

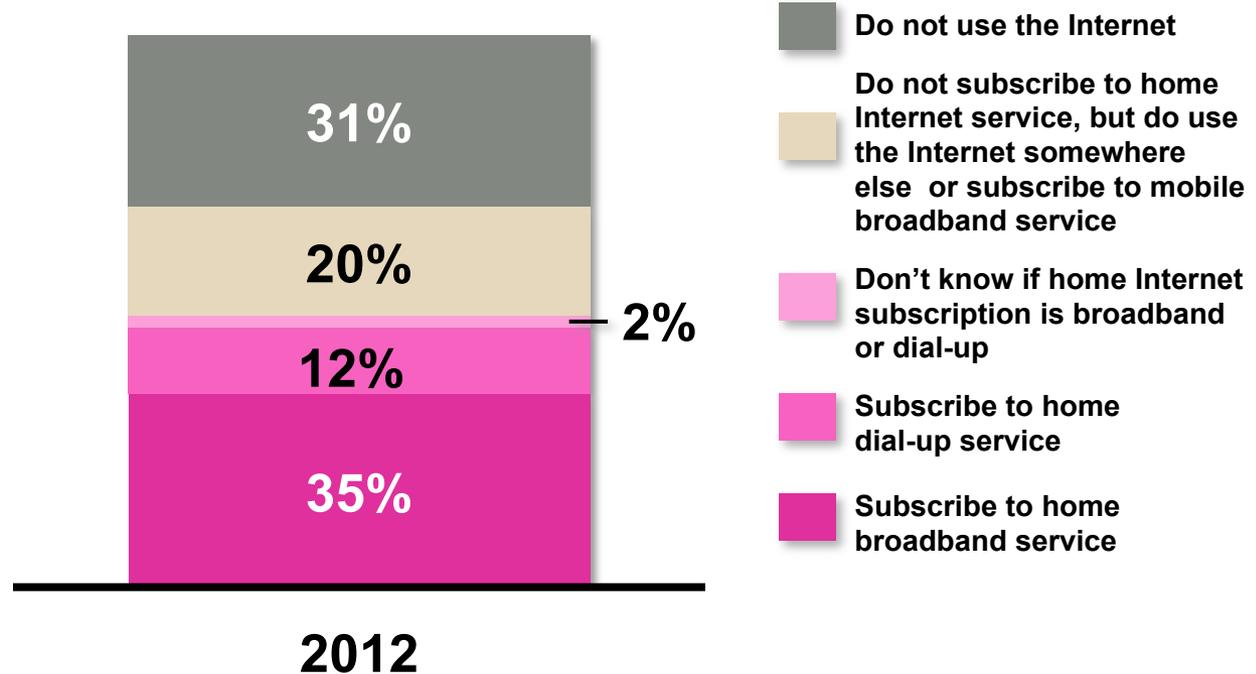
2012 Connect Puerto Rico Residential Technology Assessment

Puerto Rico Technology Adoption in the Home

Since 2010, broadband adoption in Puerto Rico has increased four percentage points, from 31% to 35%.

In comparison, national estimates indicate that U.S. broadband adoption stalled at 66% between 2010 and 2012.

Internet use among all Puerto Rico adults



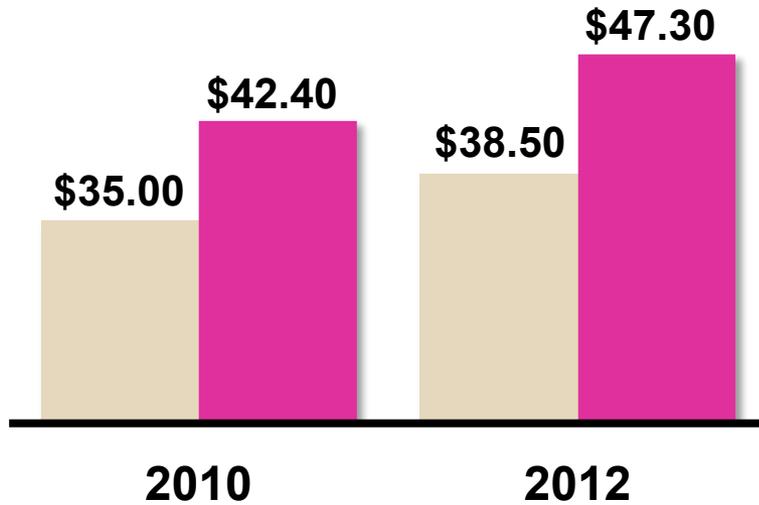
Q: Do you subscribe to the Internet at home?,
 Q: Which of the following describe the type of Internet service you have at home?,
 Q: Do you use the Internet from any locations outside of your own home?,
 Q: On your laptop or tablet computer, do you subscribe to a mobile wireless service that allows you to access the Internet through a cellular network?, and
 Q: On your cell phone, do you subscribe to a plan that allows you to access the Internet?
 (n=1,200 PR residents)

Source: 2012 Connect Puerto Rico Residential Technology Assessment
www.connectpr.org

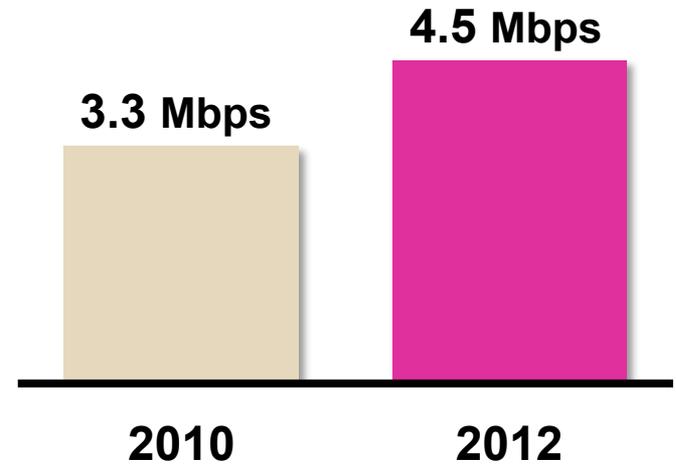
Home Broadband Price and Speed (Self-Reported)

Monthly price

■ Median ■ Average



Average advertised download speed



By comparison, in 2011 the average advertised download speed across states surveyed by Connected Nation was 4.8 Mbps, at a median/average monthly price of \$38.30/\$45.70

Q: To the best of your knowledge, what is the approximate download speed or bandwidth provided by your Internet service provider? and

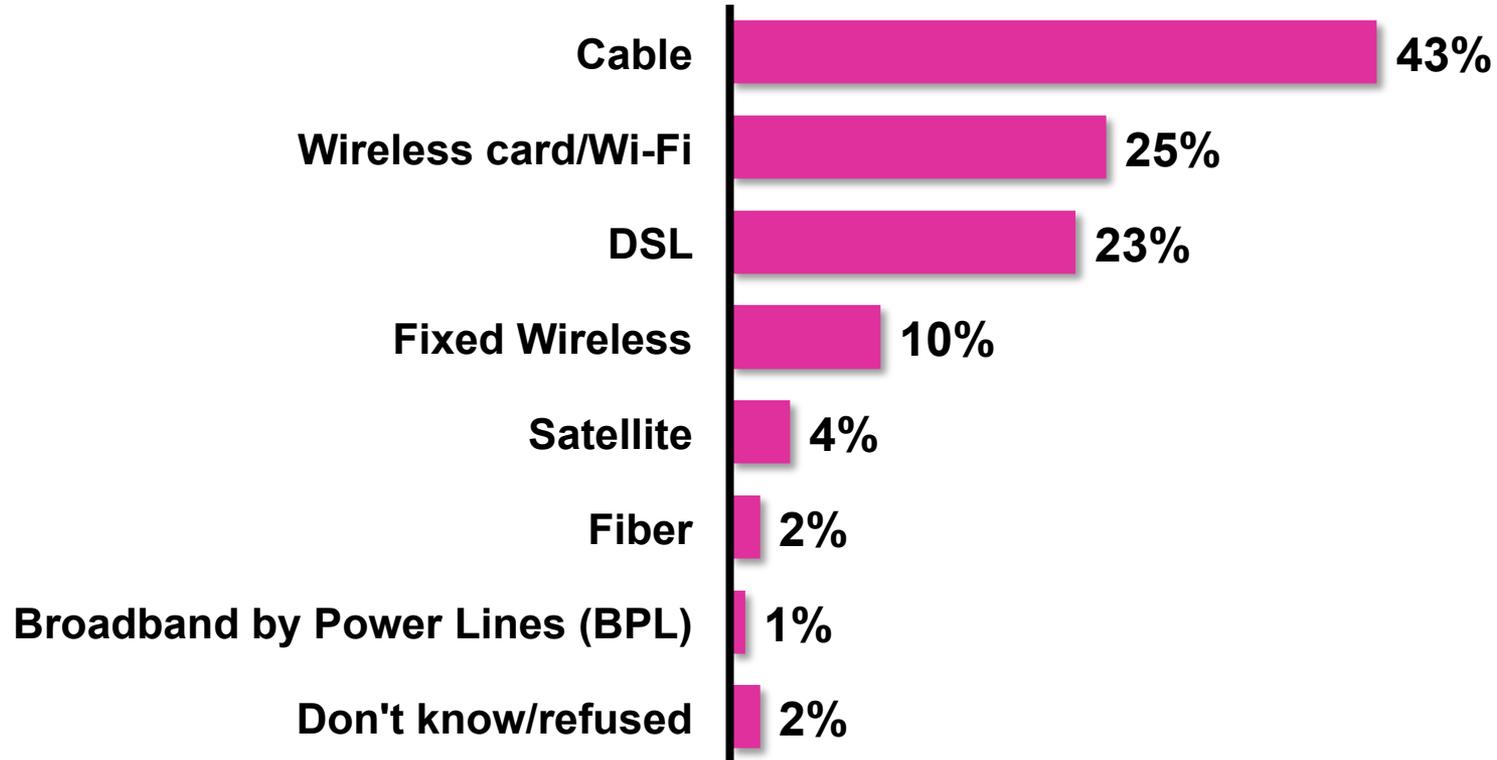
Q: What do you pay each month for your Internet service?

