A Longitudinal Analysis of Student and School Diversity in the International Baccalaureate (IB) Diploma Program in the U.S.

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The International Baccalaureate (IB) Diploma Program is a rigorous academic curriculum for 11th and 12th grade students that is used by schools in 128 countries. It was originally developed by the International Baccalaureate Organization (IBO) in 1968 to meet the needs of international schools and students. In the past two decades, the IB Diploma Program has become increasingly recognized in the United States and elsewhere as perhaps the most rigorous upper-division high school program for preparing academically motivated students for success in college.

During the 2008-09 school year, more than 50,000 students in the United States participated in the IB Diploma Program. Currently 719 U.S. schools offer the Diploma Program; 89% of these are public high schools. Over the past decade, the IB program has experienced rapid growth. This growth is expected to continue as a result of the positive reputation of the program and recent increases in federal funding available to support IB programs.

In the United States, participation in the IB Diploma Program is purported to increase the chances of acceptance to a selective university and performance on IB exams often results in the award of college credits. While limited rigorous research has demonstrated these benefits, some have built on these assumed benefits to argue that programs like IB may be an effective mechanism for improving access to rigorous courses and improving academic preparation for college for groups that are historically underrepresented in higher education (e.g., students from low-income families, racial/ethnic minorities). But, to serve this function, IB programs must be

available. Even with recent growth, participation remains limited. In 2002-03, only 2% of public high schools nationwide offered IB (Waits, Setzer & Lewis, 2005).

In recent years, IB North America has tried to increase the availability of IB programs generally and for students from low-income families in particular. For example, in 2006, IB North America was awarded a grant for $1.08 million by the U.S. Department of Education to introduce IB through middle and high school partnerships in areas with low-income populations. Through this grant, the IB has sought to increase participation and success in the Diploma Program in Title I eligible schools.

Nonetheless, little is known about the current availability of IB programs, including the characteristics of schools that offer IB programs or the characteristics of students who participate. Understanding trends in IB program availability and participation is a necessary first step toward understanding the effects of the program on students' academic readiness for college and whether IB is an effective mechanism for improving college readiness for historically underrepresented groups of students. This paper begins to address this knowledge gap by examining trends in racial and economic diversity of the IB Diploma Program over the past 15 years, from 1995 through 2009. The research questions guiding this analysis are:

1. ***How have the characteristics of schools offering the IB Diploma Program changed from 1995-2009? Has the program become increasingly available to schools serving groups that are historically underrepresented in higher education (e.g., students from low-income families, students from racial/ethnic minority groups)?***

2. ***How have the characteristics of students who enroll in the IB Diploma Program changed from 1995-2009? Is the program recruiting greater proportions of minority and economically disadvantaged students?***

Theoretical Framework

Inadequate academic preparation is a primary contributor to the persisting gaps in measures of educational attainment based on family income and race/ethnicity. Research shows that academic preparation is particularly important to the college enrollment of students from lower-income families (Cabrera et al., 2001) and the bachelor's degree completion of African Americans and Latinos (Adelman, 2006). But, numerous indicators demonstrate lower levels of academic preparation for low-income, African American, and Latino students than for others (Perna, 2005). For example, compared with White and Asian students, substantially smaller shares of African Americans, Latinos, and American Indians exit public high schools ready to attend four-year colleges, where "readiness" is defined as graduating from high school, taking certain courses in high school, and possessing basic literacy skills. Specifically, of the U.S. public high school class of 2001, only 20% of African Americans, 16% of Latinos, and 14% of Native Americans left high school ready to attend a four-year college, compared with 37% of Whites and 38% of Asians (Greene & Forster, 2003).

