

---

# External Factors Affecting Room and Board Rates: How Much Influence Does the Housing Director Have?

John H. Schuh  
Mack C. Shelley, II  
IOWA STATE UNIVERSITY

---

## INTRODUCTION

The cost of attending college is an issue that has appeared frequently in contemporary literature (Choy & Premo, 1996; Stringer, Cunningham, Merisotis Wellman, & O'Brien, 1999; The Institute for Higher Education Policy, The Ford Foundation, & The Education Resources Institute, 1999). College costs have increased faster than median family income (Stringer, Cunningham, O'Brien, & Merisotis, 1998), and many students and their parents have underestimated the actual cost of attendance. An important element in determining the total cost of attendance is the amount students pay for room and board if they choose to live on-campus. Many experts recommend an on-campus living experience as a way to enrich a student's education (KUH, Douglas, Lund, & Ramin Gyurnek, 1994; Pascarella & Terenzini, 1991; Schuh, 1999).

A variety of reports have been released in recent years that carefully examine the cost of attending college, particularly as these costs ultimately are manifested in student debt (The Institute for Higher Education Policy, Sallie Mae Education Institute, & The Education Resources Institute, 1998). Campaigne and Hossler (1998

p. 100) speculate that "It is possible that students and parents have reached a threshold on the amount of debt they are willing to

assume to attend private, or even out-of-state public, colleges and universities. The essence of many contemporary publications is that colleges need to control costs more effectively than they have in the past (Fossey, 1998). Moreover, in the minds of some, institutions of higher education raise all the money they can, and then spend all they raise (Bowen, 1996).

At some public institutions of higher education (for example, the Universities of Florida, Massachusetts at Amherst, Illinois at Urbana-Champaign, New Mexico, and Oregon), the cost of housing is greater than the cost of tuition. In these cases, it would seem that one of the ways to control the cost of attendance would be to limit room and board increases, or perhaps even cut the cost of student housing. Lenington (1996), for example, recommends that pricing for on-campus room and board be competitive with the local off-campus housing market as well as with costs at peer institutions.

If a strategy to limit the cost of attendance would be to reduce the cost of living on campus, then the most logical question would focus on the extent to which the housing director can influence room and board rates. It might appear that housing directors have great flexibility in determining the cost of room and board, because they can influence services and activities provided by the housing department. They can develop residence life staffing patterns, decide when to undertake renovation projects, negotiate the extent of maintenance and housekeeping services, determine funding for activities and programs, and hopefully have an impact on the value added education of living on campus. Although the housing director may determine these areas of expenditures, other factors that are beyond the control of the housing director also may influence housing rates. Accordingly, the essence of this study is to ascertain empirically, using national comparative data across many types of public higher education institutions, which variables—both those controllable to some degree by housing directors and those to which they must adjust—successfully predict room and board rates.

The purpose of this study was to examine the extent to which room and board rates are influenced by factors outside the operational control of the housing director. A number of factors were identified in the Integrated Postsecondary Education Data System (IPEDS) that theoretically could have an influence on room and board rates, yet are

completely outside the control of the housing director. If the extent of the influence of these factors could be determined, then the housing director may be in a stronger position to explain to important internal and

external stakeholders why room and board rates are at current levels, and what is likely to happen to such rates in the future. Additionally, an understanding of how external factors affect room and board rates would provide for a more informed discussion of why room and board rates are higher or lower at some colleges or universities when compared with their peers.

The variables selected for this study included the following: (a) geographic region of the country using criteria defined by the National Center for Education Statistics; (b) urbanicity (a measure of the size of the community in which the institution is located); (c) in-state tuition and fee charges; (d) Carnegie institutional classification, and (e) number of meals served. Statistical models were developed to determine what a housing director might want to know about how these variables would affect room and board costs. The analysis of covariance (see, for example, Agresti & Finlay, 1997, chap. 13) statistical procedures employed here are designed to combine categorical predictors (e.g., Carnegie classification) and continuous predictors (such as in-state tuition and fee charges) in a mix of analysis of variance and regression methods.

## METHOD

Quantitative methods were used in this study. This approach is "concerned with the collection and analysis of data in numeric form" (Blaxter, Hughes, & Tight, 1996, p. 60). "Attempts are made to discover principles and laws which can be [generalized] to the larger population" (Taylor, 2000, p. 69).

## Data Sources

The data source for this study was the room and board rate information provided by 319 public colleges and universities to the National Center for Education Statistics (NCES) by completing the Institutional Characteristics Survey for the 1999 Survey Year. All institutions that participate in Title IV financial aid programs are required by law (20 U.S.C. 7j) to complete this survey (National Center for Education Statistics, 1999). In effect, all public

institutions that offer student housing participated in this survey.