(n=366 PR residents who subscribed to home broadband service in 2010, n=7,682 residents of states surveyed by Connected Nation in 2011 who subscribed to home broadband service, and n=399 PR residents who subscribed to home broadband service in 2012)

Connected Nation Source: 2011 Connected Nation Residential Technology Assessment s
Puerto Rico Sources: 2010 & 2012 Connect Puerto Rico Residential Technology Assessments
www.connectpr.org

Types of Home Broadband Service

Among Puerto Rico broadband subscribers*

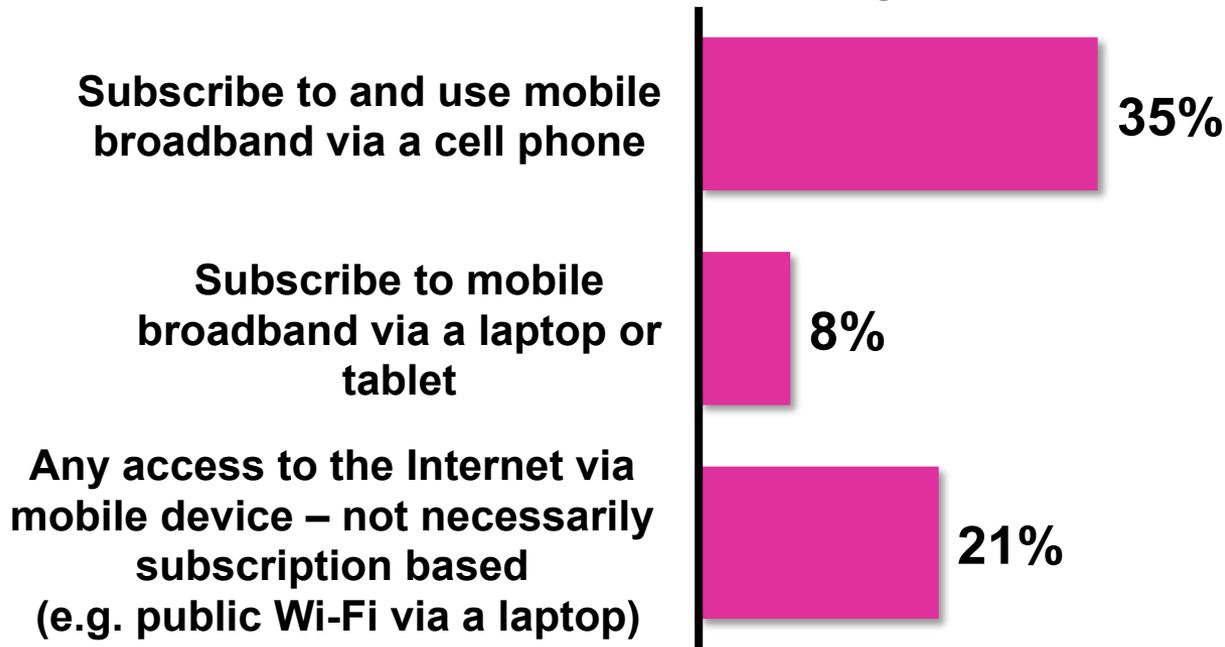


*Percentages do not add up to 100% because participants could give multiple responses
Q: Which of the following describes the broadband service you subscribe to at home?
(n=399 PR residents who subscribe to home broadband service)

Source: 2012 Connect Puerto Rico
Residential Technology Assessment
www.connectpr.org

Mobile Broadband Access

Among all adults*



In total, 40% of Puerto Rico adults (which translates into 1.14 million adults) report accessing the Internet via mobile broadband.

In comparison, 63% of American adults go online wirelessly via a laptop or cell phone.*

*Total does not add up to 40% because participants could give multiple responses

Q: When you are at your home, which of the following devices do you use to access the Internet?,

Q: At what locations outside of your own home do you use the Internet?,

Q: On your cell phone, do you subscribe to a plan that allows you to access the Internet? and

Q: On your laptop or tablet computer, do you subscribe to a mobile wireless service that allows you to access the Internet through a cellular network?

(n=1,200 PR residents)

*Pew Internet & American Life Project,
Digital Differences, Released April 13, 2012

2012 Connect Puerto Rico

Residential Technology Assessment

www.connectpr.org



Main Reason for Initial Subscription to Home Broadband Service

Among Puerto Rico adults with a home broadband subscription

Why subscribers first adopted broadband:	Puerto Rico 2012	Connected Nation 2011
Someone in my home needed broadband for school	45%	15%
The price of broadband service decreased	7%	7%
Broadband became available in my area	6%	17%
I bought or received a computer for my home	6%	8%
Heard about the benefits of broadband	6%	6%
I needed to conduct business online	5%	14%
I realized broadband was worth the extra money	5%	14%
A friend/family member convinced me to subscribe	5%	7%
I learned about an application that required broadband	1%	1%
I took a class on how to use broadband	1%	<1%
Other reasons	11%	5%
Don't know/refused	2%	6%

Q: Which one of these is the main reason why you decided to subscribe to home broadband service?
 (n=399 PR residents who subscribe to home broadband service in 2012 and n=6,899 residents living in states surveyed by Connected Nation in 2011 who subscribed to home broadband service)

Connected Nation Source: 2011 Connected Nation Residential Technology Assessments
 Puerto Rico Source: 2012 Connect Puerto Rico Residential Technology Assessment
www.connectpr.org



Comparing the Main Barrier to Broadband Adoption

Among Puerto Rico adults without a home broadband subscription

Main barrier to subscribing to broadband:	Puerto Rico 2012	Connected Nation 2011
There is nothing on the Internet that I want to see or use	23%	18%
Monthly cost of service is too expensive	21%	18%
I can get access somewhere else	8%	5%
The Internet is too complicated	6%	6%
Broadband isn't available in my area	6%	7%
The cost of a computer is too expensive	5%	7%
Activation and installation fees are too expensive	4%	4%
I don't go online very often from home	4%	3%
I don't feel comfortable using a computer	4%	5%
Concerns about fraud or identity theft	2%	4%
Available service is not fast enough	1%	1%
I don't know anything about it	1%	4%
I don't have a working computer	0%	2%
I don't want or need broadband	0%	2%
Other barrier	14%	9%
Don't know/refused	1%	5%

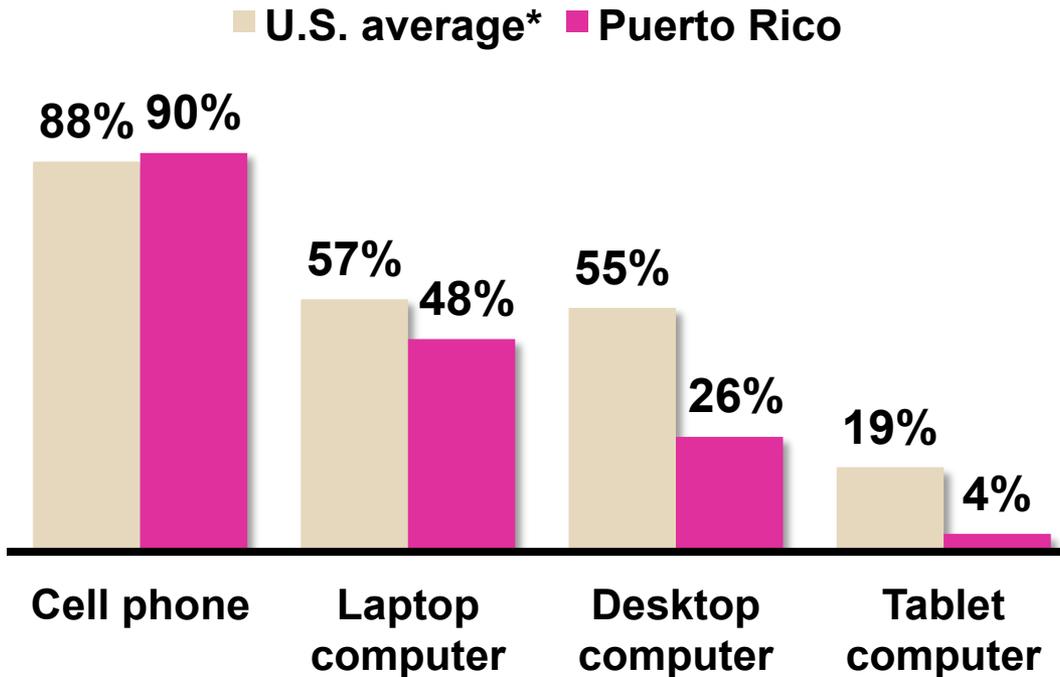
Q: Which one of these is the main reason why you do not subscribe to home broadband service?
 (n=2,400 PR non-adopters in 2012 and n=15,082 non-adopters living in states surveyed by Connected Nation in 2011)

Connected Nation Source: 2011 Connected Nation Non-Adopter Residential Technology Assessments
 Puerto Rico Source: 2012 Connect Puerto Rico Non-Adopter Residential Technology Assessment
www.connectpr.org

Device Ownership

Device Ownership

Device ownership among all adults



According to the World Bank, 75% of the world's population now has access to a cell phone – and most phones are owned by people living in low-income regions.**

35% of Puerto Rico adults report subscribing to a cell phone plan that allows Internet access.

