ILLINOIS EDUCATION RESEARCH COUNCIL

Research brief: Do high school students know their parents' income?

WISCONSIN HOPE LAB

RESEARCH BRIEF 2017-4

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Abstract

Most students finish high school with low levels of financial knowledge, yet they are months away from important decisions about how to finance college. Students may not know about family finances, even though parental income is a key determinant of financial aid for college. This study measures the financial knowledge of high school students by comparing survey answers to actual measures of parental income from financial aid applications in a statewide sample. We find that students can accurately state parental income 24% of the time, within $15,000. Overreporting of parental income is much more common than underreporting. We explore potential causes and consequences of misreporting, and implications for research using self-reported income.

Introduction

Most students are aware of the need to prepare academically for college, but they may be less aware of the need to prepare financially. Among young students with few financial resources of their own, financial preparation consists mostly of learning information about the various financial aid resources available to them. For many students this is a combination of in-kind, loan, and gift support from parents, relatives, community organizations, the college they attend, their state, the federal government, and banks. Each source may have different applications, initial eligibility rules, and continuing eligibility requirements. Although students invest twelve years of schooling to prepare academically, they typically invest far less time in preparing financially.

Surveys measuring general financial literacy have found objectively low levels among young adults (Lin et al., 2016; Lusardi, Mitchell, & Curto, 2010; Mandell, 2009). However few surveys measure financial knowledge of facts that are directly related to the process of paying for college. These facts include tuition prices of colleges, the cost of living for a college student, and eligibility rules for financial aid. By far the most important determinant of eligibility for financial aid is household income (Federal Student Aid, 2017). This simple piece of information cannot be taught in financial literacy courses, because it differs for each student.

Despite the growing importance of financial aid, we know little about the state of students' knowledge of parental income. Research studies that compare student reports to more accurate measures of parental income have focused on specific local populations in the 1990s and earlier (Kayser & Summers ,1973; Romano & Mareno, 1994; Smith & McCann, 1998). Meanwhile the price of college and the proportion of students using financial aid have grown substantially (College Board 2016; U.S. Department of Education 2011, 2014).

This study provides new information about student financial knowledge by linking a statewide student survey to administrative data on parental income.

Methods

Measures

The student survey is from the background questionnaire of the ACT test administered to all juniors in the graduating class of 2009 at Illinois public high schools. The administrative measure of parental income comes from the Free Application for Federal Student Aid (FAFSA), which most of these students filed in their senior year. While the ACT survey represents student knowledge, the FAFSA represents information directly from tax returns. For 47,770 students, we compared the ACT to the FAFSA measure.[1]

The ACT survey question offered students nine choices, allowing students to pin down their parental income within a range of plus or minus $15,000. The FAFSA's comparable income measure is the combined adjusted gross income (AGI) of the student's custodial parent or parents, measured in dollars.

Sample

Beginning with the full sample of 109,030 high school graduates who were each required to take the ACT as part of the Prairie State Achievement Exam, we excluded 36,760 students who did not file the FAFSA as seniors in high school (34%). We then excluded 3,280 students who were considered independent of their parents and did not have to report parental income (5% of remaining), leaving 68,990 students. On the ACT survey, 31% of the remaining respondents did not answer the parental income question. After excluding students who did not answer the ACT income question, we were left with 47,770 individuals with both survey and administrative measures. There was generally a higher probability of response among more educationally prepared students, meaning our study is more applicable to these types of students. To our knowledge these data are the best available in the literature, and measured for a large, diverse, and timely sample.

Students in Illinois were a slight majority female and a large majority white. The largest minority ethnic groups were African American (11.8%), Latino (7.7%), and Asian American (5.0%), with 9.1% of students speaking a language other than English at home. Seven in ten students had married parents. Students who had earnings during high school (62.6%), other household members in college (31.7%), or who expected to receive financial aid in college (88.5%) might be more informed on financial matters.

Four in ten students did not have a parent who had earned any college degree, but the vast majority of students aspired to complete a bachelor's degree. Most intended to do so at a public university. Over half aspired to complete a master's degree or higher. Thirteen percent expected to begin college at a less-than-four-year institution. Students appeared to be academically prepared for college, as the majority passed college-ready benchmark scores for the ACT math, English, and reading tests (although not for the science test). About two-thirds of students had completed a college preparatory curriculum in high school. See Table 1 for further description of the sample.