No data were collected from private institutions, because only older data were available from these institutions. The most current data available for private institutions are for Survey Year 1997, which was deemed too old

for the purposes of this study.

## Instrumentation

Institutions provide information to the NCES annually. One of the surveys used to collect these data is the Institutional Characteristics Survey (ICS). The specific questions on the ICS related to room and board ask institutions to report the maximum number of meals per week that are offered if the institution provides a meal plan, the charge for that meal plan, and the charge for a double occupancy room. If the institution did not separate the room and board charge, it was asked to report the combined cost.

## Data Collection

Data were collected from the IPEDS relational database, which is available through the World Wide Web at [www.nces.gov / ipeds](http://www.nces.gov/ipeds). IPEDS is available to anyone wishing to gain access to the databases under its rubric. The year of analysis included in this study was 1999, the most recent year available at the time the study was conducted.

## Data Analysis

Data, after being collected from IPEDS, were downloaded into an EXCEL file and then copied in SPSS data format. Measures of central tendency were calculated for the data. Analysis of covariance was conducted to provide answers to the questions the study sought to answer. For the dependent variable of room and board rates, analysis of covariance is appropriate when the predictor variables include a combination of categorical main effects and continuous covariates, as is the case for these data. Appropriate statistics were provided by the SPSS analysis (using Windows SPSS version 1.0.0) to add richness to the study.

The dependent variable in this study was the combined room and board rate reported by each institution, using the IPEDS definitions

cited above. Two categorical independent variables were included in the model: (a) the institution's geographic region, defined using the IPEDS system for determining geographic regions, and (b) the institution's Carnegie classification using the system in place at the time the data were collected (the Carnegie classification system has changed since then). The interaction between these two variables also was examined to

**TABLE 1**  
CROSS-TABULATION OF NUMBER OF  
PARTICIPATING INSTITUTIONS  
(MODIFIED  
CARNEGIE TYPE BY REGION)

Region	Bachelor's	Master's	Doctoral
New England	5	14	6
Mid East	6	32	
Great Lakes	2	14	12
Plains	9	24	18
Southeast	19	53	
Southwest	4		6
Rocky		6	
Mountains	5	16	
Far West			

ascertain whether there is additional explanation to be gained from combining geographic region and institutional research quality to see whether the combination heightens the explanatory power of either main effect separately. Two continuous covariates also were included in the model: (a) the tuition and fees charged by the institution in the survey year that room and board rates were reported, and (b) the institution's level of urbanicity, which was defined as the size of the city/town in which the institution was located, again using IPEDS definitions. The model measures the relationships between room and board rates and each of the main effects and covariates. We were able to separate the effects of each of these four components of the model and to assess their combined contribution to explaining variation across institutions in room and board rates.

The following research questions addressed in this article are answered by the statistical analysis:

1 . Do room and board rates differ significantly across geographic region? For

example, are rates significantly higher for institutions in the Northeast than in the South?

2. Are room and board rates affected significantly by Carnegie classification, which is widely used as a general measure of the institution's commitment to externally funded research activity?

3. Does the combination of Carnegie classification and region provide any further differentiation among institutions' room and board rates? For example, do institutions with the highest "Doctoral" Carnegie rating in the Northeast have significantly higher room and board rates on average than lowest-rated Carnegie (Bachelor's) institutions in the South?

4. What is the connection between what students pay for tuition and fees and what they are charged for room and board? Specifically, do higher tuition and fee expenses tend to be offset by lower charges for room and board, or are institutions that have more expensive tuition and fees also likely to charge students more for room and board?

5. Are room and board rates likely to be higher for institutions that are located in urban areas than for those situated in locales that are more rural?

6. Is there a relationship between the number of meals offered and the total room and board rate, or between the number of meals and the board rate charged by institutions included in this study?