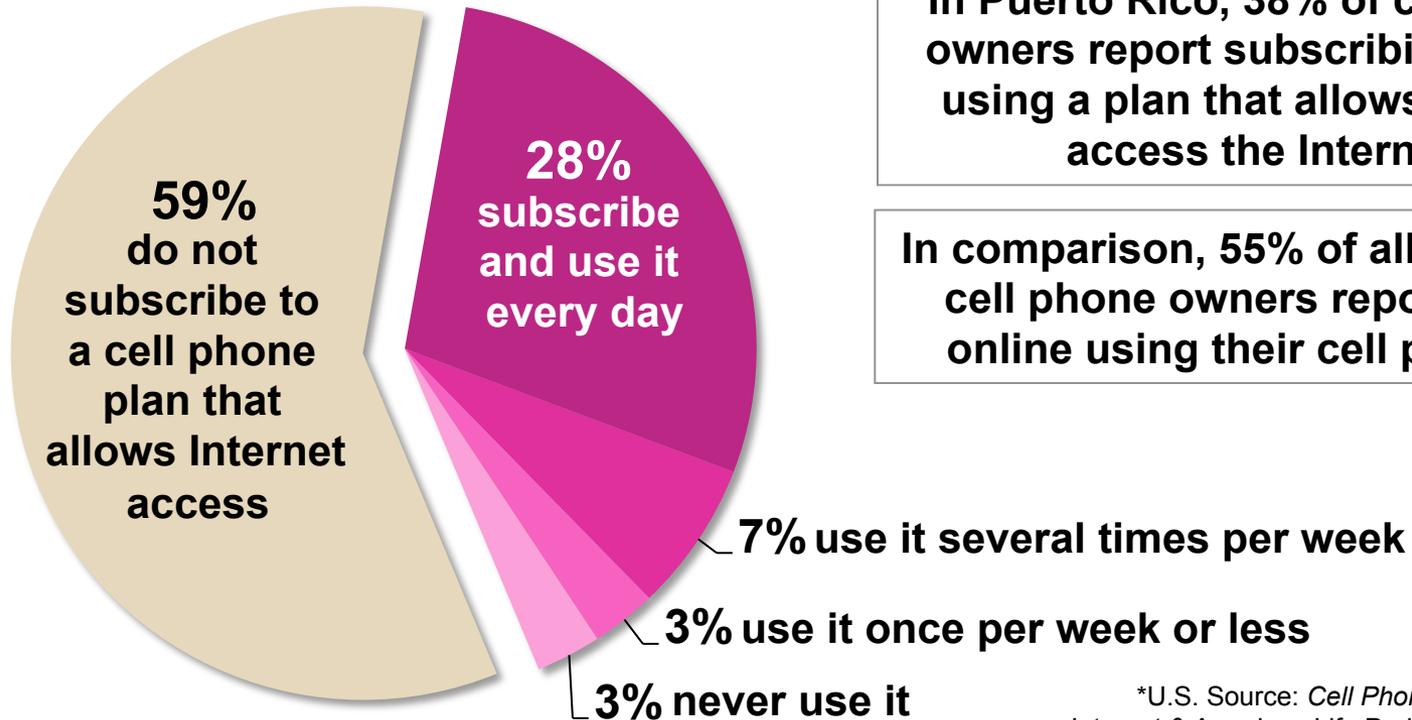
Q: Do you have a cellular phone? and
Q: What type of computer do you have at home?
(n=1,200 PR residents)

*U.S. Source: Pew Internet & American Life Project,
Digital Differences, Released April 13, 2012

**World Bank Source: The World Bank,
Maximizing Mobile, Released July 17, 2012
Puerto Rico Source: 2012 Connect Puerto Rico
Residential Technology Assessment
www.connectpr.org

Mobile Broadband Subscription Via Cell Phones

Among cell phone owners, mobile broadband subscription and use



In Puerto Rico, 38% of cell phone owners report subscribing to and using a plan that allows them to access the Internet.

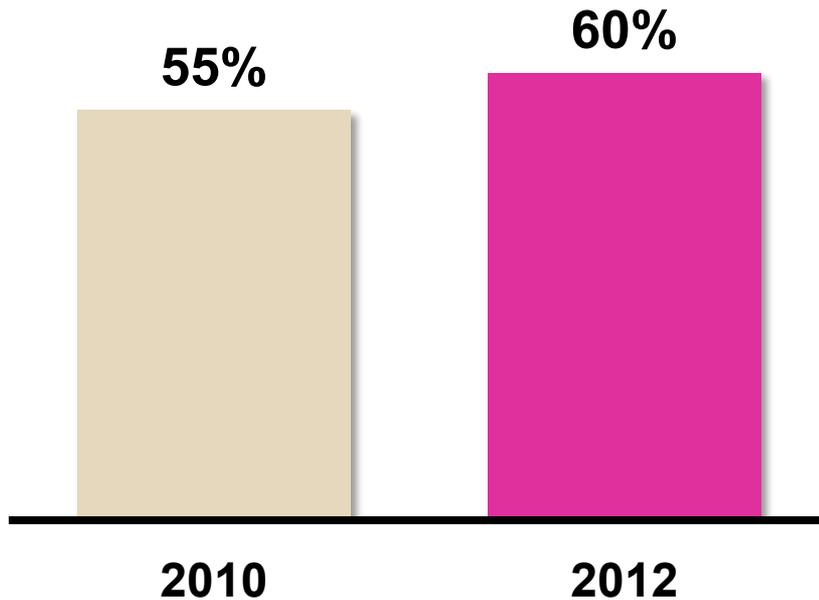
In comparison, 55% of all U.S. adult cell phone owners report going online using their cell phones.*

Q: On your cell phone, do you subscribe to a plan that allows you to access the Internet? and
 Q: How often, if ever, do you go online using your cell phone?
 (n=990 PR residents who own cell phones)

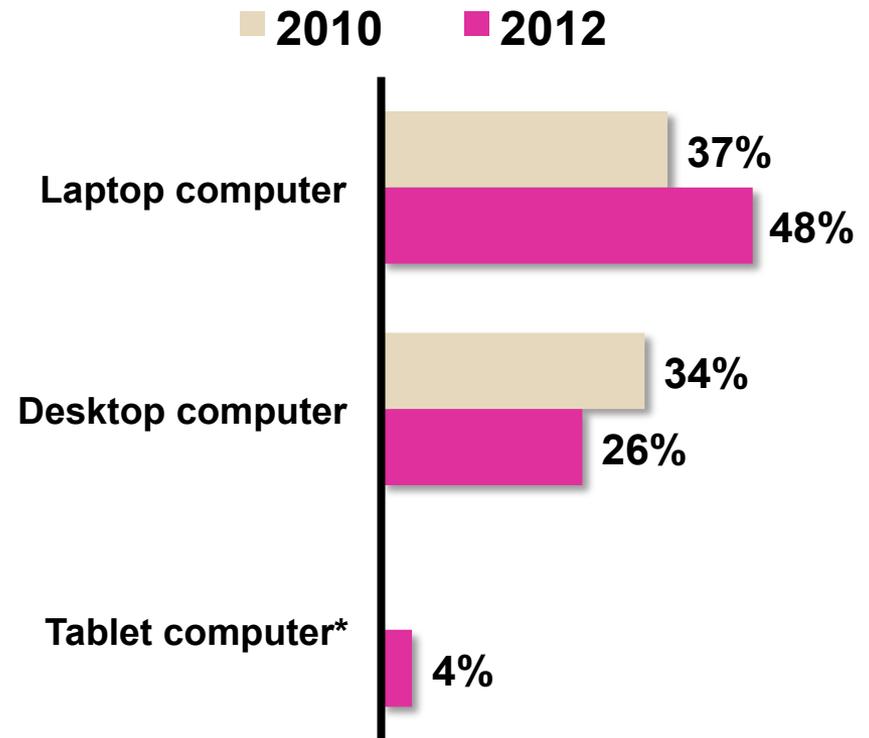
*U.S. Source: *Cell Phone Use 2012*, Pew Internet & American Life Project. Definition of a "cell Internet user" includes anyone who uses the Internet or email on their cell phone.
 Source: 2012 Connect Puerto Rico Residential Technology Assessment
www.connectpr.org