We used longitudinal data on enrollment to assess the accuracy of their predictions about college. Of this sample, 86% enrolled in college, but far more enrolled at a community college than their plans indicated (41% versus 7% planned). After four years, the average student enrolled in college for 3.2 years. Forty percent earned some certificate or degree, and 28% earned four-year degrees. Overall, the picture of these students in their junior year of high school is one of ambition to attend and succeed in college, with help from financial aid.

[1] The Illinois State Board of Education provided the ACT data, the Illinois Student Assistance Commission provided the FAFSA reports, and the National Student Clearinghouse provided the enrollment and completion data. The Illinois Student Assistance Commission combined these data to create a research database.

High School Students' Knowledge of Their Parents' Income

Table 1
Characteristics of Students in the sample

	Mean
Baseline student characteristics (%)	
Male	44.5
Race/ethnicity	
White	63.9
African American	11.8
Latino	7.7
Asian American	5.0
Other race/ethnicity	11.7
Non-English language spoken at home	9.1
First-generation college student	38.5
Academic preparation (%)	
College-preparatory high school curriculum	64.1
College-ready by ACT subject	22.4
English	78.9
Reading	59.7
Math	53.2
Science	35.8
Academic plans (%)	
College type expected	
Career/vocational/other	5.5
Community college	7.3
Private four-year	17.6
Public four-year	69.7
Highest degree expected (%)	
Less than bachelor	8.8
Bachelor	38.9
Master's	21.9
Doctoral/professional	30.4
Pursuing major or vocation in science, technology, engineering, or mathematics	10.5
Household finances (%)	
Other household members in college	31.7
Parents filed 1040	85.8
Parents had investments	37.1
Parents married	71.0
Students had earnings on FAFSA	62.6
Expect to work during college	12.8
Expect financial aid	88.5

Sources: Illinois State Board of Education, Illinois Student Assistance Commission. Based on 47,770 student observations.

If students are accurate, then the distributions of income should be roughly similar regardless of the income measure. Figure 1 superimposes the two distributions through histograms. Clearly the ACT measure skewed more than the FAFSA measure, indicating that students overreported their family's income. The largest disparities in frequency between the ACT and FAFSA measures were in the two extreme categories of "$24,000 or less" (where there are far fewer ACT responses than FAFSA) and "more than $150,000" (where there are far more ACT responses than FAFSA).

These differences affected aggregate measures of financial need in the sample. A common measure of poverty among college students is eligibility for the need-based Pell Grant. However, using the ACT income categories alone, and estimates of how many students in each income category are typically Pell-eligible, we would conclude that 30% of students would be eligible for a Pell Grant. Using the Expected Family Contribution in our data, 38% of students would be eligible for a Pell Grant. Another measure of financial need commonly used in education research is eligibility for free or reduced-price lunch, which typically requires students to fall under 185% of the federal poverty guideline. Using household sizes from our data and the endpoints of each income category from the survey measure, 16% to 25% of students would be eligible for free or reduced-price lunch (U.S. Department of Health and Human Services, 2008); however, using parental AGI as the income measure from the FAFSA, 26% of students would be eligible.

