

## The Relationship Between Education and Ethnic Minority Factors in Income Among Asian Americans

Carmel S. Saad

University of California, Davis

Stanley Sue

Palo Alto University

Nolan Zane

University of California, Davis

Young Il Cho

Arizona State University

Research indicates greater educational achievements and occupational aspirations of Asian Americans. However, little research has explicated the relationship between educational attainment and actual income among Asian Americans. Factors related to the ethnic minority experience may be related to or may change the positive, linear relationship between education and income found in the general population. The current study examined how education and gender are associated with income, as well as the incremental variance explained by ethnic minority-related factors. The sample consisted of 1,187 employed Asian Americans in the National Latino and Asian American Study (NLAAS). Education and gender were associated with income, such that men and those who attained more education reported greater incomes. When ethnic minority factors were included also, gender, acculturation, foreign early education, and English proficiency were associated with income. An interaction emerged between education and English proficiency such that more proficient individuals reported greater income, but only among those who attended college. The opposite pattern emerged for less educated individuals. Implications are discussed for how accounting for ethnic minority factors is important in understanding the more nuanced relationship between education and income among Asian Americans.

*Keywords:* Asian Americans, education, income, culture, ethnic minority status

Asian Americans constitute the fastest growing minority group in the United States, and the majority of the growth in this population is because of an increase in Asian immigrants (Leong & Okazaki, 2009; Liu, Murakami, Eap, & Hall, 2009). Asian Americans comprise a large portion

of the American workforce and are more likely than Whites to enter fields that they expect will yield high-income returns (i.e., physical science, engineering, computer science, and business; Xie & Goyette, 2003). Research suggests that many Asian Americans value education as a means of “getting ahead” financially (Ogbu, 1991; Sue & Okazaki, 1990). Asian Americans pursue more schooling than other groups, attain higher GPAs, and attend 4-year colleges at higher rates than do Whites and other ethnic minority groups (Goyette & Xie, 1999). They often expect this investment to yield better paying jobs (Xie & Goyette, 2003). However, little research has examined Asian Americans’ payoff for their high educational investment. Because these attainments are often directly linked to occupational expectations and expected income (Xie & Goyette, 2003), it is important to examine whether Asian Americans actually receive greater incomes for their high educational investment (Leong, Kao, & Lee, 2004).

Because the discrimination they may face in certain arenas serves as a barrier toward upward

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This article was published Online First February 13, 2012.

Carmel S. Saad and Nolan Zane, Department of Psychology, University of California, Davis; Stanley Sue, Department of Psychology, Palo Alto University; Young Il Cho, Department of Psychology, Arizona State University.

This study was supported by the Asian American Center on Disparities Research through Research Grant P50MH073511 from the National Institute of Mental Health (NIMH) of the National Institutes of Health (NIH) and by NIH Research Grants MH06220, MH62207, and MH62209, funded by the NIMH, and RWJ DA18715, with generous support from the Substance Abuse and Mental Health Services Administration and the NIH Office of Behavioral and Social Sciences Research.

Correspondence concerning this article should be addressed to Carmel S. Saad, Department of Psychology, Young Hall, University of California, Davis, One Shields Avenue, Davis, CA 95616. E-mail: csgabriel@ucdavis.edu

mobility, some rely on education as a way to move up the American economic ladder (Goyette & Xie, 1999). They pursue high-paying and prestigious careers in which other Asian Americans have already succeeded (Sue & Okazaki, 1990). Xie and Goyette's (2003) strategic adaptation perspective posits that Asian Americans consciously choose careers that yield high economic returns and deliberately plan their education around pursuing these careers. These authors suggest that occupational choice precedes educational paths. They found that Asian Americans have a higher propensity than non-Hispanic Whites to enter college and explicitly viewed education as a practical means that would lead to higher-paying careers, even after controlling for gender, socioeconomic status, and academic performance. In sum, Asian Americans often attain more formal academic training to foster the advanced skills needed to succeed financially in the workforce (Goyette & Xie, 1999; Leong, 1998; Xie & Goyette, 2003).

Ogbu's (1991) "folk theory of getting ahead" indicates that different ethnic minority groups maintain different beliefs about how to get ahead, and this is a function of their unique cultural background. We operationalize culture as the behavior patterns, symbols, institutions, attitudes, and values of a group or society. Ethnicity refers to a religious, racial, national, or cultural group. Race is operationalized as groupings of people on the basis of actual or presumed biological differences from others. Asian Americans represent a racial category encompassing several ethnic groups (e.g., Chinese Americans, Korean Americans). Asian immigrants may come to the United States believing that they and their children will have greater opportunities for financial success (Ogbu, 1991). This fosters strong optimism for the power of education to help them succeed financially despite discrimination and limited career prospects (Sue & Okazaki, 1990). Many Asian Americans' greater educational attainments and higher occupational expectations result from parental pressure (Goyette & Xie, 1999; Liu et al., 2009; Ogbu, 1991). Because Asian American immigrants often believe that educational goals are attainable through effort and not solely by ability, immigrant parents may encourage their children to achieve academically (Goyette & Xie, 1999; Leong, 1998; Lowe, 2009; Sue & Okazaki, 1990). They often pass these beliefs

onto subsequent generations through the "cultural inculcation of instrumental competencies" (Ogbu, 1991). Asian immigrant parents may realize that discrimination is common and that their children would fare better financially if they attained more education. Therefore, many Asian Americans, particularly those with immigrant parents, may maintain high expectations for an economic return on their educational investment.