RESULTS

Table depicts the Carnegie classification and geographic location of the participating institutions. Carnegie types were combined so that all cells were filled for all combinations of region and Carnegie classification to make it possible to estimate interaction effects between region and Carnegie level. Before merging Carnegie categories, some combinations of Carnegie classification and region contained no institutions from the IPEDS data set. Thus, recoding was essential to make it possible to determine whether there was a significant difference in room and board rates across combinations of Carnegie institution type and region. This situation is similar to that of a crosstabulation table in which no observations exist for various combinations of

the row and column variables; in that case it is common practice to combine categories to eliminate that problem and make it possible to estimate

TABLE 2  
SUMMARY OF RESULTS FROM ANALYSIS  
OF COVARIANCE FOR EFFECTS OF  
COVARIATES  
(TUITION AND URBANICITY) ON ROOM  
AND  
BOARD RATES

Covariate	B	Beta	Error t value
Tuition	1 7815	17946	055
Urbanicity	-126.00826	- 21 2238	25.1 68 -5.007*

< .001

TABLE 3  
SUMMARY OF RESULTS FROM ANALYSIS  
OF COVARIANCE FOR MAIN EFFECTS  
OF  
CARNEGIE CLASSIFICATION AND REGION  
ON ROOM AND BOARD RATES

Source		Partial F	Eta Squared	Power
Carnegie	2	7.74*	.048	.048
Classification	7	24.55*	.359	1.00
Region				
	.562			
Adjusted r <sup>2</sup>	.546			

< .001

relationships that otherwise could not be determined properly (Shavelson, 1996). Bachelor's I and Bachelor's II institutions were recoded to form the category "Bachelor's." A similar approach was taken to combine Master's I and Master's II institutions, resulting in a "Master's" category. Doctoral I, Doctoral II, Research I, and Research II institutions were combined to form a "Doctoral" category.

The covariates for this study were tuition and fees, and urbanicity. In the analysis of covariance model, as depicted in Table 2, both covariates were significant, as shown by the large t values and small p values. The t value for urbanicity is reported as a negative number. Interpretation of this result depends on the fact that the values assigned for urbanicity in the IPEDS data set ranged from 1 (the largest urban area) to 8 (the most rural, or least Urban). The results indicate that institutions located in less urbanized areas, on average, have lower room and board charges. The B statistic, which is the unstandardized regression coefficient, provides some particularly useful information. For tuition, B = .17815. This means that, on average, for every additional dollar of tuition charged by an institution, room and board increased by 17.815 cents. For urbanicity, B = -126.00826. This means that for every urban category below the level of most urbanized, room and board is reduced on average by \$126.01. For example, institutions located in urban category 4, room and board charges on average would be \$378.03 (or 3 x \$126.01) less than for institutions located in the largest urban areas, in category 1. For students and parents this provides a benchmark that can be helpful in determining what institutional location would be optimal to attend. For housing directors, this provides a benchmark against which they can compare their own institution's rates to determine whether they are competitive with comparable institutions.

The analysis of covariance model also included Carnegie classification and region of the country as categorical main effects. Table 3 summarizes the results of that portion of the statistical analysis. There are significant differences in mean room and board rates by Carnegie classification (F = 7.74, p < .001). The analysis of the effect of geographic region generated an F ratio of 24.55, significant at the p < .001 level; this demonstrates that there are significant differences in room and board rates across regions. Geographic region itself does not cause these differences; one cannot manipulate geography or deliberately move an institution easily to a new region. What is measured here, instead, is the difference in cost of services and materials available in different areas of the United States that are manifested in the local costs of institutions remaining fixed in their geographic location.

The R-squared statistic indicates the proportion of the variance in room and board rates across institutions that is explained by the model, including both covariates and main effects. The value of r-squared for this model was .562, meaning that over half the variance in room and board rates can be explained by this model. The adjusted r-squared value of .546 indicates that the model is quite efficient, with all its components making a significant contribution to the model. The values of Eta squared make it clear that region makes a much stronger contribution to the model than Carnegie classification.

The correlation between the number of meals offered and the total room and board rate was estimated using a Pearson product moment correlation coefficient. The result of this analysis ( $r = -.108$ ) indicated a weak relationship at a probability level less rigorous than .05 (i.e.,  $p > .05$ ). The conclusion of this analysis is that no relationship was found between room and board rates and the maximum number of meals offered. Similarly, the relationship was computed between the number of meals offered and board charges. The findings were the same as the analysis of the relationship between total room and board charges and meals offered. No relationship existed between the two variables at an acceptable ( $p < .05$ ) level of significance. Accordingly, the number of meals offered was not incorporated into the analysis of covariance model.

## DISCUSSION

In analyzing the findings of this study, the data appear to be consistent with what might make intuitive sense. Doctoral institutions, for example, often are more complex than institutions that offer bachelor's degrees or master's degrees at the highest level. They place a stronger emphasis on research and advanced graduate education, typically hire faculty with strong research interests who require substantial resources for their work, and have a more extensive physical plant. In short, they are more expensive to operate and tend to recruit students who find this environment attractive. They charge higher tuition rates, and, as the model shows, higher tuition rates are significantly related to room and board rates. As a consequence, the total cost of attendance is higher at doctoral

institutions than it might be if these institutions had a different mission or offered no degrees beyond a master's or bachelor's degree. Students who are willing to pay higher tuition charges may be willing to pay higher room and board rates to attend these types of institutions. Nevertheless, this finding can be useful to housing directors who are pressed to explain why room and board rates are higher at doctoral institutions than at institutions that do not award doctoral degrees.