Policymakers and researchers increasingly point to the lack of rigorous courses at the high school attended as a primary cause of inadequate academic preparation for college (Adelman, 2006; Perna, 2005). Schools that are located in more affluent areas typically offer more rigorous academic coursework than schools located in less affluent areas (Gándara, 2001; Oakes & Guiton, 1995). Schools with predominantly African American and Latino students also

offer fewer college preparation courses than other schools (Oakes & Guiton, 1995). Rigorous mathematics courses (e.g., trigonometry, precalculus, and calculus) are substantially less common at the schools attended by students of low than of high socioeconomic status (SES) and by Latinos than at schools attended by Whites or Asians (Adelman, 2006).

One approach to raising the rigor of high school course offerings and addressing the misalignment of K-12 and higher education systems is to offer high school students exposure to college-level courses (Martinez & Klopott, 2005). Labeled "secondary-postsecondary learning options" (SPLOs), "accelerated learning options," and "credit-based transition programs," these programs include International Baccalaureate (IB), Advanced Placement (AP), and dual enrollment (Blanco, 2006; Lerner & Brand, 2006). In contrast to AP, honors, and dual-enrollment,IB students are required to take advanced courses in all subjects. Students participating in AP, honors, or dual enrollment are typically permitted to choose which subjects they study at an advanced level, while selecting other courses from the standard high school curriculum. In addition, IB standard-level courses require 150 hours of instruction (which makes them very similar to AP courses), while the IB Higher-Level courses require 60% more instructional time (typically 1½ to 2 hours per school day) and allow students to go deeper into the content and concepts within these subjects.

Typically high schools choose whether to offer an IB Diploma Program, and then students choose whether to enroll in the program. In many cases, the program exists as an academic track within a school, and interested students must apply for admission. In other cases, the program is school-wide, functioning as a magnet school or school-of-choice. Regardless, recruiting students from diverse backgrounds into the IB Diploma Program requires more than simply making the program available. Students must be motivated to apply for admission to an

IB program or school and meet program admission requirements. Reflecting these two different selection processes, this study examines both program availability across schools and program participation among students.

Methods & Data Sources

Data for this study come from two sources. The first is the International Baccalaureate database, which includes individual-level data on more than 400,000 IB Diploma Program students from 1995 through 2009. The second data source is the Common Core of Data (CCD) from the National Center for Education Statistics, which includes school-level characteristics and demographics for all public schools nationwide. Data are linked across the two databases using school names and addresses.

The IB data include data on student gender from 1995-2005, while individual-level data on student race and free/reduced lunch eligibility are available only for 2006-2009. While this limits our ability to track IB student racial demographics back more than a few years, it does allow us to examine the recent period during which federal grant funds were directed toward increasing availability of IB in low-income schools.

The CCD data include school locale (i.e., urban, suburban, rural) for 1995-2009, racial demographics (percent African American, Hispanic, etc.) and percent free/reduced lunch (FRL) eligibility for 1995-2008, and Title I eligibility and magnet school status for 1999-2009.

The research questions do not require inferential statistics; and, even if p-values for longitudinal changes were calculated, the tremendous sample sizes used in this study would yield significance for even tiny shifts in characteristics. To enhance interpretability, results are

presented graphically showing longitudinal trends in the form of stacked bar charts and box plots.

Results

Characteristics of Schools Offering the IB Diploma Program

With regard to the first research question, between 1995 and 2009, the proportion of IB Diploma schools in urban areas decreased slightly (from 50% down to 45%) along with the proportion of suburban IB schools (from 45% down to 38%), while the proportion of rural IB schools increased substantially (from 5% up to 17%) (see Figure 1).

From 1999 through 2003, there was a steady, but small, annual increase in the proportion of Title I eligible IB Diploma schools (from 3% to 16%), with additional increases of 3 to 4 percentage points in 2005 and 2007 (see Figure 2). Then in 2008 and 2009, much larger increases in the proportion of Title I eligible schools occurred with shifts of 6 percentage points and then 10 percentage points to reach a high of 40% of IB Schools eligible for Title I funding in 2009. These dramatic increases reflect the addition of new IB schools which were Title I eligible and the establishment of Title I eligibility for some existing IB schools.

