



Tomorrow's Doctors, Tomorrow's Cures®

Effective Practices for Using the AAMC Socioeconomic Status Indicators in Medical School Admissions

Douglas Grbic, Ph.D.
Senior Research Analyst
Policy Research Studies
Research and Data Programs
Association of American Medical Colleges
Washington, DC 20037

David J. Jones, M.S., Ph.D.
Senior Associate Dean for Admissions
Professor of Anesthesiology and Pharmacology
Executive Director for Health Science Pipeline Programs
University of Texas School of Medicine at San Antonio
San Antonio, TX 78229

Steven T. Case, Ph.D.
Professor of Biochemistry and
Associate Dean for Medical School Admissions
University of Mississippi Medical Center
Jackson, MS 39216-4505

March 1, 2013

Purpose

This document presents an indicator of the socioeconomic status (SES) of medical school applicants using parental information provided in the American Medical College Application Service (AMCAS®) application. This document establishes criteria for the SES indicator, describes the validity of the indicator by examining its relationship to additional information that applicants provide about their SES, and provides guidance for the use of SES information in medical school admissions.

Background

The identification of the impacts of SES in shaping educational opportunities and outcomes can be traced to seminal publications such as *Equality of Educational Opportunity* (Coleman et al. 1966), a report commissioned in 1966 by the U.S. Department of Health, Education, and Welfare to assess the availability of equal educational opportunities to children of different race, color, religion, and national origin. Since the publication of the “Coleman Study,” there has been abundant research showing the powerful associations between family SES and children’s academic achievement. Given the persistent effects of SES in shaping opportunities, there is now growing support for socioeconomic integration and the use of SES information in admissions decisions within and across educational institutions (Carnevale and Rose 2004; Kahlenberg 2012), including medical schools (e.g., Magnus and Mick 2000; Wear and Kuczewski 2008).

SES and Medical School Admissions

The medical school goal of obtaining a “great variety of doctors needed by society” has endured for more than half a century (Funkenstein 1958). Enhancing the learning experiences of all students rests on selecting and nurturing future physicians that bring with them a diversity of experiences, skills, and beliefs (Coleman, Palmer, and Winnick 2008; Guiton, Chang, and Wilkerson 2007; Whitla et al. 2003). SES is thus one among many dimensions of diversity from which admissions committees seek more accurate and interpretable information.

In 2008, Paul Jolly provided the background to expand the traditional definition of diversity from race and ethnicity in medical school classes to include consideration of socioeconomic status. He pointed out that less than 10 percent of accepted medical students come from the two lowest quintiles of family income compared to more than 75 percent accepted from the upper two quintiles. This observation validated the efforts of two states, Mississippi and Texas, to further diversify classes by considering SES in the medical school admissions process.

In 2008, a “Mississippi Report Card” was created using publicly accessible data mandated by the No Child Left Behind Act of 2001 to identify medical school applicants from educationally disadvantaged backgrounds (Appendix A). Public school districts in Mississippi were ranked according to expenditure per pupil, percent of students on the free federal lunch program, ACT scores, and graduation rates. Files of applicants who attend Mississippi public high schools now have notations indicating how many of the applicant’s values for these four indices fall below the statewide average. These indicators are taken into consideration during the admissions selection process as well as selection to educational support programs.

In 2001, Texas House Bill 1641 (<http://www.nacua.org/documents/TexasHB1641Summary.pdf>) was passed mandating that “[an] applicant's test score must be compared with those of other applicants from similar socioeconomic backgrounds to the extent that those backgrounds can be determined.”

Determination was subsequently based on weighted answers to nine questions in the Texas Medical and Dental Schools Application Service (TMDSAS) application. Based on a total socioeconomic score, four groups (A–D) were identified. The intent of the original legislation was validated since the average total MCAT® score in the lowest socioeconomic group A was 23 and highest in group D, 29 (Appendix A). Similar to the data of Paul Jolly, using this scoring system, fewer than 10 percent of accepted medical students were from the lowest socioeconomic group compared to 80 percent from the highest two groups.

Both the Mississippi and Texas processes that consider SES in medical school admissions suffer from limitations, not the least of which is the burdensome task of applying these processes to a national pool of medical school applicants. In order to assist admissions committees in identifying applicants from families with a low SES, the AAMC’s (Association of American Medical Colleges) Group on Student Affairs (GSA) national Committee on Admissions (COA) requested that the AAMC develop a model that could determine the SES of all applicants, ideally from information already provided on an AMCAS application. This document will describe the model to be implemented starting with the 2014 entering class, and it is intended to provide the admissions community guidance for considering the SES of an applicant in medical school admissions.

AAMC Model

Rationale

An indicator of an applicant’s SES should meet the following criteria: The indicator should be intuitive, valid for the concept being examined, accurate as possible, easy to collect, and stable over time.