However, not all Asian Americans are economically successful. Some Asian American groups experience high poverty rates. Moreover, there is a wide range of educational attainment among different groups (Goyette & Xie, 1999; Lee, 1994). However, Goyette & Xie (1999) posit that this is not because Asian American ethnic groups vary in their focus on education as the main route toward economic mobility. Asian American groups do indeed vary on key demographic variables that are related to educational attainment. Japanese and Koreans reported the highest family socioeconomic background, followed by Chinese and Filipinos, but all groups were higher than non-Hispanic Whites. Moreover, first-generation individuals attained more schooling than did those from later generations. Some student Asian groups are comprised of a larger proportion of first generation individuals than others (e.g., Southeast Asians and Chinese student groups contain more first generation individuals than do Japanese groups). Despite these differences, Goyette and Xie (1999) found that all Asian American groups reported greater parental expectations of educational attainment than did Whites. Given the belief in Asian cultures that education is the main route toward economic success, parents across Asian groups often expect their children to attain as much education as they can. Indeed, some researchers suggest that diverse Asian groups should be treated similarly in this regard, because many perceive economic mobility as attainable through the educational channel (Goyette & Xie, 1999).

Moreover, Zane and Song (2007) point out that Asian Americans are underrepresented in higher-level administrative and managerial positions, which often maintain higher incomes. They posit that this may be because Asian American values emphasize maintaining quality in interpersonal relationships. Sometimes, this

may interfere with values and attributes that are sought after for higher-level positions in the American workforce, such as assertion, self-enhancement, and competition. Leadership Education for Asian/Pacifics (LEAP) has found that despite current market growth among Fortune 500 companies in 2010, Asian Americans remain largely absent from corporate boards (~80.4% lack representation).

Discrimination may also be related to lower incomes among Asian Americans. Dovidio, Kawakami, and Gaertner (2002) showed that Whites' negative explicit and implicit attitudes toward those of other ethnicities are associated with more negative verbal behavior as well as less verbal and nonverbal friendliness toward those individuals. This can lead to more negative social interactions. Insofar as subjective opinions are associated with promotions and income, negative attitudes held by Whites may hinder Asian Americans' ability to obtain better pay.

But what is the actual relationship between education and income among Asian Americans? Although they maintain high expectations for the economic return on their educational investment, little research has examined whether they actually receive this return. The U.S. Census Bureau (2003) reveals a positive, linear relationship between education and income in the general population. However, some suggest that Asian Americans, receive, on average, lower incomes (Sakamoto & Furuichi, 2002; Zeng & Xie, 2004). U.S. Census data (2003) indicated that Asian Americans attained more education than other groups but self-reported less annual gross income. For example, 67.4% of Asian Americans attained at least some college, compared with 56.4% of Whites, 29.6% of Hispanics, and 44.7% of African Americans. Asian Americans were more likely to attain at least a bachelor's degree (49.8%), compared with 30% of Whites, 11.4% of Hispanics, and 17.3% of African Americans. Despite these high educational attainments, Asian Americans self-reported substantially lower annual incomes than Whites (though similar to other groups). Among high school graduates, Asian Americans reported \$24,900, compared with Whites' \$28,756, Hispanics' \$24,163, and African Americans' \$22,823. For those that completed some college, Asian Americans reported \$27,340, compared with

Whites' \$32,318, Hispanics' \$27,757, and African Americans' \$27,626. For those who attained an advanced degree, Asian Americans reported \$72,852, compared with Whites' \$74,122, Hispanics' \$67,679, and African Americans' \$59,944. This suggests that the more education they attain, the smaller the disparity between their income and that of other groups. However, ethnic minority related factors may be associated with income in systematic ways, especially among immigrants. Instead of the positive, linear relationship observed in the general population, ethnic minority related factors may be associated with Asian Americans' income *independently of education*.

Asian Americans may have to contend with issues that effectively serve as a barrier from attaining salaries equivalent to others with similar education. They may experience limitations because of factors related to their ethnic minority status, such as limited English proficiency, limited acculturation, foreign education, and ethnic discrimination (Leong, 1998; Sue & Okazaki, 1990). Asian immigrants who struggle with English may not be able to articulate what they know and may face career-related issues because they may be seen as less intelligent or competent than others (Leong, 1998; Zane & Song, 2007). Some workplaces enforce exclusive use of English and discriminate against those less proficient. Sue, Bucceri, Lin, Nadal, and Torino (2007) found that "pathologizing of communication styles contributed to major forms of discrimination among Asian Americans. In fact, some research suggests that language and ethnic discrimination have independent effects" (Yoo, Gee, & Takeuchi, 2009). Thus, it is important to examine how language proficiency and ethnic discrimination are associated independently with income.