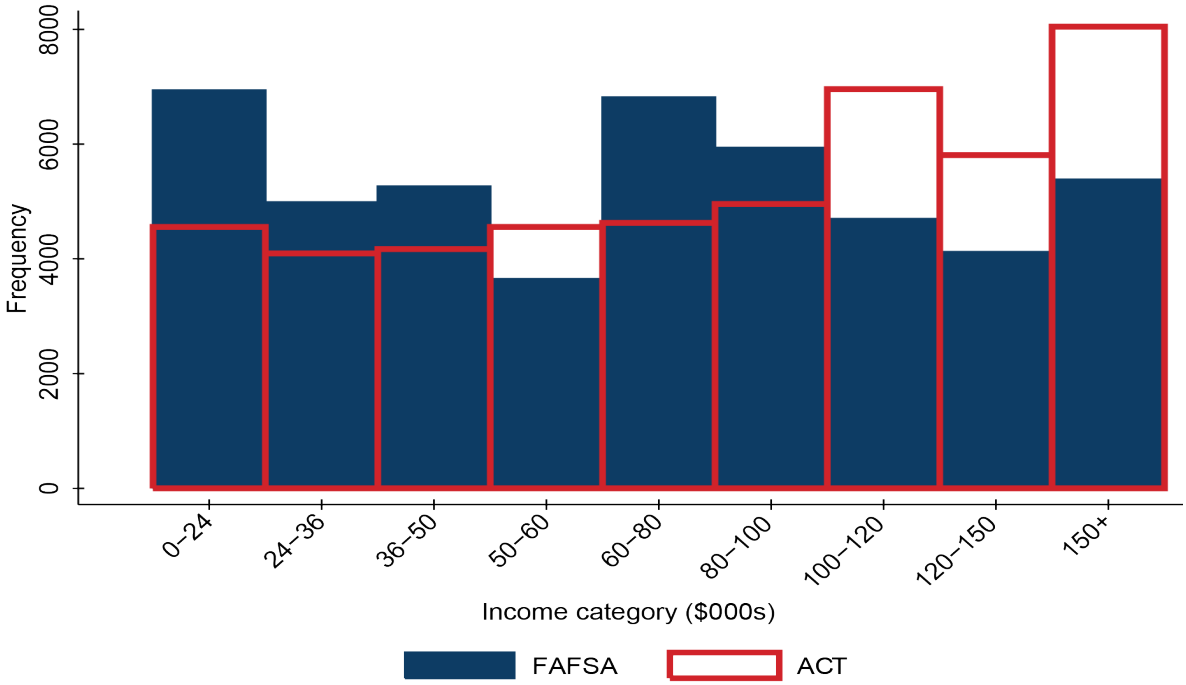


Figure 1. Histograms of income category from FAFSA and ACT sources.
Sources: Illinois State Board of Education, Illinois Student Assistance Commission.

We linked the survey and FAFSA measures within each student's record to show how misreporting varies across the income distribution. Figure 2 is a heat map using color to denote the frequency in each box of a nine-by-nine grid representing each combination of survey and FAFSA income categories. If all students were exactly correct about their parental income, the frequency would be concentrated on the diagonal from lower left to upper right, with less frequency off-diagonal. In these data, there was a clear concentration of students near the diagonal, indicating students made mostly small errors. Tracing the highest-frequency combinations did not produce a straight diagonal, but a curve skewed toward higher income answers on the survey than on the FAFSA. This curvature implies students tended to overreport parental income.

A different way to assess accuracy is to look at the spread of FAFSA income conditional on an ACT income category. If students were accurate, there should be very little spread outside the boundaries of the provided ACT response. Figures 3a - 3i show nine histograms. Each histogram was restricted to students who provided a particular ACT income response. The actual FAFSA measure of income in dollars is displayed in $5,000 bins. A zero income value was imputed for students who did not provide parental income on the FAFSA because their family received federal means-tested benefits. Behind the blue FAFSA frequencies are shaded red areas that represent the provided ACT response category and one adjacent category above and below.

The blue frequency distribution should fall entirely within the dark shaded red area if all students were correct. For example, the histogram in Figure 3b is based on students who said their parents earned $24,000 to $36,000. The modal bin was in fact $25,000 to $30,000, but much of the FAFSA income distribution lied below $24,000 and above $36,000. Often the modal FAFSA income was below the shaded area, indicating that of students who provided a given survey response, the most common actual income was below the survey response range. This is consistent with overreporting.

We did additional regression analysis to determine which student characteristics were associated with knowledge of parental income. We found higher accuracy among students who appeared better prepared academically and financially for college. Students with higher mathematics subscores and/or higher reading subscores on the ACT, and those who completed a core college preparatory curriculum were all more likely to choose the correct income range.

A strong predictor of accuracy was whether students reported they expected to receive financial aid for college. These students made fewer errors than the students who did not expect to receive financial aid but who ended up applying anyway. Conditional on student characteristics in high school, there was not a strong relationship between financial knowledge and later outcomes such as graduation rate.

