

**The Costs of College Attendance:  
Examining Variation and Consistency in Institutional Living Cost  
Allowances\***

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**Abstract:** Discussions of college costs often focus on tuition and fees but living cost allowances for room, board and other expenses account for more than half of the total cost of attending college. The allowances, developed by colleges and universities, also affect student eligibility for federal financial aid and the accuracy of accountability systems. This paper examines institutional variation in living cost allowances and assesses the consistency of allowances by comparing them to living cost estimates specific to the college's region. Results across multiple specifications indicate that nearly half of all colleges provide living allowances at least 20% above or below estimated county-level living expenses.

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The high price of attending college is a significant concern for many American families, and both perceived and real difficulty paying for college impedes college attainment, especially for low and moderate-income students (e.g., Castleman & Long, 2016; Goldrick-Rab, 2016; Goldrick-Rab, Kelchen, Harris, & Benson, 2016). Policymakers across the country are working to reduce the price of college attendance with state-subsidized tuition and financial aid (e.g., Tennessee Promise, 2015; The White House, 2015). They are also trying to help families more accurately understand and prepare for the price they will have to pay for college degrees (e.g., U.S. Department of Education, n.d.).

Success in these efforts partly depends on institutional behavior in setting college prices. The federal government requires every college and university to state a sticker price, known as the institution's "Cost of Attendance" (COA). Tuition and fees are the most often discussed aspect of the price of higher education, but they constitute less than half of the COA across sectors of higher education, including just 30 percent at public community colleges and 40 percent at public 4-year colleges and universities (authors' calculations using data from the Integrated Postsecondary Education Data System). The remaining COA, according to federal law, includes the cost of books, supplies, and a living cost allowance designed to cover room, board, and other expenses such as transportation, entertainment, and cleaning supplies (Federal Student Aid, 2014a). All students pay this price, even when living off-campus or with family.

Since there is no single "true" price of college, the COA is an *estimate* and the living cost allowance drives much of that estimate. The method for producing that allowance is not standardized and given that devolution of responsibility, institutions employ different practices to

determine the COA. It is possible for this variation to contribute to inequities in where students attend and complete college by affecting perceived affordability, actual financial need, and student debt. While there are many studies on trends in tuition and fees and how these vary across institutions and regions (e.g. Archibald & Feldman, 2011; Reynolds, 2014) and several studies of the costs associated with textbooks (Cousteau, 2013; U.S. Government Accountability Office, 2013), we are not aware of any rigorous research examining how living cost allowances vary across colleges and universities. Moreover, there is very little available information on how consistent or inconsistent institutional estimates of the cost of living are with other measures available for their geographic area. This is, we believe, the first paper to examine the contours of this unstructured part of the American higher education financing system.

While in theory colleges and universities should seek to list a precise and consistent price, including an appropriate living cost estimate, there are many reasons why there might be variation and inconsistencies in practice within the same geographic area. For example, although financial aid offices may wish to conduct research to construct accurate estimates, they are often burdened with large student caseloads and meeting federal regulatory requirements (e.g., Goldrick-Rab, 2016; McKinney & Roberts, 2012). This means that living allowance estimates may be based on a convenience sample of students or may not be updated in response to changes in local housing prices. Colleges in the same geographic area may have different living allowances due to specific student populations or special missions that necessitate particular living circumstances, or constrained local housing conditions.

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Another explanation for variation in living allowances is that institutions may adjust their prices in response to specific incentives. Tuition and fees are difficult to adjust due to their visibility and because public institutions in most states share tuition-setting authority with coordinating boards and/or politicians, making tuition more difficult to manipulate (Carlson, 2013). A college that wishes to appear less expensive (for example because of state or federal accountability systems or public scrutiny) can instead reduce its living cost allowance. Media stories suggest that some institutions may have gamed accountability systems in this manner (Newman, 2014). Alternatively, since financial aid eligibility is usually capped by the cost of attendance, a lower living cost allowance is a way to limit the size of loans that students can borrow and the amount of unmet financial need they appear to have. For-profit colleges and universities and community colleges, both of which serve large numbers of economically disadvantaged students, face incentives to reduce their exposure to federal student loans in order to lessen the risk of facing sanctions due to high default rates (Federal Student Aid, 2014b).

Colleges may face incentives to increase their living allowances. For-profit colleges are required to receive at least 10% of total revenue from non-federal sources (through the ‘90/10 rule’), and thus may wish to increase the price *beyond* what students can borrow in federal loans. The former chairman of Corinthian Colleges, once one of the largest for-profit college chains, openly admitted increasing the COA to make sure students took out enough private loans to satisfy the 90/10 rule (Massimino, 2011). However, colleges must balance this concern against pressures to keep default rates at acceptable levels. A new pressure comes from a 2015 decision allowing college athletes to receive scholarships that include an allowance for miscellaneous

expenses such as transportation and laundry. This has led some colleges with athletics programs in major conferences to increase their COA as a recruitment strategy (New, 2015).

Students and families assess their ability to pay for college and plan for how to pay for it using the COA, or the derivative net price (defined as the COA less any grant aid received). As students often rule out colleges based on the sticker price (College Board and Art & Science Group, 2012; Rowan-Kenyon, Bell, & Perna, 2008), the introduction of misinformation (driven by inaccurate living costs) may reduce the likelihood of appropriate matches between students and schools. Moreover—and more importantly—since the list price constrains the amount of federal, state, and institutional financial aid a student can receive, consistency in pricing is a key aspect of college affordability. If a school understates the actual living costs in an area, students may receive less financial aid than needed to cover expenses, and face difficulties in paying for college (Goldrick-Rab, 2016). In turn, this could affect graduation rates, which are often a metric for how public institutions are assessed (Dougherty & Natow, 2015).

In what follows, we examine trends in reported living cost allowances by year, institutional sector, and reporting status (academic year versus individual program reporters). Then, we consider the amount of variation in reported living cost allowances among colleges by urbanicity. Finally, we examine the extent to which institutional living cost allowances are consistent with living cost estimates derived from county-level expenditure data. Heterogeneity in these estimates according to assumptions about students' housing situations is also examined. The paper concludes with a discussion of the implications of the findings for the perceived and actual affordability of American higher education.

### **Debates and Research on Undergraduate Living Costs**

The federal definition of what college costs has included living costs ever since the federal financial aid system began in 1965. Monthly subsistence payments for living costs were made to veterans in the original G.I Bill and continue today, in recognition that it is difficult to make ends meet while also spending time in class and studying (Goldrick-Rab, Schudde, & Stampen, 2014). In the 1940s, when veterans reported that the subsistence payments were inadequate, the government responded by increasing them (Mettler, 2005). Yet disagreements persist about whether or not living costs should be included as part of the costs of attending a particular college or university. While at least some living expenses would be incurred regardless of whether a student is enrolled in postsecondary education (Dynarski, 2000; Jackson & Pogue, 1983), the main contention is whether students should have access to federal, state, and institutional grant or loan aid to help cover those costs (Mitchell, 2014; Sheehy, 2013).

