



Institute of Education Sciences

TECH Meeting: National Forum on Education Statistics

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This presentation is intended to promote the sharing of ideas. The views expressed are part of ongoing research and do not necessarily reflect any official position.

*Student Access to Digital Learning
Resources Outside of the Classroom*

- **Study Mandated by ESSA – Description of the 5 analytic tasks**
- **Indicator Findings**
- **Release of *Student Access to Digital Learning Resources Outside of the Classroom* on April 4.**
- **Discussion of next steps**

Student Access to Digital Learning Resources Outside of the Classroom

- In response to ESSA mandate, IES/NCES produced a report on the educational impact of access to digital learning resources outside of the classroom.
- Five analytic tasks were mandated by the legislation.
- The report was due in Summer 2017.
- NCES made the decision to focus on elementary and secondary education.
- Primary focus of indicator report: Home use of Internet related to income and locality.

Analyze habits related to digital learning resources outside of school

- Report presents percentage of children (ages 3-18) living in households with internet access in 2015, by state and metropolitan status.
- Also examines internet access by characteristics such as student age, family income, and parental education.
- Data sources: Current Population Survey and American Community Survey (for selected years from 2010 to 2015).
- New data identify available devices other than a desktop computer/laptop, such as a tablet or e-book reader, or cellphone.

Identify barriers in accessing digital learning resources outside of school

- Report examines the percentage of children with no internet access at home, by main reason (cited by household head) for not having Internet at home in 2010 and 2015.
- Characteristics include child age, sex, race/ethnicity, NCES locale, poverty status, and family income.
- Barriers include responses such as: don't need it; not interested; too expensive; can use it elsewhere; not available in area; no computer or inadequate computer; online privacy concerns; or personal safety concerns.

Challenges faced by students who lack home internet access

- Some difficulty in finding national data to directly address this concern. Some challenges may be less related to “school” than to education more generally (e.g. college applications.)
- Report examines NAEP reading and mathematics scores (2015) by internet access
- Also examines other NAEP metrics on mathematics engagement, use of computers in math class, by home internet access.
- Report is limited to descriptive statistics on potentially related variables. Not possible to look at causal relationships.

Analyze how students without Internet impact instructional practice

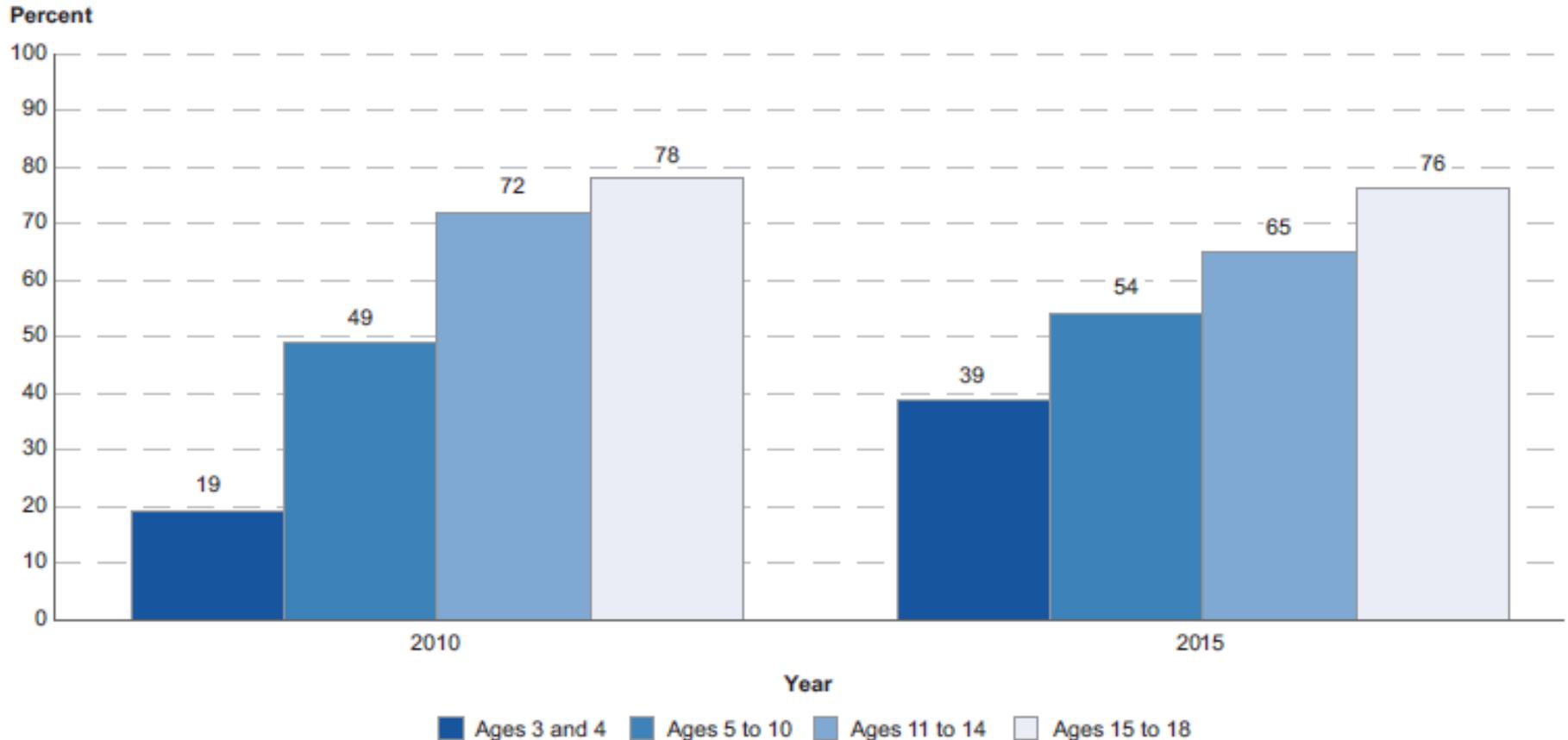
- This requirement was difficult to address with existing NCES data.
- While an analysis of use of computers at school could be correlated with availability of Internet at home using NAEP, it would be difficult to interpret the relationships without more specific knowledge of school practices.
- This requirement was addressed to the extent possible by references to existing research studies on this topic.

Strategies to address barriers in accessing digital learning resources

- This requirement cannot be addressed with existing NCES data, and to a large extent this requirement is out-of-scope for an NCES analysis.
- NCES study refers to research already conducted on this topic, including references to “What Works” clearinghouse and other sources of evaluated guidance.

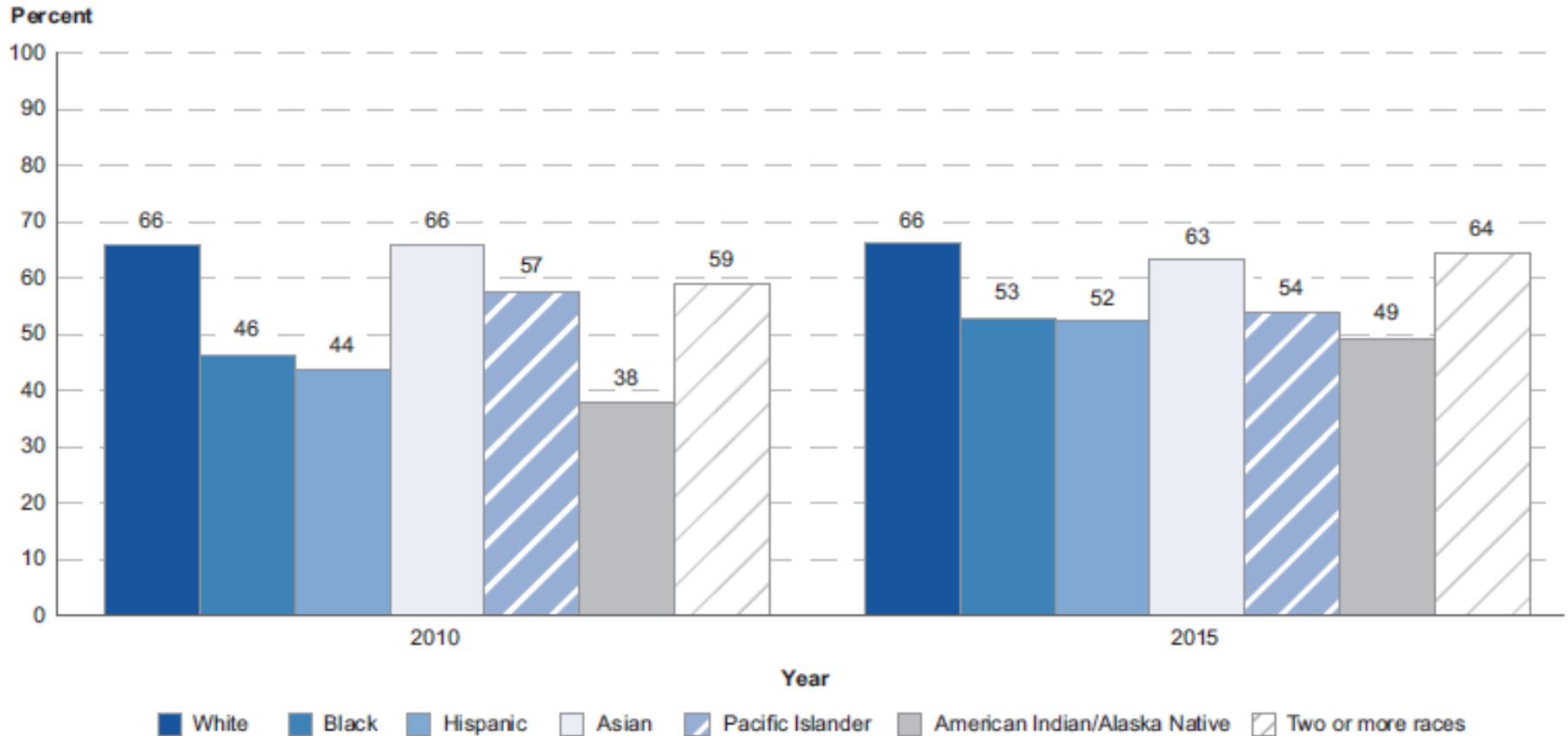
Percentage of children using the Internet is higher for older children