There were small sporadic increases in the proportion of IB schools operating as magnets over this period, increasing from 5% in 1999 to 19% in 2009 (see Figure 3) .

Figures 4 and 5 show trends in the distributions of school-level proportions of African American and Hispanic students attending schools with IB programs from 1995-2008. Here, boxplots are used in order to reflect changes in the number of schools with especially high concentrations of minority students. While Figure 4 suggests little change in the distribution of African American students attending schools where IB programs exist, Figure 5 shows clear

lengthening of the distribution of Hispanic students attending schools with IB programs. This is evident in the increased height of the boxes over time, the lengthening of the top whisker, and the increased number of outliers in the upper part of those boxes for recent years. From 1995 to 2008, the average percentage of Hispanic students attending schools with an IB program increased from 8% to 15%.

Figure 6 shows an even more remarkable lengthening of the distribution of free/reduced lunch eligible students attending schools with IB programs. From 1995 to 2008, the average percentage of students eligible for free/reduced lunch attending schools with an IB program increased from 12% to 25%.

Characteristics of Students who Enroll in the IB Diploma Program

With regard to the second research question, Figure 7 shows that the proportion of non-white students is substantial and has increased in recent years from 39% to 43%. Nearly all of this increase is attributable to increased representation of Hispanic students in IB, up from 8% in 2006 to 12% in 2009. Figure 8 shows that the proportion of free/reduced lunch eligible students has increased slightly in recent years from 13% to 17%.

Conclusions and Significance

The results from these analyses suggest that, although the IB Diploma program has increased its representation in rural schools and in schools that serve greater proportions of Hispanic and economically disadvantaged students, the characteristics of students in the IB diploma program are much less diverse than those of the population of students attending the same schools. Furthermore, in the last four years, there have been only small increases in the proportions of Hispanic and economically disadvantaged students who actually enroll in an IB

Diploma program. The different patterns of change at the school and student levels may be attributable to increases in IB Diploma programs offered in magnet schools, which often seek to achieve diversity by recruiting non-minority students into schools serving predominately minority students. Whatever the reason, it is clear that while the IB diploma program is being offered in more diverse schools, it is experiencing a lesser degree of success attracting minority and economically disadvantaged students into the program. The findings from this study have important implications for policy and practice, and provide the foundation for future research examining the effects of participation in IB on student outcomes.

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Figure 1.