Computer Ownership Trends

**Computer ownership among
Puerto Rico adults**



**Types of computers owned by
Puerto Rico adults**

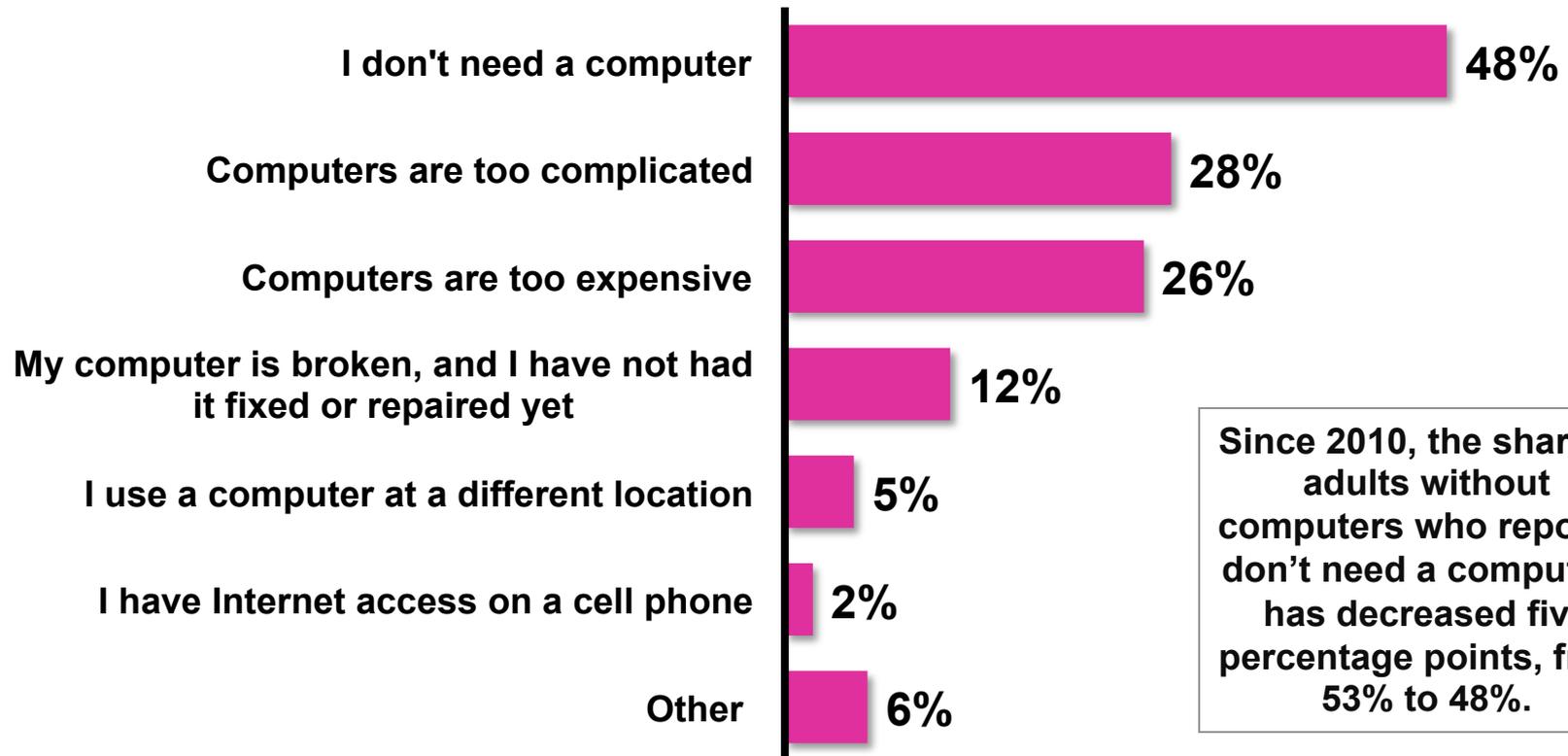


*Inquiries into tablet computer ownership were not made in 2010
 Q: Does your household have a computer? and
 Q: What type of computer do you have at home?
 (n=1,200 PR residents in 2010 and n=1,200 PR residents in 2012)

Source: 2010 & 2012 Connect Puerto Rico
 Residential Technology Assessments
www.connectpr.org

Barriers to Computer Ownership

Among Puerto Rico adults who do not own a computer*



Since 2010, the share of adults without computers who report “I don't need a computer” has decreased five percentage points, from 53% to 48%.

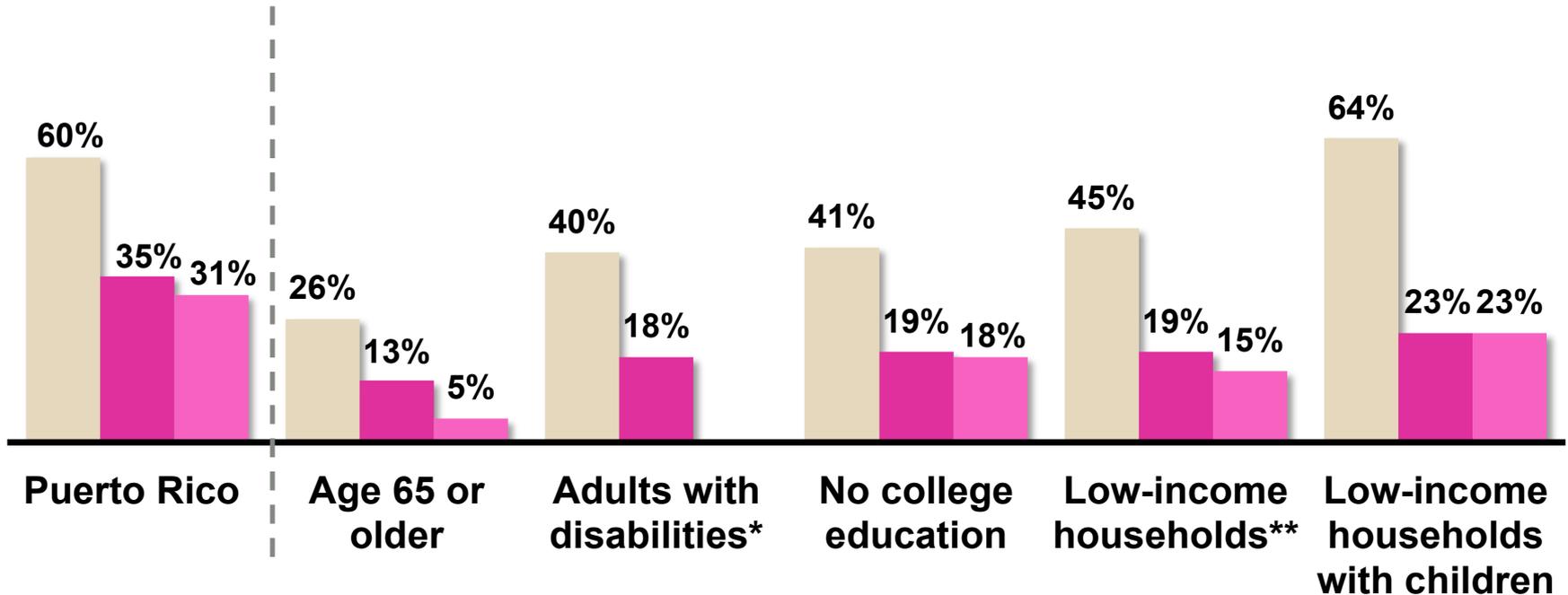
*Percentages do not add up to 100% because participants could give multiple responses.
Q: Why don't you have a computer at home?
(n=535 PR residents who did not own a computer in 2010 and n= 500 PR residents in 2012)

Source: 2012 Connect Puerto Rico Residential Technology Assessment
www.connectpr.org

Technology Adoption by Demographic

Technology Adoption among Vulnerable Populations

2012 Computer ownership
 2012 Broadband adoption
 2010 Broadband adoption



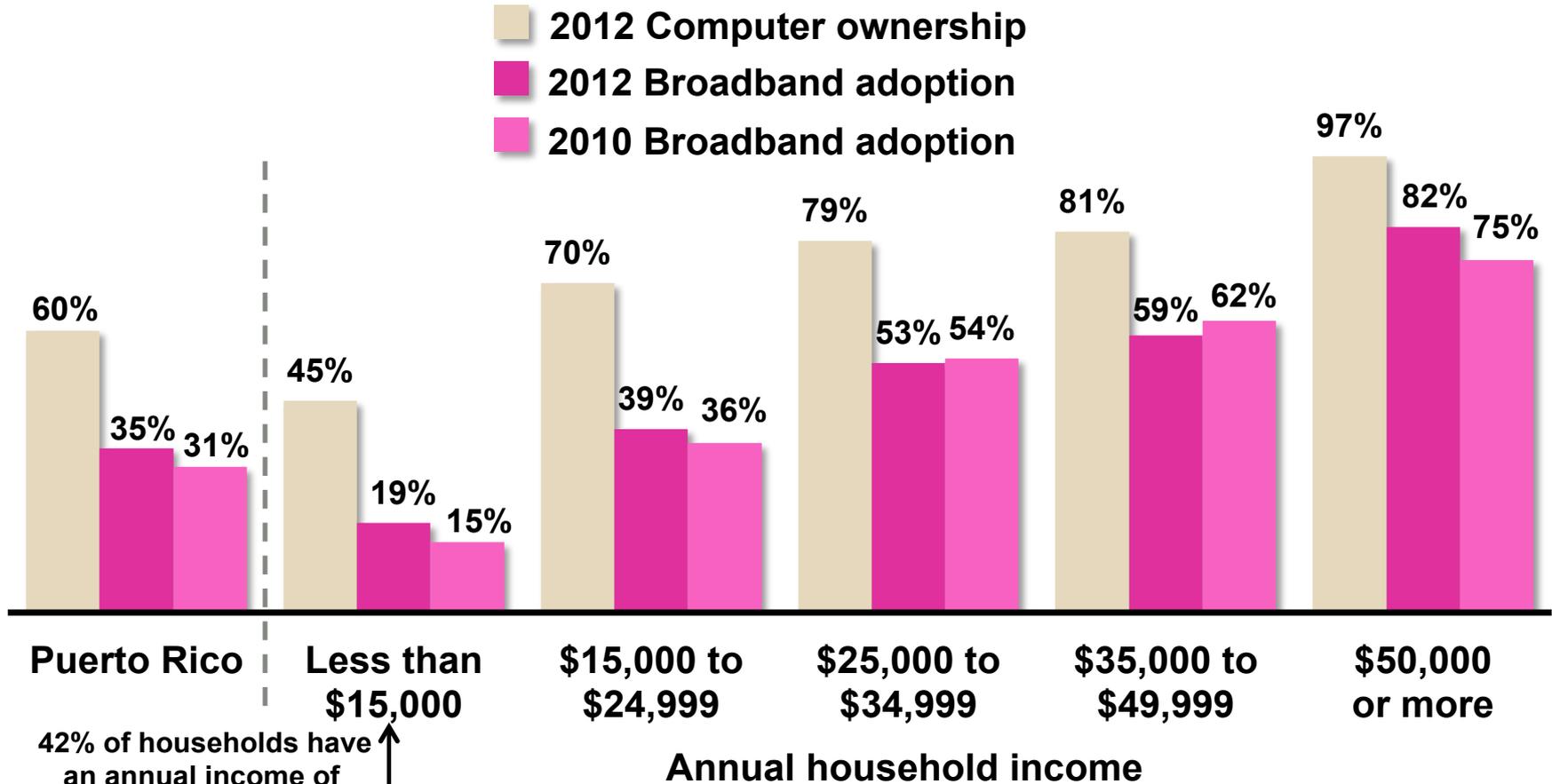
*An adult with a disability was defined differently in 2010 and is not comparable to 2012 data

