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**High-stakes Testing and State Financial Aid:  
Evidence From Michigan**

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## Recent Trends in State Scholarship Programs

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- Most new state scholarship programs in the 1990s have emphasized merit criteria over financial need
- Following Georgia HOPE, new or expanded merit programs in Florida, Louisiana, New Mexico, Alabama, Kentucky, Maryland, Texas, and Washington
- Since 1982, funding for state merit-based programs has increased 336%, need-based programs 88%; merit-based programs share has risen from 9% to 19%

## Michigan Merit Award Scholarship Act

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- Passed in 1999 with goal of increasing college access in the state and rewarding high academic achievers
- One-time \$2,500 award for attendance at in-state institutions, \$1,000 for out-of state institutions
- Funded from state's share of the tobacco settlement fund
- Expected to reach over \$100 million by second year, larger than state's need-based program
- Spring 2000 HS graduates first eligible cohort

# Michigan Merit Award Scholarship Act

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## ■ Award criteria

- Students have to score at level 1 or 2 (on a 1 to 4 scale) on all four of state's 11th grade Michigan Educational Assessment Program (MEAP) standardized tests (mathematics, reading, science, and writing)
- Alternative criteria: take all four tests, pass at least two, and score in top 25th percentile nationally on SAT or ACT tests
- No income eligibility requirements

## Research Questions

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1. How did scholarship qualification vary for students with different socioeconomic characteristics?
2. How do these SES characteristics jointly relate to scholarship qualification?
3. Is the scholarship program likely to achieve the legislatively-mandated goal of increasing access to higher education in the state?

## Existing Research

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- **Relationship between standardized tests and SES**
  - Clear evidence that Whites and Asian Americans consistently score higher than African Americans, Hispanics, and Native Americans
  - High-SES students score higher than low-SES students
  - Gender data are more mixed – girls generally score higher than boys on reading and writing tests, but lower than boys on science and math tests

## Existing Research

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- **Effect of financial aid on college enrollment**
  - Of the various types of financial aid, grants tend to have the strongest influence on college enrollment
  - African American and Hispanic students tend to have a stronger enrollment response to grants than White students
  - Low-income students have stronger enrollment response than higher income students

## Data Sources

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- **Student level: MEAP High School Test Results**
  - Test scores, race/ethnicity and gender for each of the 124,350 juniors who took the Spring '99 test
  - 53% of the students (66,419) took all four subject area tests necessary to qualify for the scholarship
- **School level: Michigan School Report**
  - Percentage of students qualifying for free or reduced price lunch in each of the 704 public high schools in 1999
  - Indicator of the income levels of families in the school's district

# Methods

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## ■ Bivariate Analysis

- Compare the percentage of students from each demographic category who qualified for the scholarship with the percentage who took all four subtests
- Compare the distribution of students with different background characteristics among scholarship qualifiers
- Evidence of over- or under-representation of scholarship qualifiers relative to test-takers in given groups indicates an imbalance in the awarding of scholarships

## Methods

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### ■ Multivariate Analysis

- Assess the joint relationships of the student and school characteristics to scholarship qualification
- Limited to only those students who completed all four subject tests
- Logistic regression techniques accurately estimate the effect of the predictors on a dichotomous outcome: qualifying or not qualifying for a scholarship

# Logistic Regression Model

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$$P(Y_i) = \frac{\exp(\beta_0 + \beta_1 F_i + \beta_2 R_i + \beta_3 S_i + \beta_4 F_i R_i)}{1 + \exp(\beta_0 + \beta_1 F_i + \beta_2 R_i + \beta_3 S_i + \beta_4 F_i R_i)}$$