Percentage of children ages 3 to 18 who use the Internet at home, by age: 2010 and 2015



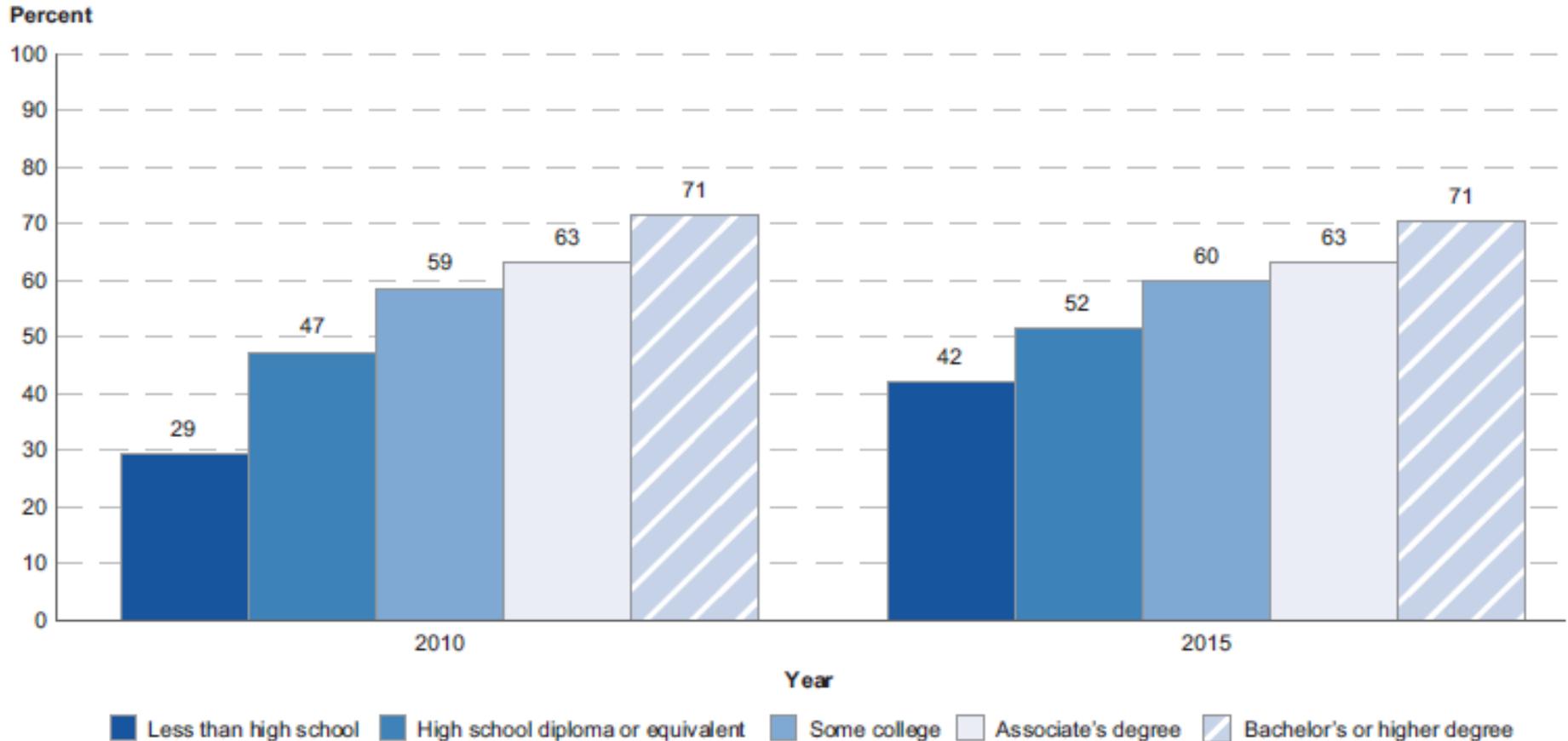
There were differences in internet use at home by race/ethnicity

Percentage of children ages 3 to 18 who use the Internet at home, by race/ethnicity: 2010 and 2015



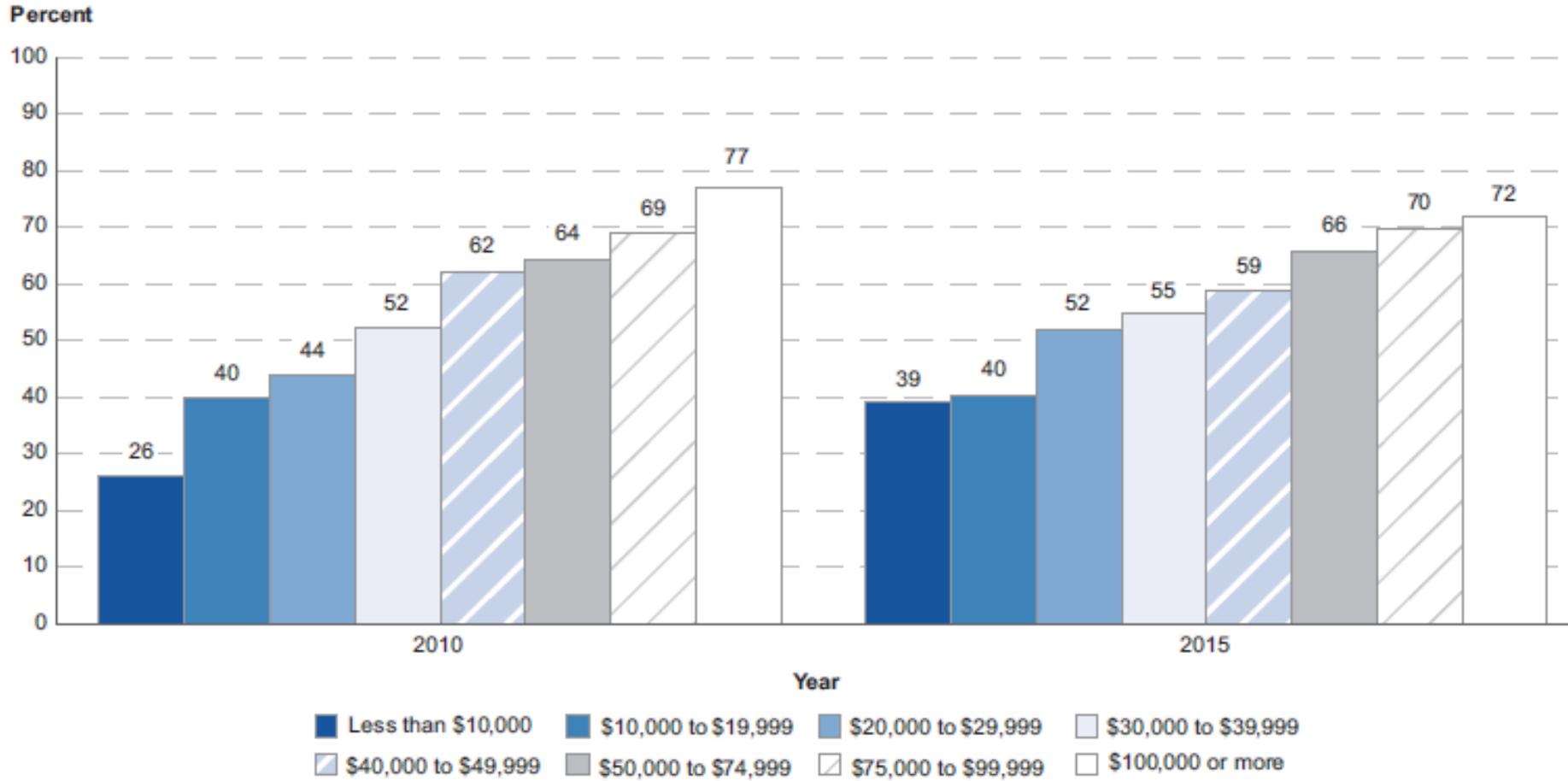
Home internet use was higher for children whose parents attained higher levels of education.