A central tension in this discussion is the extent to which living costs reflect actual local costs and the extent to which they are due to “personal lifestyle choices” that are nonessential for ensuring degree completion. What adjustments should be made for the specific circumstances of undergraduate life—for example, the need to devote as much time as possible to schooling rather than work or commuting? Is a “ramen diet,” in which students frequently eat inexpensive (and unhealthy) ramen noodles in an effort to save money an acceptable part of student life (e.g., Wilkinson, 2014), or should the healthy eating behaviors encouraged among younger students apply to undergraduates as well? Discussion of these conflicts are scattered throughout literature

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on college affordability, but are rarely directly examined or discussed (Goldrick-Rab, 2016; Goldrick-Rab & Kendall, 2014).

What is clearer is that unanticipated financial challenges can derail college plans, particularly for undergraduates from low- and moderate-income families (Broton, Frank, & Goldrick-Rab, 2014; Goldrick-Rab, 2016; Ziskin, Fischer, Torres, Pellicciotti, & Player-Sanders, 2014). When students run out of money from financial aid before the end of the academic term, they have to make difficult choices about whether they can continue their schooling (Ware, Weissman, & McDermott, 2013). When a car breaks down or a child needs medicine, they have to choose whether to continue allocating their limited resources towards their college education. The adequacy of living cost allowances, therefore, may matter most to students with fewer resources, who are also at greater risk of not completing college.

The responsibility for estimating living costs, and in this way controlling access to federal, state, institutional, and private financial aid dollars, is devolved to institutions. This authority most often resides with financial aid administrators, who typically report to directors of enrollment management and/or provosts. Federal rules provide flexibility in how financial aid administrators determine the COA, and allow for practices ranging from the use of student surveys and conversations with local landlords (Federal Student Aid, 2014a). While they receive some additional guidance through a handbook compiled by their professional organization, the National Association of Student Financial Aid Administrators (2014), these “frontline workers” exercise much authority and bureaucratic discretion in determining COA. While this can enhance effectiveness, for example by ensuring that local contexts and needs are considered, it also

creates the potential for harmful forms of inequity (Fording, Soss, & Schram, 2007; Soss, Fording, & Schram, 2011). It is important, therefore, to know how living cost allowances trend over time, how much variation there is across colleges and universities, and how consistent institutional estimates are, especially within college markets.

### **Guides and Principles for Cost of Attendance Estimation**

The Federal Student Aid Handbook for 2014-2015, which is published by the U.S. Department of Education to guide financial aid administrators, simply states, “There are a variety of methods to arrive at average costs for your students: periodic surveys of your student population, assessing local housing costs or other pertinent data, or otherwise use reasonable methods you may devise which generate accurate average costs for various student cohorts” (Federal Student Aid, 2014a, p. 3-35). While the aim is clearly for the aid administrator to utilize a representative sample of the student body, the technical and financial capacities of the financial aid office often dictate actual practice.

NASFAA has a monograph titled “Developing the Cost of Attendance” to help financial aid administrators create reasonable student budgets with a “modest but adequate” standard of living for students while taking regional variations in living expenses into account (NASFAA, 2014, p. 2). The NASFAA guidance states that an aid administrator should be consistent across student populations and must document the process of developing a standard COA, along with documentation of any adjustments to COA made on a case-by-case basis using professional judgment. There is a clear attempt to ensure that the estimates apply to the average student:

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“The COA should reflect typical expenses encountered by students in general, and research is usually conducted using a representative sample of the entire student body. As a general rule, COAs are developed separately for groups of students facing similar types of expenditures. This recognizes the diversity of the student population, reduces possible anomalies in COAs, and assists the financial aid administrator by reducing the number of students for whom exceptional expenses must be documented (p. 3).”

The guidance for the housing portion of COA is “based on reasonable expenses for the student” (NASFAA, 2014, p. 6). It is up to financial aid administrators at individual campuses to determine whether housing costs should be based on living alone or with roommates. In addition, the allowance for meals “should provide for reasonable costs essential to provide a nutritionally adequate diet for the student” (NASFAA, 2014, p. 6).

The U.S. Department of Education does not have any rules for how living costs are determined, leaving control of those methods to individual institutions. NASFAA (2014) recommends the use of state or regional living cost surveys, data from the Bureau of Labor Statistics, and information from professional financial aid associations, but does not specify particular surveys or data sets.<sup>1</sup> NASFAA (2014, p. 3) states the administrator “can decide whether the information is sufficient to construct reasonable costs of attendance or if the institution must conduct new research or a survey.” NASFAA suggests numerous ways to compile data, including student surveys and interviews, budget logs, and conversations with off-campus partners such as landlords and social service agencies. NASFAA’s reference list also

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includes information for two studies of student expense budgets published in the 1970s (Bowman, 1975; 1976).

Thus, guidance given to aid administrators prioritizes the reports of students who participate in surveys over standardized information. It further recommends the validation of student-reported information by unnamed local sources. It also conflates necessary expenditures with reported costs. If students are under-resourced and thus eliminating key expenses, for example by reducing food intake, surveys of expenditures will under-estimate actual costs. If they are living in unnecessarily luxurious circumstances, expenditures will be over-stated. The collection of both accurate cost and accurate expenditure information is notoriously difficult and error-prone (Zhen, Taylor, Muth, & Leitbag, 2009) and female, higher-achieving, and higher-income students are more likely to respond to surveys (Laguilles, Williams, & Saunders, 2011; Porter & Whitcomb, 2005), which could mean that the sample results do not generalize to the full student body. Yet financial aid administrators are not required to possess any special training or engage consultants for this work that is added to their already demanding workloads.

Living cost allowances vary according to where students reside during school. More specifically, institutions report to the federal government the allowances for room and board based on whether a student lives on-campus or off-campus away from their family, and may also report a separate allowance if the student resides with his or her parents.<sup>2</sup> Students with unusual circumstances may also receive what is known as a professional judgment, in which the financial aid administrator can adjust living allowances at the request of the student if circumstances warrant. The potential range of costs incurred by students in seemingly similar off-campus living

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situations receives little attention. This may generate additional variation across colleges as the range of available housing options expands, particularly where driven by the privatization of the student housing market (e.g., Eligon, 2013).

Financial aid administrators receive little guidance regarding whether they should assume students living off-campus live with roommates in an effort to lower costs. Prior to December 2014, the official guidance provided by NASFAA made no mention of roommates. However, NASFAA (2014, p. 6) added language stating that aid administrators “often assume that a single student will share costs if he or she lives off-campus, but may have separate allowances for married students or students with dependents because the opportunity to share with another student is reduced.” This raises the possibility that colleges in similar geographic areas may have different living allowances either due to assumptions made by financial aid administrators or due to different characteristics of their student bodies.