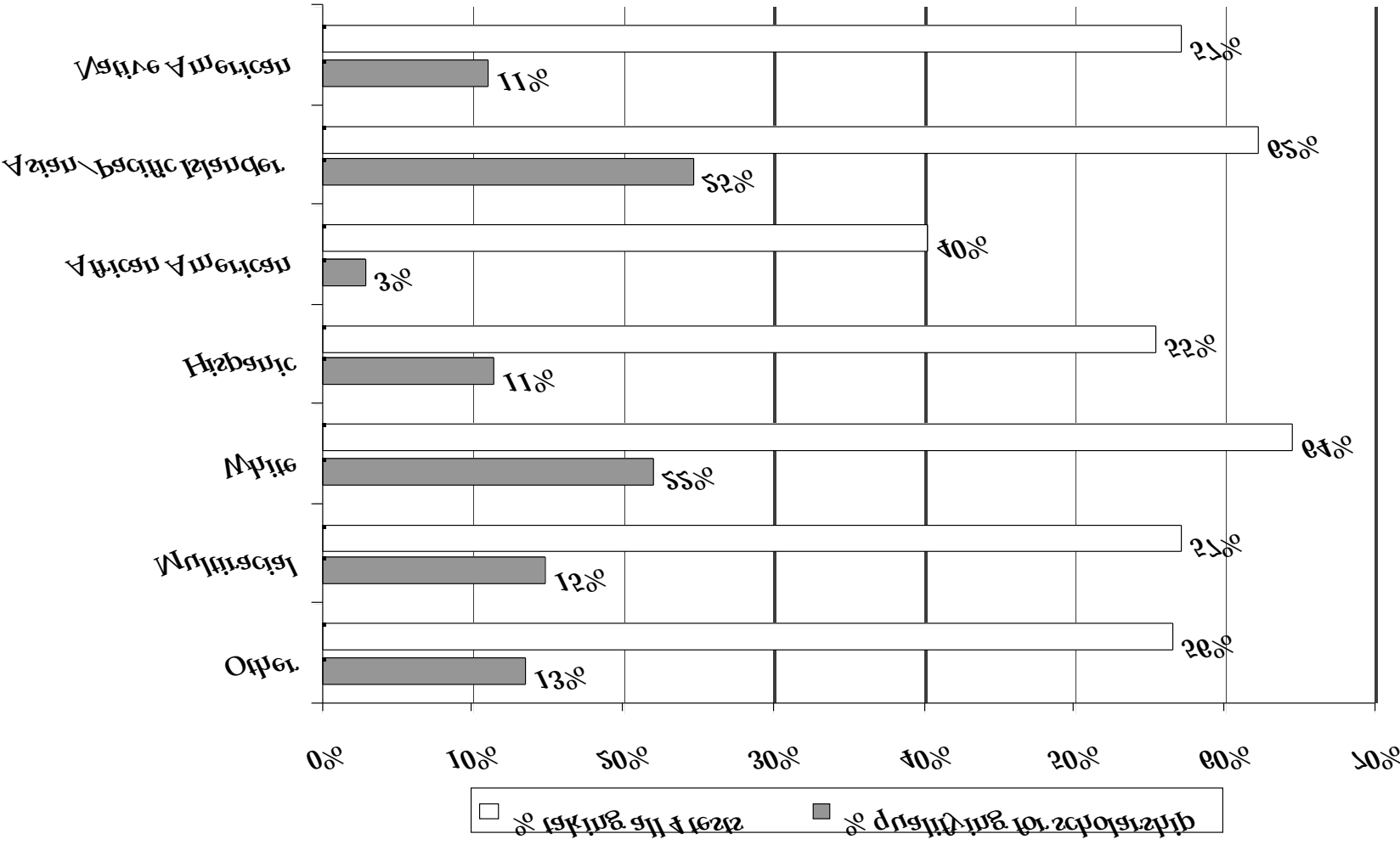
- $P(Y_i)$  = Probability of student  $i$  qualifying for a scholarship  
 $F_i$  = % of free lunch students in school attended by student  $i$   
 $R_i$  = Vector of dummy variables for race of student  $i$  (White omitted)  
 $S_i$  = Sex of student  $i$  (female omitted)  
 $F_i R_i$  = Vector interacting race dummy variables with school free lunch %