Moreover, Asian Americans who are highly ethnically identified and adhere to traditional Asian values (e.g., deference to authority, indirect communication, nonassertiveness, emotional restraint) may be viewed as undesirable for administrative and leadership positions that often yield greater incomes (Leong, 2001; Sue, Sue, Zane, & Wong, 1985; Woo, 2000; Zane & Song, 2007). Similarly, less acculturated individuals may earn less than those who are more acculturated, because they may not display the attributes valued by the American workforce

(e.g., assertiveness, independence, competition; Zane & Song, 2007; Zeng & Xie, 2004).

Place of education may be related to income, even more so than place of birth. Zeng and Xie (2004) found that the U.S. job market places a lower value on foreign education, and thus, foreign-educated Asian immigrants reported approximately 16% less income than U.S.-born Caucasians, U.S.-born Asian Americans, and U.S.-educated Asian immigrants. In fact, place of birth was inconsequential once place of education was considered. In addition, employers may maintain certain biases against ethnic minorities, which may be negatively associated with income. Whites' bias toward ethnic minorities was associated with negative social interactions (Dovidio et al., 2002), which could diminish the likelihood of obtaining high-paying positions. Indeed, discrimination is a main factor related to the glass ceiling in income (Cotter, Hermsen, Ovadia, & Vanneman, 2001).

In sum, it is important to examine how place of education, acculturation, English proficiency, ethnic identification, number of parents born in the United States, and perceived ethnic discrimination attenuate or change the relationship between education and income. The current study is among the first to do so in a predominantly immigrant sample. This allows for a better understanding of how education interacts with ethnic minority factors among those who have migrated to a different workforce.

Prior research also has identified certain barriers toward upward income mobility in the general population among groups who hold minority status, such as women (e.g., Cotter et al., 2001). Generally, prior research has found that men report greater incomes than women, especially in higher-paying jobs, indicating the persistence of a gender-related glass ceiling in the jobs that Asian Americans tend to pursue (Konstantopoulos & Constant, 2008). It is important to examine the relationship between education, income, and ethnic minority related factors while accounting for the gender differential that has already been found in the general population (i.e., "common factor" of gender).

### **Current Study and Hypotheses**

Although researchers have noted a positive, linear relationship between education and income in the general population, ethnic minority

related factors may attenuate or moderate this relationship. Pinpointing how ethnic minority factors change this relationship is critical. In the current study, we first examined the relationship between education and gender with income. We hypothesized that both education and gender would be associated with income, such that men and those who attained more education would report greater incomes. We then examined the incremental variance explained by including ethnic minority factors (i.e., English proficiency, acculturation, country of early education, ethnic identification, perceived ethnic discrimination, and number of parents born in the United States). We hypothesized that those who were more English proficient, more acculturated, less ethnically identified, perceived less discrimination, had parents born in the United States, and who received their early education in the United States would report greater incomes. We expected that accounting for ethnic minority factors would explain significantly more variance than accounting for common factors (i.e., education and gender) alone.

## **Method**

### **Participants**

The current study examined the National Latino and Asian American Study (NLAAS) dataset. This dataset was derived from the largest, most rigorously conducted psychiatric epidemiological and service use study of Asian Americans and Latinos in the United States. This study examined various major psychosocial issues, including factors related to economic success. Examining this national sample of Asian Americans has allowed us to conduct one of the first wide-scale analyses of variables associated with income, independently of education, among Asian Americans. Among the total NLAAS Asian American sample of 2,095, we examined only the 1,187 who reported being currently employed and who also reported education attained and gross income. Unemployed respondents were excluded, consistent with prior research examining income among nationally representative samples (Barringer, Takeuchi, & Xenos, 1990; Kim & Sakamoto, 2010). Of the full sample, only 115 (5.5%) were unemployed/looking for work. The other excluded groups were deemed inappropriate to include

because their reduced or nonexistent income was not related to their education. For example, the majority of those excluded were either students (4.3%), homemakers (3.8%), retirees (1.8%), or respondents who did not report employment status (16.42%). Moreover, those who reported a net (instead of gross) income were excluded to compare respondents in a standardized way.

The sample was comprised of 28.4% Chinese Americans, 22.1% Vietnamese Americans, 24.9% Filipino Americans, 6.2% Japanese Americans, 3.8% Korean Americans, 7.2% South Asian Americans, 1.4% Native Hawaiians, 0.4% Pacific Islanders, and 5.5% "Other Asians." Eighty percent were immigrants. Sixty-nine percent received their early education before the age of 16 in a foreign country. Average number of years spent in the United States was 20.02 ( $SD = 13.27$ ). Fifty-four percent were men. Ages ranged from 19–77 ( $M = 40.76$ ,  $SD = 11.78$ ). A total of 85.9% reported that neither parent was born in the United States, 4.9% reported that one parent was, and 9.2% reported that both parents were. Average years of schooling was 14.02 ( $SD = 3.12$ ). Separating this by educational level, 12.5% did not complete high school, 15.4% completed high school, 51.3% attained a college degree, and 20.8% attained a graduate or professional degree.