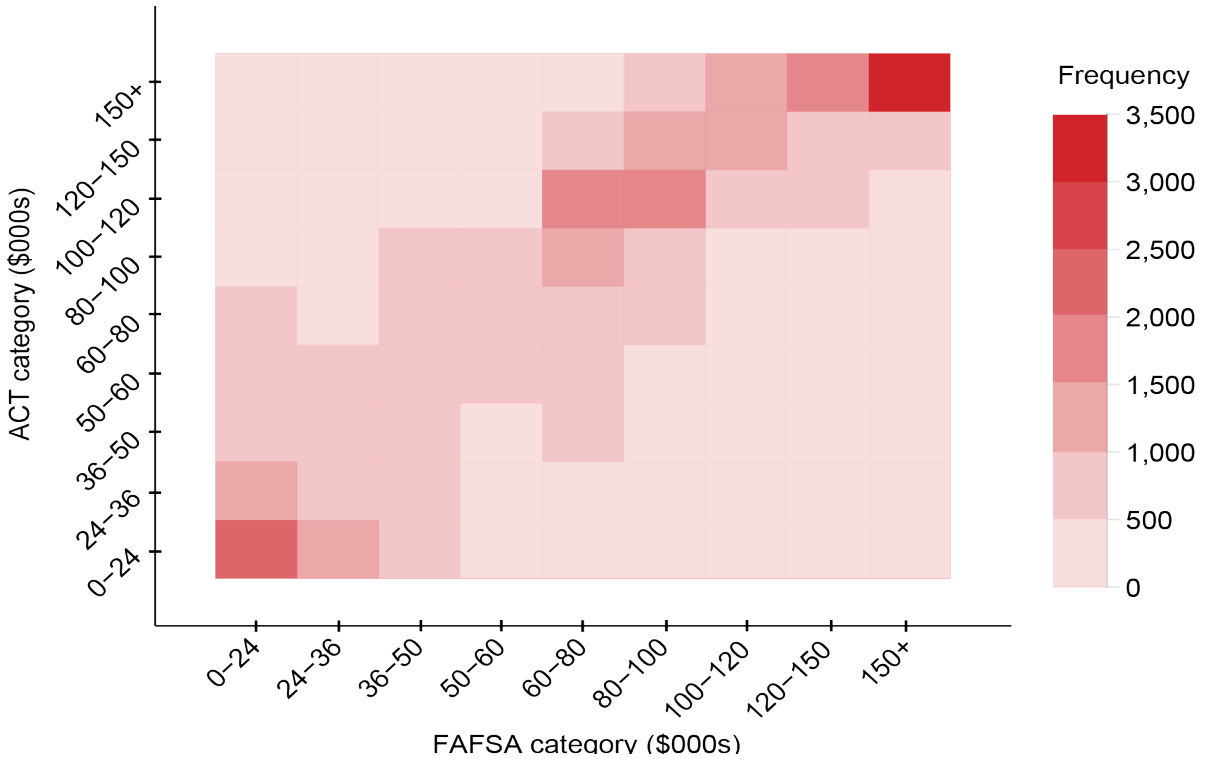
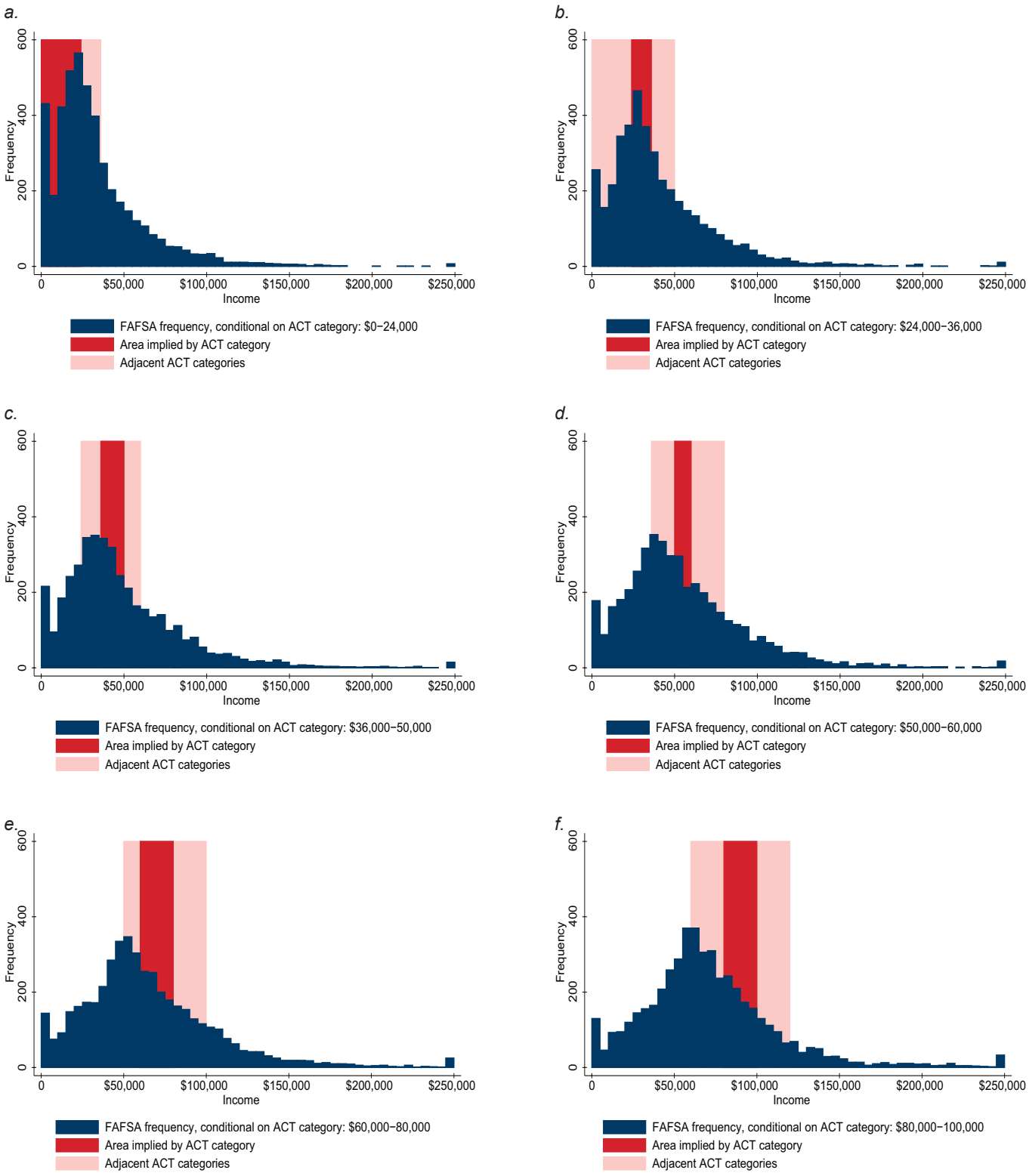