The effects of geographic region and city size also influence room and board rates. Presumably, these can be tied to labor costs. Labor costs are higher in larger urban areas than they are in small towns, and similarly, they are higher in some regions of the country than others (Bureau of Labor Statistics, 2000). The cost of labor permeates an entire housing operation, from residence life professionals, to maintenance staff, to food service providers. The hourly wage rate paid to student employees, for example, will vary depending on geographic region and the size of the city in which the institution is located. Housing operations do not function in a vacuum. They need to compete with employment opportunities off campus. If the wage rates off campus are higher than the minimum wage, then the housing operation needs to pay the premium or risk not having enough staff to provide needed services.

The lack of relationship between the number of meals offered and the cost of room and board, or board only, may not be surprising when one

<sup>1</sup> considers that the analysis focuses on the number of meals only. No analysis of the type of meals, the menus offered, the variety of food provided, the number of different board plans, or the quality of food can be provided using the database available. As a consequence, additional study might be undertaken to provide a more sophisticated analysis of the relationship between the number of meals served and room and board rates.

## CONCLUSIONS

As suggested in the introduction to this study, colleges and universities are under increasing pressures to justify their costs to students.

Significant among the costs to students are charges for room and board, which often can be greater than tuition and fee charges at public colleges and universities. If institutions were to control student costs, then presumably one place to look would be room and board charges. This report, however, suggests that over half the variance in room and board charges between institutions is explained by factors that are completely out of the hands of the housing department. In fact, of the four factors included in the model described in this report, three institutional traits are virtually impossible to change: the institution's geographic region, the size of the city/town in which the institution is located, and its Carnegie classification. Institutions do control their tuition and fee charges to a large extent, but typically those decisions are made without consultation with the housing director, and may be arrived at due to academic financial considerations independent of room and board charges, and perhaps at a different time of the academic year.

The value of this study for housing directors is that it provides solid evidence that they have limited control over room and board rates. This concept may not be well understood by other members of the college community, including housing staff members themselves, prospective and current students, their parents, and other stakeholders. When asked to reduce rates, or to limit the rate of growth in room and board charges, the influence of the housing director is quite limited. When one adds factors such as debt service, utility costs, and the price of commodities required by a housing operation (consumable maintenance supplies, raw food, and so on), the housing director's influence on room and board rates is reduced even further.

Although housing staff can determine the kinds of services to provide (e.g., the hours of meal service, or whether or not to provide cable television access), the fact is that external factors exert a powerful influence on room and board rates. The position of the authors is that this concept is not well known in most campus communities, potentially resulting in unrealistic requests imposed on housing directors to make economic changes that are not possible. The authors recommend that housing directors provide the information identified in this study to relevant stakeholders

in order to develop a broader understanding of the subtleties and nuances that affect room and board rates.

## LIMITATIONS AND RECOMMENDATIONS FOR FURTHER STUDY

This study looked at room and board rates for just one survey year: 1999. It is possible that this year was an anomaly, and that a longitudinal study would yield different results. Thus, one recommendation for further study would be to conduct a similar analysis extended over several years.

This study included all public institutions that offer a room and board program; no claims can be made about private institutions. Although they have the same presenting characteristics, the findings cannot be extended to them. Private institutions were not included in this study, because the most current data available about them were from 1997. As data that are more current become available, a similar study could be conducted focused on private institutions.

Other factors outside the control of the housing officer also may have an influence on room and board rates. Among these are utility costs, debt service, and institutional overhead charges. These data are not collected through the various IPEDS studies. An inquiry examining the effect of these variables on room and board rates would have to be conducted using alternative methods, such as contacting institutions directly.

This study looked only at institutions that provided room and board. Institutions that did not report either a room plan, or a board plan, were eliminated. A study including these institutions might have yielded different results.

The room rate used in the survey was for a traditional double room. This study, therefore, did not include other forms of student housing, such as suites or apartments. No claims can be made about the effects of the external factors on this form of student housing.

If one is interested in learning more about how room and board rates are determined at individual campuses, the use of qualitative methods through case methodology WOULD provide an attractive option. In-depth analysis of how rates are determined, the processes used to secure stakeholder input, and the

challenges presented in setting room and board rates would be useful. Qualitative methods often provide depth on a particular topic that quantitative methods cannot (Merriam, 1998).