Another potential concern with institutional living allowance estimates is that they are sometimes made at the system level instead of the institutional level, implicitly assuming that living costs are the same for colleges located hundreds of miles away from each other. For example, all community colleges in Indiana and Kentucky and each of the Pennsylvania State University campuses (including their World Campus) had the same estimated room and board allowance for off-campus students in 2013-14. Some of the largest for-profit chains, such as ITT Technical Institute, and the University of Phoenix, also had the same allowances across all of their campuses regardless of local living costs. This approach can result in some campuses of a

particular college having higher allowances than necessary, while others end up with insufficient allowances.

The result of colleges' autonomy in setting off-campus living allowances can be seen in Figures 1 and 2, which shows the variation in living allowances within small portions of two urban counties in the 2013-14 academic year. Figure 1 shows reported living allowances for the Loop portion of Chicago, where all of the colleges are within approximately three miles of each other. Living allowances within this region alone varied from \$8,307 at the Illinois Center for Broadcasting to \$23,227 at East-West University. Robert Morris University-Illinois and National Louis University are located within four blocks of each other, but the living allowances were \$10,017 and \$21,240, respectively. The same general story is true in downtown Philadelphia (Figure 2), where allowances varied from \$7,790 at Peirce College to \$18,365 at Drexel University. Drexel is about one-half of a mile from Penn, yet Penn's living allowance of \$14,720 is \$3,645 less than Drexel's. As of 2014, the neighborhoods in which the two universities are located both had median rent values of \$1.46 per square foot (Dent, 2014), suggesting there is no reason to expect such a large variation in living allowances between the two universities.

### **Data, Methods, and Sample**

We began by examining the listed living allowances for off-campus students living away from their family in the 2013-14 academic year. We then estimated county-level living costs based on government and third-party data using different assumptions about living with a roommate and explored the differences between our estimates and reported allowances. Finally,

we conducted a series of regressions to examine whether student demographic and institutional characteristics were associated with differences between our estimated and reported allowances. The following section contains details on our data, methods, and sample.

### **Data and Methods**

Data on cost of attendance components came from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) for the 2013-14 academic year. We focused on the living allowance component of the COA for students living off campus away from their family, which consists of a room and board allowance and a category of other or miscellaneous expenses to cover transportation, entertainment, and personal care expenditures. The total cost of attendance also includes tuition and fees as well as a textbook allowance, but we excluded textbooks from our analysis since there is little reason to expect textbook costs to systemically vary across counties.

In order to compare institutional living cost allowances to a consistently-determined benchmark for local living expenses, we modeled our approach on the MIT Living Wage Calculator (Glasmeier & Arete, 2014). This calculator provides county-level estimates of how much money is needed to meet basic necessities based on data compiled by federal agencies and nationally representative datasets compiled by private sources. Unlike the federal poverty metric, it includes estimates of transportation, health insurance premiums, and personal care expenses in addition to food and housing; however, the estimates are minimal enough to include purchasing one set of clothing per year instead of separate clothing for summer and winter (Smith, 2014). In addition, we excluded allowances for taxes, direct healthcare expenses such as co-pays and

deductibles, and childcare that are included in the MIT Living Wage Calculator. To ensure comparability to the institutional data, we employed living expense data that would have been available for building the living cost allowance budget for the 2013-14 academic year. Details about the data sources and definitions used to estimate living allowances and information regarding the guidance that financial aid administrators receive (NASFAA, 2014) are contained in Table 1.

Data on housing expenses are drawn from the U.S. Department of Housing and Urban Development 50<sup>th</sup> Percentile Rents calculated for FY 2012. Since guidance given to financial aid administrators does not specify whether students should be assumed to live with a roommate (NASFAA, 2014), we used three different scenarios with different assumptions in order to estimate housing expenses:

- Scenario 1: students live alone in a zero-bedroom (efficiency) apartment.
- Scenario 2: students share a two-bedroom apartment with one roommate and evenly divide the cost of rent.
- Scenario 3: students age 24 or younger live with a roommate in a two-bedroom apartment and students age 25 or older live in an efficiency apartment. We estimate this “age-adjusted housing expense” by taking an age-weighted average of the roommate and no roommate estimates. Data from the 2011-12 National Postsecondary Student Aid Study show that 66% of all undergraduate students over the age of 25 are either married or have children, compared to just 11% of undergraduates age 24 or younger. For that reason—and because all students

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considered as independent from their parent(s) for financial aid purposes after reaching age 24—we used this as our cutoff.

While 60% of four-year public and private nonprofit colleges had at least three-fourths of their undergraduates under age 25, less than 10% of two-year and for-profit colleges predominately served ‘traditional’ students (Table 2). Age-adjusted living allowances are therefore higher for community colleges and for-profit institutions, as an efficiency apartment is more expensive than a shared two-bedroom apartment.

Costs for food were derived from the U. S. Department of Agriculture Food Plans: Cost of Food for June 2012. The low-cost plan for men ages 19-50 of \$234 per month was averaged with the low-cost plan for women ages 19-50 of \$203 a month to arrive at a cost of \$218 per month. The 2013 County Cost of Living Index (COLI) from the Council for Community and Economic Research was used to adjust this figure to account for regional differences. These two components added together represent the county-based estimate for room and board costs comparable to what institutions report in IPEDS.

Costs for transportation, health care, and miscellaneous expenses together comprised the estimate for expenses other than room and board. Costs for transportation were taken from the 2012 Bureau of Labor Statistics Consumer Expenditure (CE) Survey for individuals under 25 years old (Table 1300). The CE survey estimated that the average expense for public transportation among all individuals is \$291 per year, but because this amount includes a majority of individuals who do not use public transportation, it significantly underestimates actual costs using public transportation as a principal means of commuting. Thus, the cost of

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operation and maintenance costs of a car were used to estimate transportation costs for off-campus students, but costs for capital outlay, and depreciation were not included. These amounts were \$1,931 per year (\$161 per month) for gasoline and motor oil and \$1,322 per year (\$110 per month) for other expenses such as financing, maintenance and repairs, and license fees.

Health care costs were estimated based on average per person costs for health insurance premiums by state in 2010 as compiled by the Kaiser Family Foundation. For the states for which data were unavailable (Alaska, Kansas, Nevada, Ohio, Oklahoma, and Texas) the national average of \$215 was used but adjusted using the county-level COLI in those states only; estimates in other states were not adjusted using the COLI. Costs for actual out-of-pocket medical expenses were not included in estimates. State and federal health care exchanges may provide better sources for regional data going forward, but these would not have been available when 2013-14 cost of attendance budgets were constructed by institutions and so were not integrated into estimates. Costs for miscellaneous items were also taken from the Consumer Expenditure Survey for 2012 for individuals under 25 years old. Included in this category were personal care products and services at \$372 per year (\$31 per month), \$249 per year (\$21 per month) for fees and admissions, and \$360 per year (\$30 per month) for miscellaneous expenses. These amounts totaled to \$981 annually or \$82 per month.