These characteristics are somewhat similar to those of the general Asian American population, with the exception of the overrepresentation of Vietnamese Americans in NLAAS as well as the underrepresentation of South Asians, Korean Americans, and Pacific Islanders. The 2009 U.S. Census (U.S. Census Bureau, 2011) indicated that among over 13 million Asian Americans, almost one-third (32.2%) were 35–54 years of age, similar to the current sample, whose mean age was 40.76. Estimates also indicated that the population consisted of 23.3% Chinese Americans, 10.8% Vietnamese Americans, 18.0% Filipino Americans, 5.6% Japanese Americans, 9.7% Korean Americans, 18.9% South Asian Americans, 1.0% Native Hawaiians, 2.2% Pacific Islanders, and 13.8% "Other Asians." Sixty-three percent were immigrants, and 47.9% were men. Similar to our sample, the majority attained a college or advanced degree (68.8%). Separating this by educational level, 11.8% did not complete high

school, 19.4% completed high school, 48.1% attained a college degree, and 20.7% attained an advanced degree.

## Procedure

The NLAAS was a nationally representative community household survey conducted between May 2002 and December 2003 (Alegría et al., 2004). The dataset was available in 2006 via the Inter-University Consortium for Political and Social Research (ICPSR). The sampling procedure included three phases: (a) core sampling, in which primary sampling units (i.e., metropolitan statistical areas or county units) and secondary sampling units, formed from contiguous groupings of census blocks, were selected using probabilities proportionate to size, from which housing units and household members were then sampled; (b) census block groups with greater than 5% density of target ancestry groups (Chinese, Filipino, Vietnamese) were oversampled using high-density supplemental sampling. Individuals of Asian ancestry who did not belong to the target groups under which these geographical areas were classified were still eligible to participate. Therefore, qualified residents in high-density communities (i.e., with greater than 5% density of target groups) actually had two opportunities for NLAAS recruitment: first through the core sampling strategy and second through the high-density sampling strategy; and (c) second respondent sampling was used to recruit participants from households in which one eligible member had already been interviewed. Weighting corrections were developed, but the current study did not utilize these weights because we examined only a subsample of the larger sample. Data were collected via interviews administered by trained bilingual interviewers in English, Mandarin, Cantonese, Tagalog, and Vietnamese (Alegría et al., 2004). Bilingual staff members translated the original measures using standard translation and back-translation techniques. The overall response rate for the survey was 73.2%.

## Measures

The full survey instrument has been described in detail in Alegría et al. (2004).

**Educational attainment.** The NLAAS contained an item asking respondents how

many years of formal schooling they had completed. This question was worded as: "What is the highest grade of school or year of college you completed?" and the response options ranged from 0–17 years, in mostly 1-year increments. The interviewer was instructed to record "12" if the respondent reported that she graduated high school and "16" if she graduated college.

**Demographics.** Items included country of early education (where respondent received most education before age 16) and number of parents born in the United States (none, one, or both).

**Acculturation.** An item asked how many years respondents had resided in the United States. If they were native-born, we simply imputed these respondents' ages. Years in the United States has been used as a proxy for acculturation in previous studies, which have shown that those who have lived in the United States longer tend to be more acculturated (Abe-Kim, Okazaki, & Goto, 2001). Because of multicollinearity issues with acculturation and nativity status, only acculturation was retained in the analyses. This was done based on prior literature indicating that years in the United States is a better proxy of acculturation than is nativity status (Abe-Kim et al., 2001).

**English language proficiency.** English language proficiency was assessed with the following three items: "How well do you speak English?", "How well do you read English?", and "How well do you write English?". Participants answered each item on a 1 (*poor*) to 4 (*excellent*) point Likert scale. Responses were summed across the three items to form a composite score. Reliability for this scale in the present sample was  $\alpha = .96$ .

**Ethnic identification/affiliation.** The NLAAS included four items assessing the extent to which respondents identified with and associated with members of their ethnic group. Sample items included: "How closely do you identify with other people who are of the same racial and ethnic descent as yourself?", which was rated on a 1 (*very closely*) to 4 (*not at all*) point Likert scale, and "If you could choose, how much time would you like to spend with other people who are of your same racial and ethnic group?", which was rated on a 1 (*a lot*) to 4 (*none*) scale. All items were reverse coded so that higher values indicated higher identifi-

cation/affiliation. Responses to each item were summed to create a composite score. The minimum and maximum scores were 4 and 16, respectively. The reliability for this scale among the current sample was  $\alpha = .70$ .