## Bivariate Results

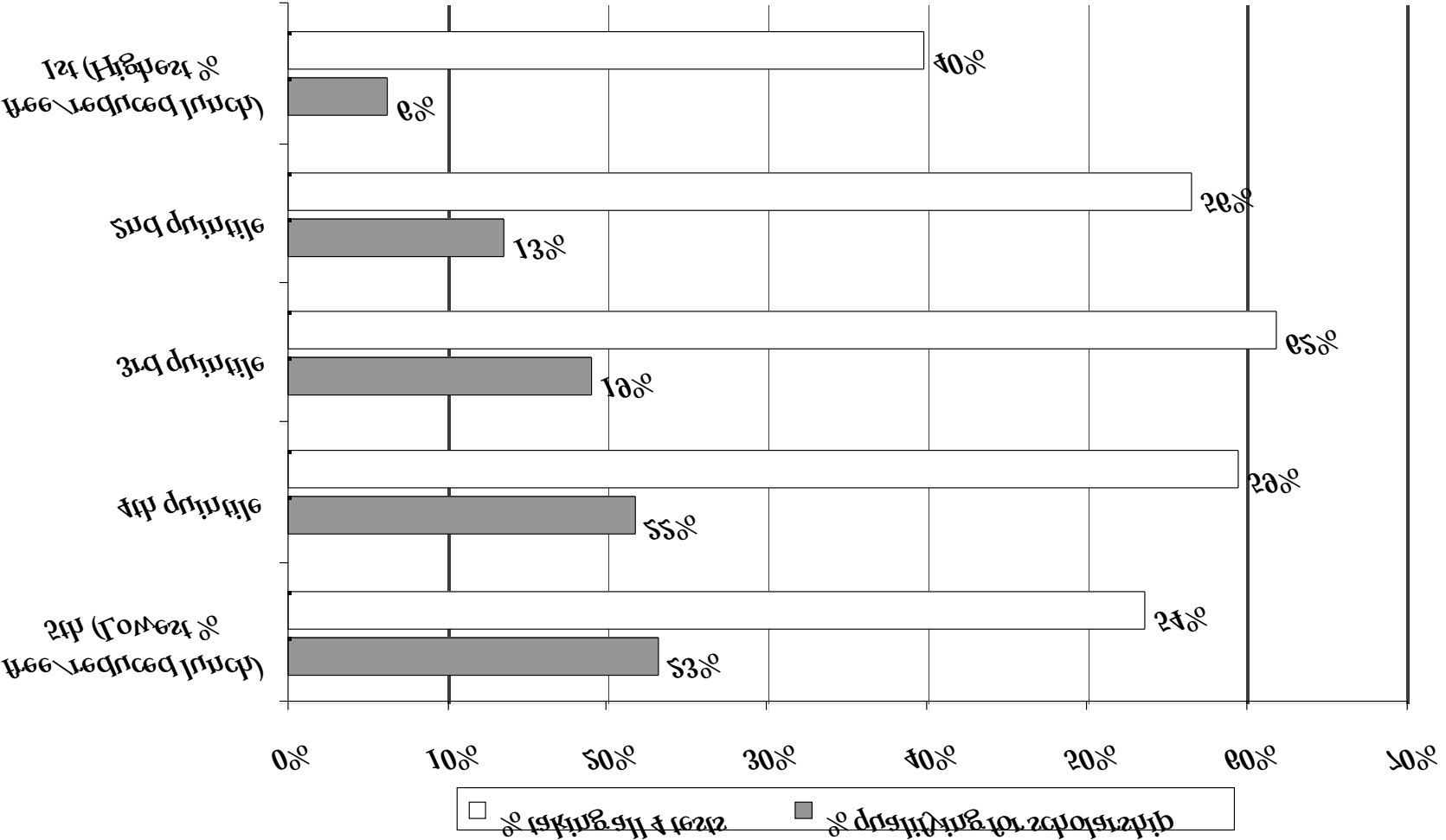
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- Whites represented 70% of the students but almost 88% of scholarship qualifiers
- African American students were most under-represented: 19% of students but only 3.1% of the scholarships
- Strong inverse relationship between income level of students in a school and the percentage of students qualifying for scholarships
- More than half the scholarships (54%) were awarded to students who attend schools in which fewer than 10% of students qualify for free lunch.