Percentage of children ages 3 to 18 who use the Internet at home, by highest level of education attained by either parent: 2010 and 2015



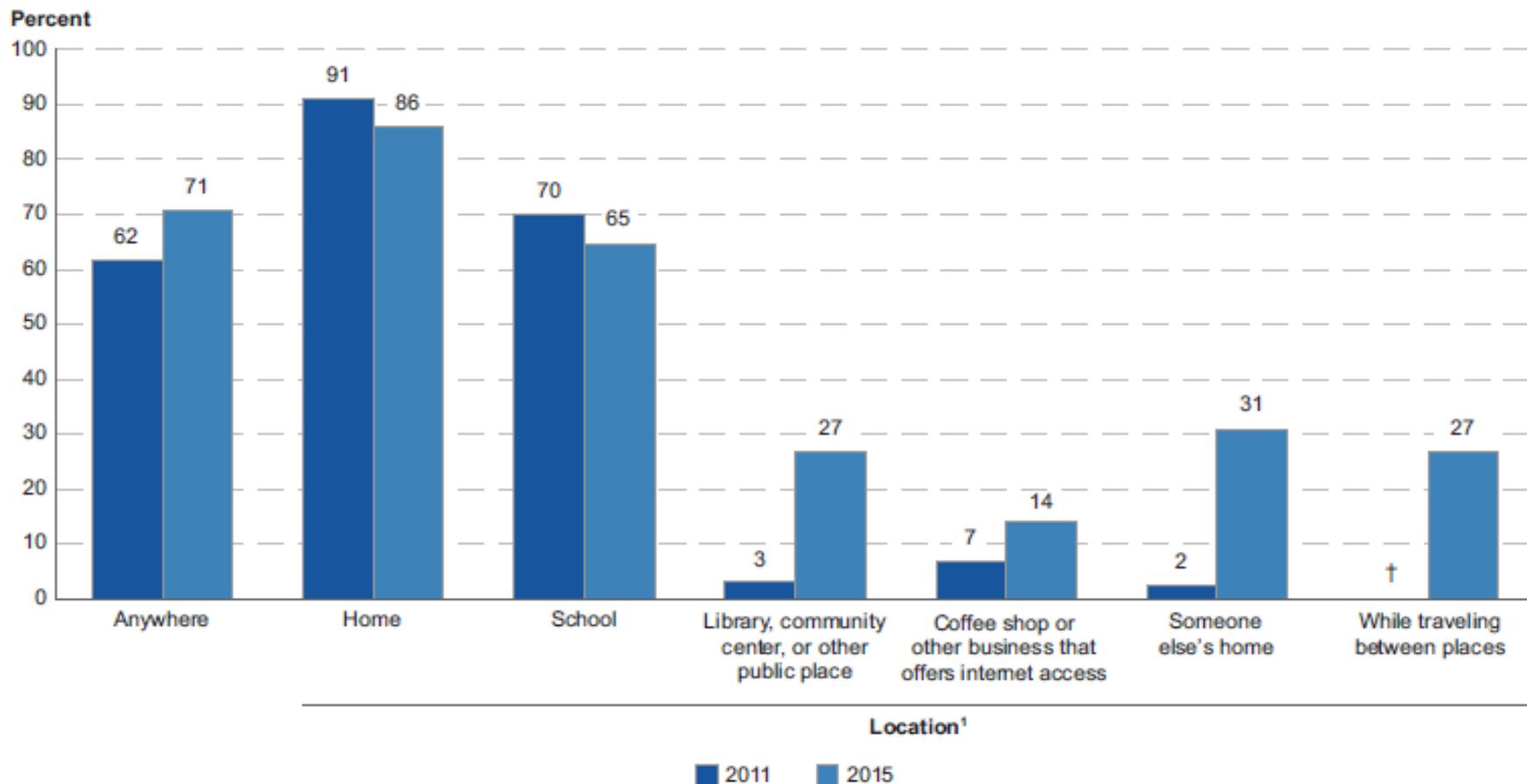
Home internet use was lower for children whose families had lower incomes

Percentage of children ages 3 to 18 who use the Internet at home, by family income: 2010 and 2015



Highest percentage of children with internet access use it at home

Percentage of children ages 3 to 18 who use the Internet anywhere, and among children who use the Internet anywhere, percentage using it in various locations: 2011 and 2015

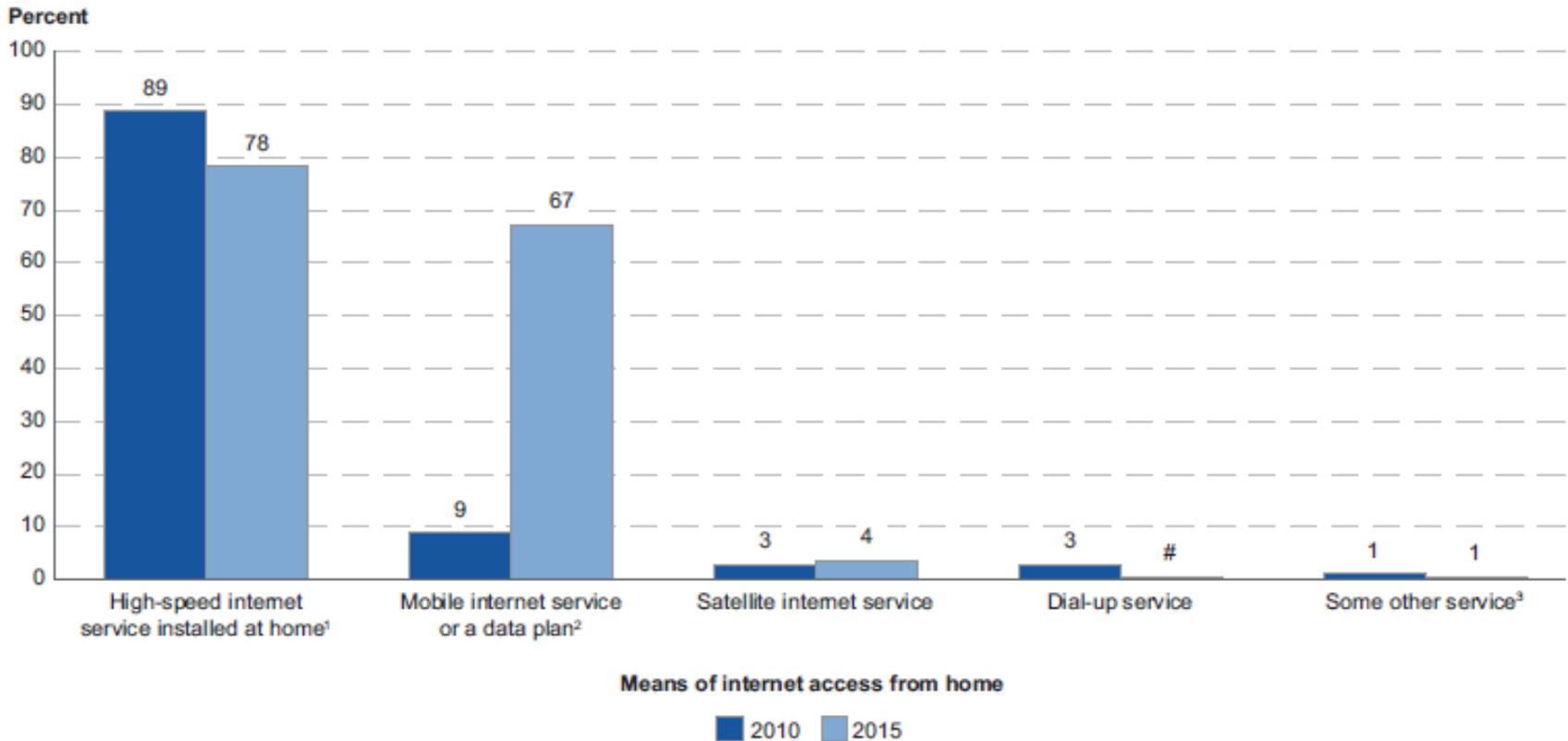


† Not applicable.