After compiling the three different living cost estimates (all students living alone, all students having a roommate, and the age-adjusted estimated detailed above), we compared those estimates to the college's reported living allowance for the 2013-14 academic year. For the 38% of colleges in our sample (primarily certificate-granting and for-profit institutions) that reported

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living allowances for the length of the largest program of study instead of on an academic year basis, we converted the living allowance to a nine-month basis by dividing the living allowance by the listed length of the program and multiplying by nine. We then examined the percentage of colleges by sector and level that had allowances at least 20 percent above our estimates, 10-20 percent above our estimates, within ten percent of our estimates, 10-20 percent above our estimates. We conducted two robustness checks, by creating categories for colleges at least 30 percent above or below our estimates and dropping colleges in counties that contained large cities. Neither of these substantially changed our results, and tables are available upon request from the corresponding author.

Finally, we conducted a series of regressions exploring whether the differences between colleges' reported living allowances and our estimates are related to student demographic, institutional, or local characteristics as measured in the 2012-13 academic year. For each of our three estimates (assuming no roommates, assuming a roommate, and the age-adjusted estimate), we ran two regressions. The first regression examined the percentage difference between our estimates and the reported allowances. In the second regression, we used the absolute value of the percentage difference to explore whether certain characteristics are associated with large variations from our estimates regardless of the direction of the difference.

The student demographic factors in our model included the percentage of Pell Grant recipients, race/ethnicity, gender, and age from IPEDS and logged family income for independent and dependent students from the College Scorecard. The institutional characteristics, all from IPEDS, consisted of the logged number of full-time equivalent

undergraduates, control and level, logged tuition and fees, and whether colleges reported living allowances on an academic year basis or for their largest program. Finally, county-level measures included urbanicity (from IPEDS), unemployment rates, and the percentage of residents living in poverty (from the Census Bureau). As a robustness check, we also ran a separate model for four-year colleges that included six-year graduation rates as a covariate. As this was not significant at  $p < .05$  in any of our specifications, the results are not shown here but are available upon request from the corresponding author.

### **Sample**

We began with the 6,604 colleges that reported living allowances for students living off campus away from their family to IPEDS in the 2013-14 academic year. This omitted 107 highly-selective colleges that had all students living on campus during their first year (and thus did not report an off-campus living allowance), as well as 232 colleges with incomplete information on living allowances. We then excluded 346 colleges (primarily branch campuses of large for-profit chains) for not reporting information on the age distribution of their students to IPEDS. This results in an analytic sample of 6,258 colleges for our comparisons of reported and estimated living allowances. For our regressions exploring whether student demographic or institutional factors affect variation between reported and estimated allowances, we excluded an additional 265 colleges without information on all covariates. This yielded a final sample of 5,993 colleges.

### **Limitations**

Our approach has some limitations. Data were generally unavailable for Puerto Rico, U.S. Territories, and Outlying Areas and therefore estimates were not generated for these areas and these institutions were not included in the sample. While use of counties as the principal geographic unit for estimating cost of living expenses is superior to using MSAs, costs for living expenses are not uniform across counties. This means a COA budget that represents the median or average for a “typical” student might still be insufficient to account for personal circumstances. Housing values and rental prices often vary considerably based on proximity to campus (Des Rosiers & Theriault, 1995; Kashian & Rockwell, 2013), with substantial variation within several blocks of campus. Conversely, in larger rural western counties where housing expenses may be more uniform, transportation costs could vary significantly based on the distance between students’ places of residence and their institutions. However, the most granular data available are at the county level, and so that is what we employed.

## **Results**

### **Variation by Urbanicity**

Given the wide range of areas in which institutions of higher education are located across the nation, some of the variation in living cost allowances likely reflects geographic differences. In 2013, the living cost allowances reported by institutions in large cities were about \$500-\$1,000 above the allowances reported in smaller cities and suburbs and \$2,100 higher than the typical allowance in rural areas. Similar gaps were present at each percentile in the distribution (Table 3).

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Estimated living expenses at the median college were highest in suburban areas, with estimated 9-month expenses of \$14,247 for no roommate and \$11,993 assuming a roommate. Median expenses were similar in large cities, but \$2,000-\$3,000 lower in rural areas. Housing costs made up about half of the estimated living expense, with food, transportation, health care, and miscellaneous expenses combining to contribute about \$7,000 toward the living expense; these non-housing categories vary relatively little by urbanicity.

But there is striking variation in living cost allowances reported by institutions *within* the same urbanicity. The difference between the 25<sup>th</sup> percentile and the 75<sup>th</sup> percentile for reported total nine-month living costs for off-campus students not living with family was \$4,000-\$5,000 – an amount that exceeds the total published charges for most community colleges. While actual living costs within these geographies may well be variable, this magnitude of variation—especially among institutions with lower allowances—may lead students to face vastly different resource constraints depending on how their institution computes the allowance.

### **Estimated Living Costs vs. Living Cost Allowances**

We next examined variation in the consistency of living allowances across multiple assumptions regarding student housing (Table 4). When comparing institutional living allowances to our estimated expenses for students living alone (Scenario 1), we find that 34% of colleges' allowances were at least 20% below the estimates while only 12% of colleges provided allowances at least 20% above the estimates. The distribution of actual allowances versus estimated expenses shifts when students are assumed to have a roommate. Under that Scenario

(2), 28% of colleges had living allowances at least 20% above the estimates compared to 20% of colleges being at least 20% below the estimates.

Under Scenario 3, which made different assumptions based on student age, a similar percentage of colleges had living allowances that are 20% above (20%) and 20% below (25%) the estimates. This means that nearly half of all colleges provided living allowances outside our estimates of how much money students need to live modestly while in college. Public four-year colleges and universities are more likely provide allowances above the estimate (29% of colleges were 20% above the estimate), while nearly 30% of for-profit colleges provided allowances at least 20% below the estimates. There is, in other words, a great deal of inconsistency.

We next turn to the results of regressions exploring whether student demographic, institutional, and county-level characteristics are associated with differences between reported living allowances and our estimated allowances. Across each of the three regressions exploring the percentage difference in allowances (Table 5), we found that these characteristics together explained a small amount of the variation in the differences in our estimates as R-squared values ranged from 0.047 to 0.066. These findings indicate colleges set their living allowances in ways that are only somewhat related to the types of students or communities they serve and suggest a substantial amount of unwanted variation in the process of setting allowances.

Yet some of the individual characteristics were statistically significant across the models, suggesting that colleges set their living allowances in part based on the types of students they serve. Higher institutional percentages of Asian, black, and Hispanic students were generally associated with lower reported living allowances relative to our estimates, while colleges with

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larger shares of women and Native American students had higher allowances. On the other hand, colleges with higher family incomes among dependent students had higher allowances, although there was no relationship between the percent of Pell recipients and the differences between reported and estimated living allowances. Together, these suggest the possibility of colleges giving larger allowances when more students are white, female, or high-income, which would be consistent with the types of students who are more likely to respond to surveys.