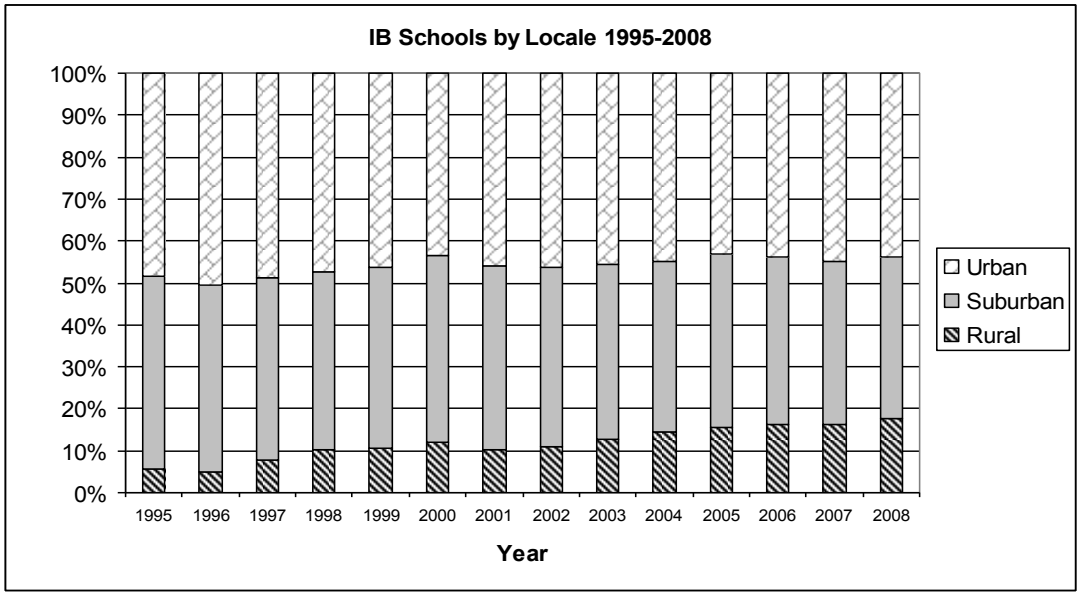

Figure 2.

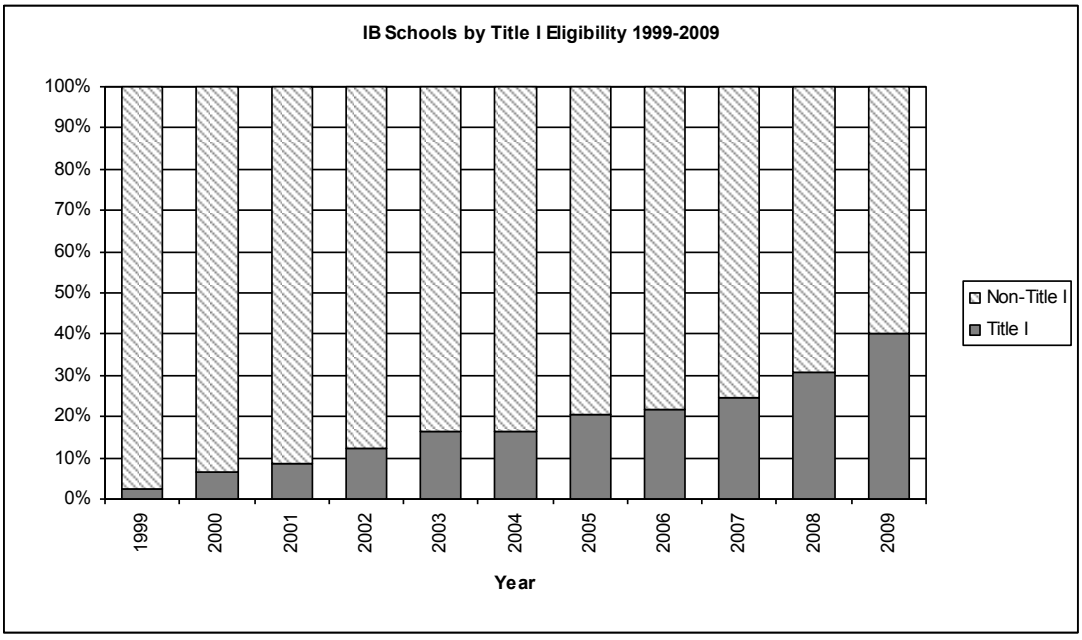

Figure 3.