¹ Percentages sum to more than 100 because a child could have used the Internet in more than one location.

High-speed and mobile internet were the most common means of internet access

Percentage of children ages 3 to 18 who used the Internet at home, by means of internet access from home: 2010 and 2015



Rounds to zero.

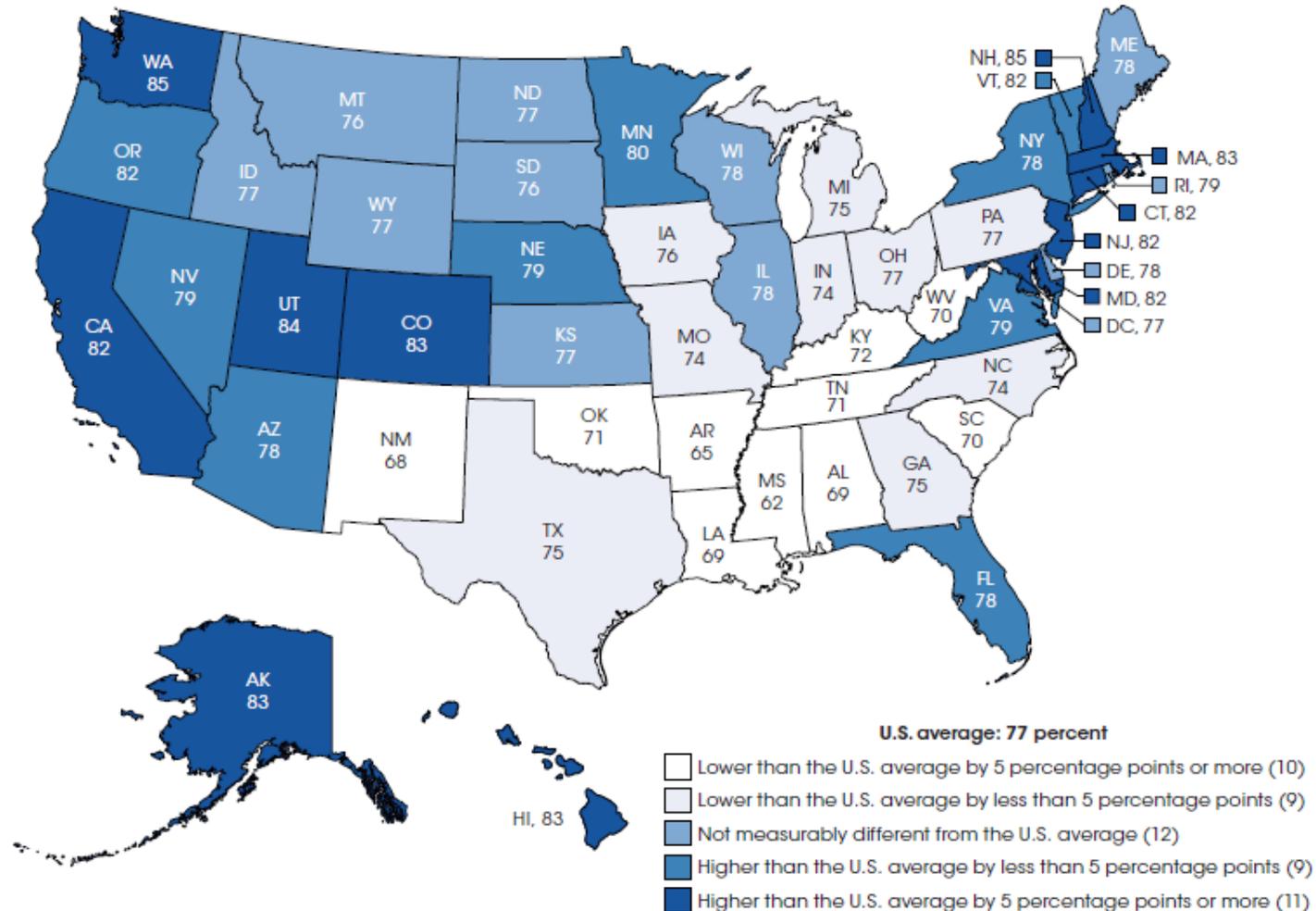
¹ Includes cable, DSL, and fiber-optic service.

² Includes data plan for a cellular phone, smartphone, tablet, laptop, or other device.

³ Respondents were asked whether they accessed the Internet at home using "some other service." Examples of other services were not provided to respondents.

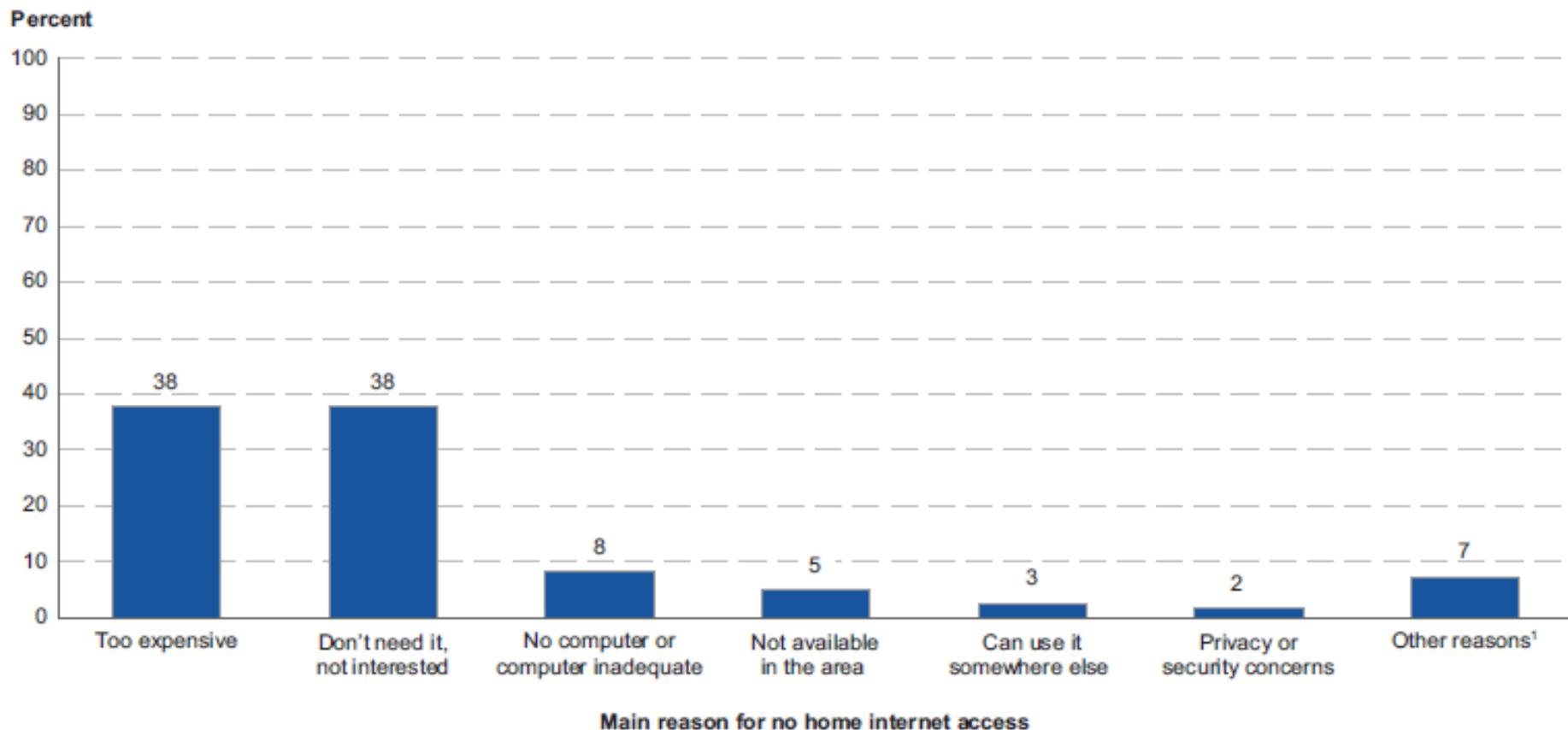
Household internet access differs by state