Some institutional and county-level characteristics are also associated with differences in living allowances. Private nonprofit colleges had lower allowances than public colleges after controlling for other factors, while for-profit colleges were not significantly different from public colleges. The highest degree offering was not associated with the difference between estimated and reported living allowances, nor was whether colleges reported on an academic year or largest program basis. Colleges located in large cities or suburbs had lower allowances than colleges located in smaller cities, and higher county poverty rates were strongly related to higher living allowances. This potentially suggests that some colleges have higher allowances in an attempt to help needy students finance college.

We next examined whether the same characteristics discussed above were associated with the absolute value of the difference in living allowances (Table 6). Across each of the three models, a higher percentage of Pell recipients was associated with greater amounts of variation in living allowances. This could potentially reflect institutional resources available to help set living allowances, as lesser-resourced colleges may not be able to conduct surveys to get accurate allowances. Race/ethnicity, gender, and family income are not consistently significant,

while they were in the first set of regressions. Larger colleges had less variation in their reported allowances compared to our estimates, which is not surprising given their level of resources. On the other hand, private nonprofit colleges and certificate-granting institutions had more variation. Finally, county-level measures are not significant across all of the three models, although county poverty rates are positively associated with more variation in two of three models. These models have slightly higher R-squared values, but are still between 0.069 and 0.077 across all three specifications.

### **Discussion**

There is risk created by the devolution of responsibility for constructing living cost allowances from the federal government to colleges and universities that face competing incentives. Using an array of different assumptions, we find that nearly half of all colleges provide living allowances that differ by at least 20% from estimated actual costs of living. Four-year institutions tend to provide allowances closer to the estimates, while certificate-granting institutions have much larger variations in living allowances. This finding, along with our regressions showing larger deviations for smaller and certificate-granting colleges, indicates that the capacity to set accurate living allowances may be limited at colleges with limited resources.

At least 13% of all colleges (under Scenario 1, the specification generating the highest living allowances) provided living allowances more than 20% above the estimates. Although some institutions with apparently high living allowances may be accurate because the estimates do not reflect within-county variations, our findings that lower percentages of minority students

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and higher average family incomes were associated with somewhat higher reported living allowances also raise concerns about equity. If more advantaged students are allowed to borrow more money to cover their personal lifestyle choices than similarly-qualified low-income students because of the college they attend, this can affect the types of experiences that students can have while in college. The difference in experiences has the potential to reproduce inequality in higher education (e.g., Armstrong & Hamilton, 2013) as well as potentially affecting low-income students' access to colleges with higher living allowances due to concerns about high sticker prices.

On the other hand, at least 20% of colleges across all estimates provide living allowances at least 20% below what we estimate is necessary for a very modest standard of living even when assuming a roommate. When students do not have sufficient resources with which to cover their living costs, they are more likely to take on additional work hours or make compromises that affect their school work—such as forgoing books and other supplies, or skipping meals (Broton, Frank, & Goldrick-Rab, 2014; Goldrick-Rab, 2016). This may, in turn, inhibit the odds of accumulating credits in a timely manner, potentially affecting degree completion (Darolia, 2014).

These low allowances could be a result of student surveys administered by under-resourced and overburdened financial aid offices, or they could be an intentional decision by some colleges to reduce living allowances in order to reduce borrowing, spread out the distribution of financial aid, or achieve other goals. In our regression models, we found that some student demographic characteristics and institutional characteristics were associated with larger variations between our estimated living allowances and the allowances reported by colleges, but

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we cannot definitively say whether these relationships are a result of unintentional or intentional decisions. Further research is needed to explore whether colleges are behaving strategically when setting living allowances, as well as the extent to which allowances are influenced by street-level bureaucrats such as financial aid officers (e.g., Weatherley & Lipsky, 1977) compared to higher-level administrators or even trustees. A particular point of interest is how frequently administrators overrule financial aid officers' requests to change living allowances.

Ongoing federal efforts to enhance institutional accountability, such as the College Affordability Lists (HEOA, 2008) and the newly released College Scorecard tool, prominently feature net price. Net prices are also used by numerous private-sector organizations in developing college rankings, which can help drive colleges' actions (e.g., Bastedo & Bowman, 2011). Since living costs are a principal, and in some cases the largest, component of net price, and because these living costs are unevenly determined, however, caution must be exercised when utilizing and interpreting institutional net prices. Given the wide and unexplained variation in cost of living expenses discussed here, it may be unwise to use net price as an accountability measure. Beyond the reliability and validity issues with the measure, net price is subject to manipulation with little risk for exposure. Further, it may be unreasonable to hold colleges and universities accountable for increases in cost of living expenses that are outside their control, and in many instances dwarf the actual charges to students.

Instead, the U.S. Department of Education should convene a working group in order to develop a consistent method of determining living costs that accounts for regional and local variation and student circumstances (such as dependency status) but eliminates or at least

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minimizes differences between institutions in close proximity to one another. Lessons from the administration of other social programs should be utilized; for example the Department of Housing and Urban Development has experience establishing fair market rents and the Department of Defense has experience with the Basic Housing Allowance provided to service members (U.S. Department of Defense, 2014). In the meantime, the Department of Education could provide clearer and more definitive guidance to institutions so they can make more uniform calculations. This guidance could include 1) language for survey questions, sampling, and administration procedures, 2) reference to particular federal and other resources for determining costs, 3) instructions for benchmarking against institutions in the same geographic area, and 4) instructions for setting off-campus costs as a function of on-campus costs. Such guidance should be aimed to even out costs within geographic areas and place institutions and students on a level playing field.

<sup>1</sup> The College Board (n.d.) uses BLS data to issue tables of “low and moderate-expense living budgets” updated on an annual basis for 24 metropolitan statistical areas (MSAs), but this approach is of limited use because MSAs often include ten or more counties with disparate living costs and do not cover less-urbanized parts of the country.

<sup>2</sup> Colleges are allowed to set a room and board allowance of zero dollars for students living with their families—and this allowance is not collected by the U.S. Department of Education to be included in official cost of attendance (or net price) estimates. This is in spite of evidence that students from low-income families who live at home often financially contribute to their household while in college (e.g., Kinsley, 2014).