While family or personal income has sometimes been considered an indicator of socioeconomic status, as a measure it is inadequate for at least three reasons (Hauser and Warren 1997, p.179). Student applicants are unable to either accurately provide this information due to lack of knowledge or are unwilling to provide this information, preferring to keep it confidential. Moreover, family income can vary over a period of time. Therefore, income during the years immediately prior to submitting an application would not necessarily reflect that the applicant has come from a disadvantaged background. Relying solely on income information can lead to false or missing information.

We, therefore, looked for other variables that might meet the criteria. Both education and occupation have long been considered reliable and widely accepted indicators of general social standing (e.g., Bowen et al. 1998; Condrón 2007; Duncan 1961; Mullen et al. 2003). Research shows that the U.S. occupational structure, based on mean levels of educational attainment associated with occupational categories, is remarkably stable over time (Nam and Boyd 2004). In addition, arguably most students can accurately identify their parent’s occupation and level of education, and these variables do not vary over time as dramatically as income can. Potentially they provide a more reliable indicator. This notion was further supported by the fact that applicants already self-report parental education and parental occupation in the AMCAS application. An SES indicator developed from these variables would then meet the criteria for being intuitive, valid, accurate, easy to collect, and stable over time.

Description of the AAMC SES Education-Occupation (EO) Indicator

The AMCAS SES indicator, as developed and tested, is derived from a combination of applicants' parental education and occupation information, as follows:

Eight broad AMCAS parental education categories are aggregated into four categories: no college degree, bachelor's degree, master's degree, and a doctorate or professional degree. See Appendix B.

Sixty-seven AMCAS occupational categories are aggregated into two categories: executive, managerial, and professional; and service, clerical, skilled and unskilled labor. These AMCAS occupational categories, as well as their aggregation, are based on the federal Standard Occupational Classification (SOC) scheme (http://www.bls.gov/soc/major_groups.htm). See Appendix C.

An Education-Occupation (EO) indicator is then used to concurrently express these two pieces of information. Based on the four categories of parental education and two categories of parental occupation, the EO matrix consists of five ordered groups, as illustrated by Figure 1. The lowest SES group is EO-1 and the highest is EO-5.

Determination of an EO indicator is based upon having both education and occupation information for at least one parent. When an applicant has complete information for two or more parents, the EO indicator for that applicant is based on the highest value among all parents. An applicant's EO indicator cannot be determined when either parental education or occupation information is incomplete.

Other models that included additional measures of SES were considered; for example, a composite SES score derived from a parental occupational earnings score (derived from U.S. Census data, see Nam and Boyd 2004) and parental education. This and other models were rejected for one or more of the following reasons: as noted above, income can be an inadequate measure of SES and would require the addition of a series of questions measuring household wealth, it would be unnecessarily complex to formulate such scores within an application environment, and other models lacked the simplicity and intuitiveness that the current model has for interpreting SES. Finally, there is no strong evidence that alternatives would yield information about lower SES applicants that was any more reliable than the information acquired from answers to questions currently contained in the Childhood Information section of the AMCAS application.

In sum, the EO indicator meets the criteria for being intuitive, easy to collect, and stable over time. In the following section we explore the validity and accuracy of the indicator in predicting socioeconomically disadvantaged status in medical school applicants.

Validation of the EO Indicator

The validity and accuracy of the indicator were further tested in several ways. First, we examined whether the information could be routinely collected. Analysis of AMCAS applications to the 2012 entering class revealed that the AAMC SES EO indicator could be assigned to 89% (38,558/43,442) of the applicants. The 11% not assigned comprised applicants who were neither U.S. citizens nor permanent residents (3.9%), applicants who submitted no parental data (5.8%), and applicants with parents whose legal residence was not in the U.S. (1.7%); including less than 1% of the applicants

classified as “unknown” because the occupation of either parent was military. Applicants assigned EO-1 comprised 20.4% of the applicant pool, EO-2 comprised 7.8%, EO-3 comprised 19.0%, EO-4 comprised 16.8%, and EO-5 comprised 24.8%.

The validity was tested by comparing the indicator to other questions on the AMCAS application that indicated SES. Six questions contained in the Childhood Information section of AMCAS application were used to examine the criterion validity of using the EO indicator to identify applicants from disadvantaged socioeconomic backgrounds. To best understand the validity of the EO indicator, these six questions were treated as binary outcomes, that is, “yes” or “no”:

- Fee Assistance Program (FAP) approved
- wish to be considered (self-declared) as “disadvantaged”
- self-reported family income below \$40,000
- contributed to family income
- family received federal or state assistance
- educational financing: high needs, low family contribution

Results of an analysis showed a strong association between the EO indicator and each of these six indicators of socioeconomic disadvantage. For example, 81% of the 2012 AMCAS applicants who had FAP approval were classified either EO-1 or EO-2. In addition, 45% of applicants assigned EO-1 or EO-2 responded “yes” to at least two of the above six disadvantaged socioeconomic background questions. On the other hand, this analysis also revealed limitations to the AAMC SES EO indicator; 36% of applicants assigned EO-1 and EO-2 had none of the above indicators of being disadvantaged, and 8.7% of applicants assigned to EO-3, EO-4, and EO-5 had multiple indications of disadvantage. As will be noted below, this highlights the need to consider multiple factors when considering the SES of applicants when making admissions decisions.