Percentage of households with internet access, by state: 2015



Most common reasons for lack of internet were expense or not needing it

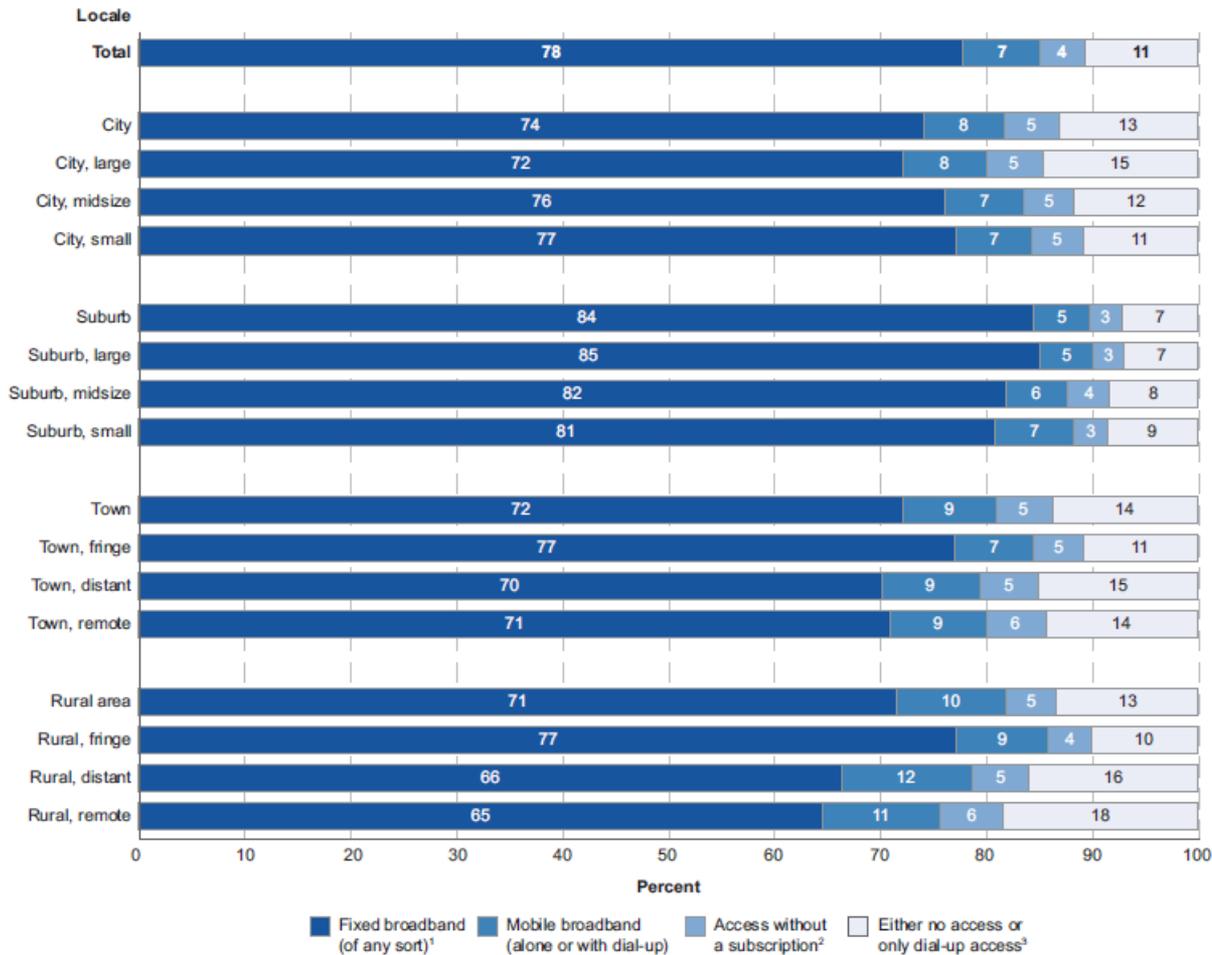
Percentage distribution of children ages 3 to 18 with no internet access at home, by main reason for not having access: 2015



¹ Respondents could specify "other" reasons. Examples of other reasons were not provided to respondents.

Higher percentage of students in remote rural areas lacked adequate home internet access

Percentage distribution of students 5 to 17 years old, by internet access at home and locale: 2015



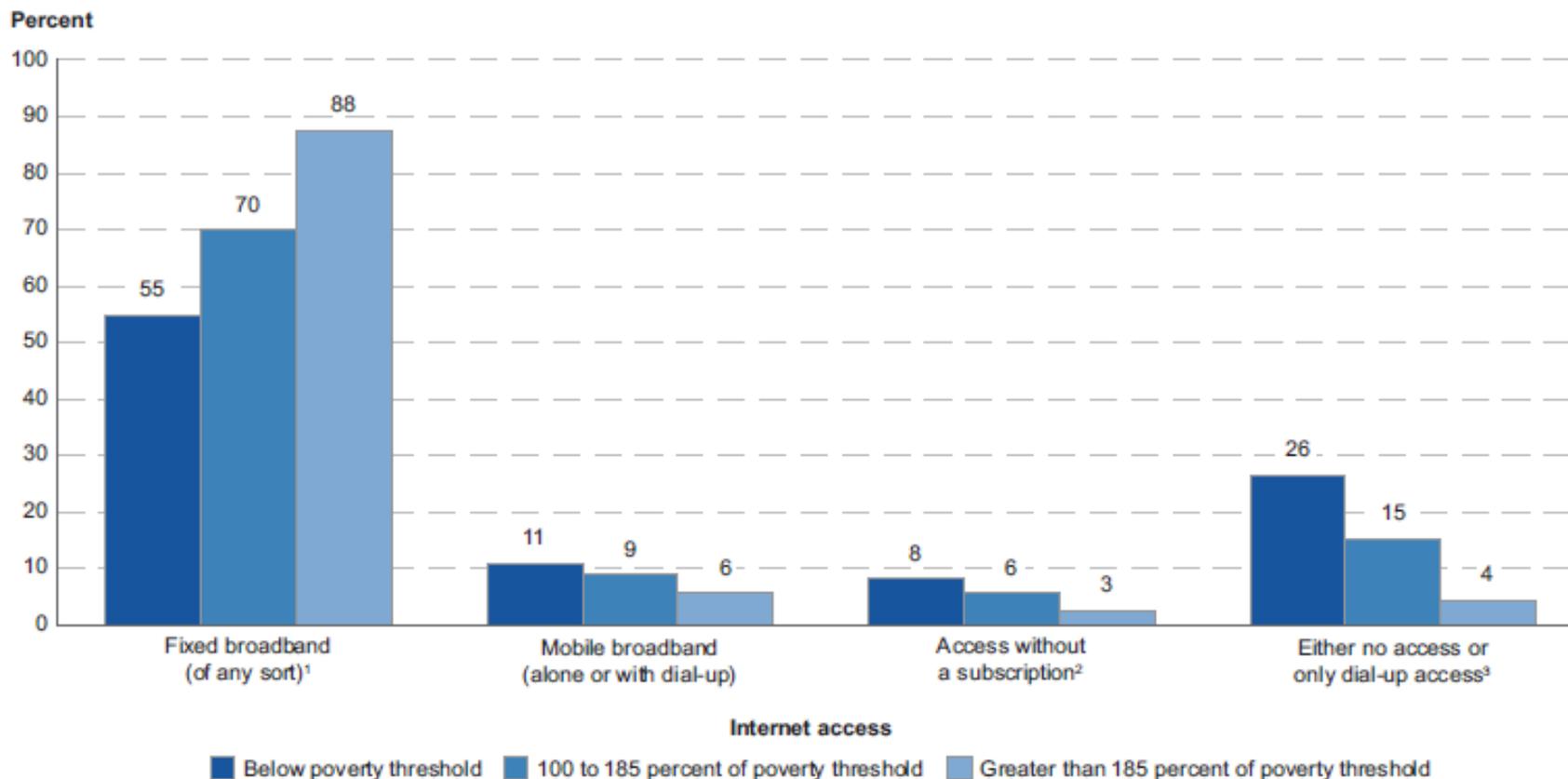
¹ Excludes mobile broadband, but includes all other non-dial-up internet service, such as DSL, cable modem, and fiber-optic cable.

² Includes respondents living in a city or town that provides free internet services for its residents.

³ Includes households where no member accesses the Internet at home as well as households where members access the Internet only with a dial-up service.

