Research Articles

Are All American Women Making Progress Online? African–Americans and Latinas

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Abstract

Although the gender gap online has narrowed in the United States, little research on technology access and use has examined the different experiences of women—particularly the interaction between gender, race/ethnicity, and poverty. Using the most recent comprehensive survey of technology use and access, the 2003 Current Population Survey, we find new evidence of diminishing gender disparities overall, differences between African–American women and Latinas in the factors that influence technology access and use, and some indications that minority women outpace their male peers online. However, substantial disadvantages for minority women remain, driven by inequalities in education and income. We find evidence that while there is virtually no gender gap in technology access between White men and women, there is a gender divide among minority populations, but women are not unilaterally disadvantaged.

Introduction

Most studies of the digital divide in the United States assert that the gender gap had closed by the turn of the millennium and that the differences that remain are in frequency of use, the activities pursued online, or the presence of women in technology-intensive occupations. While isolating the effect of gender is important for understanding technology disparities, such a focus tends to neglect possible differences in the experiences of women—based on factors such as race and ethnicity, income, or education. Scholarship on the effect of race/ethnicity has paid little attention to the unique experiences of women minorities. Combining these two streams of research, we are interested in the *intersection* of gender and race in information technology use, controlling for known socioeconomic factors in the digital divide. The *color line,* as W. E. B. DuBois called it, has always loomed large in American society, so we can expect substantial disadvantages among women based on race and ethnicity. The unique contribution of this research is to explore technology use for disadvantaged subpopulations in the United States: African–American women and Latinas. Little published work on the digital divide has explored the factors promoting technology use for minority women.

By examining a unique data set, the Current Population Survey (CPS), we are able to explore the experiences of a large sample of minority women compared with other women and the general population. Few other data sources include a sufficiently large and representative sample of subgroups in the population to allow us to draw valid inferences about

African–American women and Latinas as a whole. Using the most recent CPS that includes supplemental questions on information technology use, we are able to ask a variety of questions about how women use information technology. Are there different patterns of technology use for females if they are White or racial/ethnic minorities? What are the effects of occupation, family, and community on technology use for minority women? Are there substantial differences between African–American women and Latinas?

First, we turn to earlier studies on race and technology use to inform our exploration, followed by a summary of the literature on gender and technology use. Some studies have pinpointed a lack of knowledge, efficacy, or perceived relevance as factors limiting technology use among minorities or women. We do not test these attitudes directly, but find much evidence to suggest other influences, especially education and employment.

Through interaction terms, we isolate the conditional effects of gender, race, and poverty on technology access and use. We find that African–American women and Latinas are ahead of minority men in some ways, although all African–Americans and Latinos suffer disadvantages in technology use and access compared with similarly situated White non-Hispanics. Occupation, family, and community affect African–American women and Latinas differently, indicating the significance of structural factors such as educational and employment opportunities rather than attitudinal barriers. In contrast to the previous research, however, we find that in 2003 American women as a whole did not differ from men in terms of frequency of use when we consider factors such as occupation and family structure in addition to the usual control variables such as education, income, age, race, and ethnicity. Thus, we find evidence that the gender divide in frequency of use, in addition to the gap in access, has closed.

Digital Inequality In the United States

The benefits of technology use for individuals are clearly visible in the United States. Information technology use at work increases earnings, controlling for other factors. Less-educated workers are somewhat less likely to use technology on the job, but when they do, technology use makes a greater difference in economic opportunity for them proportionately (Mossberger, Tolbert, & McNeal, 2007). Eighty percent of American Internet users have looked for health information online (Fox, 2005). Online education is extending the reach of post-secondary education and training, from on-the-job programs provided by employers to college programs at the undergraduate and graduate levels, and online education has been found to increase earnings (Mossberger, Tolbert, Johns, & King, 2006). The Internet has become a core feature in recent political campaigns (Norris, 2001), and there is evidence that those who use the Internet, individuals who view news or political information online, are more likely to be civically engaged, controlling for other factors (Mossberger, Tolbert, & McNeal, 2007). Individuals who view political news online are more likely to vote than those who use other types of news (Bimber, 2001; Tolbert & McNeal, 2003), and political chatrooms or listservs have an even greater effect, even when we control for other important influences such as education and income. E-government improves communications between citizens and government, and its use is associated with more positive attitudes toward government, even including greater trust in government in some cases (West, 2004; Welch, Hinnant, & Moon, 2005; Tolbert & Mossberger, 2006). Thus technology use has important economic and democratic benefits, not only for individuals, but for communities and society.