Also noted are three interesting correlations with the EO classification. First, dramatic differences were noted in EO groups by race and ethnicity. For example, among 2012 applicants, 54% of African American and 48% of Hispanic applicants were classified either EO-1 or EO-2 compared to 29% White and 30% Asian applicants. Second, differences in MCAT scores were also associated with EO groups. For example, 2012 applicants classified EO-1 had lower MCAT scores than applicants classified as EO-5 (Figure 2). Third, 2012 applicants excluded from AAMC EO classification (due to parental information being either “not applicable” or “unknown,” as defined above) had MCAT scores comparable to applicants assigned EO-2 (26.9 ± 6.2).

Figure 2 also compares mean MCAT scores for the national pool of AMCAS applicants classified using the two-factor EO indicator to the mean scores for the statewide pool of TMDSAS applicants classified using a nine-factor indicator. Both schemes show a positive correlation between SES and MCAT scores, and the TMDSAS data show this correlation is stable over time. Because it is widely known that students from higher SES backgrounds generally perform better than their peers on standardized tests (Coleman et al. 1966; Espenshade and Radford 2010; Reardon 2011), these data serve to further validate the simplicity of the AAMC EO indicator.

In summary, the classification scheme presented in Figure 1 reflects differences in economic, cultural, and social capital that impact educational and occupational outcomes across generations (Condrón 2009; Massey et al. 2003; Mullen et al. 2003). While the EO indicator is considered a reliable indicator of SES, as noted above, it does have limitations. This emphasizes the need for admissions committees to

consider multiple indicators of SES to reduce the likelihood of misrepresenting an applicant's socioeconomic background.

Use of AAMC SES EO Indicator in Admissions

Reporting SES in AMCAS

Once the model for determining the SES of applicants based on parental education and occupation was validated, the next issue was how to report SES using the EO indicator in the AMCAS application.

The COA began by considering how eligibility for the AAMC Fee Assistance Program (FAP) is reported in the AMCAS application. In brief, an applicant who may be financially disadvantaged submits an application to AMCAS. Approval is granted if family income is 300% or less of the Department of Health and Human Services poverty guidelines (<http://aspe.hhs.gov/poverty/>) for the size of his or her family. Neither the family size nor income level used to determine FAP eligibility is reported in the AMCAS application; what is reported about eligibility is simply either "yes" or "no."

Given the desire to diversify medical school classes across all socioeconomic backgrounds, the intent of the AAMC SES EO indicator is to identify applicants who are the most socioeconomically disadvantaged. Consequently, while all applicants are asked to provide information in the AMCAS application about parental education and occupation that will enable assignment of a SES indicator of between EO-1 to EO-5, only the lowest (EO-1 and EO-2) need be reported. Whereas a simple "yes" or "no" indicator similar to FAP seemed adequate to indicate an applicant with a SES indicator of either EO-1 or EO-2, it was realized that distinguishing between these two levels would provide additional information often used by medical school admissions committees. For example, while an EO-2 indicator would potentially indicate an applicant from a socioeconomically disadvantaged background, EO-1 would indicate further that neither parent had a college degree. In other words, this applicant is a first generation college graduate.

A student having received a Pell Grant while in college is another reliable indicator of very low SES (Douglass and Thomson 2008; Wei and Horn 2009). For example, recent findings show 41% of Pell Grant recipients had parents with no more than a high school education compared to 21% of non-recipients. An applicant's response to a question added to the AMCAS application ("Did you receive Pell Grant money while you were an undergraduate student?") could provide an additional indicator of low socioeconomic status.

In order to maximize useful information provided to the medical school admissions community, in July 2012, the COA made the recommendation that, starting with the 2014 application cycle, the AMCAS should deliver the following data to medical schools for each applicant: AAMC SES EO-1 and AAMC SES EO-2 indicators of "yes," "no," "not applicable," or "unknown," and Pell Grant indicators of "yes" or "no."

Use of SES in Admissions

A holistic admissions process is one that is based on policies and procedures aligned with an institution's mission, goals, and diversity interests. The diversity that each school seeks varies with that institution's

unique goals, settings, and culture. Nonetheless, research shows that key learning outcomes are associated with education that uses diversity as a teaching and learning tool. Hence, diversity can be a driver of the educational excellence that an institution seeks for its students. The Liaison Committee on Medical Education (LCME) Institutional Standard (IS)-16 recognizes that a diverse and inclusive learning environment that encompasses students, faculty, and staff best prepares future physicians for practicing in a diverse society (<http://www.lcme.org/functions.pdf>).