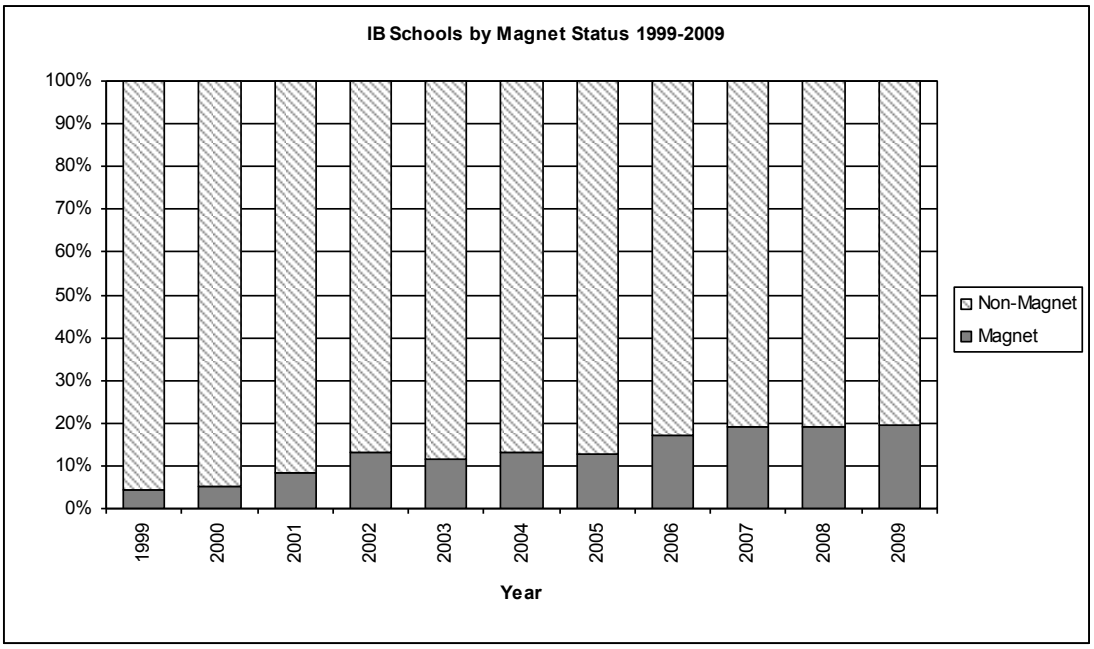

Figure 4. Distribution of Percentage African American Students Attending Schools with IB Programs 1995-2008

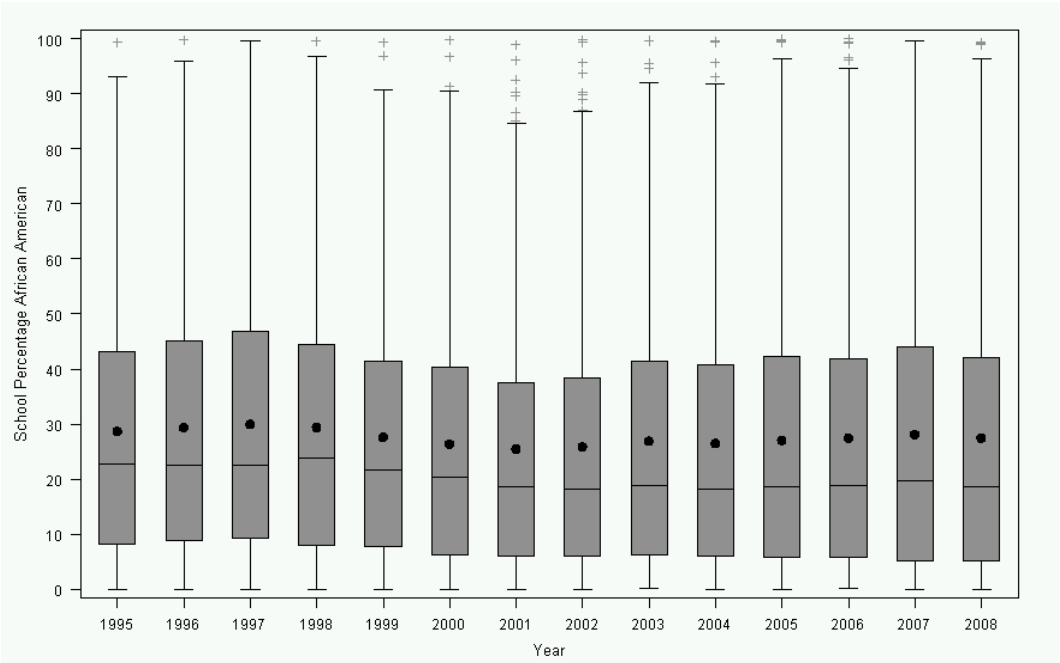

Figure 5. Distribution of Percentage Hispanic Students Attending Schools with IB Programs 1995-2008