Whereas access is often scarce in developing countries, the United States leads the world in computers and Internet connections at home, though not in broadband use, where it ranks 12th (oECD, 2005). In addition to home use, public access programs sponsored by libraries and nonprofit organizations offer some potential for information technology use even for those who do not have regular access at home, work, or school. The problem is that individuals who depend on public access sites use technology infrequently (Mossberger, Tolbert, & Stansbury, 2003; Mossberger, Kaplan, & Gilbert, 2006). Cell phones, which have become important for accessing the Internet in some countries, are not yet substantial for Internet use in the United States, although one recent report shows that 17% of African–Americans and 29% of English-speaking Latinos who use cell phones use them to connect to the Internet. This compares with 12% of Whites.

One reason for the difference may be the comparative young age of minority cell phone users (Rainie & Keeter, 2006).

Changes have clearly occurred since the first report issued by the U.S. Department of Commerce (1995) describing information technology "have nots" in urban and rural America. Current surveys from the Pew Internet and American Life Project show that 70% of Americans say that they go online at least occasionally in some setting.[1] Yet, in a society where Internet use is integral to work, study, health information, access to government services, and political information, simply measuring whether or not individuals have occasional access or use is an incomplete measure of digital inclusion.

Digital citizenship is the ability to participate in society online, which requires regular access and skills to use technology (Mossberger, Tolbert, & McNeal, 2007). There are two sets of skills: 1) technical competence needed to use hardware and software and 2) digital information literacy. The latter enables users to search for information online, comprehend and apply it, and evaluate the validity of sources of information (Mossberger, Tolbert, & Stansbury, 2003). Katz and Rice (2002) identified about 10% of the American population as Internet dropouts, who tended to be younger, lower-income, and less-educated than Internet users. They were also more likely to be novice users who lacked much experience or skill.

Frequency of use is a better measure of capacity for digital citizenship than occasional use or access alone, though we know that most frequent use occurs in the home, followed at some distance by work (U.S. Department of Commerce, 2002). Frequent use implies basic skills for using technology, and as individuals gain experience, they deepen their activities online, undertaking more complex tasks and using the Internet for work, study, or information search rather than entertainment (DiMaggio & Celeste, 2004). Given the migration of information and opportunities online in the United States, we have defined *digital citizens* as those who use the Internet daily. Regular access and frequency of use are clearly related to skills online, because survey data depict a skills divide that parallels disparities in access and use (Mossberger, Tolbert, & Stansbury, 2003). Even with the expansion of the online population in the United States, Americans who are low income, less educated, older, African–American, or Latino have continued to be less likely to use computers or the Internet, and these factors are all statistically significant using multivariate controls (Katz & Rice, 2002; Mossberger, Tolbert, & Stansbury, 2003; Fairlie, 2004). The gender gap in access had closed by the end of the 20th century (U.S. Department of Commerce, 2002). Over time, urban and rural disparities have been less pronounced, although areas of concentrated poverty exercise an independent effect diminishing access and use, controlling for individual-level factors (Mossberger, Tolbert, & Gilbert, 2006). Despite marked expansion of technology use in the United States, inequalities in access, use, and skills remain.

1) The Role of Race and Ethnicity

What explains differences in technology access, use, and skill based on race and ethnicity? Some accounts stress attitudes or knowledge, or the relevance of the medium, while others show systematic differences in the opportunities available in impoverished communities.

Differences in income, education, and occupation contribute substantially to lower rates of home computer and Internet access among minorities, according to Fairlie (2004), but they do not entirely explain contrasts between African–Americans, Latinos, and the rest of the population. Mexican–Americans have the lowest rates of access, according to Fairlie's statistical analysis of 2000 CPS data, and language barriers may partly explain these results, given the Internet's reading-intensive interface. While some other factors were significant predictors of access for all Americans—being married, having children, being in the labor force, living outside the central city—these variables did not contribute much to understanding disparities based on race and ethnicity, compared with income, education, and occupation. African–Americans and Latinos were also more likely than Whites to cite price as a reason for not having Internet access. But, in general, Fairlie (2004) concluded that we do not know much about why race and ethnicity influence access. Fairlie did not examine technology use, which is a proxy for skill.