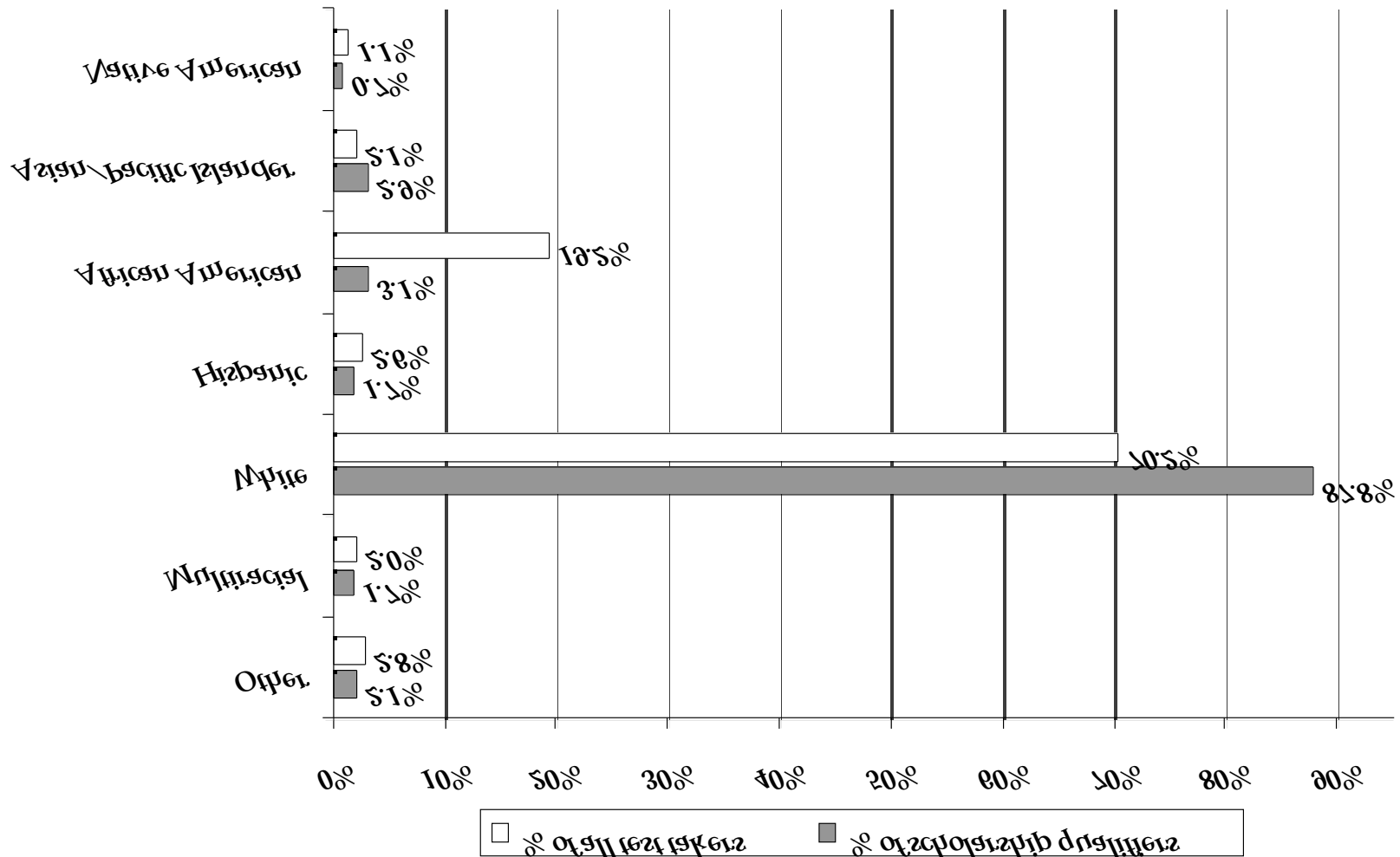
# Test Results by Student Racial/Ethnic Group