**Low-income households have a household income of less than \$15,000

Q: Which of the following describe the type of Internet service you have at home?
(n=1,200 PR residents in 2010 and n=1,200 PR residents in 2012)

Source: 2010 & 2012 Connect Puerto Rico Residential Technology Assessments
www.connectpr.org

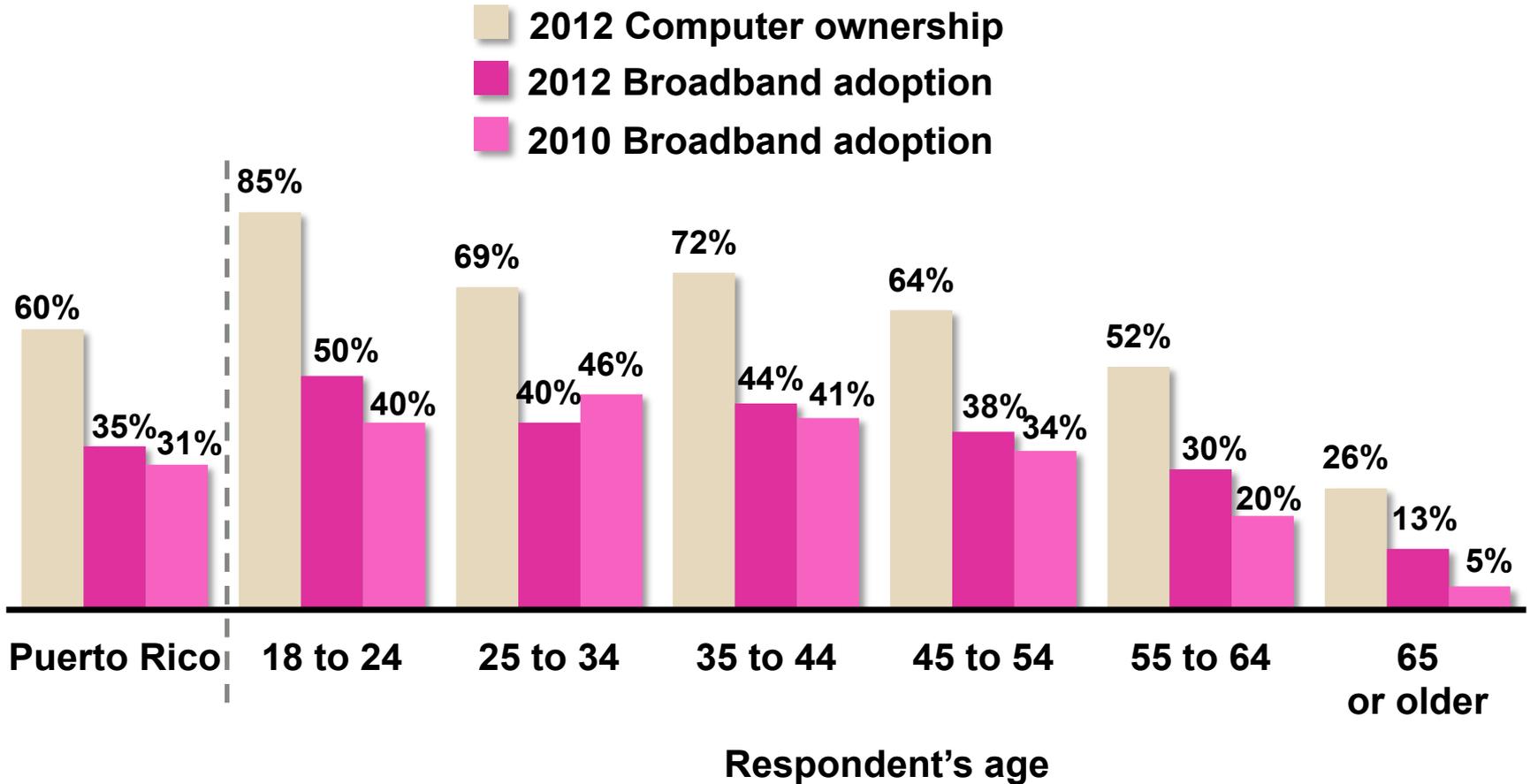
Technology Adoption by Income



Q: Does your household have a computer? and
 Q: Which of the following describe the type of Internet service you have at home?
 (n=1,200 PR residents in 2010 and n=1,200 PR residents in 2012)

*2010 U.S. Census Bureau
 Source: 2010 & 2012 Connect Puerto Rico
 Residential Technology Assessments
www.connectpr.org

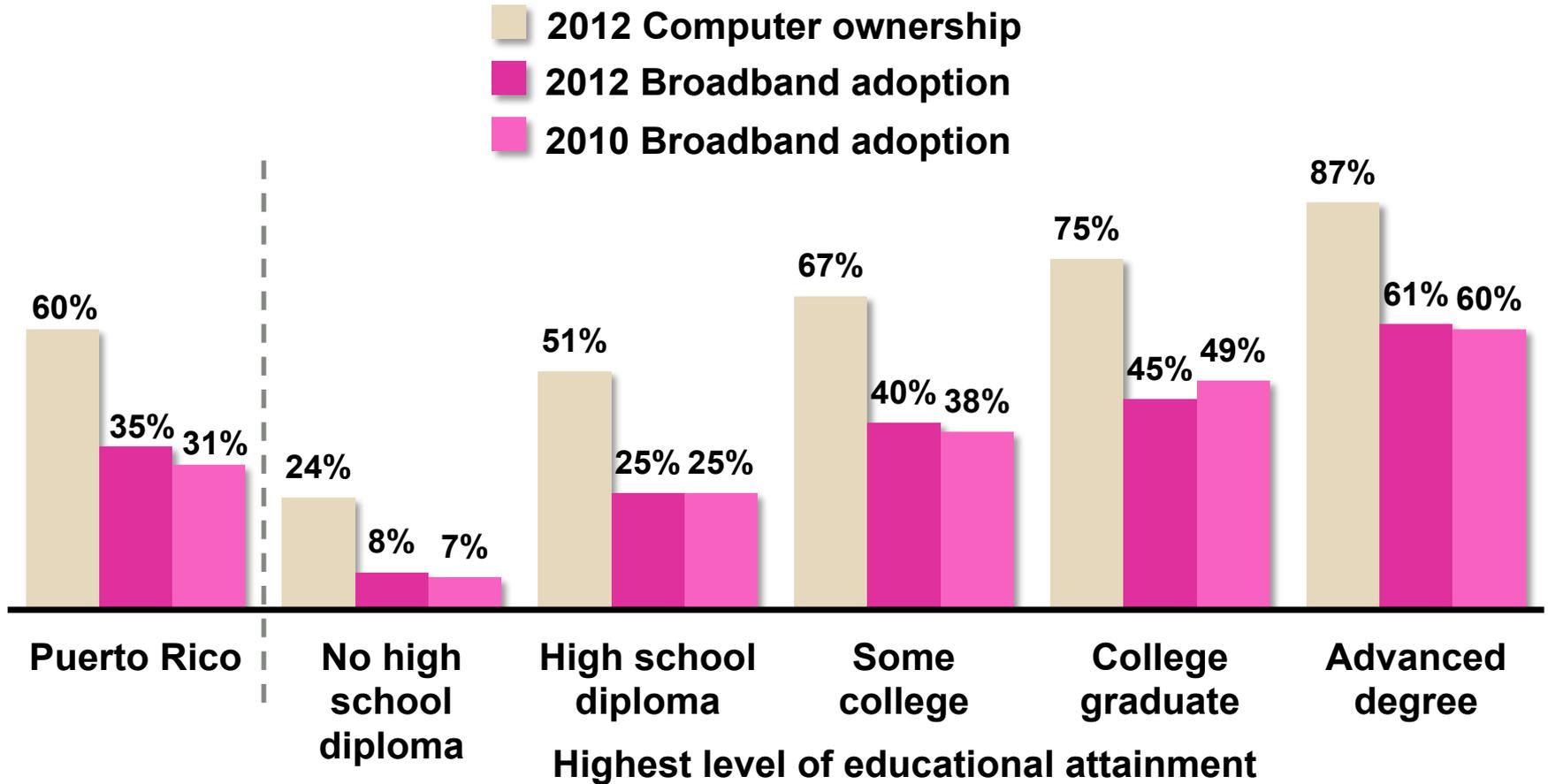
Technology Adoption by Age



Q: Does your household have a computer? and
Q: Which of the following describe the type of Internet service you have at home?
(n=1,200 PR residents in 2010 and n=1,200 PR residents in 2012)

Source: 2010 & 2012 Connect Puerto Rico
Residential Technology Assessments
www.connectpr.org

Technology Adoption by Education



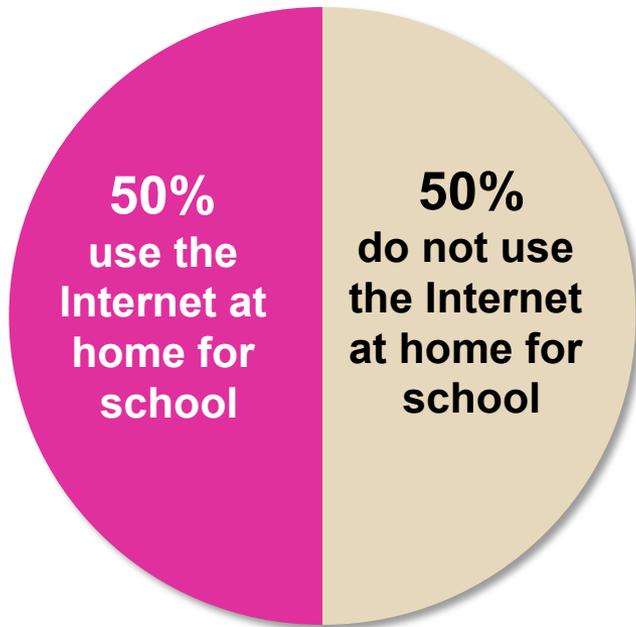
Q: Does your household have a computer? and
Q: Which of the following describe the type of Internet service you have at home?
(n=1,200 PR residents in 2010 and n=1,200 PR residents in 2012)