Figure 2. Heat map of income category, linking FAFSA and ACT sources.
Sources: Illinois State Board of Education, Illinois Student Assistance Commission.


a.
b.
c.
d.
e.
f.
Frequency
0
200
400
600
Income
$0
$50,000
$100,000
$150,000
$200,000
$250,000
FAFSA frequency, conditional on ACT category: $0–24,000
FAFSA frequency, conditional on ACT category: $24,000–36,000
FAFSA frequency, conditional on ACT category: $36,000–50,000
FAFSA frequency, conditional on ACT category: $50,000–60,000
FAFSA frequency, conditional on ACT category: $60,000–80,000
FAFSA frequency, conditional on ACT category: $80,000–100,000
Area implied by ACT category
Adjacent ACT categories

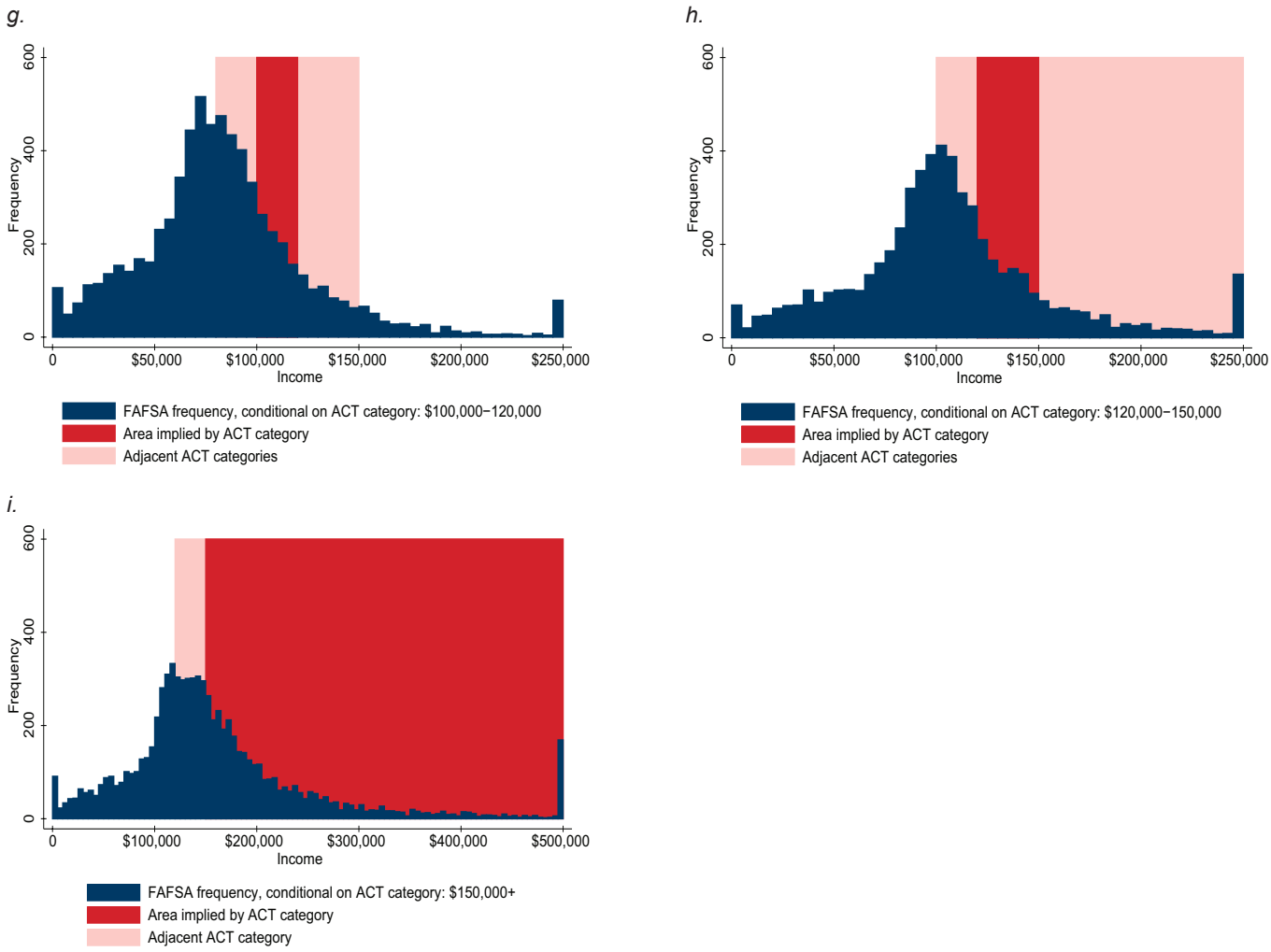


Figure 3. Histograms of income from FAFSA, conditional on ACT category. Sources for Figures 3a–3i: Illinois State Board of Education, Illinois Student Assistance Commission.

(Notes: for Figures 3a–3i: Each graph reports the frequency (in blue) of students with FAFSA income falling into bins that are $5,000 wide. Income frequencies above the maximum shown are pooled into the highest bin. If students were 100% correct on the ACT survey, then all observations would appear within the darker red shaded region.)

Summary

We found that 24% of the time students correctly chose the income range that actually contained their parental income from the nine income ranges provided on the survey. Choosing the correct category was the most common outcome, and an additional 31% of students were off by just one income range category above or below, meaning that more than half of the students were within roughly $30,000 dollars. This finding is encouraging, given other evidence about students' lack of financial literacy.

Among those students who were incorrect, they were twice as likely to overestimate as to underestimate parental income. This result was true for small errors and large errors, and for lower- as well as higher-income students. Overestimation could come from