A recent Pew Internet and American Life Project survey of Latinos supports and extends some of

1. December 2006 tracking survey available from http://www.pewinternet.org

Fairlie's findings (Fox & Livingston, 2007). Most of the Pew surveys are conducted in English and do not have a large sample of Latinos, but a bilingual study conducted in collaboration with the Pew Hispanic Center found that 56% of Latinos report having used the Internet at least occasionally. This compares with 60% for African–Americans and 71% for Whites. Only 32% of Spanish-dominant respondents used the Internet, and only 31% of Latinos with less than a high school education went online. Individuals of Mexican descent were the least likely group to use the Internet, but Spanish language dominance decreases use regardless of age, education, income, or nativity in Pew's multivariate analysis. Latinos are also more dependent on use outside the home and less likely to have home Internet access (Fox & Livingston, 2007).

Some social scientists have hypothesized that lower rates of access and use among African–Americans and Latinos are due to differences in motivation or cultural perceptions (including perceptions of relevance of content on the Internet) (Kretchmer & Carveth, 2001). Yet, other research paints a different picture—that African–Americans and Latinos have more positive attitudes toward technology, despite lower rates of access, use, and self-reported skill.

National survey data indicate that African–Americans, and to a lesser extent Latinos, believe in the benefits of computers and the Internet even more strongly than similarly situated Whites. This is particularly true for African–Americans when respondents are asked about technology and economic opportunity (e.g., getting a job, getting a raise, starting a business). African–Americans express more willingness to use public access sites (Mossberger, Tolbert, & Stansbury, 2003). Among those who do not currently use computers or the Internet, African–Americans more frequently say that they will go online someday (Lenhart, 2003).

Comparing behavior, African–Americans are more likely than White Americans to use the Internet for job searching or to take online classes (Spooner & Rainie, 2000; U.S. Department of Commerce, 2002). These relationships are statistically significant, controlling for other factors, again indicating that African–Americans connect technology use with economic advancement (Mossberger, Tolbert, & Stansbury, 2003).

How can we explain this contradiction between more positive attitudes and lower access, use, and skill? Mossberger, Tolbert, & Gilbert (2006) hypothesized that place of residence matters because it can influence opportunities to learn about technology in schools, public access sites, social networks, and jobs. Using national opinion data merged with neighborhood data and hierarchical linear modeling, they demonstrated that race at the individual level is no longer significant in predicting technology access once we control for contextual variables such as the median income or percentage of high school graduates in the respondent's zip code. In other words, racial differences in technology access for African–Americans are the result of living in segregated, high-poverty neighborhoods (Mossberger, Tolbert, & Gilbert, 2006). For Latinos, ethnicity is still important in addition to place of residence—perhaps because of language, as Fairlie (2004) suggested. The published research on race and technology access and use has not focused on gender, per se.

2) The Role of Gender

The most recent data show American women are just as likely to be online as men, but that gender matters for Internet use in other ways. Men are more "intense users" who go online more frequently and engage in a greater number of uses (DiMaggio et al., 2004; Boneva, Kraut, & Frohlich, 2001; Katz & Rice, 2002; Fallows, 2005; Mossberger, Tolbert, & Gilbert, 2006). Differences in intensity of use may be related to skill, confidence, time, or interest, as well as opportunities to learn about technology in the workplace or other settings.

What is the evidence on gender and skills? Survey data reveal almost no difference between men and women in self-reported technical competence, information literacy, or the ability to use the Internet to find information (Mossberger, Tolbert, & Stansbury, 2003). According to a recent study that compared self-assessments and actual performance in searching for information online, there were no real differences in the actual performance of men and women, after age, education, and other influences are taken into account. However, women underestimate their skill, and this may even limit online use due to a feeling of inadequacy (Hargittai & Shafer, 2006). Those who have high-speed connections are more frequent users who also perform a greater number of activities online, and so broadband may be related to the acquisition of skill

(Horrigan, 2004; Rappoport, Kridel, & Taylor, 2002).[2] Yet there are no longer any gender disparities in broadband use (Mossberger, Tolbert, & McNeal, 2007).