Applicants are multidimensional; their diversity can be ascribed to the range of life experiences, personal attributes, and academic metrics that they present in consideration for admission to medical school. To reduce consideration of an applicant to any single factor denies the complexity of who that applicant is and what he or she may potentially contribute to the educational experiences of a medical student body, and ultimately to the physician workforce. Admissions decisions are correspondingly complex; therefore, admissions committees might take into account a balance of multiple factors. For example, admissions committees might be reminded that applicants with a surprisingly broad range of academic metrics (GPAs and MCAT scores) are accepted into medical school and 94% graduate in five years, including passing the U.S. Medical Licensure Examinations (USMLE) (<https://www.aamc.org/students/download/267622/data/mcatstudentselectionguide.pdf>). While academic metrics have value in predicting outcomes, they fail to reveal who the applicant is.

In support of holistic review, the COA encourages medical school admissions committees to examine and consider the following factors provided in AMCAS applications to provide context and information about the diversity of applicants being considered for admission:

- Personal Essay and Experiences. These might provide insight about who an applicant is, what is meaningful to them, and the road he or she has traveled to become a medical school applicant. The “distance travelled” by a socioeconomically disadvantaged applicant is often farther than other applicants.
- Biographic Information. Applicants list country of birth, race, and ethnicity (displayed in the AMCAS application where permitted by law), and language proficiencies.
- Self-declared Disadvantaged. Applicants who select this are provided space to explain why they view themselves as disadvantaged. Reasons often cited include where they were raised, overcoming adversity, difficult family circumstances, and poor finances.
- Childhood Home. Applicants can indicate if they feel their home was located in a rural or medically underserved area.
- Applicant/Family Economic Circumstances. Applicants might indicate the number in their household, an estimate of family income, employment before age 18, contribution to family income, and if their family received federal or state financial assistance.
- Educational Finance. Applicants indicate the percentage provided by academic and need-based scholarships, loans, and contributions by the family and applicant.
- AAMC FAP Indicator. “Yes” signifies an applicant from a financially disadvantaged background.
- AAMC EO-1 and EO-2 SES Indicators. “Yes” for either of these signifies applicants that might be from a socioeconomically disadvantaged background based on parental education and occupation. In addition, “yes” for EO-1 indicates a first generation college graduate.
- Pell Grant Indicator. “Yes” identifies applicants with demonstrated financial need relative to family income and assets who are also likely to come from a low socioeconomic background.

An applicant's essay, description of life experiences, and rationale for self-declaring a disadvantaged background are subjective and reflect an applicant's perceptions. Childhood home, applicant/family economic circumstances, and educational finances are less subjective; but, may vary with an applicant's knowledge of these matters. In contrast, the AAMC FAP, EO-1, EO-2 and Pell Grant indicators are independent and objective indicators of financial disadvantage and socioeconomic status.

The most effective use of the AAMC SES EO indicators is for admissions committees to consider them, along with all other factors listed above, when screening applicants for interviews. Interviews afford not only an opportunity to determine if an applicant fits the mission and contributes to the diversity interests of the school, they also afford an opportunity to explore in more detail other factors, such as SES, that may be considered when rendering admissions decisions. The correlation observed between SES indicators and mean MCAT scores describes one such factor. However, since many factors contribute to MCAT performance, these data should not be construed as a simple tool for comparing MCAT scores of applicants within an SES group. To do so would be unfair and possibly counterproductive to efforts to diversify a medical school class. Instead, admissions committees should apply their awareness of this correlation to a holistic review of each applicant that takes this and many other factors into consideration when evaluating each applicant. Consideration of these factors might be in the context of answers to the following questions:

- What further insight might be gained about an applicant's outlook and perceptions by using this information?
- How does the self-declaration of disadvantaged status, or absence thereof, align with what is written in the essay, described in life experiences, and reported by FAP, EO, and Pell Grant indicators?
- Did this applicant have access to comparable educational opportunities, finances, and guidance that other applicants had when preparing for medical school?
- Is it reasonable to expect this applicant to perform as well as other applicants on either the MCAT or other standardized exams?

While the EO indicator in the AMCAS application provides information that can be applied to nearly all applicants, this should not discourage parallel use of other efforts to assess similar or related attributes, including other models for determining SES and methods for identifying students from educationally disadvantaged backgrounds at statewide levels (Appendix A). Most importantly, for compliance with LCME IS-16, medical schools are encouraged to track their students in terms of diversity (including SES) to document performance outcomes and the institution's ability to provide the support these students may require to achieve successful outcomes. To further validate the use of the EO indicator in medical school admissions, it is anticipated that the AAMC will track various outcomes nationwide for matriculants with EO-1 and EO-2 indicators including graduation rates, passage of USMLE Step exams, and satisfaction with the resources, support, and medical education ascertained from surveys such as the matriculating student and graduation questionnaires.