several sources. Lacking direct knowledge of parental income, students may guess based on their family's consumption or housing. In the case of very low-income parents, consumption and housing could be supported by public benefit programs, and students may therefore assume parental income is higher than what would appear on the AGI. This may also be true for very high-wealth parents who own their homes. In general, consumption may be higher than current income for households who have access to credit. However, we did not find strong evidence for differences in overestimation by family income. Systematic overestimation could appear in these data even with students having accurate knowledge, if students counted parents outside their household in their survey responses, or if income decreased between the survey and the FAFSA.

Overestimating parental income can have two adverse consequences once students learn the accurate income at FAFSA filing time. On one hand, students may be surprised to find their parents can contribute less to their education than they expected, and they may be underprepared financially for college. On the other hand, students may be surprised to find the government or other sources have offered them more aid than they expected. This could have led them to invest less in preparing academically, thinking college would be unaffordable.

Discussion

Our data provide another example where self-reports of income may be inaccurate, a growing trend in household surveys (Meyer, Mok, & Sullivan, 2015). Because students tend to overreport parental income, research relying on student reports may understate rates of poverty and economic vulnerability.

Our data also shed light on the perceived problem of parents not talking to their children about money. In one national survey of parents and their children aged 8 to 14, 27% of parent respondents said it was not important to talk to children about family finances (T. Rowe Price, 2015). At the same time, 85% expected their child to go to college, but 37% said they rarely or never discussed financial planning for college with their child. Despite these deficits, we still found that many students can accurately state their parental income, and students who were inaccurate did not tend to have markedly worse outcomes. Studies of school-based interventions show promise (Stoddard & Urban, 2016), but less is known about encouraging within-family discussions of finances.

Because a college education remains vitally important, improving financial planning for college could be a worthy investment of time and resources.

Acknowledgments

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