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**Table 1: Living Allowance Components within Cost of Attendance: Guidance to Colleges and Data Sources Used.**

COA component	Guidance to colleges (NASFAA, 2014)	Our components and sources
<p>Room and board  (off-campus, away from family)</p>	<p>"The housing component of a budget is constructed based on reasonable expenses for the student. However, FAAs often assume that a single student will share costs if he or she lives off-campus, but may have separate allowances for married students or students with dependents because the opportunity to share with another student is reduced...room costs include items such as rent, insurance, internet access and utilities. Board includes meal expenses, which also vary based on the student's place of residence. The allowance should provide for reasonable costs essential to provide a nutritionally adequate diet for the student."</p>	<p>Room: US Department of Housing and Urban Development 50th percentile rents, based on 0- and 2-bedroom apartments</p> <p>Food: US Department of Agriculture low-cost food plan, adjusted by County Cost of Living Index</p>
<p>Transportation</p>	<p>"The transportation allowance may include the cost of travel between the student's residence and the institution, and travel necessary to complete a course of study. Costs may vary because of the student's place of permanent residence, the student's place of residence while in school, and the availability of public transit services. If public transportation is not available, the standard transportation allowance may include the costs of operating and maintaining a car (for example, gas, oil, license, insurance, and repair). Mileage allowances set by the institution for staff travel or by the federal government for income tax purposes can serve as a guide for FAAs."</p>	<p>Operation and maintenance of a car: Consumer Expenditure Survey for adults under age 25 (Bureau of Labor Statistics)</p> <p>Note: Public transportation expenses not available on a systemic basis across counties</p>
<p>Health insurance</p>	<p>"The school's standard COA may include a health insurance fee charged by the school to all students or a broad category of students and not paid directly to an insurance company. This is true even if that fee is "passed through" to an insurance company or is later waived by the school on a case-by-case basis because the student proves that he or she is otherwise insured."</p>	<p>Average state-level health insurance premiums: Kaiser Family Foundation</p> <p>Note: National average used for six states with missing data</p>
<p>Miscellaneous personal expenses</p>	<p>"The allowance for miscellaneous personal expenses includes clothing, laundry and cleaning, personal hygiene and grooming, and recreation. FAAs may rely on institutional surveys or governmental data for guidance in determining reasonable levels of expense. This allowance is intended to enable the student to live at a reasonable standard."</p>	<p>Personal care products and services, entertainment fees and admissions, and miscellaneous expenses: Consumer Expenditure Survey for adults under age 25</p>

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### NOTES:

- (a) Tuition/fees and allowances for books and supplies are included in the COA, but not examined in this paper.
- (b) Students living off-campus with their parents do not receive an allowance for room and board. Students living on-campus do get a room and board allowance, but that is not examined in this paper.

**Table 2: Percentage of Undergraduates Age 24 or Younger by Institutional Sector and Control, Fall 2011.**

Sector (pct of colleges)	Percent age 24 or younger				Avg pct under 24	N
	75-100	50-75	25-50	0-25		
<b>4-year or above</b>	<b>46.9</b>	<b>22.8</b>	<b>19.1</b>	<b>11.2</b>	<b>65.2</b>	<b>2,425</b>
Public	60.5	33.5	5.4	0.5	76.5	626
Private nonprofit	62.6	20.4	11.7	5.3	74.9	1,175
For-profit	3.7	16.3	46.8	33.2	35.5	624
<b>2-year</b>	<b>8.6</b>	<b>53.4</b>	<b>34.1</b>	<b>3.8</b>	<b>54.0</b>	<b>2,084</b>
Public	6.8	73.4	19.2	0.7	59.0	1,018
Private nonprofit	19.7	26.2	45.1	9.0	51.2	122
For-profit	9.2	35.4	48.8	6.6	49.0	944
<b>Less than 2-year</b>	<b>6.6</b>	<b>44.1</b>	<b>40.3</b>	<b>9.0</b>	<b>49.9</b>	<b>1,749</b>
Public	11.4	16.3	55.1	17.1	43.6	245
Private nonprofit	1.7	15.0	58.3	25.0	36.4	60
For-profit	6.0	50.0	37.0	7.0	51.6	1,444
<b>Grand Total</b>	<b>22.9</b>	<b>38.9</b>	<b>30.0</b>	<b>8.1</b>	<b>57.2</b>	<b>6,258</b>

SOURCE: Integrated Postsecondary Education Data System (IPEDS).

NOTES:

(a) Colleges are only required to submit age data in odd-numbered years.

(b) This excludes a small percentage of students with unknown ages.

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**Table 3: Reported and Estimated Living Cost Allowances (over 9 months) for Off-Campus Students Not Living with Family, by Urbanicity, 2013-14.**

	Large city	Midsize/ small city	Suburban	Town or rural
<u>Total living allowance--reported</u>				
25th pctile	11,080	10,206	10,593	8,900
50th pctile	13,154	12,170	12,434	10,951
75th pctile	15,435	14,400	14,842	13,000
<u>Total cost of living--estimated</u>				
No roommate				
25th pctile	12,843	11,781	12,618	10,638
50th pctile	14,022	12,546	14,247	11,277
75th pctile	17,766	14,373	16,497	12,231
With roommate				
25th pctile	11,052	10,197	10,922	9,387
50th pctile	11,943	10,791	11,943	9,896
75th pctile	14,922	12,231	14,351	10,593
Housing--no roommate				
25th pctile	7,461	6,732	7,299	5,724
50th pctile	8,469	7,470	8,694	6,219
75th pctile	12,105	8,712	10,359	7,065
Housing--with roommate				
25th pctile	5,733	5,175	5,625	4,518
50th pctile	6,440	5,639	6,480	4,820
75th pctile	9,261	6,557	7,637	5,373
Food				
25th pctile	2,061	1,944	2,034	1,845
50th pctile	2,205	2,052	2,151	1,926
75th pctile	2,637	2,196	2,412	2,025
Transportation				
25th pctile	2,556	2,421	2,529	2,295
50th pctile	2,745	2,547	2,673	2,394
75th pctile	3,276	2,727	2,997	2,511
Health care				
25th pctile	1,809	1,710	1,746	1,809
50th pctile	1,962	1,863	1,926	1,863
75th pctile	2,169	2,025	2,169	2,025
Miscellaneous				
25th pctile	774	729	765	693
50th pctile	828	774	810	720
75th pctile	990	828	909	756
Number of colleges	1,401	1,565	1,919	1,373
Number of counties	77	395	416	976

SOURCE: Integrated Postsecondary Education Data System (institutional living cost allowances); U.S.

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Department of Housing and Urban Development, U.S. Department of Agriculture, County Cost of Living Index, Consumer Expenditure Survey, Kaiser Family Foundation (estimated expenses).

### NOTES:

- (a) The categories of urbanicity are defined by the Census Bureau and included in IPEDS.
- (b) Values reported are at the college level, not the county level.
- (c) Some cities in Virginia are classified as counties in our analyses.