As was suggested above, the relationship between the number of meals served and room and board rates yielded statistically nonsignificant findings. Because this study did not look at the qualitative dimensions of food service, an opportunity for further study emerges. That analysis would examine issues such as complexity of menu, quality of raw food ingredients, operating hours, and so on, to provide a more sophisticated analysis of food service costs.

Finally, as is the case with any study that collects its information through the use of survey instruments, it is entirely possible that some respondents may have misunderstood questions or provided incorrect information. Although one presumes that such has not been the case, no guarantees can be made by the authors concerning the accuracy of the data provided by the 319 responding institutions.

## REFERENCES

- Agresti, A., & Finlay, B. (1997). *Statistical methods for the social sciences* (3rd ed.). Upper Saddle River, NJ: Prentice-Hall.
- Blaxter, L., Hughes, C., & Tight, M. (1996). *How to research*. Philadelphia, PA: Open University.
- Bowen, H. R. (1996). Who determines the costs of higher education? In D. W. Breneman, L. L. Leslie, & R. E. Anderson (Eds.), *ASHE reader on finance in higher education* (pp. 113-127). Needham Heights, MA: Simon & Schuster.
- Bureau of Labor Statistics. (2000). *National compensation survey: Occupational wages in the United States, 1998*. Bulletin 2529. Washington, DC: U. S. Department of Labor.
- Campaigne, D. A., & Hossler, D. (1998). How do loans affect the educational decisions of students? In R. Fossey & M. Bateman



- (Eds.). *Condemning students to debt: College loans and public policy* (pp. 85-104). New York, NY: Teachers College Press.
- Choy, S. P., & Premo, M. D. (1996). How lowincome undergraduates financed postsecondary education: 1992-93. NCES 96-161. Washington, DC: U.S. Department of Education, National Center for Education Statistics.
- Fossey, R. (1998). *Condemning students to debt: Some conclusions and reflections*. In R. Fossey & M. Bateman (Eds.), *Condemning students to debt: College loans and public policy* (pp. 1 79-1 86). New York, NY: Teachers College Press.
- KU, G. D. , Douglas, K. B. , Lund, J. P. , & RaminGyurnek, J. (1994). *Student learning outside the classroom: Transcending artificial boundaries*. ASHE-ERIC Report no. 4. Washington, DC: The George Washington University, School of Education and Human Development.
- Lennington, R. L. (1996). *Managing higher education as a business*. Phoenix, AZ: ACE/Oryx.
- Merriam, S. B. (1998). *Qualitative research and case study applications in education*. San Francisco, CA: Jossey-Bass.
- National Center for Education Statistics. (1999). *Institutional characteristics survey 1992/2000*. Washington, DC: U. S. Department of Education.
- Pascarella, E. T. , & Terenzini, P. T. (1991). *How college affects students*. San Francisco, CA: Jossey-Bass.
- Schuh, J. H. (1 999). *Student learning in college residence halls: What the research shows*. In Author (Ed.), *Educational programming and student learning in college and university residence halls* (pp. 1-20). Columbus, OH: Association of College and University Housing Officers-International.
- Shavelson, R. J. (1996). *Statistical reasoning for the behavioral sciences* (3<sup>rd</sup> ed.). Boston: Allyn & Bacon.
- Stringer, L. , Cunningham, A. F. , O'Brien, C. T., & Merisotis, J. P. (1998). *It's all relative: The role of parents in college financing and enrollment*. Indianapolis: USA Group Foundation.
- Stringer, L. , Cunningham, A. F., Merisotis, J. P., Wellman, J. V., & O'Brien, C. T. (1999). *Cost, price, and public policy: Peering into the higher education black box*. Indianapolis: USA Group Foundation.
- Taylor, G. R. (2000). *Integrating quantitative and qualitative methods in research*. Lanham MD: University Press of America.
- The Institute for Higher Education Policy, Sallie Mae Education Institute, & The Education Resources Institute. (1 998). *Student loan debt: Problems & prospects*. Proceedings from a National Symposium, December 1 O, 1997. Washington, DC: Authors.
- The Institute for Higher Education Policy, The Ford Foundation, & The Education Resources Institute. (1 999). *The tuition puzzle: Putting the pieces together*. Washington, DC: Authors.
- For additional information, contact John H. Schuh, Professor and Chair, Educational Leadership and Policy Studies, Iowa State University, Ames, IA 5001 1.