Source: 2010 & 2012 Connect Puerto Rico
Residential Technology Assessments
www.connectpr.org

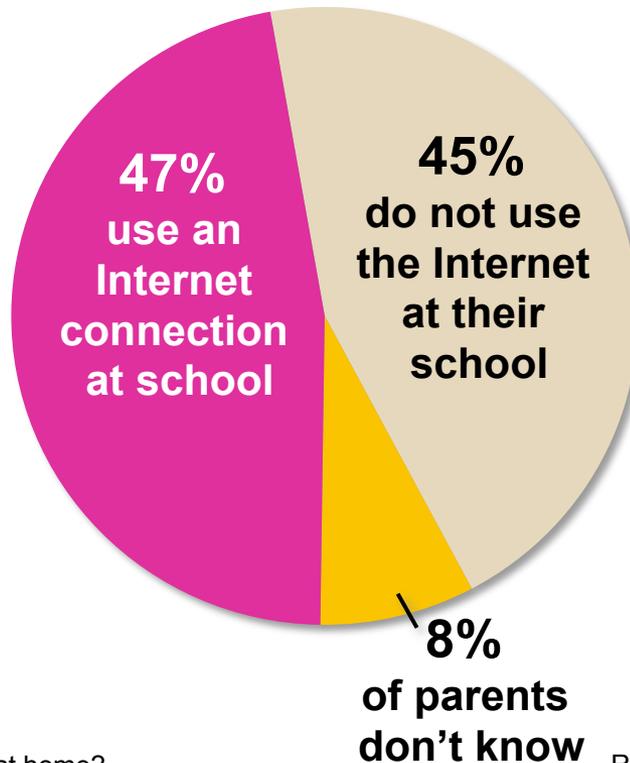
Households with Children

Internet use among children

At home



At school



Connected Nation's 2011 surveys* indicate that 55% of children access the Internet at home for school work, and 62% use an Internet connection at school.

Q: Do you have any children under the age of 18 living at home?,
 Q: Do those children use your home Internet service for any of their schoolwork? and
 Q: And do they use an Internet connection at their school for any of their schoolwork?
 (n=430 PR households with children)

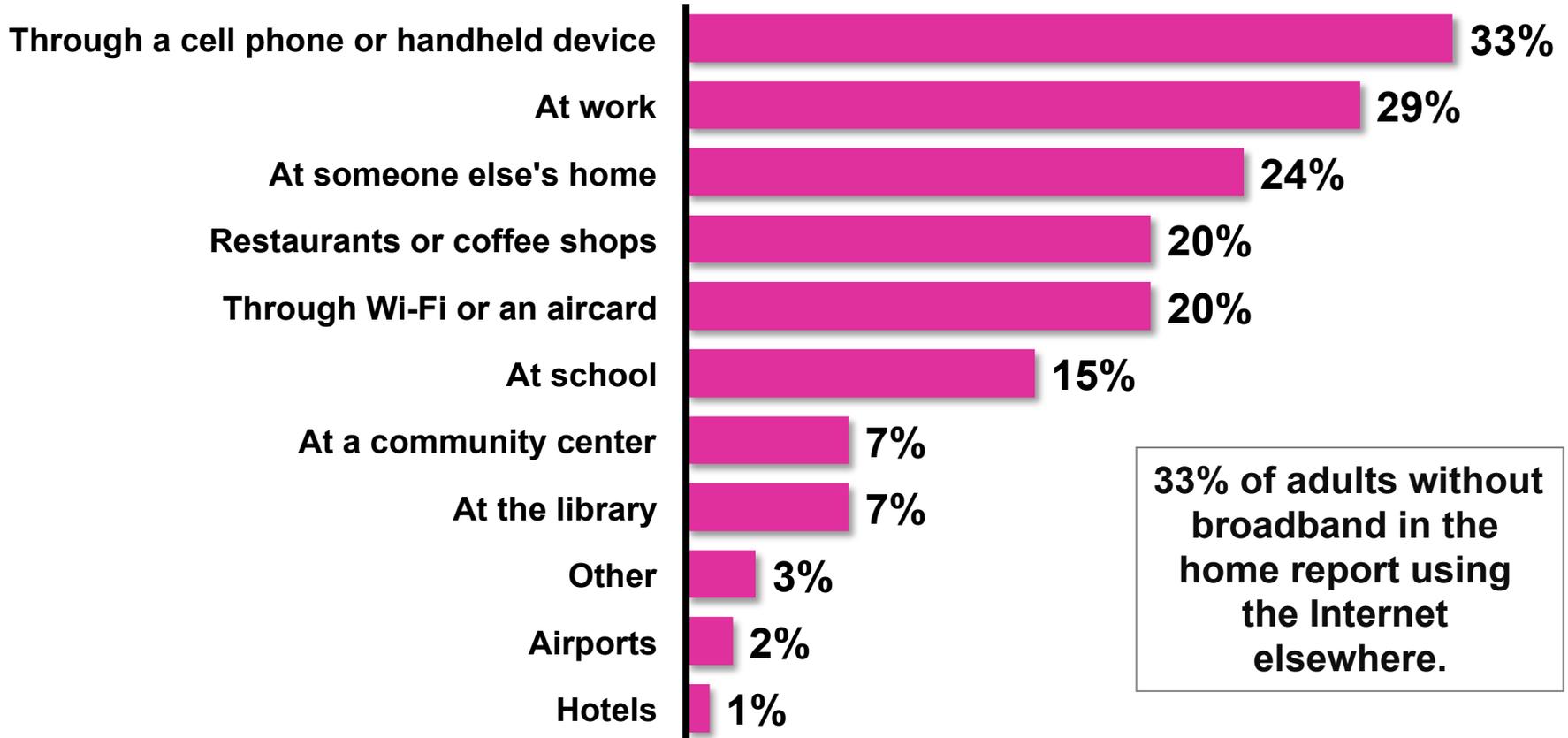
*2011 Connected Nation Residential Technology Assessments
 2012 Connect Puerto Rico Residential Technology Assessment
www.connectpr.org

Results from the Non-Adopter Residential Survey

Connect Puerto Rico surveyed a total of 2,400 adult heads of households who do not subscribe to home broadband service to explore barriers to broadband adoption

Internet Access Outside of the Home

Among non-adopters who access the Internet outside of the home, where do they access it*



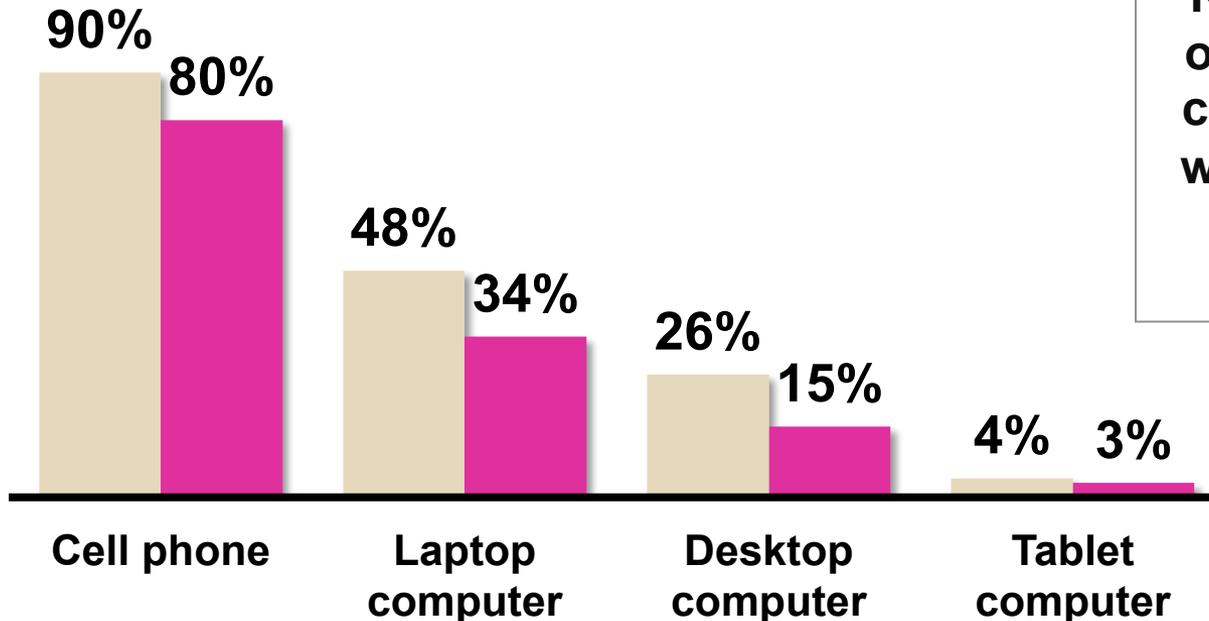
*Participants could give multiple responses
 Q: At what locations outside of your own home do you use the Internet?
 (n=690 PR non-adopters who access the Internet outside of their home)

Source: 2012 Connect Puerto Rico
 Non-Adopter Residential Technology Assessment
www.connectpr.org

Comparing Device Ownership

Device ownership

■ Island-wide ■ Non-adopters



In total, 45% of Puerto Rico non-adopters own a computer. In comparison, island-wide, 60% of adults report owning a computer.