References

- Bowen WG, Bok D. *The shape of the river: long-term consequences of considering race in college and university admissions*. 1998. Princeton University Press, Princeton, N.J.
- Coleman A, Palmer SR, Winnick SY. *Roadmap to diversity: key legal and educational policy foundations for medical schools*. 2008. Association of American Medical Colleges, Washington, D.C.
- Coleman JS, Campbell EQ, Hobson CJ, McPartland J, Mood AM, Weinfeld FD, York RL. *Equality of educational opportunity*. 1966. U.S. Government Printing Office, Washington, D.C.
- Carnevale AP, Rose SJ. Socioeconomic status, race/ethnicity, and selective college admissions, p. 101-156. In Kahlenberg RD, ed. *America's Untapped Resource: Low-income Students in Higher Education*. 2004. Century Foundation Press, New York.
- Condron DJ. Social class, school and non-school environments, and the black/white inequalities in children's learning. *American Sociological Review*. 2009;74;683-708.
- Douglass JA, Thomson G. The poor and the rich: a look at the economic stratification and academic performance among undergraduate students in the United States. 2008. Research & Occasional Paper Series: CSHE.15.08. Center for Studies in Higher Education, University of California, Berkeley.
- Duncan OD. A socioeconomic index for all occupations, pp. 109-138. In Reiss, Jr. AJ, ed. *Occupations and Social Status*. 1961. Free Press, New York, N.Y.
- Espenshade TJ, Radford AW. *No longer separate, not yet equal: race and class in elite college admission and campus life*. 2010. Princeton University Press, Princeton, N.J.
- Funkenstein DH. The implications of diversity. In Gee HH, Glaser RJ. *The Ecology of the Medical Student*. 1958. Office of the Director of Research, Association of American Medical Colleges, Evanston, Ill.
- Guiton C, Chang MJ, Wilkerson L. Student body diversity: relationship to medical student's experiences and attitudes. *Academic Medicine*. 2007;82(10):S1-S4.
- Hauser, RM, Warren JR. Socioeconomic indexes for occupations: a review, update, and critique. *Sociological Methodology*. 1997;27:177-298.
- Jolly P. Diversity of U.S. medical students by parental income. 2008. Analysis in Brief, AAMC, January.
- Kahlenberg RD. *The future of school integration: socioeconomic diversity as an educational reform strategy*. 2012. The Century Foundation, Washington, D.C.
- Magnus SA, Mick SS. Medical schools, affirmative action, and the neglected role of social class. *Am J Public Health*. 2000;90:1197-1201.

Massey DS, Charles CZ, Lundy GF, Fischer MJ. The source of the river: the social origins of freshmen at America's selective colleges and universities. 2003. Princeton University Press, Princeton, N.J.

Mullen AL, Goyette KA, Soares JA. Who goes to graduate school? Social and academic correlates of educational continuation after college. *Sociology of Education*. 2003;76:143-169

Nam CB, Boyd M. Occupational status in 2000: over a century of census-based measurement. *Population Research and Policy Review*. 2004;23:327-358.

Reardon SF. The widening academic achievement gap between the rich and the poor: New evidence and possible explanations, p. 91-116. In Murnane RJ, Duncan GJ, ed. *Whither Opportunity? Rising Inequality and the Uncertain Life Chances of Low-Income Children*. 2011. Russell Sage Foundation Press, New York.

Wear D, Kuczewski MG. Medical students' perceptions of the poor: what impact can medical education have? *Academic Medicine*. 2008;83:639-645.

Wei CC, Horn L. A profile of successful Pell Grant recipients: time to bachelor's degree and early graduate school enrollment (NCES 2009-156). National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, Washington, D.C.

Whitla DK, Orfield G, Silen W, Teperow C, Howard C, Reede J. Educational benefits of diversity in medical school: a survey of students. *Academic Medicine*. 2003;75(5):460-66.