Gender differences have often been described as rooted in attitudes and perceptions about technology. Women have been found to report lower levels of self-efficacy, or beliefs "concerned with individuals' perceived capabilities to produce results and to attain designated types of performance" (Pajares, 1997, p. 4; see also Jackson et al., 2001; Liaw, 2002; Whitley, 1997). Female and male students are motivated by similar factors and have similar perceptions of computers; however, one study found that female students' confidence was the main factor in why they used the Internet less than male students, and that women who had greater confidence used the Internet more extensively (Dickhauser & Steinsmeier-Pelster, 2001). In a study of 160 master's-level students in several technology-related fields, women scored significantly lower than men for self-efficacy and passion for computing (Michie & Nelson, 2006). While many information technology and gender studies are based on the experience of students, gender differences persist throughout life (Morahan-Martin, 1998).

Limited time and family responsibilities may also account for differences in use. A higher percentage of parents than nonparents have computers and the Internet in their homes, and married individuals also have higher rates of access (Lenhart, 2003; Fairlie, 2004). However, parenthood may have a constraining effect on use, especially for women, because experience and time are important predictors of use (Howard, Rainie, & Jones 2001). Surveys have shown that 83% of women of who reported limited access and guilt about the time away from family responsibilities were parents of young children or had five or more children (Burke, 2001). Girls experiment and use new technology and the Internet as much as their male counterparts before assuming roles as mothers. Single women, especially single mothers, are less likely to use the Internet (Bucy, 2000; U.S. Department of Commerce, 1998). Female-headed households make up almost half the families with household incomes of less than $20,000 annually. This demonstrates that women continue to have a greater likelihood for poverty, which could be another factor in lower use of computers and the Internet.

Some argue that there are differences in interest based on design—the Internet is designed for men and ultimately more friendly to them (Terlecki & Newcombe, 2005). The hurdle may, however, be perception rather than design (Barrett & Lally, 1999; Kennedy, 2000). Also, women are not present in or encouraged as often as men in careers involving the design of the Internet and computer technology (Eccles, 2005). Despite similar levels of interest in computer and Internet use among men and women, men are more likely to take courses or major in computer science, tend to know more about terminology and maintenance, and express fewer fears about the danger of technology (Temple & Lips, 1989; Fallows, 2005).

Research shows differences in online activities, but also increasing use by women. Females are most interested in the communication capabilities of the Internet for meeting new people and staying in touch with them and are more frequent users of e-mail than men (Jackson et al., 2001; Fallows, 2005; Boneva, Kraut, & Frohlich, 2001). They go online more often for health information, religious information, job searches, and playing games; men seek financial/stock trading information, general news and sports news, shop on the Internet (including online auctions), and visit government Web sites (Howard, Rainie, & Jones, 2001; Fallows, 2005). Women are less interested than men in participating in politics online, such as a town meetings, voting, or registering to vote (Mossberger, Tolbert, & Stansbury, 2003).

Problems with self-confidence, limited time, poverty, or negative perceptions of technology are of greatest concern if they limit skill and access to technology. Differences in interest do not necessarily reflect disparities in skill or access, and in fact, women may use some Internet tools, such as e-mail, more frequently and creatively than men.

Furthermore, the percentage of African–American women and younger women who are Internet users surpasses men (Fallows, 2005). Women in general, like African–Americans and Latinos, are also more likely to believe that information

2. Even when we control for dial-up modem Internet access in the same model, broadband access remains a statistically significant predictor of digital experience or use of the Internet for a variety of activities.

technology is important for economic opportunity (Mossberger, Tolbert, & Stansbury, 2003). The survey research cited in Fallows (2005) does not control for socioeconomic factors, however, other than gender and race. The analyses that follow allow us to consider many influences on technology use to isolate the effects of race and gender for minority women.

