

Table B.5. Overall Satisfaction with Life

	Model I		Model II		Model III	
	B	Beta	B	Beta	B	Beta
Background Characteristics and HAA Award						
Female (Male=0)	.060	.034	.057	.033	.095	.055
Race/ethnicity (White=0)						
Asian	-.213	-.086 **	-.228	-.092 **	-.214	-.086 **
Black	-.313	-.129 **	-.332	-.137 **	-.238	-.098 **
Latino	-.226	-.094 **	-.231	-.096 **	-.122	-.051
Multiracial	-.118	-.024	-.131	-.027	.017	.003
First-generation college student	.001	.001	-.008	-.005	-.010	-.006
Ed Aspirations - MA or DOC (BA or less=0)	.065	.028	.054	.023	-.003	-.001
Self efficacy	.687	.581 **	.675	.570 **	.560	.473 **
Number of adversities experienced	-.042	-.062	-.069	-.100 *	-.048	-.070
Award type (National = 1, Other=0)	.100	.057	-.036	-.020	-.097	-.055
Support & Intervention						
Had a mentor during high school			.068	.042	.069	.042
Have a mentor currently			.019	.011	-.004	-.002
Currently serve as mentor			.064	.034	.033	.017
Award type X Number of adversities experienced			.060	.092	.054	.084
Education Attainment & Employment Measures						
Grad degree completion (MA or more=1)					.140	.077 *
Employed					-.068	-.036
Earnings (low quartile (<$14,999=0)						
Quartile 2 ($15,000 - $40,000)					.029	.016
Quartile 3 ($40,001 - $60,000)					.176	.091 **
Quartile 4 (>$60,000)					.205	.112 *
Job Satisfaction					.176	.234 **
Model R-sq		.368		.370		.431

SOURCE: 2012 HAA Alumni Survey Data (N=665)

NOTES: Satisfaction with Life is a five-item, factorially derived scale (Alpha = 0.884).
*p<0.05, ** p<0.01

Appendix C. Results from the HAA Undergraduate Survey Incentives Experiment

The data collection period for the Horatio Alger Association Undergraduate Survey concluded on 1/31/2012. Based on analysis of experimental data from the survey, results indicate that the lottery incentives employed to encourage response appear to have had a positive effect. Prior to the start of the data collection, respondents were divided into five categories and offered different lottery incentives to complete the survey. These incentive groups were structured to answer two basic questions:

1. Does offering lottery incentives have a positive effect on response rates?
2. Does it matter what kind of lottery incentive is offered? Does the stated value or number of prizes matter?

Using a controlled experiment, we were able to answer these questions. Our initial findings are the following:

- The treatment groups are significantly differentiated from the control group. This means the incentives had an effect that cannot be dismissed as a statistical anomaly.
- The treatment groups are not significantly differentiated from each other. This means no incentive statistically worked better than another for overall response rates.
- Whether we aggregate the treatment groups or leave them separate, they are significantly different from the control group at the time the experiment ended based on the Pearson Chi-square statistic.
- Aggregated, the incentive is associated with roughly a +**13%** difference in response rates between the treatment groups and control. This corresponds to an estimated 554 respondents and a monetization of ~$1.80 per additional response in incentives costs based on $1000 in total incentive costs.
- Between the time the experiment ended on 1/17 and the end of data collection on 1/31, an incentive was offered to the control group. It again appears that the incentive had an effect: between the time we applied that incentive and the end of data collection, the control group (now

incentivized) response rate increased from 26.2% to 37.9% (+**11.7%),** while the treatment group increased less, from 39.1% to 44.2% (**5%)**.

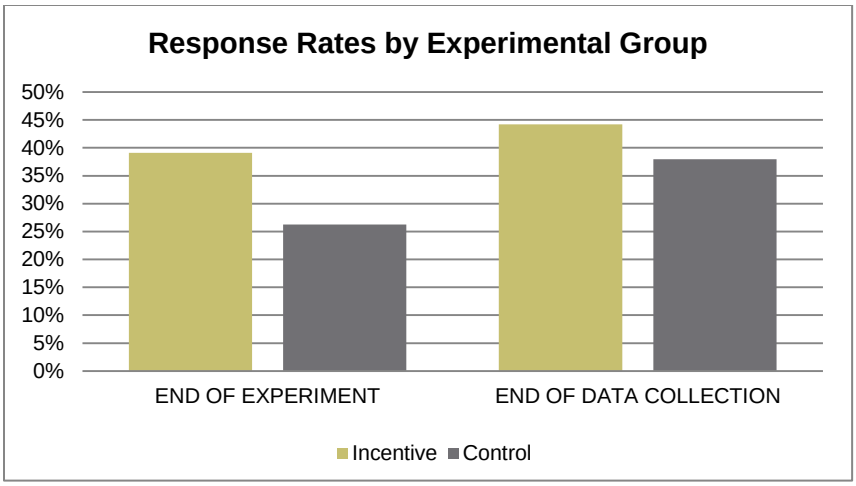
From this experiment, we have evidence that lottery incentives work reasonably well for the HAA Undergraduate Scholar population. A 13% difference in response rates is generally greater than the gains expected based on previous research. Further, it can be concluded that since no single incentive group produced a significantly different result from any other incentive, it may not matter how valuable incentives are or how many prizes are offered.