**Perceived ethnic discrimination.** Respondents completed three items examining the extent to which the respondent him/herself or friends were treated unfairly or disliked as a result of their race/ethnicity. Sample items included: "How often do people dislike you because you are [ethnic/racial group of respondent]?" and "How often do people treat you unfairly because you are [ethnic/racial group of respondent]?". Participants responded on a Likert scale ranging from 1 = *often* to 4 = *never*, which was later reverse-coded for the same reason as above. Responses to the three items were summed to form a composite score. Minimum and maximum scores were 3 and 12, respectively. Reliability was  $\alpha = .85$  in the current sample.

**Income.** The NLAAS included an item assessing personal income within the past 12 months via the question: "Which letter best represents *your own* personal earnings income in the past 12 months, before taxes? Count only wages and other stipends from your own employment, not pensions, investments, or other financial assistance or income. (Your best estimate is fine)". Income was coded into categories, ranging from 0 (*less than \$0—loss*) to 35 (*\$1,000,000 or more*).

## Data Analysis

We used multiple regression to estimate the relationship between each common factor or ethnic minority factor with self-reported gross annual income. In the first step of the analysis, we regressed only the common factors (i.e., education and gender) onto income. Then, we examined the change in variance explained when adding the ethnic minority factors into the regression model (i.e., acculturation, English language proficiency, ethnic identification/affiliation, country of early education, number of parents born in the United States, and perceived ethnic discrimination) and the interaction terms between education and each of the ethnic minority factors. We utilized a multiple regression framework to examine the relationship of each factor with income while control-

ling for the other factors. Therefore, the findings for each variable discussed below controlled for the relationship between education and income.

## Results

### Characteristics of the Sample

On a scale of 3 (respondents reported poorest English proficiency) to 12 (respondents reported excellent English proficiency), the mean English proficiency was 8.66 ( $SD = 2.95$ ). This indicates that participants, on average, rated their English proficiency at a level of “fair” to “good.” Separating this by the U.S. Census (2003) definition of linguistic isolation which defines the high English proficient group as those who speak English only and very well and the low English proficient group as those who speak English fair, not well, or not at all, 29.8% of our sample were identified as low in English proficiency, while 70.2% were identified as high in English proficiency. This is similar to the rates observed in the overall NLAAS Asian American sample (Alegría et al., 2004), as well as in the national Asian American population (Lee, Nguyen, & Tsui, 2011). The annual income categories ranged from 0 (*less than \$0—loss*) to 35 (*\$1,000,000 or more*), with a median of 24 (*\$25,000–\$29,999*) and a mode of 28 (*\$45,000–\$49,999*). The median of the current sample’s income was substantially lower than that of the general population in 2001–2003, which was \$43,527 ( $SE = \$108$ ) (U.S. Census Bureau, 2003). On a scale of 4 (representing *lowest ethnic identification/affiliation*) to 16 (representing *highest ethnic identification/*

*affiliation*), respondents reported an average of 12.36 ( $SD = 2.44$ ). This indicates that the sample was relatively high in ethnic identification/affiliation. On a scale of 3 (*perception of never being the victim of ethnic discrimination*) to 12 (*perception of often being the victim of discrimination*), respondents reported an average of 5.23 ( $SD = 2.10$ ), indicating that respondents perceived relatively little ethnic discrimination. See Table 1 for intercorrelations of variables.

### Common Factors Regression Model

We first examined the relationship of education and gender with income. We linearly regressed education and gender onto income. This model explained a significant proportion of variance,  $R^2 = .10$ ,  $F(2, 1,184) = 65.67$ ,  $p < .01$ . Education and gender were significantly related to income, such that greater education was associated with greater income [ $\beta = .26$ ,  $t(1,184) = 9.33$ ,  $p < .01$ , and men reported greater incomes than women,  $\beta = .16$ ,  $t(1,184) = 5.61$ ,  $p < .01$  (Table 2).

### Inclusion of Ethnic Minority Factors

We then added the ethnic minority factors into the regression (i.e., acculturation, English language proficiency, ethnic identification/affiliation, place of early education, number of parents born in the United States, and perceived ethnic discrimination). We also sought to test whether any of these variables changed the relationship between education and income, so we added interaction terms between education and

Table 1  
Intercorrelations of the Study Variables (N = 1,187)

Variable	1	2	3	4	5	6	7	8	9
1. Education	—	.11**	.08**	.04	-.10**	.47**	-.08**	.11**	.28**
2. Gender		—	.01	-.02	.00	.02	.04	.01	.18**
3. Acculturation			—	.51**	-.58**	.35**	-.30**	.00	.19**
4. No. of U.S.-born parents				—	-.54**	.29**	-.30**	-.11**	.03
5. Country of early education					—	-.49**	.37**	.05	.00
6. English proficiency						—	-.26**	-.01	.26**
7. Ethnic identification							—	-.01	-.02
8. Perceived ethnic discrimination								—	.05
9. Income									—

Note. Gender was coded as 1 = woman, 2 = man.  
\*\*  $p < .01$ .