Figure 1: The AAMC SES EO Indicator

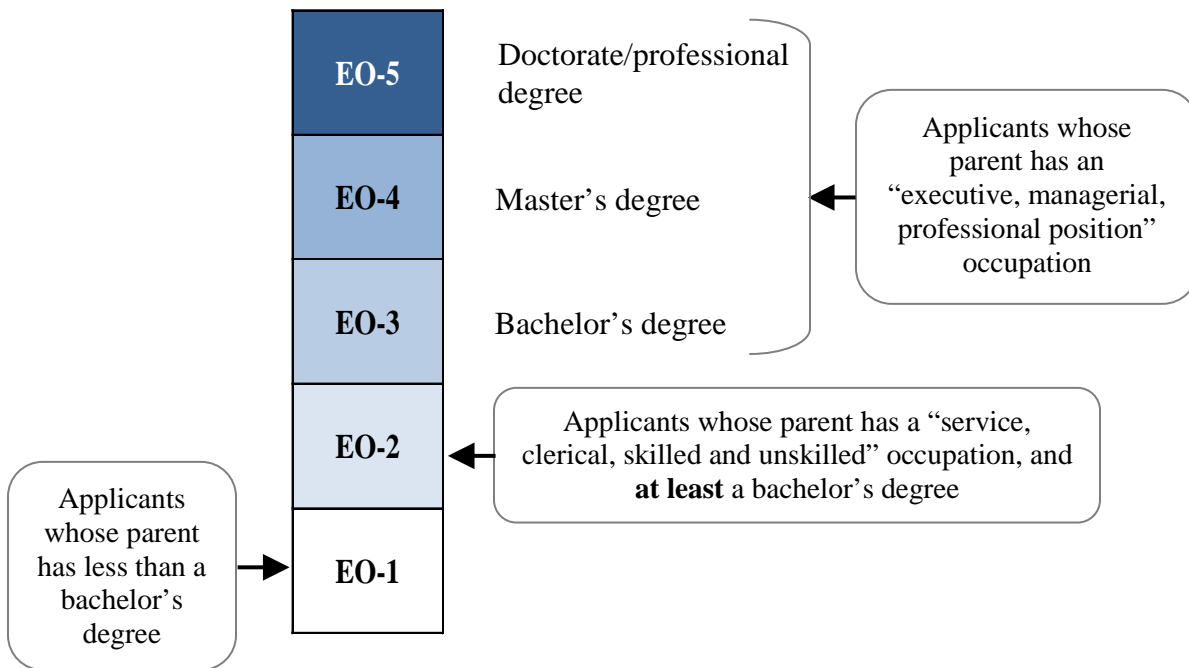
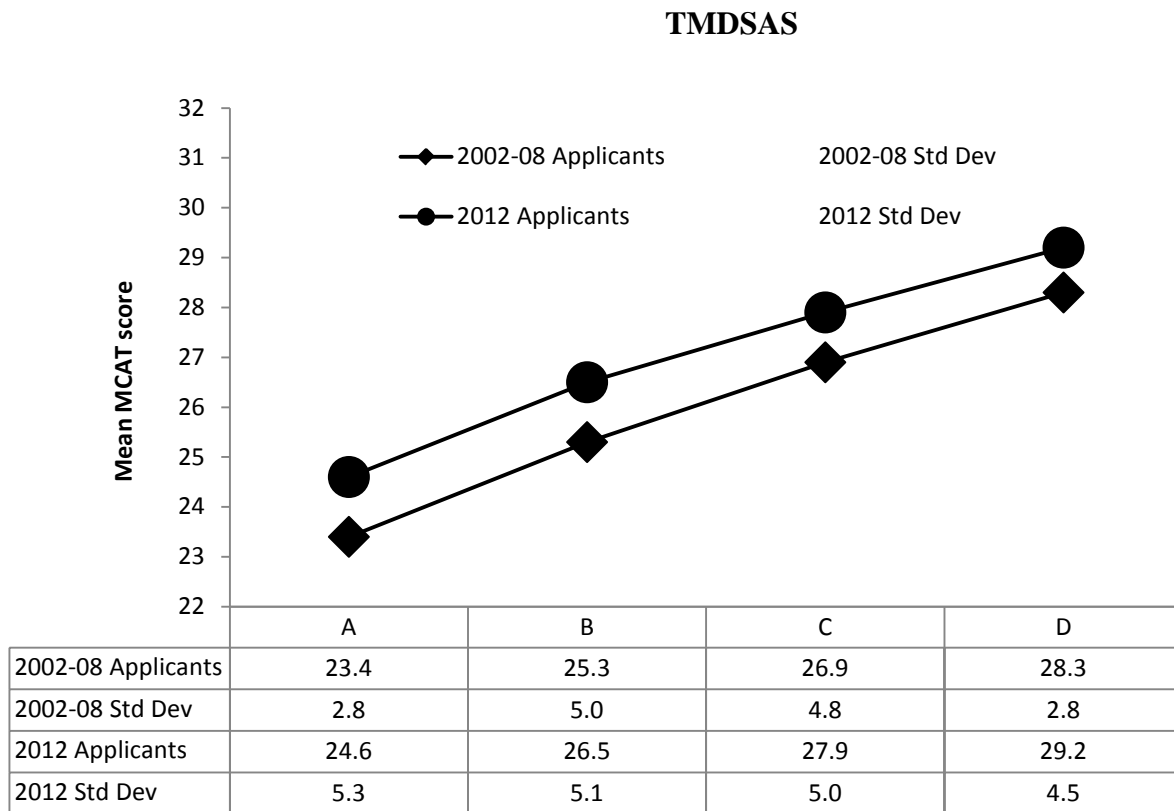
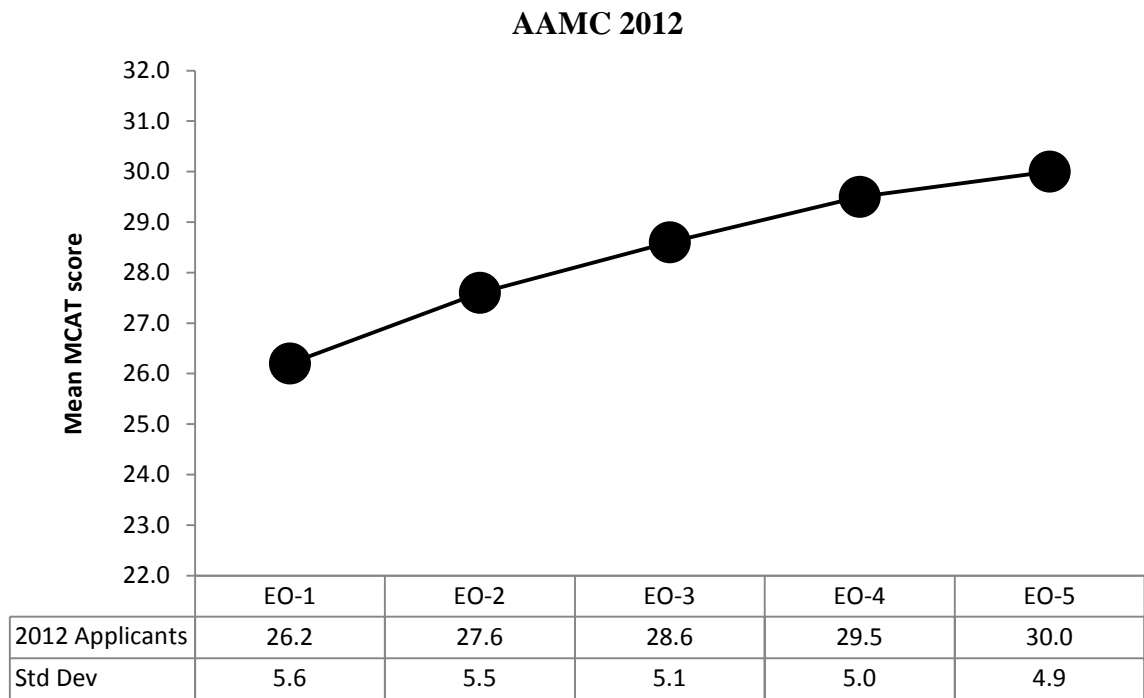