Data and Methods: Current Population Survey

While previous research has explored what factors, including race and gender, affect technology access and use for the population as whole, little research on the digital divide has focused exclusively on women, especially minority women. To explore digital inequities and technology use by Black and Latino women, we turn to the most recent comprehensive survey data available: the 2003 CPS March Supplement on information technology conducted by the U.S. Census Bureau. The national random-sample survey includes more than 103,000 respondents. This very large sample (100 times larger than a typical national opinion survey) not only provides accurate estimates of the population as a whole but also sufficient samples of subgroups in the population (more than 5,000 African–American women and 5,000 Latinas in the sample) to accurately study the online behavior of minority women. The 2003 supplement is the most recent CPS data available with questions on Internet access and use at both home and work.

We analyze these data in three ways. First, we present descriptive statistics/frequencies of responses to survey questions about technology access and use for the U.S. population as a whole and compare these data to responses from White women, African–American women, and Latinas. Next, we estimate multivariate regression models to predict technology access and use for the population as a whole. We isolate the effects of race and gender with interaction terms that indicate whether the respondent is an African–American female or Latina. Again, there are marked differences in technology use for women who are White, Black, and Latina. Finally, because of the uniquely large CPS data sample, we are able to estimate multivariate regression models on subsamples of the population (i.e., predicting what factors increase technology access and use among only African–American women or Latinas).

Two primary dependent (or outcome) variables are examined. The CPS asked respondents about whether the "Internet at home was used." A little more than 62,000 individuals (or 59%) said yes and approximately 42,000 (40%) indicated no. As of 2003, we can be fairly confident that roughly 60% of the U.S. population used the Internet at home. This variable was recoded so that "yes" responses were assigned a value of 1 and "no" responses were assigned a value of 0.

But home access masks more important questions of use. Frequency of Internet use requires skill and education, and serves as our second dependent variable. The CPS asked respondents about their "Internet use, access over the last year." This variable was coded so that higher values measured more frequent Internet use; responses were coded 4 ("at least once a day"), 3 ("at least once a week but not every day"), 2 ("at least once a month but not every week"), 1 ("less than once a month"), and 0 ("no Internet access"). As of 2003, 34.5% (or 36,000 respondents) of the population used the Internet at least once every day. These daily users can be classified as "digital citizens," regularly using the Internet for work and home activities with high levels of technology skills (Mossberger, Tolbert, & McNeal, 2007). The 34.5% of the population who are digital citizens represent a much smaller proportion of Americans than the 60% who have home Internet access.

Our primary independent (or predictor) variables measure the race/ethnicity and gender of the respondent; we seek to understand technology access for women, and particularly minority women. Compared with standard surveys, our national opinion data include large and representative samples of African–Americans and Latinos. Of the 103,000 total sample, 10% (or 10,113) reported being of Hispanic origin, and almost 10% (or 9,920) reported being Black.[3] Additionally, almost 5% (or 5,037) were Asian–American. The gender distribution in

3. In the 2003 CPS, 9,695 respondents reported being Black only. Also, the multiple race categories (with only two races) that included Black were included in the construction of the variable for a total of 9,920 Black respondents.

the sample mirrored the population as a whole, with 52.5% females and 47.5% males. The sample included 5,730 African–American females and 5,071 Latina females, allowing for separate statistical analyses of these groups. These sample sizes are larger than the Black National Election Study (2002), for example.

Beyond gender and race, the models include many socioeconomic control variables, such as age, education, income, and even location, which have been identified in digital inequality research. Age is measured in years. The educational attainment of the respondent is measured on a 5-point ordinal scale ranging from 1 (less than high school degree) to 5 (bachelor's degree or higher). Geography/location is measured with binary variables for urban and suburban residents, with rural residents and those who did not identify their location as the reference group (coded as 0). Because having children has been shown to be important in technology access for adults (Lenhart, 2003; Fairlie, 2004), we include a binary variable measuring whether the respondent has a child under the age of 18 living at home.[4] Marital status may also be important in technology use, especially because married couples often have higher incomes (Fairlie, 2004).[5] Married is also the modal category, with 59% of respondents reporting being married.