The last point notwithstanding, at the end of the data collection period, the following incentive languages produced the greatest overall response totals, but are not statistically differentiated from the weakest incentive language group:

- "For your time and generosity in participating in the survey you will be entered in a drawing for one of 10 $50 gift cards and the $500 grand prize."
- "For your time and generosity in participating in the survey you will be entered in a drawing for one of 11 prizes valued at up to $500."

The Horatio Alger Association may wish to use these results to inform future survey efforts. Based on these results, NORC recommends the following:

1. Lottery incentives should be employed again; it appears they are a low-cost, functional means of improving response rates for this population
2. It may not matter what is offered in terms of incentives in dollar value and quantity. Absent statistical evidence, the language immediately above produced the highest overall response rates and we therefore recommend using this language in the future. Should costs be a serious consideration however, the statistical evidence suggests offering a single $500 prize or 10 $50 prizes (thereby reducing total cost by 50%) with similar response rates expected.
3. A rigorous follow-up strategy of reminder emails is an integral part of any response-improvement program. Follow-up reminders should be sent frequently during survey periods.


Response Rates by Experimental Group
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
END OF EXPERIMENT
END OF DATA COLLECTION
Incentive
Control

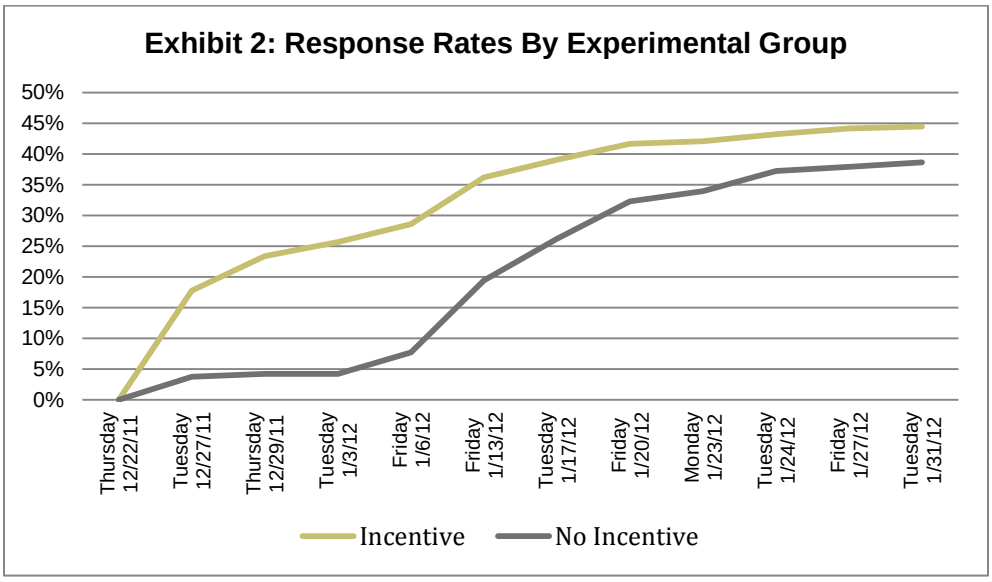


Exhibit 2: Response Rates By Experimental Group
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Thursday 12/22/11
Tuesday 12/27/11
Thursday 12/29/11
Tuesday 1/3/12
Friday 1/6/12
Friday 1/13/12
Tuesday 1/17/12
Friday 1/20/12
Monday 1/23/12
Tuesday 1/24/12
Friday 1/27/12
Tuesday 1/31/12
Incentive
No Incentive

Submitted Survey Counts by Date		
	Tuesday 1/17/12	Tuesday 1/31/12
Group 1 (*N*=959)	381	423
Group 2 (*N*=959)	365	408
Group 3 (*N*=959)	388	440
Group 4 (*N*=959)	365	436
Treatment Total (*N*=3836)	**1499**	**1707**
Group 5 (*N*=427)	112	165
Grand Total (*N*=4263)	**1611**	**1872**

NOTES: Groups 1 - 4 comprised 22.5% of the email list. Group 5 comprised 10% of the email list and the incentive statement was delivered in a more subtle format (not bold type and embedded in thank-you paragraph to respondents. Survey launch date was Friday, 12/16/11. The experiment concluded on 1/17/12, when Group 5 was given the same prompt as Group 3. On 1/25/12 an additional prompt was sent to 83 cases who had nearly completed the survey. Data collection came to a close on 1/31/12.

Survey Incentives Language
Group 1: *For your participation you will be entered in a drawing for a grand prize valued at $500*.
Group 2: *For your participation you will be entered in a drawing for ten $50 gift certificate prizes.*
Group 3: *For your participation you will be entered in a drawing for one of 10 $50 gift cards or the $500 grand prize.*
Group 4: *For your participation you will be entered in a drawing for one of 11 prizes ranging from a $50 gift card to a $500 grand prize.*
Group 5: *For your participation, you will be entered in a prize drawing.*

NOTES: Cases in Groups 1-4 were considered the Treatment group. Cases in Group 5 were considered the Control group.