Figure 2: Mean MCAT scores and standard deviations by SES groups for the national pool of 2012 AMCAS applicants classified by the AAMC two-factor EO indicator, and statewide pools of 2002-2008 and 2012 TMSAS applicants classified using the TMSAS nine-factor classification scheme.



Appendices

A. [Holistic Review: Using SES in Medical School Admissions](#), Robert A. Witzburg, Steven T. Case, David Jones, and Gwen Garrison, AAMC Annual Meeting, Boston 2009 (pdf file with PowerPoint presentation).

B. Parental Education

Categories 1 through 4 are “less than bachelor’s,” categories 5 and 6 are “bachelor’s degree,” category 7 is “master’s degree,” and category 8 is “doctorate/professional degree.”

-
1. Less than high school
 2. High school graduate (high school diploma or equivalent)
 3. Some college, but no degree
 4. Associate degree (A.S., A.N., etc.)
-
5. Bachelor’s degree (B.A., B.S., etc.)
 6. Some graduate, but no degree
-
7. Master’s Degree
-
8. Doctorate or professional Degree
 - a. Doctor of Medicine (M.D.)
 - b. Doctor of Osteopathic Medicine/Osteopathy (D.O.)
 - c. Doctor of Dental Science (D.D.S., D.M.D.)
 - d. Doctor of Jurisprudence (J.D.)
 - e. Doctor of Chiropractic
 - f. Doctor of Optometry
 - g. Doctor of Pharmacy
 - h. Doctor of Podiatric Medicine/Podiatry
 - i. Doctor of Veterinary Medicine
 - j. Doctor of Philosophy (Ph.D.)
 - k. Doctor of Science
 - l. Doctor of Education
 - m. Other doctorate degree
 9. Don’t know

C. Parental Occupation

The category scheme below is based on the Standard Occupational Classification (SOC) scheme. The SOC scheme consists of four layers of occupational categories (major, minor, broad, and detailed) that can be disaggregated into roughly 800 “detailed” occupational categories. Using the Bureau of Labor Statistics occupational earnings data, these categories were incrementally aggregated so as to avoid collapsing categories where earnings were significantly different.

The AMCAS occupation scheme consists of 72 response choices (67 occupational categories) that are grouped under 11 broader categories titles. The five non-(civilian) occupational response choices include “military, homemaker, other, don’t know, and not applicable.” Codes 1 through 43 are “executive, managerial, professional” occupations, and codes 44 through 68 are “service, clerical, skilled and unskilled labor” occupations. The “executive, managerial, professional” group is equivalent

to the ‘major’ occupational category codes 11 through 31 of the SOC scheme. The “service, clerical, skilled and unskilled labor” group is equivalent to the ‘major’ occupational category codes 33 through 53 of the SOC.

Eight occupations [(13) Other Healthcare Practitioners and Technical Occupation; (14) Nursing, Psychiatric, or Home Health Aide; (15) Occupational and Physical Therapist Assistant or Aide; (16) Other Healthcare Support Occupation; (33) Other Teacher or Instructor; (34) Other Education, Training, and Library Occupation; (37) Counselor, Social Worker, or Other Community and Social Service Specialist; and (41) Religious Worker (e.g., Clergy, Director of Religious Activities or Education)] were reclassified from the “executive ...” cluster to the “service, clerical, skilled ...” cluster, and one occupation category, (66) Aircraft Pilot or Flight Engineer, was reclassified from the “service, clerical, skilled ...” cluster to the “executive ...” cluster. These reclassifications were based on analysis of median personal and household income values for each occupation using the 2006-2008 American Community Survey data.