An advantage of the CPS data beyond standard surveys is detailed employment information. We use the 11 industry and occupation job categories measuring a respondent's primary occupation.[6] A series of binary variables was created for each occupation, with production as the reference (left out category).[7] We expected that management, professional, sales, service, and office/administrative categories would have the highest technology use, including among women.

Because of the importance of income in the digital divide, we sought to include the more precise measure of income available in these data, weekly earnings, rather than an ordinal scale of household income. Unfortunately, of the 103,000 respondents, 90% had missing values on the weekly earnings question. These missing values, however, do not affect random sampling—only sample size. This is because the CPS is a panel study that asks all respondents about weekly earnings in the fourth and eighth months of their rotation, and so only a portion of participants answer the earnings question in any given month. We estimated all models reported in the paper with and without income, but felt that only the models with weekly earnings were reliable given the importance of income in previous digital divide research. Models without income and larger sample sizes are available from the authors. Subgroup analyses of only African–American females and Latinas are reported with and without income, due to smaller sample sizes. Using listwise deletion, our overall models with weekly earnings included 14,851 individuals.

Findings: Broad Patterns of Access and Use

Descriptive statistics/frequencies illustrate broad patterns in the data and offer a first cut at comparing technology access and use for the population overall compared with White women, Black women, and Latinas. Appendix Table 1 presents percentages for the overall population and these subgroups. We see that the percent of White women with home Internet access mirrors that of the overall population, but Black females and Latinas are 20% less likely to have home access than their White female counterparts. Percentages for frequency of Internet use over the last year are even more telling: again, White women display usage patterns similar to the overall population, but African–American females are 13% less likely to be daily Internet users and Latinas are 16% less likely. While only 37% of White females have no Internet access at home, a

4. Parents with children were coded 1, and all others were coded 0.

5. We used a series of binary variables to measure marital status (widowed, divorced, separated, never married), with married respondents as the reference category coded 0.

6. These include 1) management, business, and financial; 2) professional and related; 3) service; 4) sales and related; 5) office and administrative support; 6) farming, fishing, and forestry; 7) construction and extraction; 8) installation, maintenance, and repair; 9) production; 10) transportation and material moving; and 11) armed forces.

7. Because of the low number of responses, a separate binary variable for armed forces was not included, with respondents whose occupation was armed forces coded 0.

substantial 62% of Latinas and 53% of Black females are offline. Thus more than half of African–American women and Latinas are on the wrong side of the digital divide. The racial gap between White and minority females is more than 25 percentage points.

Minority women are more likely to cite cost or lack of a computer as a reason for not having the Internet at home; but there are no real differences in interest. The CPS survey asked respondent the "reason for no Internet use." Only 9% of the population overall, and 9% of White women, indicated that "costs are too high," yet 21% of Black females and 22% of Latinas reported that cost prevented them from having technology access. This finding underscores price as a significant barrier for minority women online, which is consistent with Fairlie's (2004) results for African–Americans in the 2000 CPS. Consequently, while only 9% of the population overall, and 9% of White women, cited "no computer/inadequate computer" as the reason for a lack of Internet access, 16% of African–American females and 17% of Latinas gave this answer. Insufficient interest in technology does not appear to be a reason keeping minority women offline, as roughly equal percentages of the overall population, White women and minority women indicated "don't need it; not interested" as the reason they had no Internet use. Language barriers pose a relatively larger problem for Latinas than the other subgroups, but are minor compared with the other factors we have discussed.

While fewer minority women have home computers, there is little evidence that cell phones are providing Internet access instead. The CPS survey also asked respondents about the "device used to access the Internet," and a significantly lower percent of Black females (29%) and Latinas (25%) answered "home PC (desktop)," compared with the overall population (43%) or White females (48%). This suggests minority females use the Internet at schools, public libraries, friends' houses, or other locations more than the overall population. This finding is consistent with previous research on technology use at public places, including libraries (Mossberger, Tolbert, & Stansbury, 2003). Although the survey data are five years old, we see a slightly higher percentage of Black females using mobile phones to access the Internet than the overall population. As in more recent Pew data (Rainie & Keeter, 2006), there seems to be a higher tendency to use cell phones for the Internet among minorities. However, few respondents in any group indicated cell phones were a primary means for Internet access.