Table 2  
 Summary of Regression Analyses for Variables Predicting Gross Annual Income (N = 1,187)

Variable	Model 1		Model 2		95% CI
	B	SE	B	SE	
Education	.67**	.07	.59	.43	[-.25, 1.44]
Gender	2.52**	.45	2.49**	.43	[1.65, 3.33]
Acculturation			.16**	.02	[.12, .21]
Number of parents born in United States			-.32	.45	[-1.19, .55]
Country of early education			4.52**	.67	[3.21, 5.83]
English language proficiency			.66**	.10	[.47, .84]
Ethnic identification/affiliation			.04	.10	[-.14, .23]
Perceived ethnic discrimination			.06	.10	[-.14, .26]
Education*					
Acculturation			.00	.01	[-.02, .01]
Number of parents born in United States			-.21	.18	[-.57, .14]
Country of early education			-.01	.24	[-.48, .47]
English proficiency			.11**	.03	[.05, .16]
Ethnic identification/affiliation			-.02	.03	[-.08, .03]
Perceived ethnic discrimination			-.06	.03	[-.13, .00]
R <sup>2</sup>	.10		.20		
F	65.67**		20.35**		
ΔR <sup>2</sup>			.10**		
ΔF			11.61**		

Note. CI = confidence interval.

\*  $p < .05$ . \*\*  $p < .01$ .

all ethnic minority factors. This model explained a significant proportion of variance in income,  $R^2 = .20$ ,  $F(14, 1,172) = 20.35$ ,  $p < .01$ , and it explained significantly more variance than did the first model ( $\Delta R^2 = .10$ ,  $p < .01$ ; Table 2).

After adding the ethnic minority factors into the regression, only gender remained significantly associated with income, such that men reported greater income,  $\beta = .15$ ,  $t(1,172) = 5.82$ ,  $p < .01$ . Education was no longer significantly associated with income,  $\beta = .23$ ,  $t(1,172) = 1.38$ ,  $p = .17$ . English language proficiency, acculturation, and country of early education were significantly associated with income, such that those who reported greater English proficiency reported greater annual incomes,  $\beta = .24$ ,  $t(1,172) = 6.80$ ,  $p < .01$ . Those who were more acculturated reported greater incomes,  $\beta = .27$ ,  $t(1,172) = 7.93$ ,  $p < .01$ . Those who received most of their early education in a foreign country reported greater incomes than those who received most of their early education in the United States,  $\beta = .26$ ,  $t(1,172) = 6.76$ ,  $p < .01$ ; Table 2).

A significant interaction emerged between education and English proficiency,  $\beta = .14$ ,

$t(1,172) = 3.69$ ,  $p < .01$ . To examine this interaction, we conducted simple main effect tests (Aiken & West, 1991). To determine at which level of education the higher and lower English proficient groups were significantly different in terms of income, we conducted region of significance analyses (Aiken & West, 1991). The goal of this test was to identify regions such that 95% or more of the predicted values did not contain any points for which the two groups were equal. These cutoff values correspond to the points at which the areas greater and less than these values reflect where the regression lines differ significantly. Our data yielded cutoff points of 1.09 and 3.06, which corresponded to those who had attained less than high school and at least some college, respectively (according to how education was coded in the NLAAS; Alegría et al., 2004). This indicates that respondents who did not complete high school and were less English proficient actually reported greater incomes than those who were more proficient in English. However, for those who had attained at least some college, those who were more English proficient reported significantly greater incomes than those who were less proficient (Figure 1).



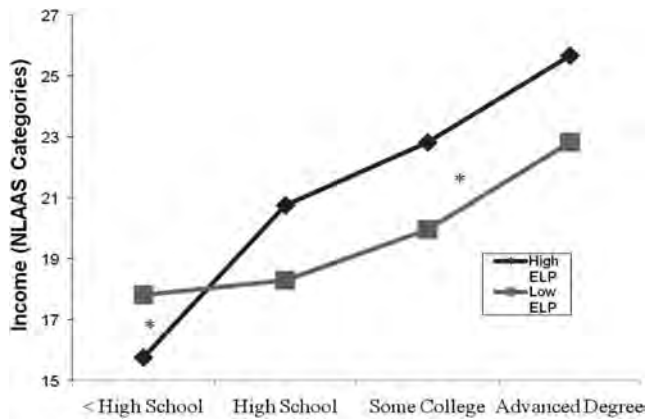


Figure 1. Interaction between education and English language proficiency (ELP) among employed Asian American respondents in the National Latino and Asian American Study (NLAAS). \*  $p < .05$ .

## Discussion

Prior research has indicated that Asian Americans, despite their high educational attainments, do not earn incomes that are commensurate with their educational investment (Kim & Sakamoto, 2010; Zeng & Xie, 2004). We proposed that accounting for ethnic minority related factors would explain significantly more variance in income than accounting for common factors alone, and, as a result, would give us a clearer picture of how education and income were related among Asian Americans. We hypothesized that both education and gender would be associated with income, such that men and those who attained more education would report greater incomes. Furthermore, we hypothesized that those who were more English proficient, more acculturated, less ethnically identified, perceived less ethnic discrimination, had parents born in the United States, and who received most of their early education in the United States would report greater incomes.