Higher percentage of students living in poverty lacked adequate home internet access

Percentage of students 5 to 17 years old, by internet access at home and poverty level: 2015



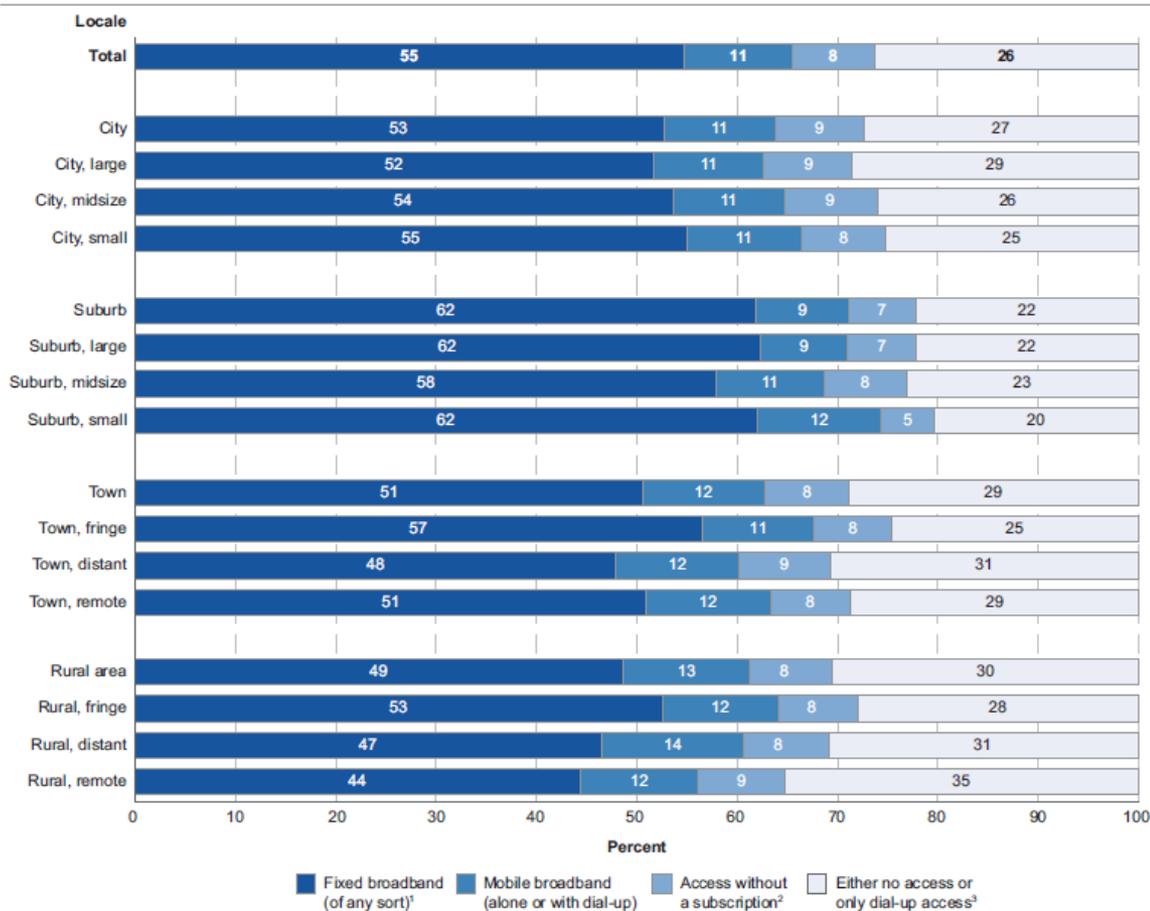
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² Includes respondents living in a city or town that provides free internet services for its residents.

³ Includes households where no member accesses the Internet at home as well as households where members access the Internet only with a dial-up service.

Access issues most evident for students living in poverty in remote rural areas

Percentage distribution of students 5 to 17 years old living in families below the poverty threshold, by internet access at home and locale: 2015



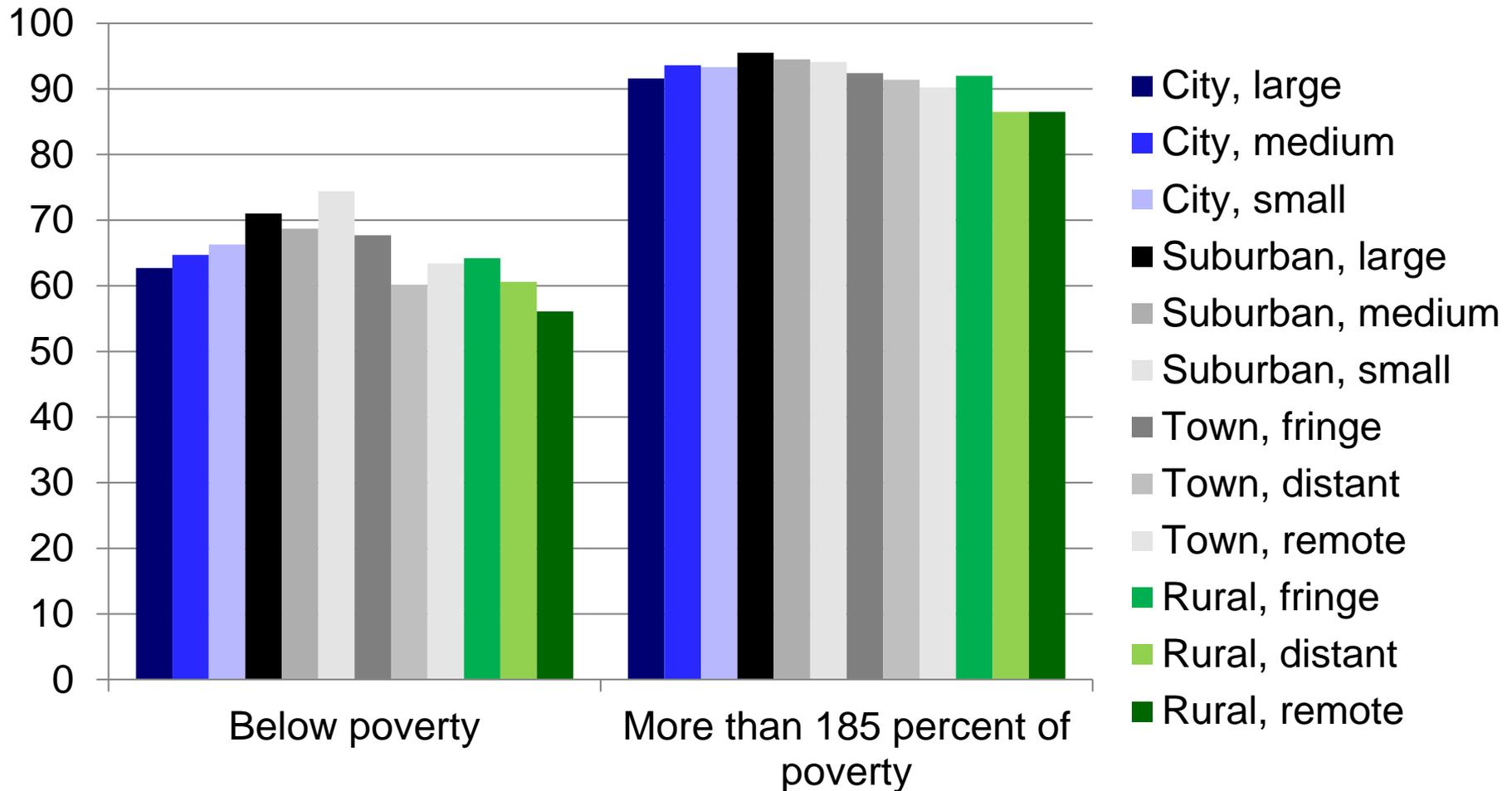
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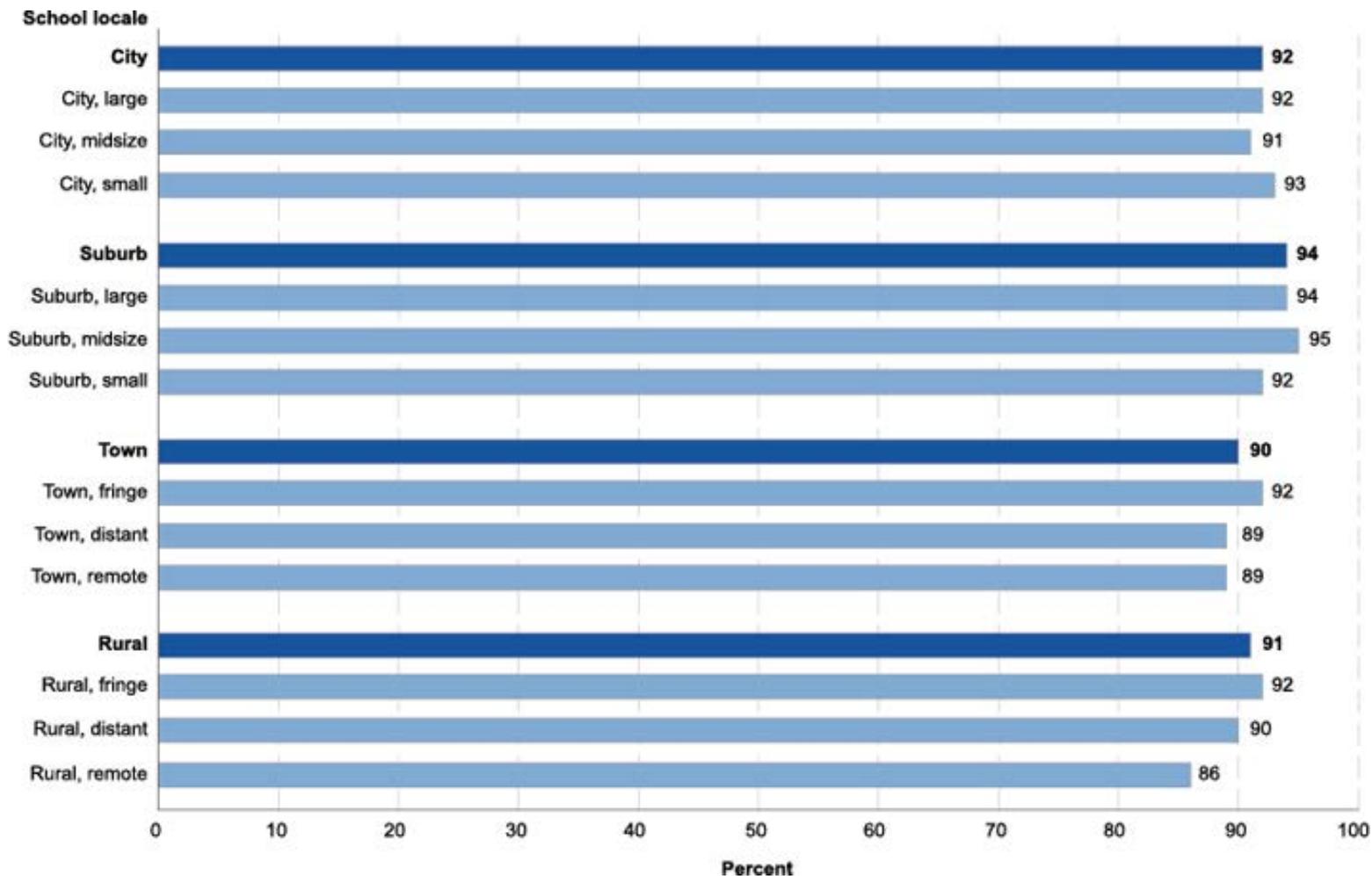
Access differs by poverty status across all types of locales