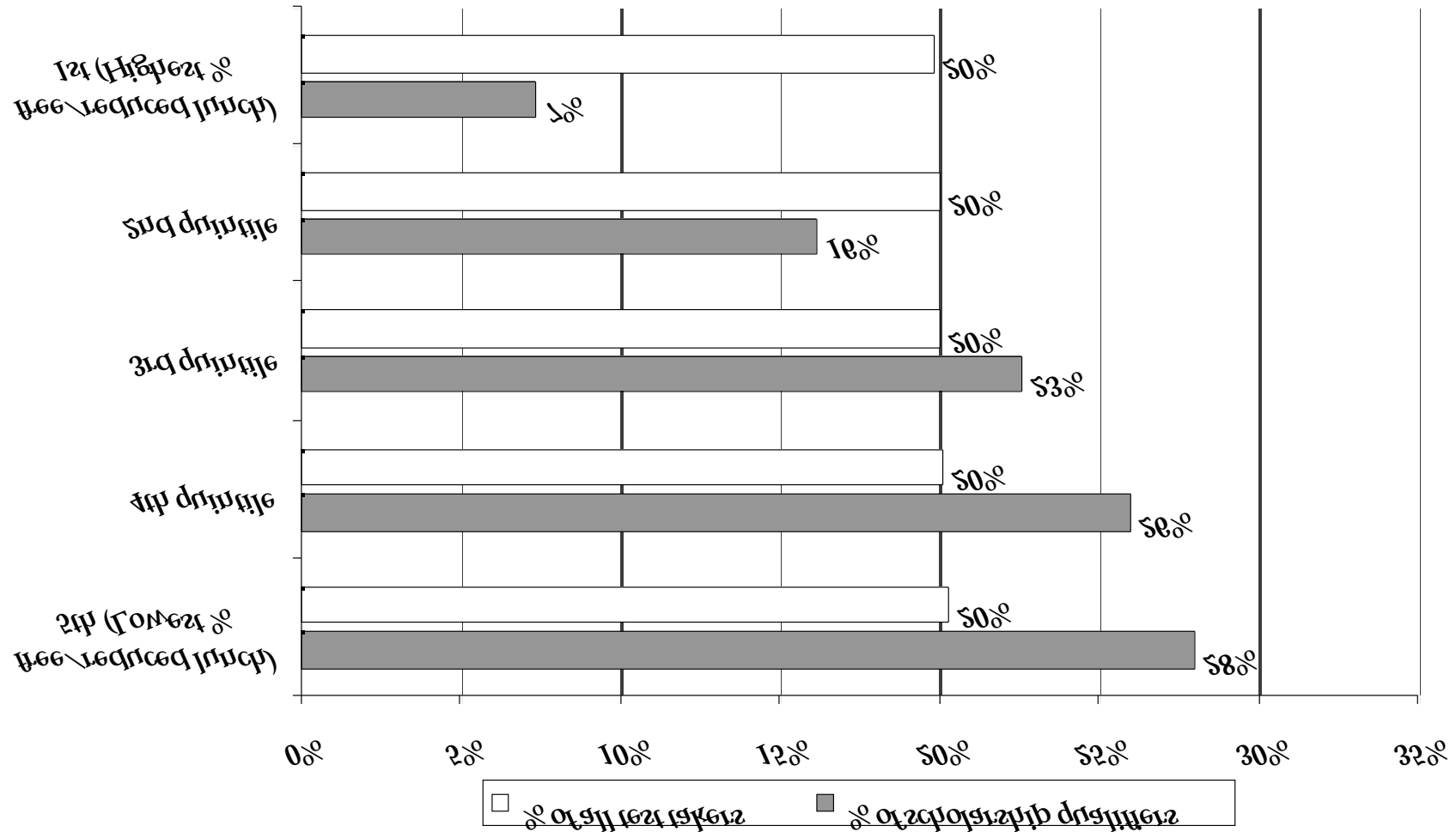
# Test Results by School Free Lunch Quintile