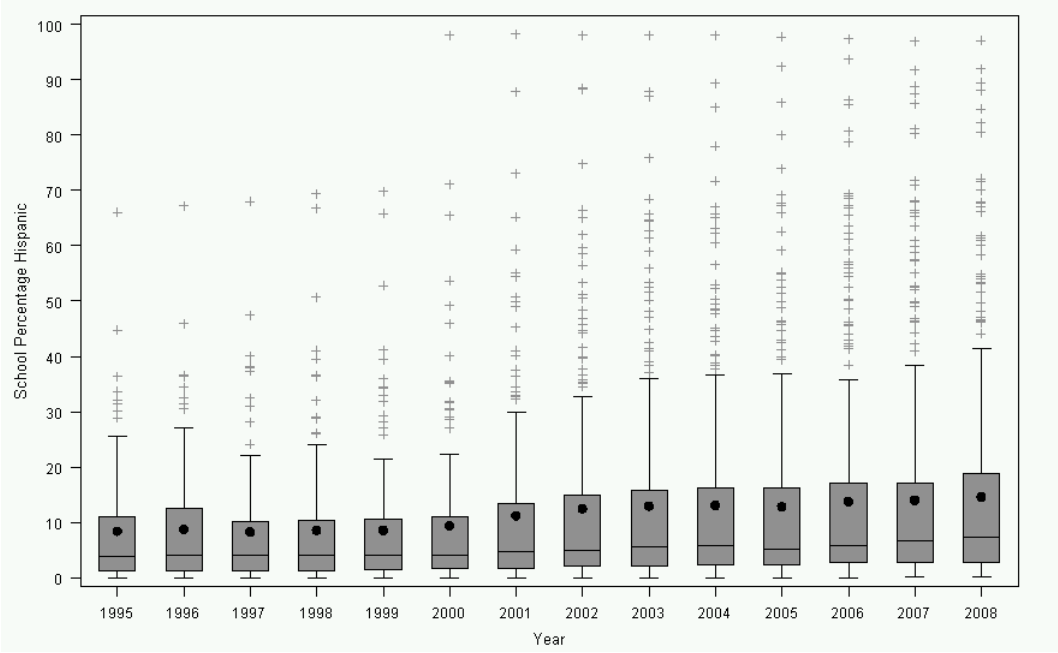

Figure 6. Distribution of Percentage Free/Reduced Lunch Eligible Students Attending Schools with IB Programs 1995-2008