The current sample reported a median income of \$25,000–\$29,999, which is substantially lower than the median income for the general population in 2003, which was \$43,318 (U.S. Census Bureau, 2003). This is despite the fact that Asian Americans attained higher levels of education. In the current sample, 12.5% did not complete high school, 15.4% completed high school, 51.3% attained a college degree, and 20.8% attained an advanced degree. Com-

paring this to the general population's statistics (20.98% did not complete high school, 30.04% completed high school, 22.94% attained a college degree, and 7.68% attained an advanced degree; U.S. Census Bureau, 2003), it is clear that Asian Americans are attaining more education but lower incomes than the general population. This implies that Asian Americans may face a glass ceiling in the American workplace (Woo, 2000). Results revealed that accounting for ethnic minority factors explained twice as much variance as accounting for common factors alone. Gender was significantly related to income, just as it is for the general population. Greater acculturation and English proficiency, as well as receiving one's early education abroad, were associated with greater incomes. The interaction between education and English proficiency indicates that the positive relationship between education and income is stronger for those who are more proficient, but only among those who are more educated. Those who are less proficient, however, reap less economic rewards from their higher educational investment.

Our findings highlight the importance of accounting for ethnic minority factors, as they help to better explain the unique experience of "getting ahead" for Asian Americans (Ogbu, 1991). Education may play an important role in achieving economic mobility for Asian Ameri-

cans as long as one becomes proficient in English. This supports Ogbu's (1991) folk theory of getting ahead but qualifies that education helps those who are more English proficient to get further ahead, at least for those who have more education.

Gender remained significantly associated with income when accounting for ethnic minority factors, indicating that the gender disparity documented in the general population (Cotter et al., 2001) may transcend cultural boundaries. Moreover, education was not significantly associated with income once ethnic minority factors were considered. This indicates that ethnic minority factors are important to consider when examining income, as they account for at least as much variance as does education and gender.

Higher levels of acculturation were associated with greater incomes. This supports prior research suggesting that those who are more acculturated may become more familiar with practices valued in the American workplace and may more easily attain upward economic mobility (Zane & Song, 2007). Our study was among the first to examine the relationship between education and income for a largely immigrant sample—shedding light on this process among those who migrated to a largely different workforce. Adapting to the United States presents obstacles toward attaining upward mobility, and those who are more familiar with American workplace norms (e.g., assertion, competition) may gain more economic return on their higher educational investment (Zane & Song, 2007). Thus, becoming more familiar with American cultural norms may help Asian Americans gain bicultural competence in the professional domain (LaFromboise, Coleman, & Gerton, 1993).

Our findings also indicate that greater English proficiency is positively associated with income for those who have completed at least some college. This reinforces the acculturation finding, since acculturation is often associated with greater English proficiency (Tsai, Ying, & Lee, 2000). However, the fact that English proficiency was associated with income even after controlling for acculturation indicates that English proficiency is independently associated with income. This may mean that more acculturated individuals may not attain the same level of income as those who have also become English proficient.

In contrast to prior research (Zeng & Xie, 2004), our findings indicate that Asian Americans who received their early education abroad attained higher incomes than those who received it in the United States. Some suggest that because of the relatively more rigorous focus on math and science in Asian elementary and high schools, those exposed to Asian education at an early age may form a foundational belief system about math and science that may serve as an advantage later when working in these professions. Asian schools may have more structured socialization practices about the work world that they instill into their students at a critical young age (Stevenson & Stigler, 1992). One reason for the discrepancy between findings may be that many American workplaces may prefer those who were college-educated in the United States. Because the NLAAS assessed only place of pre-college education, it is possible that many respondents attained their early education abroad and later education in the United States. These individuals may attain higher pay in the more science and technical fields that are more attractive to Asian Americans (Xie & Goyette, 2003). Moreover, many Asian immigrants came to the United States as a result of the passage of the Hart-Celler Immigration and Naturalization Act in 1965, which placed a priority on immigrating highly skilled workers (e.g., engineers and scientists) and resulted in the "brain drain" of well-trained professionals (Leong & Okazaki, 2009). Foreign-educated Asian Americans may have been able to apply their skills to obtain greater incomes. It is possible that those who immigrated to the United States may also have had more ability to begin with. They may come from families with more economic resources, which may also put them at an advantage, since socioeconomic status is positively associated with academic achievement.