# Distribution of Students and Scholarship Qualifiers by Student Racial/Ethnic Group



# Distribution of Students and Scholarship Qualifiers by School Free Lunch Quintile

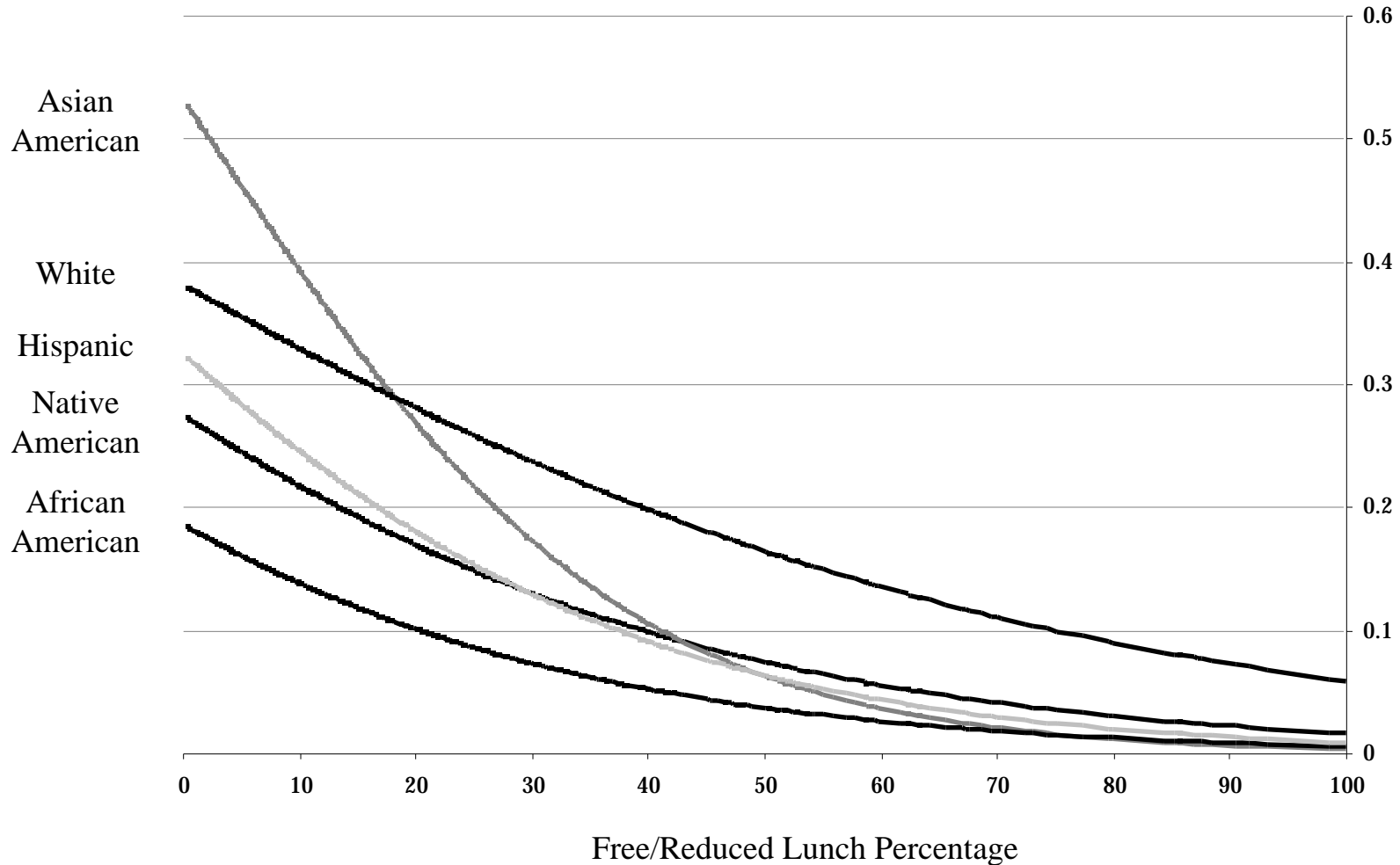


## Multivariate Results

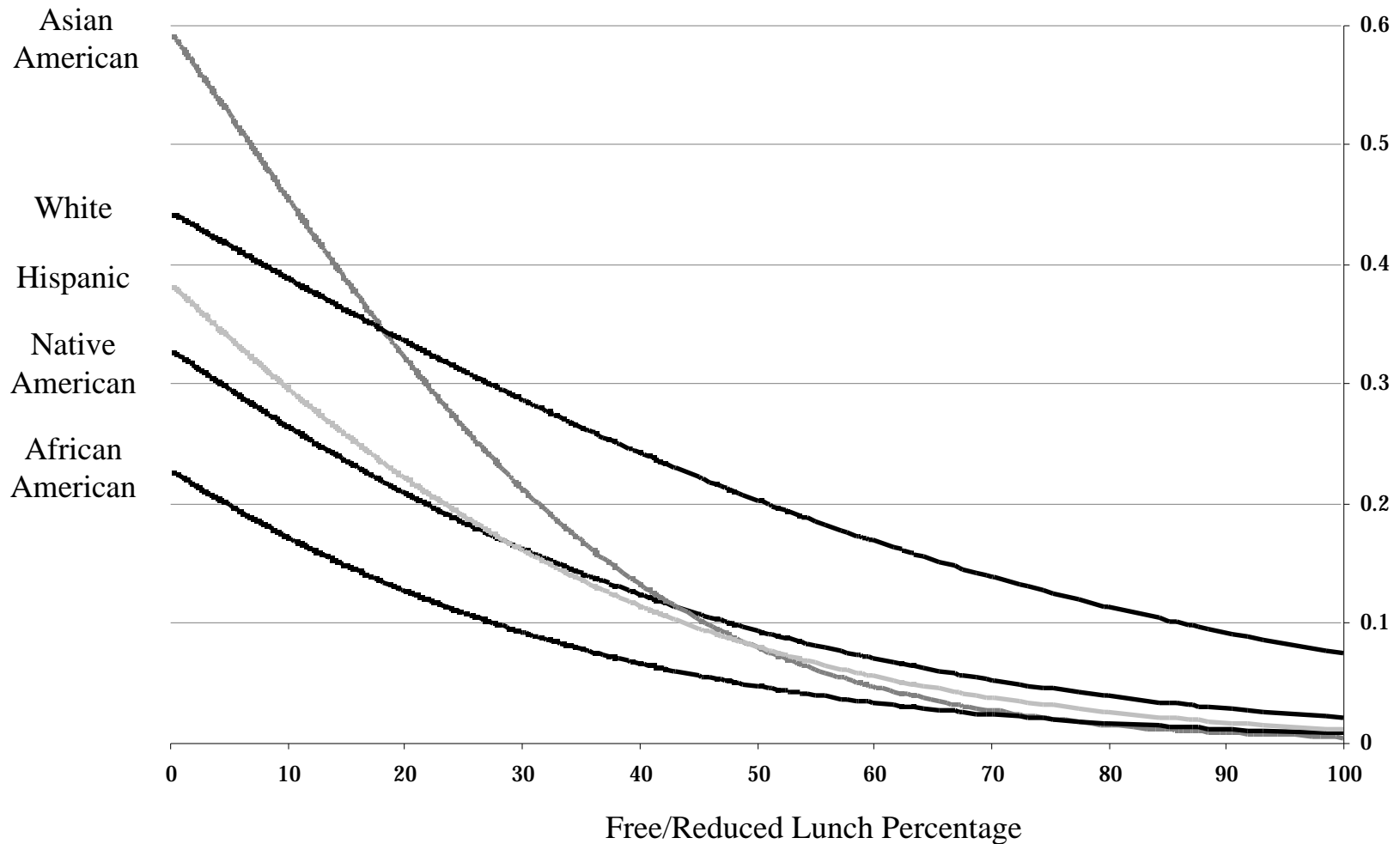
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- The logistic regression model shows a clear relationship between race, gender, school poverty level and the probability of qualifying for a scholarship
  - A 10 percentage point increase in the percentage of students on free lunch at a school corresponds to a 6 point decrease in the probability that a student in the school will earn a scholarship
  - African American students are predicted to have a 20% lower probability of earning a scholarship than white students
  - Male students have a 5% lower probability of earning a scholarship than female students

# Predicted Probability of Qualifying for a Scholarship: Males



# Predicted Probability of Qualifying for a Scholarship: Females



## Is the Program Increasing Access to Higher Education in Michigan?

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- Since the first cohort of students eligible for the scholarships is just now entering college, the answer cannot yet be determined definitively.
- Our findings suggest that the scholarships are missing the mark:
  - The demographic groups with the lowest rates of participation in higher education are precisely those we identified as being the least likely to benefit from the scholarships--African American, Hispanic, Native American and low income.
  - These are also the students who tend to be the most responsive to financial aid, according to prior research.
  - Conversely, the students to whom the scholarships are disproportionately awarded, Whites, Asian Americans and students in wealthier school districts, are least responsive to financial aid: they are most likely to attend college anyway, even without the grants.

## Concluding Thoughts

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- Michigan Merit Award Scholarship Program is currently being litigated
  - Coalition of ACLU, NAACP, MALDEF, and other parties are suing the state in federal court
  - Suit alleges the program violates Title VI of the Civil Rights Act of 1964 and the 14th Amendment of the Constitution due to the disparate impact of the awards
  - Suit currently in discovery
- To download a copy of the paper and presentation:

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<http://www.umich.edu/~dheller>