Percentage of students 5 to 17 years old with home internet access, by poverty status and locale: 2015



Lower percentages of 8th graders in rural remote areas had Internet at home.

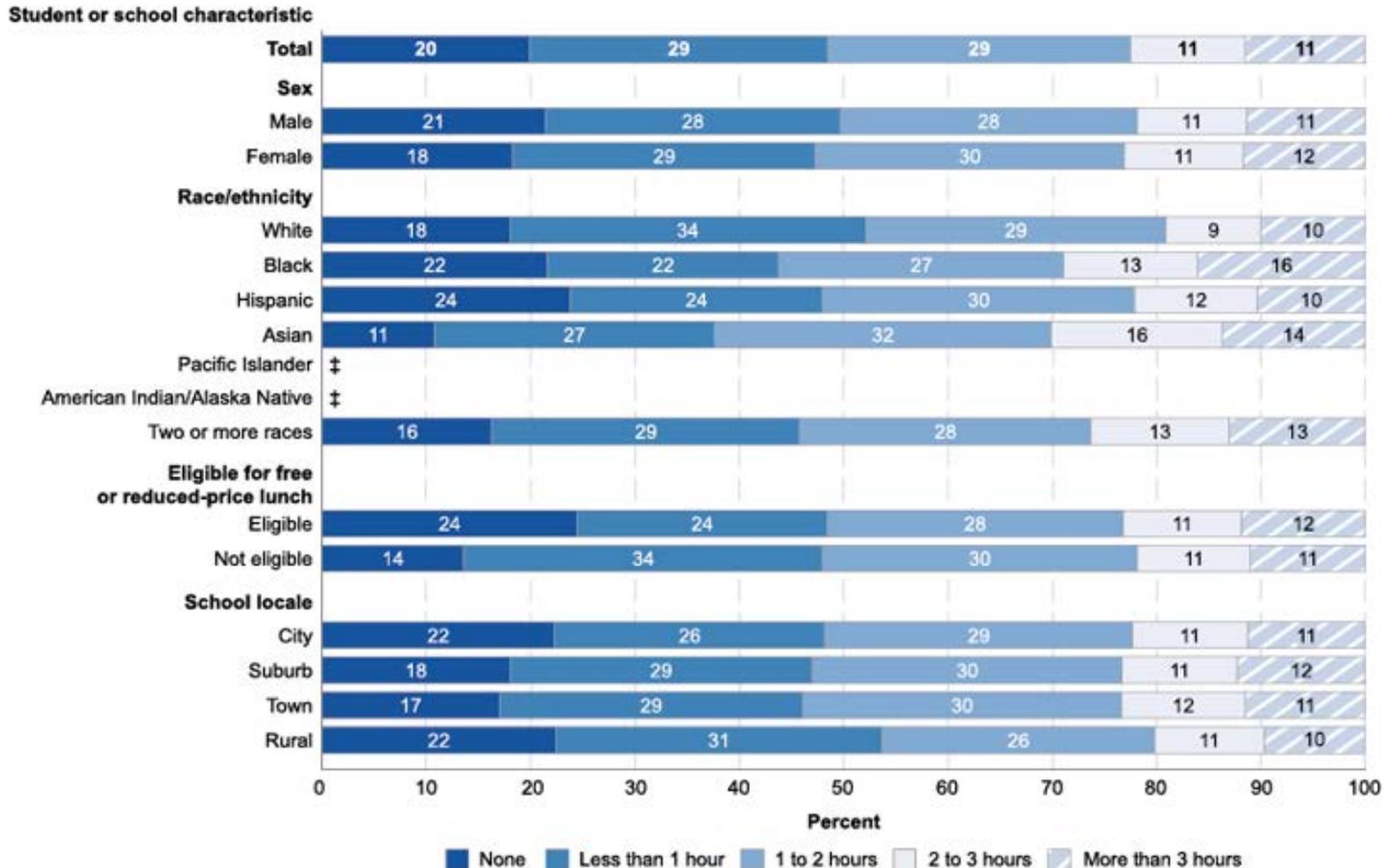
Percentage of 8th-graders who reported having access to the Internet at home, by school locale: 2015





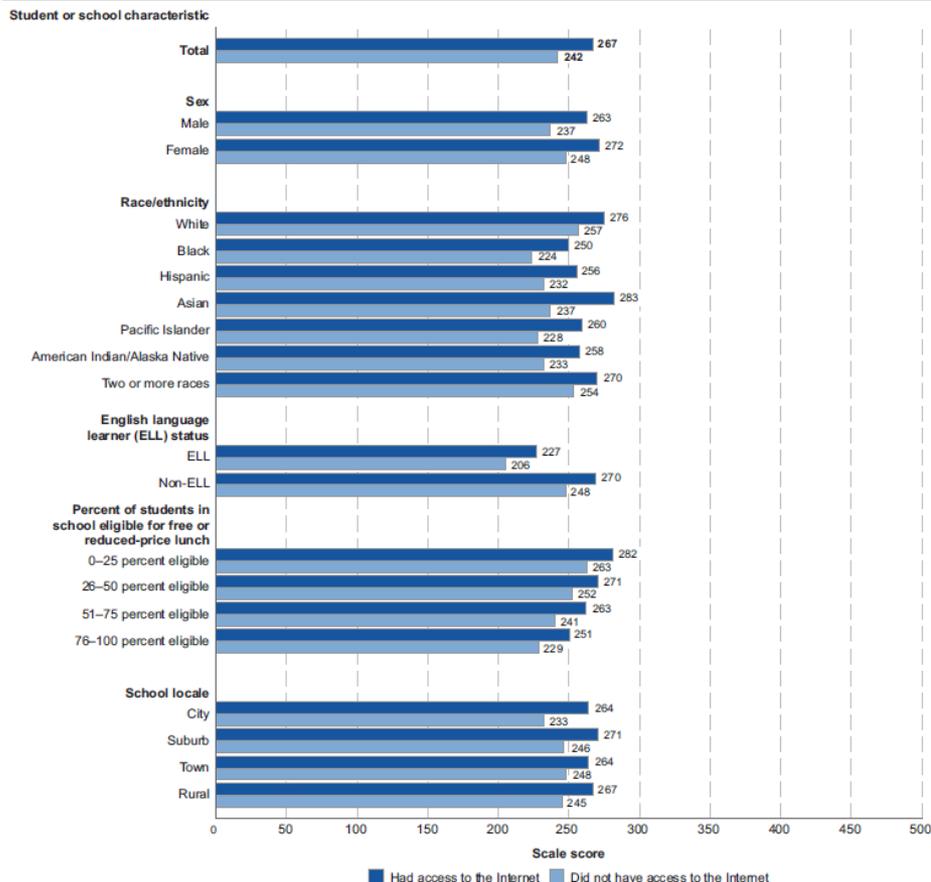
About 20 percent of 8th graders reported not using a computer for school.