Neither ethnic identification/affiliation, perceived ethnic discrimination, nor number of parents born in the United States were significantly associated with income. This suggests that ethnic identification may not impede Asian Americans' economic mobility. However, it may be that American identification is more instrumental in accounting for income mobility than is ethnic identification. Individuals who identify with American culture more may be more adept at learning to function in effective interpersonal ways in the American workplace (Zane & Song, 2007). Moreover, perceived eth-

Table 3  
*Comparison of Respondents Who Reported Income Versus Those Who Did Not (N = 2,095)*

Variable	% of those who reported	<i>n</i>	<i>M</i>	<i>SD</i>	% of those who did not report	<i>n</i>	<i>M</i>	<i>SD</i>
Ethnicity		1,228				867		
Chinese	28.3				25.7			
Filipino	24.9				10.3			
Vietnamese	22.1				35.0			
South Asian	7.2				5.1			
Japanese	6.2				6.6			
Korean	3.8				0.7			
Other Asian	5.5				4.4			
Native Hawaiian	1.4				0.7			
Pacific Islander	0.4				0.0			
Education		1,228	2.84	0.87		867	2.51	1.00
Less than high school (1)	10.3				21.8			
High school (2)	15.9				20.4			
Some college (3)	52.9				42.4			
Graduate/Professional degree (4)	20.8				15.3			
Gender		1,228				867		
Men	52.9				40.1			
Women	47.1				59.9			
Age		1,228	39.75	12.79		867	43.42	17.03
Nativity status		1,228				865		
U.S.-born	24.5				17.6			
Foreign born	75.5				82.1			
Years in United States		1,228	21.27	13.97		867	18.97	15.57
English proficiency		1,225	8.87	2.90		862	7.69	3.23
Country of early education		1,227				863		
United States	35.1				26.2			
Other	64.8				73.7			
# of Parents Born in United States		1,228				864		
None	83.1				87.8			
One	5.9				5.1			
Both	10.9				6.8			
Ethnic identification		1,215	12.22	2.45		845	12.45	2.50
Perceived discrimination		1,211	5.23	2.09		835	4.97	2.13

nic discrimination may not be closely associated with actual discrimination, and this may be why it was not associated with income. Because discrimination was assessed via self-report, this may not have correlated highly with actual discrimination (Nisbett & Wilson, 1977). Alternatively, since the questions asked about their perceived discrimination overall, it may be that participants' reports of discrimination corresponded to places outside of work. That number of parents born in the United States was not significantly associated with income could indicate that Asian American parents instill into their children Asian cultural beliefs about the value of education, and that these instrumental beliefs may not differ between Asian parents

born in the United States versus abroad (Ogbu, 1991).

These findings have several implications. Asian Americans may face *some* challenges in attaining greater income but not others. Contrary to prior research, Asian Americans who received their early education abroad actually reported greater incomes, suggesting that foreign education may facilitate, rather than impede, upward mobility. Similar to the general population, Asian American women reported less income than Asian American men. This supports the notion of a gender-based glass ceiling in some professions applying to Asian Americans as well (Cotter et al., 2001; Woo, 2000; Zane & Song, 2007). Second, "practice-

related” variables (e.g., English proficiency and acculturation) are important when examining the relation between education and income. Greater acculturation may allow some Asian Americans to adapt to American workplace norms and bolster their English skills, resulting in greater bicultural competence (LaFromboise et al., 1993). However, those who were less educated and less English proficient reported greater incomes than those who were less educated and more proficient. This surprising finding may be explained by ethnic enclaves. Light, Sabagh, Bozorgmehr, and Der-Martirosian (1994) claim that many minority groups, especially those who have a large proportion of immigrants, function under an “ethnic economy” which is separate from the general economy. Individuals within these enclaves often do not attain high levels of education because of the urgency to work when they immigrate. They often work in traditionally ethnic businesses, which can allow them to become successful. Often, they have no need to become English proficient, because most of their business is conducted in their ethnic language (Bauer, Epstein, & Gang, 2005).

These findings should be interpreted with the study’s limitations in mind. First, income was assessed as categories rather than point estimates. Moreover, the income ranges in these categories varied. Thus, it is difficult to pinpoint the specific value of a certain education level. Second, the study examined 1,187 individuals from the original sample of 2,095 Asian Americans. A total of 712 respondents (33.99%) were excluded from the analyses because they were not currently employed ( $n = 710$ ) or did not report employment status ( $n = 2$ ). Of those who were employed, 55 (2.63%) respondents were excluded because of missing values for education. Another 141 (6.73%) were excluded for failing to report gross annual income. Because net income is dependent on personal circumstances, we did not include those who reported net income. This would have prohibited us from standardizing respondents on a similar plane. To ensure that we did not examine a qualitatively different sample, we compared those who did versus did not report income on major demographic variables (Table 3). The current sample did not differ much from the excluded sample on key variables of interest.

In conclusion, our findings indicate that when examining income among Asian Americans, ethnic minority related factors, such as acculturation and English language proficiency, are important to consider. While having received one’s early education abroad was associated with greater income, Asian Americans may still need to acculturate highly into American society if they are to receive the economic reward for their high educational investment. Our study also suggests that English proficiency is important to consider, as it moderates how Asian Americans receive the economic return on their educational investment.

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Received February 1, 2011

Revision received June 30, 2011

Accepted November 7, 2011 ■