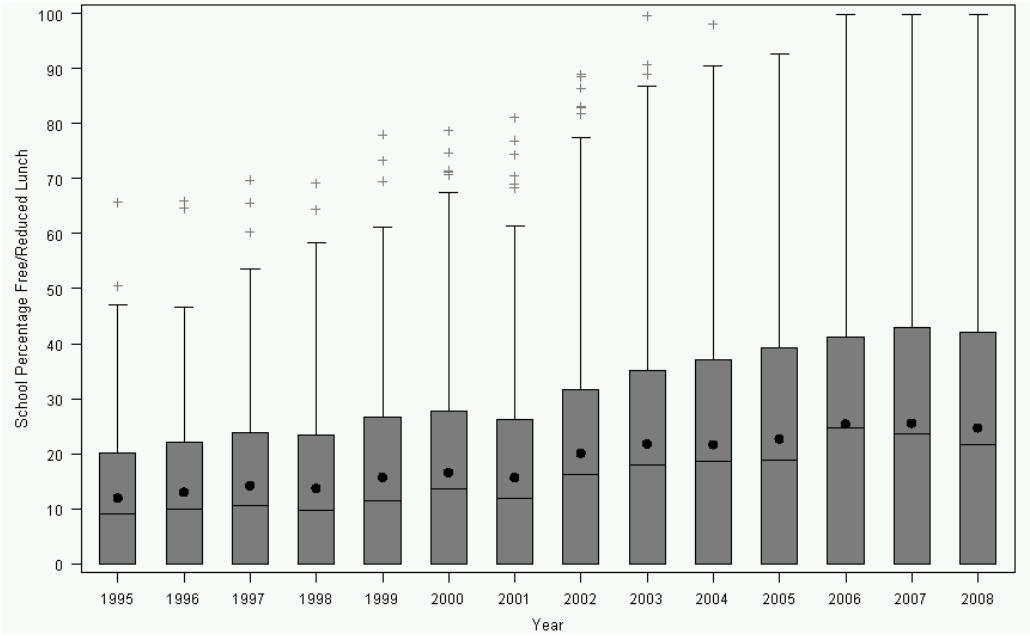

Figure 7.

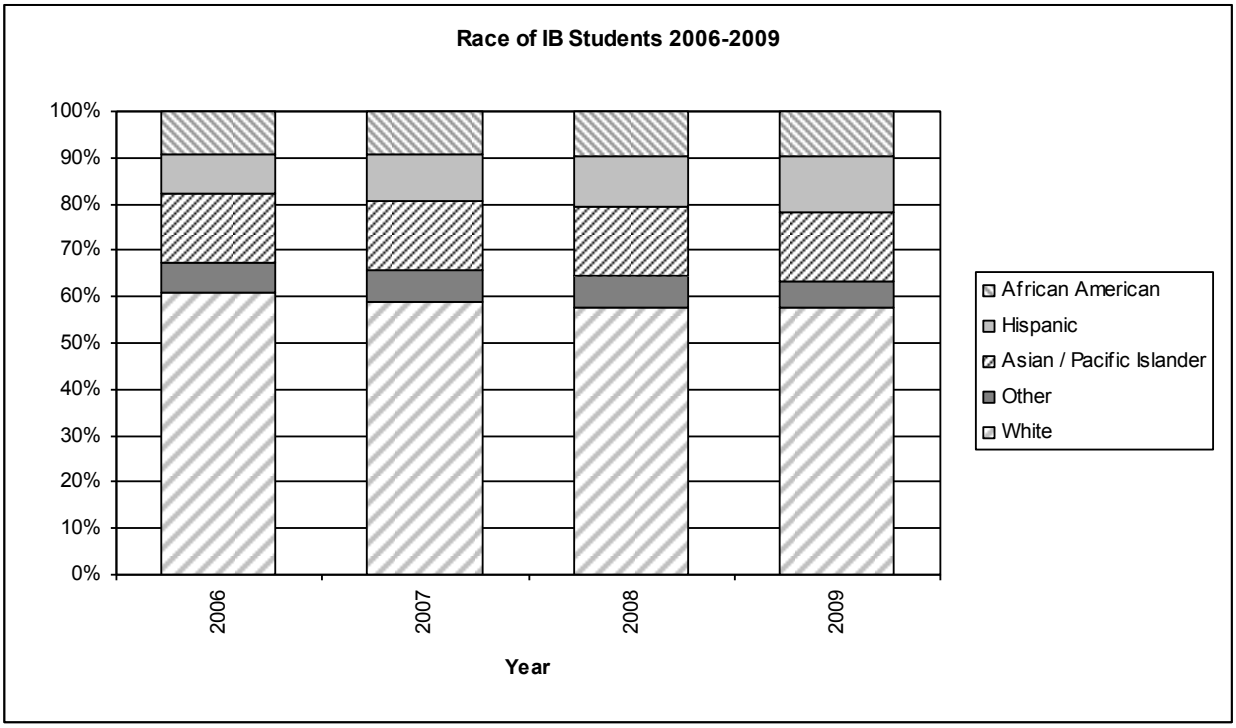

Figure 8.