Where necessary, examples of occupational titles are provided next to an occupational category. These occupational titles were obtained from O*Net Online (<http://online.onetcenter.org/>), which is an online database that enables users to match SOC categories, industry sectors, and occupational titles. Some categories and occupational titles were included in the scheme as a result of analyzing the write-in responses to an occupation question that was placed in a medical school aspirant survey. The category “business owner” was included because it was the most common write-in response during the pretesting phase. Although this category reflects the concept of “ownership,” which is distinct from occupation, in the absence of a separate work status question the category was retained in the final scheme.

HEALTHCARE PRACTITIONERS AND TECHNICAL OCCUPATIONS

- 1 Chiropractor
- 2 Dentist
- 3 Dietitian or Nutritionist
- 4 Optometrist
- 5 Pharmacist
- 6 Physician or Surgeon
- 7 Physician Assistant
- 8 Podiatrist
- 9 Registered Nurse
- 10 Therapist
- 11 Veterinarian
- 12 Health Technologist or Technician
- 13 Other Healthcare Practitioners and Technical Occupation

HEALTHCARE SUPPORT OCCUPATIONS

- 14 Nursing, Psychiatric, or Home Health Aide
- 15 Occupational and Physical Therapist Assistant or Aide
- 16 Other Healthcare Support Occupation

BUSINESS, EXECUTIVE, MANAGEMENT, FINANCIAL OCCUPATIONS

- 17 Chief Executive
- 18 General and Operations Manager

- 19 Advertising, Marketing, Promotions, Public Relations, and Sales Manager
 - 20 Operations Specialties Manager (e.g., IT or HR Manager)
 - 21 Construction Manager
 - 22 Engineering Manager
 - 23 Accountant, Auditor
 - 24 Business Operations or Financial Specialist
 - 26 Business Owner
 - 27 Other Business, Executive, Management, Financial Occupation
-

ARCHITECTURE AND ENGINEERING OCCUPATIONS

- 28 Architect, Surveyor, or Cartographer
 - 29 Engineer
 - 30 Other Architecture and Engineering Occupation
-

EDUCATION, TRAINING, AND LIBRARY OCCUPATIONS

- 31 Postsecondary Teacher (e.g., College Professor)
 - 32 Primary, Secondary, or Special Education School Teacher
 - 33 Other Teacher or Instructor
 - 34 Other Education, Training, and Library Occupation
-

OTHER PROFESSIONAL OCCUPATIONS

- 35 Arts, Design, Entertainment, Sports, and Media Occupations
 - 36 Computer Specialist, Mathematical Science
 - 37 Counselor, Social Worker, or Other Community and Social Service Specialist
 - 38 Lawyer, Judge
 - 39 Life Scientist (e.g., Animal, Food, Soil, or Biological Scientist, Zoologist)
 - 40 Physical Scientist (e.g., Astronomer, Physicist, Chemist, Hydrologist)
 - 41 Religious Worker (e.g., Clergy, Director of Religious Activities or Education)
 - 42 Social Scientist and Related Worker
 - 43 Other Professional Occupation
-

OFFICE AND ADMINISTRATIVE SUPPORT OCCUPATIONS

- 44 Supervisor of Administrative Support Workers
 - 45 Financial Clerk
 - 46 Secretary or Administrative Assistant
 - 47 Material Recording, Scheduling, and Dispatching Worker
 - 48 Other Office and Administrative Support Occupation
-

SERVICES OCCUPATIONS

- 49 Protective Service (e.g., Fire Fighter, Police Officer, Correctional Officer)
- 50 Chef or Head Cook
- 51 Cook or Food Preparation Worker
- 52 Food and Beverage Serving Worker (e.g., Bartender, Waiter, Waitress)
- 53 Building and Grounds Cleaning and Maintenance
- 54 Personal Care and Service (e.g., Hairdresser, Flight Attendant, Concierge)
- 55 Sales Supervisor, Retail Sales
- 56 Retail Sales Worker

- 57 Insurance Sales Agent
 - 58 Sales Representative
 - 59 Real Estate Sales Agent
 - 60 Other Services Occupation
-

AGRICULTURE, MAINTENANCE, REPAIR, AND SKILLED CRAFTS OCCUPATIONS

- 61 Construction and Extraction (e.g., Construction Laborer, Electrician)
 - 62 Farming, Fishing, and Forestry
 - 63 Installation, Maintenance, and Repair
 - 64 Production Occupations
 - 65 Other Agriculture, Maintenance, Repair, and Skilled Crafts Occupation
-

TRANSPORTATION OCCUPATIONS

- 66 Aircraft Pilot or Flight Engineer
 - 67 Motor Vehicle Operator (e.g., Ambulance, Bus, Taxi, or Truck Driver)
 - 68 Other Transportation Occupation
-

OTHER OCCUPATIONS NOT LISTED ABOVE

- 69 Military
 - 70 Homemaker
 - 71 Other Occupation
 - 72 Don't Know
 - 73 Not Applicable
-