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**Table 4: Institutional Living Cost Allowances (over 9 months) for Off-Campus Students Compared to County-Level Living Cost Estimates, by Institution Sector and Control.**

Institutional living cost allowance vs. estimated expenses						
Sector (pct of colleges)	Above by 20+ pct	Above by 10-20 pct	Within 10 pct	Below by 10-20 pct	Below by 20+ pct	N
<u>Scenario 1: Assuming no roommate for all students.</u>						
<b>4-year or above</b>	<b>10.0</b>	<b>7.6</b>	<b>34.6</b>	<b>17.9</b>	<b>29.9</b>	<b>2,425</b>
Public	12.9	12.3	41.1	16.8	16.9	626
Private nonprofit	10.1	6.2	30.7	16.9	36.1	1,175
For-profit	6.7	5.6	35.4	21.2	31.1	624
<b>2-year</b>	<b>11.8</b>	<b>7.4</b>	<b>29.8</b>	<b>17.5</b>	<b>33.6</b>	<b>2,084</b>
Public	9.2	7.3	29.3	19.7	34.5	1,018
Private nonprofit	14.8	8.2	27.0	17.2	32.8	122
For-profit	14.1	7.4	30.6	15.1	32.7	944
<b>Less than 2-year</b>	<b>16.2</b>	<b>8.9</b>	<b>20.4</b>	<b>14.0</b>	<b>40.7</b>	<b>1,749</b>
Public	16.7	6.5	17.6	13.5	45.7	245
Private nonprofit	6.7	0.0	23.3	20.0	50.0	60
For-profit	16.5	9.6	20.7	13.8	39.4	1,444
<b>Grand Total</b>	<b>12.3</b>	<b>7.9</b>	<b>29.0</b>	<b>16.7</b>	<b>34.1</b>	<b>6,258</b>
<u>Scenario 2: Assuming a roommate for all students.</u>						
<b>4-year or above</b>	<b>26.1</b>	<b>16.1</b>	<b>32.5</b>	<b>9.6</b>	<b>15.6</b>	<b>2,425</b>
Public	35.9	19.8	31.8	7.7	4.8	626
Private nonprofit	24.2	13.8	29.9	11.7	20.5	1,175
For-profit	20.0	16.7	38.3	7.9	17.1	624
<b>2-year</b>	<b>27.1</b>	<b>12.0</b>	<b>32.1</b>	<b>10.4</b>	<b>18.3</b>	<b>2,084</b>
Public	23.7	12.1	34.4	11.3	18.6	1,018
Private nonprofit	35.2	9.0	26.2	13.9	15.6	122
For-profit	29.8	12.4	30.5	8.9	18.4	944
<b>Less than 2-year</b>	<b>31.9</b>	<b>8.5</b>	<b>23.3</b>	<b>8.3</b>	<b>27.9</b>	<b>1,749</b>
Public	26.9	7.8	21.6	9.8	33.9	245
Private nonprofit	18.3	9.3	31.7	13.3	28.3	60
For-profit	33.3	8.7	23.3	7.9	26.9	1,444
<b>Grand Total</b>	<b>28.1</b>	<b>12.6</b>	<b>29.8</b>	<b>9.5</b>	<b>19.9</b>	<b>6,258</b>

## RUNNING HEAD: THE COSTS OF COLLEGE ATTENDANCE

**Table 4 (continued).**

Institutional living cost allowance vs. estimated expenses						
Sector (pct of colleges)	Above by 20+ pct	Above by 10-20 pct	Within 10 pct	Below by 10-20 pct	Below by 20+ pct	N
<u>Scenario 3: Age-adjusted estimates (assuming roommate for students age 24 or under).</u>						
<b>4-year or above</b>	<b>18.6</b>	<b>13.5</b>	<b>36.0</b>	<b>12.4</b>	<b>19.5</b>	<b>2,425</b>
Public	28.6	19.8	34.7	10.5	6.4	626
Private nonprofit	18.0	12.9	33.3	12.4	23.3	1,175
For-profit	9.6	8.3	42.5	14.3	25.3	624
<b>2-year</b>	<b>17.5</b>	<b>11.6</b>	<b>32.6</b>	<b>14.3</b>	<b>23.9</b>	<b>2,084</b>
Public	15.6	11.2	34.0	15.3	23.9	1,018
Private nonprofit	21.3	15.6	24.6	18.0	20.5	122
For-profit	19.1	11.5	32.1	12.8	24.5	944
<b>Less than 2-year</b>	<b>23.7</b>	<b>8.4</b>	<b>22.8</b>	<b>11.3</b>	<b>33.8</b>	<b>1,749</b>
Public	20.0	7.8	20.4	10.6	41.2	245
Private nonprofit	6.7	10.0	21.7	21.7	40.0	60
For-profit	25.1	8.4	23.2	10.9	32.3	1,444
<b>Grand Total</b>	<b>19.7</b>	<b>11.5</b>	<b>31.2</b>	<b>12.7</b>	<b>25.0</b>	<b>6,258</b>

SOURCE: Integrated Postsecondary Education Data System (institutional living cost allowances); U.S. Department of Housing and Urban Development, U.S. Department of Agriculture, County Cost of Living Index, Consumer Expenditure Survey, Kaiser Family Foundation (estimated expenses).

NOTES:

(a) Data used to estimate living expenses are from 2012, while age data are from fall 2011.

(b) Housing costs for no roommates are based on a zero-bedroom (efficiency) apartment, while housing costs for having a roommate are based on splitting a two-bedroom apartment.

(c) The age-adjusted estimates are produced by assuming students age 24 or under have a roommate and students age 25 or older live alone and then weighting the estimates.

RUNNING HEAD: THE COSTS OF COLLEGE ATTENDANCE

**Table 5: Regression results explaining the percentage difference between colleges' reported living allowances and our estimated allowances.**

Variable	Assuming no roommate		Assuming a roommate		Age-adjusted housing mix	
	Coeff.	(SE)	Coeff.	(SE)	Coeff.	(SE)
Pct Pell	0.027	(0.030)	0.009	(0.034)	0.021	(0.032)
Pct female	0.096***	(0.019)	0.108***	(0.021)	0.102***	(0.020)
Pct Native American	0.108*	(0.058)	0.120*	(0.063)	0.115*	(0.061)
Pct Asian	-0.350***	(0.051)	-0.362***	(0.055)	-0.345***	(0.052)
Pct black	-0.085***	(0.027)	-0.042	(0.030)	-0.067**	(0.029)
Pct Hispanic	-0.106***	(0.033)	-0.079*	(0.040)	-0.095***	(0.036)
Pct under age 24	-0.038	(0.027)	-0.034	(0.031)	0.110***	(0.029)
FTE undergraduates (log)	0.008**	(0.004)	0.009**	(0.004)	0.009**	(0.004)
Dependent family income (log)	0.042**	(0.019)	0.048**	(0.022)	0.046**	(0.020)
Independent family income (log)	-0.005	(0.013)	0.000	(0.015)	-0.003	(0.014)
For-profit	0.001	(0.019)	0.008	(0.022)	0.003	(0.020)
Private nonprofit	-0.043**	(0.019)	-0.044**	(0.021)	-0.046**	(0.020)
Tuition and fees (log)	0.005	(0.011)	0.004	(0.012)	0.004	(0.012)
Four-year	0.015	(0.012)	0.016	(0.014)	0.018	(0.013)
Certificate-granting	0.002	(0.015)	0.008	(0.018)	0.007	(0.016)
Program reporter	0.003	(0.017)	-0.001	(0.019)	0.003	(0.018)
County unemployment (pct)	-0.500*	(0.292)	-0.346	(0.334)	-0.403	(0.313)
County poverty (pct)	0.913***	(0.123)	0.982***	(0.136)	0.956***	(0.129)
Location: big city	-0.031*	(0.019)	-0.036*	(0.020)	-0.032*	(0.019)
Location: suburban	-0.034***	(0.012)	-0.036***	(0.013)	-0.035***	(0.012)
Location: rural	-0.009	(0.013)	-0.022	(0.014)	-0.017	(0.013)
R-squared value	0.058		0.047		0.066	
Number of colleges	5,993		5,993		5,993	
Number of counties	1,413		1,413		1,413	

Sources: College Scorecard (family income), Census Bureau (unemployment and poverty rates), IPEDS (all others).