Percentage distribution of 8th-grade public school students, by hours they used a laptop or desktop computer for schoolwork on a weekday : 2015



NAEP scores differed by home computer use

Average National Assessment of Educational Progress (NAEP) reading scale scores of 8th-graders, by selected student and school characteristics and computer use at home: 2015

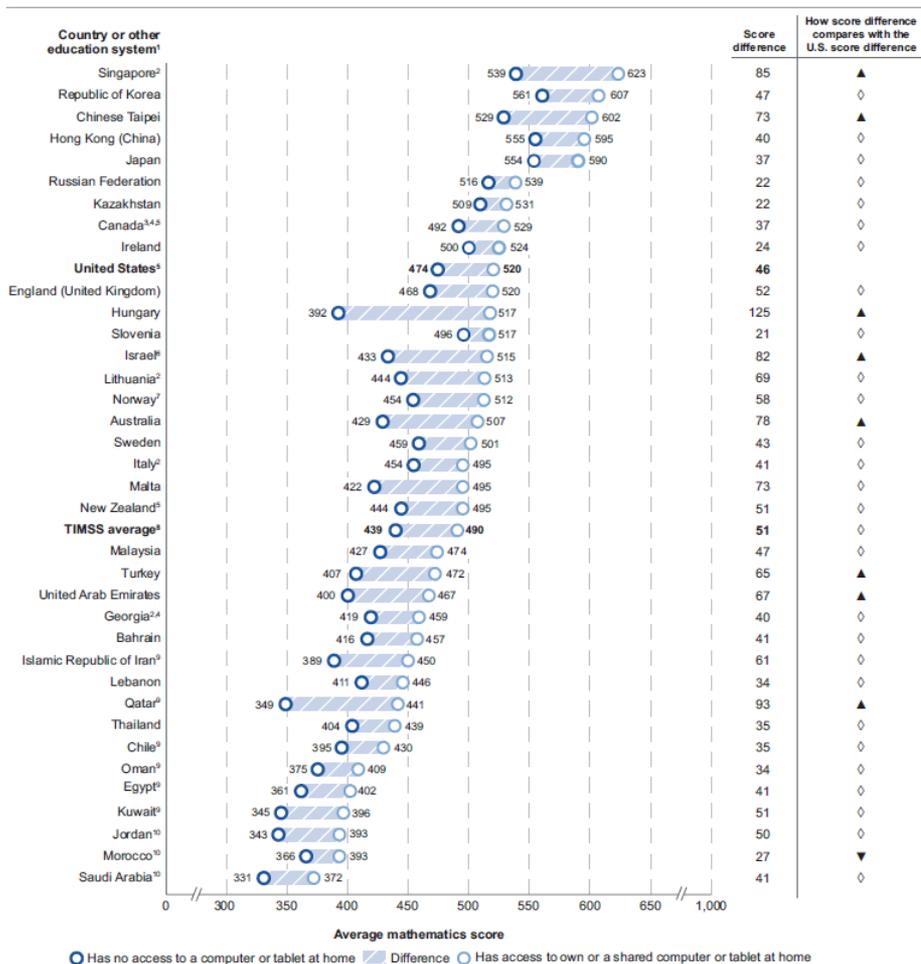


Note that this analysis did not control for other barriers to access shown in previous slides, such as poverty status and locale

NOTE: "Access to the Internet" was one item on a list preceded by the question "Do you have the following in your home?" For each item, students could either select "Yes" or leave the item blank. Students who left "Access to the Internet" blank are counted as having no internet access at home. Scale ranges from 0 to 500. Includes students tested in reading with accommodations (11 percent of all 8th-graders); excludes only those students with disabilities and English language learners who were unable to be tested even with accommodations (2 percent of all 8th-graders). Race categories exclude persons of Hispanic ethnicity.

Math scores differed by country and home computer access

Average mathematics scores of eighth-graders, by country or other education system and whether they have access to their own or a shared computer or tablet at home: 2015



Note that this analysis did not control for other barriers to access shown in previous slides, such as poverty status and locale

Potential topics outlined for immediate and long term future

- Continue to monitor gaps in access to the Internet identified in the report.
- Finalize Questionnaire Design for Fast Response Survey
- Continue work on this topic through NCES Tech Equity Team
- Consider future survey developments in this topic area to permit further research

Developing a new Fast Response Survey: Teacher Reports on Home Computer Use

Fast Response Survey System (FRSS)

- Many NCES data collections contain information about the availability and use of technology in education
 - Usually a small subset of items in a larger collection
- Several FRSS collections designed specifically around this topic over time
 - Usually in coordination with the Department's Office of Educational Technology (OET)
- Prior FRSS collections
 - Distance Education Courses for Public Elementary and Secondary School Students: 2009–10
 - 3 surveys designed together for 2008-09 for teacher-, school-, and district-level information on computer and internet use
 - Series of annual collections from 1994-2005

Fast Response Survey System (FRSS)

- Currently developing a new FRSS to complement information in the *Student Access to Digital Learning Resources Outside of the Classroom* report
- The survey will ask a nationally representative sample of teachers about how their knowledge of student access to technology out of school affects lesson planning and assignments
- When developing the report, we were not able to answer this pivotal education IT-related question

Fast Response Survey System (FRSS)

- Content was developed with input from a working group NCES convened with experts in the field of IT use for education
 - State and local education officials
 - Private company experts
 - OET colleagues, and colleagues from other federal agencies
 - NCES staff with experience on the topic
- Developing and fielding the collection under contract with Westat, Inc. - conducted previous IT FRSS collections with NCES

Example question A

1. How knowledgeable are you about your students' access to (a) computers and (b) the Internet for doing school assignments **at home**? (*Select one in each row.*)

Technology	Knowledge of students' access at home			
	Very knowledgeable	Somewhat knowledgeable	Slightly knowledgeable	Not knowledgeable
a. Computers (<i>leave row blank if students take district- or school-provided computers home</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The Internet.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Example question B

1. How do you find out information about your students' access at home to computers and/or the Internet? (*Indicate yes or no for each item.*)
- | | Yes | No |
|--|--------------------------|--------------------------|
| a. Do a survey (verbal, written, or online) of all your students and/or their parents about access at home (<i>Include surveys conducted by you or by your district or school.</i>)..... | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Talk to students and/or parents individually about access at home | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Develop a sense of what students have as you work with them | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Other (<i>Specify</i>): _____ | <input type="checkbox"/> | <input type="checkbox"/> |

Fast Response Survey System (FRSS)

- Collection scheduled to start in August 2018 and run through June 2019 with data available in spring 2020
- Will sample 4,000 public school teachers from 2,000 public schools
- Noted before what the survey will cover, important to note that it will not cover
 - Training and resources for teachers to learn how to use IT
 - Details about IT available in schools except in context of out-of-school student IT access
 - Teacher use of IT outside of school

Fast Response Survey System (FRSS)

- FRSS collections have very short questionnaires
- Intended to:
 - make questionnaire development relatively fast;
 - limit time needed for Office of Management and Budget review
 - and limit respondent burden to improve quality of responses and maintain high response rates
- While related topics are important, we cannot capture other information in this FRSS
- Current plans for the study are now on the OMB website at https://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201803-1850-001
- For previous FRSS on this and other topics, please visit: <https://nces.ed.gov/surveys/frss/index.asp>



Questions?

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