This study looked at California Department of Education enrollment records for all 517 Los Angeles County Public High Schools to determine the influence of ethnicity, gender and income on a school’s participation in Computer Science (CS). We tested the assumption that higher minority and low-income populations would have an inverse relationship with the probability that a school would offer CS, and further, an inverse relationship with the probability that a student would enroll in a CS course if it was offered. The motivation was to determine which demographic categories are more or less predisposed to participate in CS. Understanding this relationship is key if schools, universities, and companies are to target and grow underrepresented categories. We found that our results stray significantly from our assumptions – for instance, the percentage of Los Angeles County students enrolled in CS that are female (37.9%) is more than double the national percentage of CS graduates that are female (17.9%).

the results our investigation has illuminated will allow policy-makers to more effectively strategize ways to encourage participation across schools and students of all backgrounds.

To investigate the local population of grade school students studying Computer Science, government data was consolidated into an online interface. This tool allows us to visualize the impact select demographics (e.g. ethnicity, income) have on Computer Science participation. Our website generates charts for combinations of variables selected by the user.

● Abstract (max 300 words)

The purpose of this study is to gain empirical insight into the state of Computer Science (CS) in grade schools proximate to USC. Using available records from the California Department of Education, three decades of Los Angeles County public school data was compiled into meaningful tables. This data provides explicit CS enrollment totals; for any CS course, specifying a school, grade level, gender, and ethnicity will give a precise student count. Further, the percent of students that qualified for Free or Reduced Price Meals (FRPM) at each school was used to estimate the average income level of that school’s student body.

Naturally, we hypothesized that schools with a high minority population and low income students would be less likely to offer CS. If these schools did offer CS, we hypothesized that they would have fewer CS enrollments compared to their majority-populated, higher income counterparts. To test these assumptions, we built a website with a data visualization tool, which streamlines the data manipulation process by generating charts for desired pairs of parameters. Users need only select the x-axis they wish to plot against (e.g. time, income) and the specific demographics for which they want enrollment information (e.g. 12th grade female Hispanics).

The charts produced allow us to determine which demographic categories are more or less predisposed to participate in CS. Understanding this relationship is key if we are to target and grow underrepresented categories. We continue our analysis, but hope that others may use our interface to research their own hypotheses and that the results our investigation has illuminated will allow policy-makers to more effectively strategize ways to encourage participation across schools and students of all backgrounds.

Ensure the best reviewer match by writing a clear abstract that describes your paper’s motivation, its theoretical grounding, and the research methods used along with a summary of your results.

* mention minority percentages

the number of female students that are taking CS in the LA area is double the national percentage of women who graduate from STEM fields

mention # of schools from LA county

This trend begins well before entering the job market: girls account for more than half of all Advanced Placement (AP) test-takers, yet boys outnumber girls 4:1 in computer science exams. In Mississippi, Montana and Wyoming, not a single girl took the AP Computer Science examination in 2014.

<http://www.computerscience.org/resources/women-in-computer-science/>

<https://ngcproject.org/statistics>

* **Female and male students enrolled in advanced science courses at comparable rates**, with females slightly more likely than males to do so (22% versus 18%). However, only 15% of black students and 17% of Hispanic students took these courses.
* **Enrollment in high level mathematics courses did not significantly differ by sex, but did vary by race and ethnicity, parent education level, and SES**. For example, the proportion of Asian or Pacific Islander students (64%) enrolled is significantly higher than that of black students (30%) and Hispanic students (28%).
* **Female and male students took AP exams in calculus AB, statistics and chemistry at roughly the same rates in 2013**. However, males were more likely to take advanced level AP exams, including calculus BC, physics B and physics C.
* **Male students were more likely than female students to take engineering (3% versus 1%) and computer science courses (7% versus 4%)** and enrolled in AP computer science A at a much higher rate (81% males; 19% females).
* Women earned 57.3% of bachelor’s degrees in all fields in 2013 and 50.3% of science and engineering bachelor’s degrees. However, **women’s participation in science and engineering at the undergraduate level significantly differs by specific field of study**. While women receive over half of bachelor’s degrees awarded in the biological sciences, **they receive far fewer in the computer sciences (17.9%), engineering (19.3%), physical sciences (39%) and mathematics (43.1%).**
* In 2012, **11.2% of bachelor’s degrees in science and engineering**, 8.2% of master’s degrees in science and engineering, and 4.1% of doctorate degrees in science and engineering **were awarded to minority women** ([NSF, Women, Minorities, and People with Disabilities in Science and Engineering, 2015](http://www.nsf.gov/statistics/2015/nsf15311/)).
* In 2012, 3.1% of bachelor’s degrees in engineering, 6.5% of bachelor’s degrees in physical sciences, 5.4% of bachelor’s degrees in mathematics and statistics, 4.8% of bachelor’s degrees in computer sciences, 9.7% of bachelor’s degrees in biological sciences, and 14.2% of bachelor’s degrees in social sciences were awarded to minority women ([NSF, Women, Minorities, and People with Disabilities in Science and Engineering, 2015](http://www.nsf.gov/statistics/2015/nsf15311/)).