Notes:

(a) \* represents  $p < .10$ , \*\* represents  $p < .05$ , and \*\*\* represents  $p < .01$ .

(b) Standard errors are clustered at the county level.

(c) Coefficients reflect a one-unit change in the variables (for binary variables, from 0% to 100%).

**Table 6: Regression results explaining the absolute value of the percentage difference between colleges' reported living allowances and our estimated allowances.**

Variable	Assuming no roommate		Assuming a roommate		Age-adjusted housing mix	
	Coeff.	(SE)	Coeff.	(SE)	Coeff.	(SE)
Pct Pell	0.054***	(0.020)	0.061***	(0.020)	0.055***	(0.020)
Pct female	0.019	(0.013)	0.077***	(0.013)	0.047***	(0.013)
Pct Native American	-0.070*	(0.038)	-0.061	(0.043)	-0.069*	(0.039)
Pct Asian	0.124***	(0.043)	-0.107**	(0.043)	0.030	(0.043)
Pct black	0.020	(0.016)	-0.004	(0.017)	0.009	(0.016)
Pct Hispanic	-0.010	(0.020)	-0.067***	(0.026)	-0.043**	(0.021)
Pct under age 24	0.069***	(0.018)	0.044**	(0.019)	0.066***	(0.019)
FTE undergraduates (log)	-0.020***	(0.003)	-0.017***	(0.003)	-0.019***	(0.003)
Dependent family income (log)	-0.011	(0.012)	-0.004	(0.012)	-0.004	(0.011)
Independent family income (log)	0.002	(0.009)	0.008	(0.009)	0.003	(0.009)
For-profit	-0.008	(0.012)	0.000	(0.014)	-0.006	(0.013)
Private nonprofit	0.034***	(0.012)	0.027*	(0.014)	0.024*	(0.013)
Tuition and fees (log)	-0.019***	(0.007)	-0.020***	(0.008)	-0.023***	(0.007)
Four-year	-0.008	(0.008)	0.005	(0.009)	0.005	(0.009)
Certificate-granting	0.030***	(0.010)	0.046***	(0.012)	0.042***	(0.011)
Program reporter	0.007	(0.011)	0.003	(0.012)	0.013	(0.011)
County unemployment (pct)	-0.137	(0.164)	-0.275	(0.193)	-0.238	(0.159)
County poverty (pct)	-0.095	(0.071)	0.394***	(0.077)	0.193***	(0.070)
Location: big city	0.014	(0.010)	-0.008	(0.009)	0.001	(0.008)
Location: suburban	0.016**	(0.017)	-0.003	(0.008)	0.005	(0.007)
Location: rural	0.001	(0.008)	-0.010	(0.009)	0.001	(0.008)
R-squared value	0.069		0.077		0.072	
Number of colleges	5,993		5,993		5,993	
Number of counties	1,413		1,413		1,413	

Sources: College Scorecard (family income), Census Bureau (unemployment and poverty rates), IPEDS (all others).

Notes:

(a) \* represents  $p < .10$ , \*\* represents  $p < .05$ , and \*\*\* represents  $p < .01$ .

(b) Standard errors are clustered at the county level.

(c) Coefficients reflect a one-unit change in the variables (for binary variables, from 0% to 100%).

Figure 1: Living allowances, Chicago Loop.

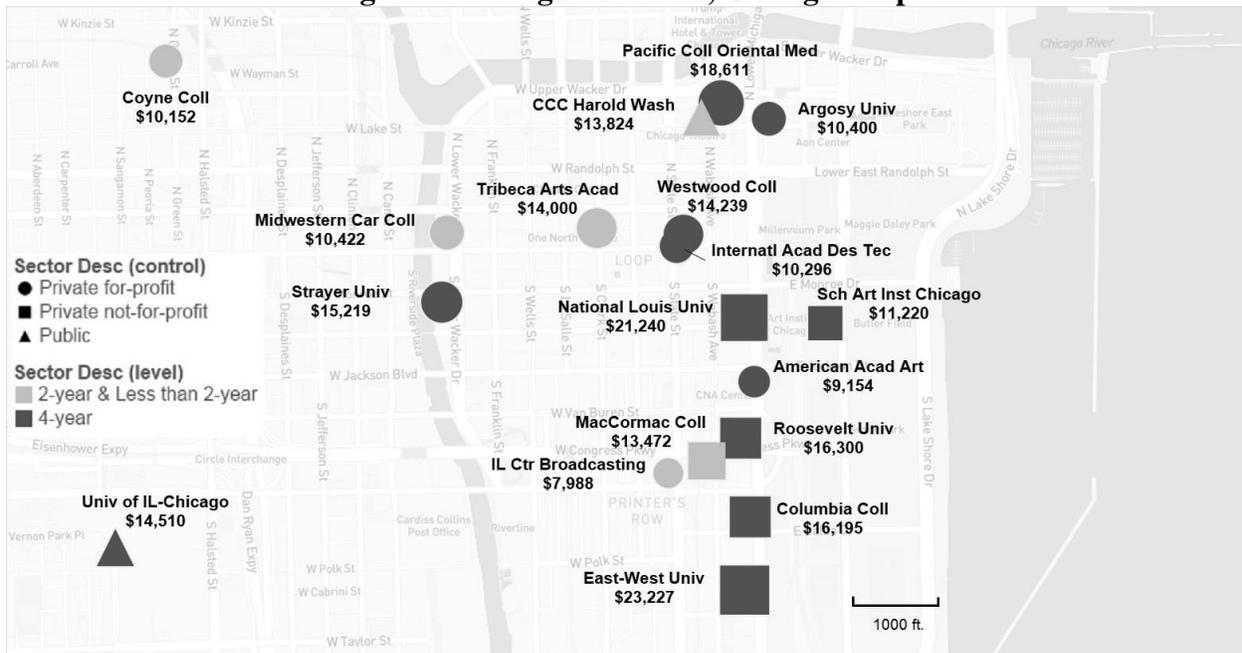


Figure 2: Living allowances, Center City Philadelphia.