*Total does not add up to 45% because participants could give multiple responses

Q: Do you have a cellular phone? and

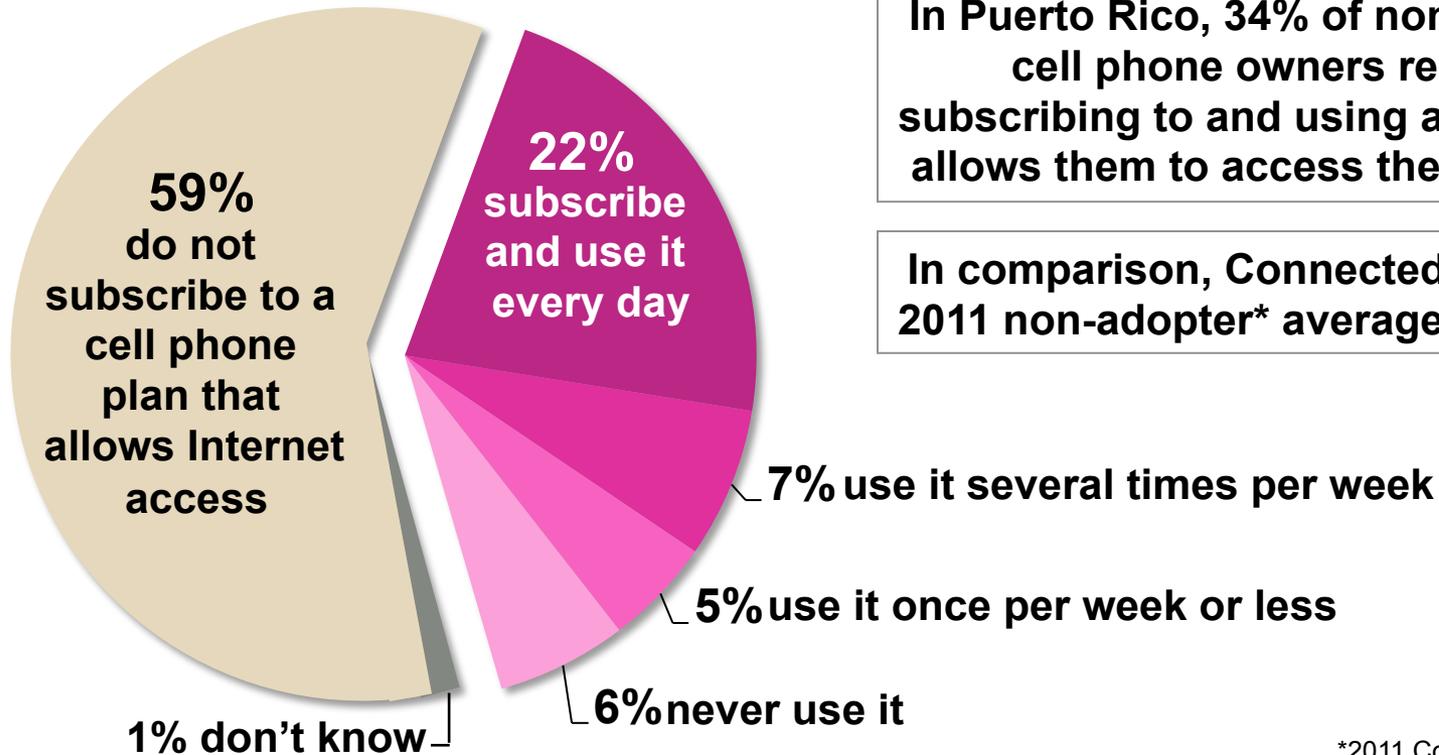
Q: What type of computer do you have at home?

(n=1,200 PR residents and n=2,400 PR non-adopters)

Source: 2012 Connect Puerto Rico
Non-Adopter & Residential Technology Assessments
www.connectpr.org

Mobile Broadband Subscription Via Cell Phones Among Puerto Ricans without Broadband in the Home

**Among non-adopters who own cell phones,
mobile broadband subscription and use**



In Puerto Rico, 34% of non-adopter cell phone owners report subscribing to and using a plan that allows them to access the Internet.

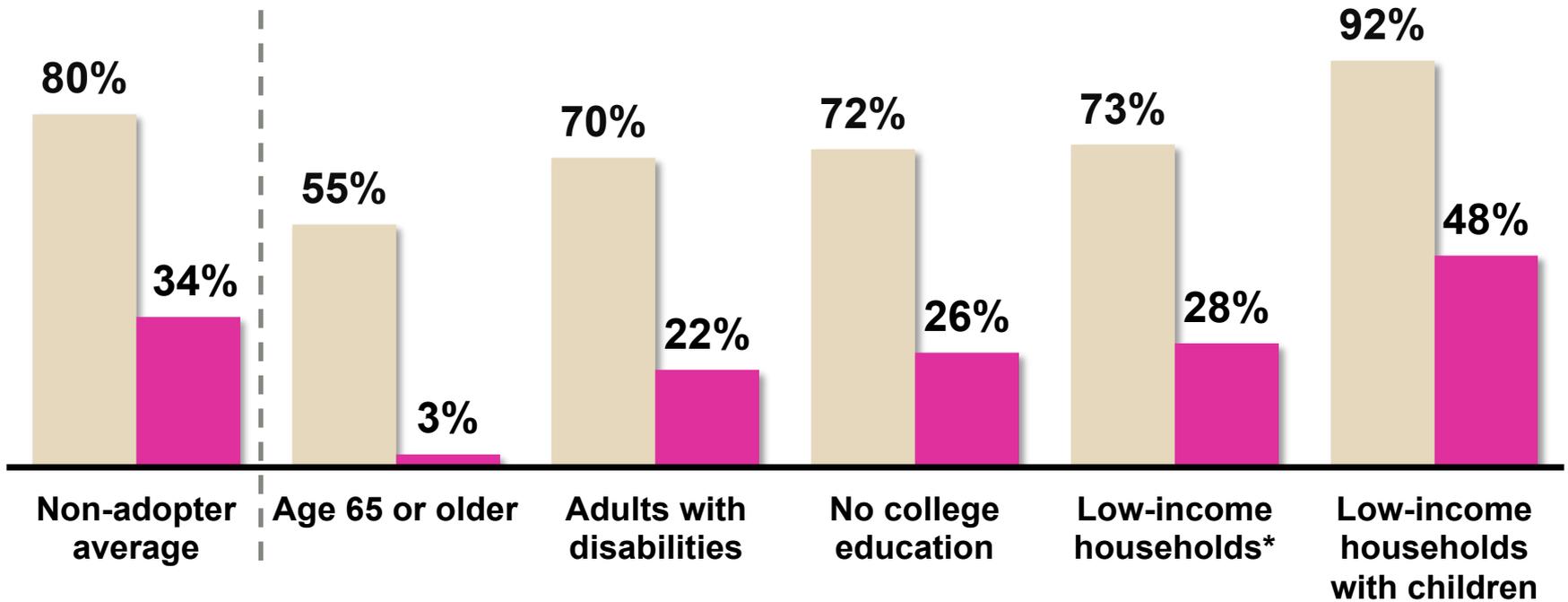
In comparison, Connected Nation's 2011 non-adopter* average was 39%.

Q: On your cell phone, do you subscribe to a plan that allows you to access the Internet? and
Q: How often, if ever, do you go online using your cell phone?
(n=1,804 PR non-adopters who own cell phones)

*2011 Connected Nation
Non-Adopter Residential Technology Assessments
Source: 2012 Connect Puerto Rico
Non-Adopter Residential Technology Assessment
www.connectpr.org

Cell Phone Ownership and Mobile Broadband Use Among Puerto Ricans without Broadband in the Home

Own a cell phone
 Own a cell phone, subscribe to mobile broadband service and use it



*Low-income represents annual household incomes of less than \$15,000

Q: Does your household have a cell phone?,

Q: On your cell phone, do you subscribe to a plan that allows you to access the Internet? and

Q: How often, if ever, do you go online using your cell phone?

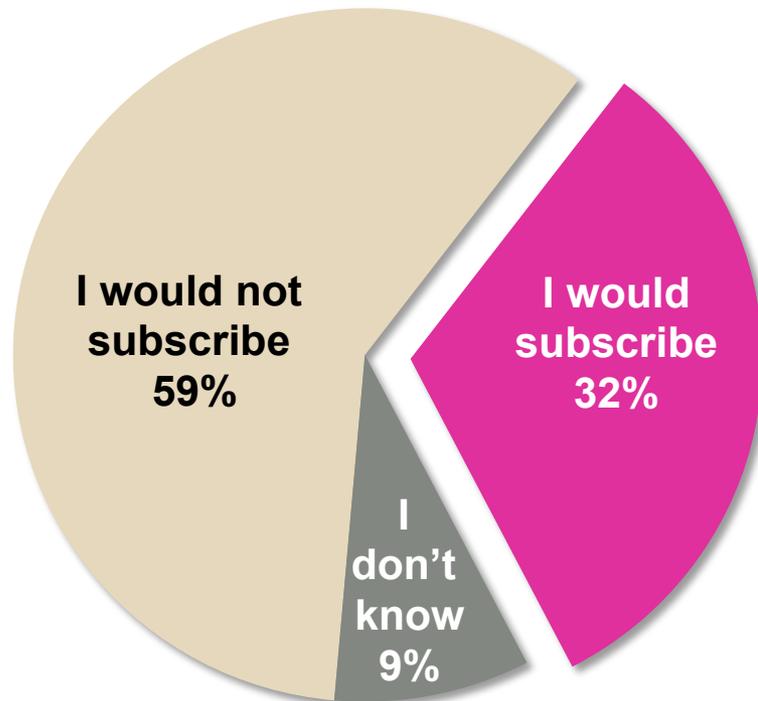
(n=2,400 PR non-adopters and n=1,804 PR non-adopters who own cell phones)

Source: 2012 Connect Puerto Rico
Non-Adopter Residential Technology Assessment
www.connectpr.org

Non-Adopters' Willingness to Pay for Home Broadband Service

Addressing Price as a Barrier to Adoption of Home Broadband Service

If home broadband service was offered at a price you considered acceptable:



Nearly one-third of non-adopters (32%) are “price sensitive,” meaning that they would subscribe to home broadband service if it were offered at a price they considered acceptable.

For the 59% of non-adopters who are not price-sensitive, what barriers to adoption exist? Further, for non-adopters who are price-sensitive, at what monthly price would a home broadband subscription be attractive?

Q: If you could subscribe to home broadband service at a price you consider acceptable, would you do so? (n=2,400 PR non-adopters)

Source: 2012 Connect Puerto Rico Non-Adopter Residential Technology Assessment
www.connectpr.org

Examining Price Sensitivity: Technology Ownership & Demographics

Non-adopters who are price-sensitive report higher rates of technology ownership and usage, and are more likely to be younger, have children, be employed, have higher educational attainment, and higher incomes, perhaps indicating that non-adopters who are not price-sensitive have digital literacy or relevance issues that act as barriers to broadband adoption.

Technology & demographic summary	All non – adopters	Price-sensitive	Not price-sensitive
Own a home computer	45%	67%	31%
Use the Internet outside of the home	33%	60%	17%
Own a cell phone	80%	95%	70%
Own a cell phone & subscribe to and use mobile broadband	34%	51%	21%
Have children living at home	27%	44%	16%
Employed	35%	52%	25%
Attended or graduated from college	42%	56%	34%
Average annual household income (self-reported)	\$14,700	\$17,700	\$12,600
Average age	50	38	57

Q: If you could subscribe to home broadband service at a price you consider acceptable, would you do so?
(n=690 price-sensitive PR non-adopters, n=1,498 non-price sensitive non-adopters)

Source: 2012 Connect Puerto Rico
Non-Adopter Residential Technology Assessment
www.connectpr.org

Examining the Main Barrier to Broadband Adoption

Puerto Rico non-adopters who are price-sensitive are significantly less likely to report digital literacy and relevancy issues.

Main barrier to subscribing to broadband	All non-adopters	Price-sensitive	Not price-sensitive
There is nothing on the Internet that I want to see or use	23%	10%	32%
Monthly cost of service is too expensive	21%	27%	18%
The Internet is too complicated	6%	2%	9%
The cost of a computer is too expensive	5%	5%	5%
I don't feel comfortable using a computer	4%	2%	5%
I can get access somewhere else	8%	12%	5%
I don't go online very often from home	4%	4%	4%
Broadband isn't available in my area	6%	12%	3%
Concerns about fraud or identity theft	2%	1%	3%
Activation and installation fees are too expensive	4%	6%	2%
Available service is not fast enough	1%	1%	<1%
I don't know anything about it	1%	1%	1%
Other barrier	14%	14%	12%
Don't know/refused	1%	3%	1%

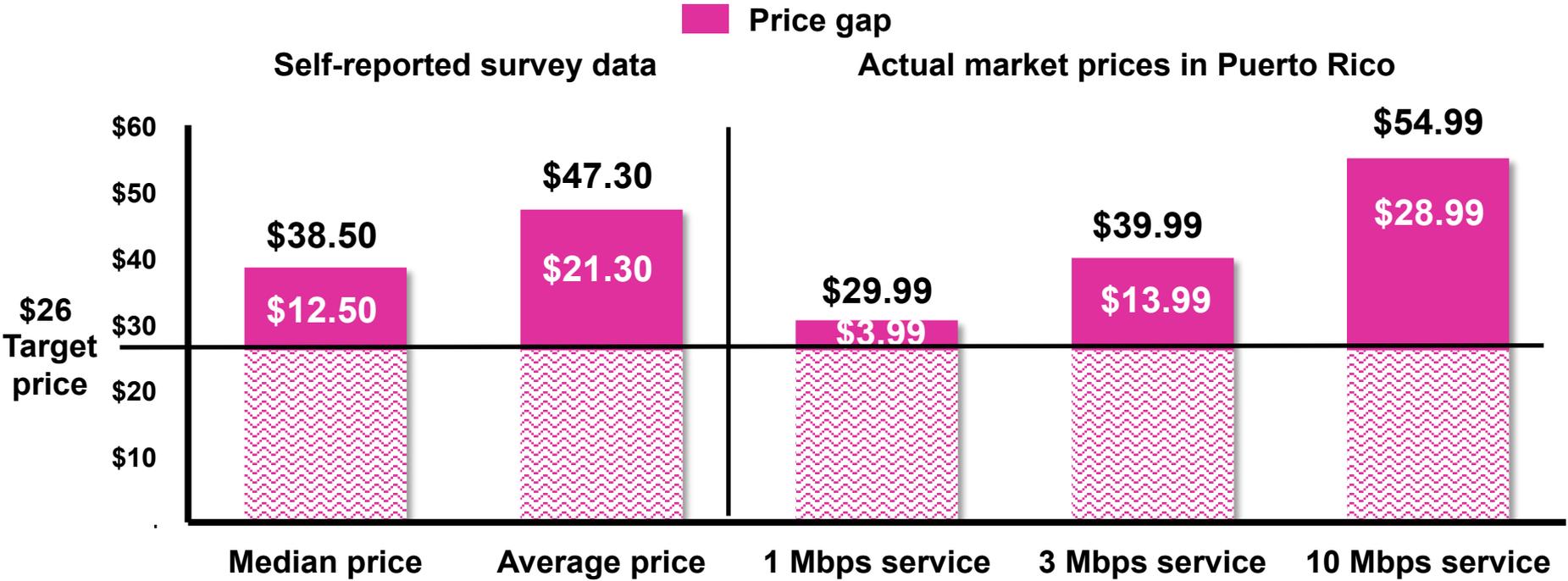
Q: Which one of these is the main reason why you do not subscribe to home broadband service?
(n=2,400 PR non-adopters)

Source: 2012 Connect Puerto Rico
Non-Adopter Residential Technology Assessment
www.connectpr.org



Finding the Target Price Point for Price-Sensitive Non-Adopters

Home broadband service offered at a target price of \$26.00 per month would attract nearly 340,000 price-sensitive non-adopters in Puerto Rico.* Relative to the average price reported by broadband subscribers (\$47.30), a target price of \$26.00 implies a price gap of \$21.30.



*See Research Methodology section for explanation of calculation
 Q: What do you pay each month for your Internet service?
 (n=399 PR residents who subscribe to home broadband service)

Source: 2012 Connect Puerto Rico
 Non-Adopter & Residential Technology Assessments
www.connectpr.org

Research Methodology

2012 Residential Technology Assessment

- Data were collected by telephone through live computer-assisted interviews from an island-wide random digit dial (RDD) survey of 600 adult heads of households contacted on landlines and 600 adult heads of households contacted on cell phones between February 10 and April 12, 2012. Once the respondent agreed to participate, these surveys took approximately nine (9) minutes to complete and were designed to measure technology adoption (including speeds and prices) and usage. Data were collected by Estudios Tecnicos in San Juan, PR.
- The questionnaire screened to include only adults age 18 or older with quotas set by age, gender, and municipality of residence (urban, suburban, or rural), based on 2010 United States Census data. Data were weighted using a rim weighting process to account for any minor variances between the island-wide population and the survey sample based on these factors. Weighting and research design consultation was provided by Lucidity Research LLC.
 - **Based on the effective sample size for this island-wide sample, the margin of error = $\pm 3.38\%$ at a 95% level of confidence.**
- As with any survey, question wording and the practical challenges of data collection may introduce an element of error or bias that is not reflected in this margin of error.

Methodology (continued)

2012 Residential Non-Adopter Oversample

- Between February 2 and April 4, 2012, Connect Puerto Rico surveyed a total of 2,400 adult heads of households who do not subscribe to home broadband service (including 1,200 adults who were contacted on a cell phone) to explore barriers to broadband adoption and measure these adults' willingness to subscribe at different prices. Once respondents agreed to participate, these surveys took approximately seven (7) minutes to complete.
- This sample was also weighted by age, gender, and municipality of residence using a rrim weighting process to account for minor variances between the sample and the population of non-adopters, as identified through the residential survey.
 - **At a 95% level of confidence, this sample provides a margin of error of $\pm 2.16\%$ among all residents who do not subscribe to home broadband service.**
- These surveys were conducted as part of the State Broadband Initiative (SBI) grant program, funded by the National Telecommunications and Information Administration (NTIA). The SBI grant program was created by the Broadband Data Improvement Act (BDIA), unanimously passed by Congress in 2008 and funded by the American Recovery and Reinvestment Act (ARRA) in 2009. To learn more about Connect Puerto Rico please visit www.connectpr.org or e-mail us at info@connectpr.org.

The Van Westendorp Price Sensitivity Analysis*

- The Van Westendorp Price Sensitivity analysis is a technique used to assess the willingness to pay for a good or service among consumers who have not yet embraced a product or service. By asking a series of questions to determine the value that respondents place on acquiring a good or service, as well as what prices they feel would be too expensive to consider the product worthwhile, researchers are able to derive a Van Westendorp “Optimal Price Point,” or VOPP.
- Connect Puerto Rico’s 2012 Non-Adopter Oversample survey asked broadband non-adopters who reported that they would subscribe to home broadband service at a price they considered acceptable the following series of questions to determine what value they would place on having home broadband service:
 - **At what monthly price would you consider a home broadband subscription to be ‘too expensive to consider’?**
 - **And at what monthly price would you consider a home broadband subscription to be ‘getting expensive, but still worth the cost’?**
 - **Now, at what monthly price would you consider a home broadband subscription to be ‘a bargain, definitely worth the money’?**
 - **And at what monthly price would you consider a home broadband subscription to be ‘so inexpensive that you would question the quality of the service and not consider subscribing’?**
- Based on the results from these questions, Connect Puerto Rico determined that the VOPP of (\$26.00) would induce the optimal number of price-sensitive non-adopting households to embrace home broadband service.