While these percentages are illuminating, they do not allow us to sort out overlapping factors. Are the racial effects we see because African–Americans and Latinos tend to have lower incomes and lower educational attainment compared with Whites? To sort out cause and effect, we estimate a series of multivariate regression models below. We first report models predicting home Internet access and then frequency of Internet use.

We present summary tables, bolded headings, and probability estimates to help readers navigate the many findings in the subsequent sections, which are based on the multivariate models.

Predicting Home Internet Access: General Population

For comparison, we first examine the general trends predicting home Internet access for the general population. The results summarized in Table 1 are based on Appendix Table 2.[8] Since the dependent variable, home Internet access, is binary, logistic regression coefficients are estimated.

Gender is not a factor in Internet access, but age, socioeconomic status, race, ethnicity, and location matter. Consistent with published research on the digital divide, we see that the gender gap for access has closed—women are no less likely to have home Internet access than men (Mossberger, Tolbert, & Stansbury, 2003). However, racial gaps remain—Latinos and African–Americans are considerably less likely to have home access. These models based on large sample sizes provide additional evidence that the digital divide continues to be in part defined by race, even after controlling for the respondent's socioeconomic status and residence. We also see that younger individuals are considerably more likely to have home Internet access, and suburban residents are more likely than those living in urban or rural areas to have access. Income, measured by weekly earnings, is a strong and independent predictor of the probability of having home access, as is higher education.

8. Column 1 provides the baseline model in Appendix Table 2.

Table 1 *What Increases the Likelihood of Home Internet Access? (Results for Appendix Tables 2 and 4)*

General Population	African-American Women	Latinas
(App. Table 2, Model 1)	**(App. Table 4, Model 2)**	**(App. Table 4, Model 4)**
White race		
Non-Hispanic ethnicity		
Youth	Youth	
Higher Income	Higher Income	
Higher Education	Higher Education	Higher Education (Urban residence decreases)
Suburban Residence	Suburban Residence	
Professional Job		Professional Job
Management Job	Management Job	Management Job
Service Job		Service Job
Sales Job		
Secretarial Job		Secretarial Job
Repair Job		
Children under 18		
Marriage	Marriage	Marriage
Interaction Terms (Appendix Table 2)		
Race, Ethnicity, and Poverty: Within the general population, interaction terms show that it is *poor* African-Americans and Latinos who are less likely to have home Internet access, while higher-income African-Americans and Latinos are not appreciably different from the population as a whole.		
Race, Ethnicity, and Gender: Within the general population, interaction terms show that African-American women are less likely than African-American men to have home Internet access, and that Latinas are more likely to have home access than their male peers, controlling for other factors. For the general population as a whole, there are no differences in home access based on gender.		

Note. The results reported below show only the variables that are statistically significant, controlling for other factors.

Children, marriage, and some occupations increase the likelihood of home Internet access. Consistent with the literature (Lenhart, 2003; Fairlie, 2004), individuals with a child under the age of 18 living at home are more likely to have Internet access at home, as are married respondents. A new finding is the importance of occupation in predicting home access, because those in professional, management, service, sales, and secretarial/administrative occupations are all more likely to have Internet access at home, holding other factors constant.

Gender accounts for some differences in home access within minority groups, but in different ways. We repeat the models using interaction terms multiplying the race of the respondent by gender (African–American x female and Latino x female).[9] These interactions allow us to isolate the probability of home access for minority females compared with minority males. The coefficient for the interaction term for Black females is negative and marginally significant (89% confidence interval), suggesting that Black females have lower access to the Internet at home than Black males. The reverse

*9. The analysis reported in Columns 2 and 3 (Appendix Table 2), replicate the previous model, but include interaction terms measuring the conditional probability of home Internet access for African–American females and Latinas (Latino*female).*

is true for Latinas, however. In Column 3, the interaction term for Latinas is positive and statistically significant, indicating that Latinas have higher access rates at home than their male counterparts, Latinos.[10]

Probability Estimates: How Different Groups Compare

To understand the magnitude of the differences between groups, we present probability estimates based on the logistic regression coefficients reported in Appendix Table 2. This technique enhances comparison and makes the results of the multivariate regression models as easy to understand as simple percentages, but they should be understood as the difference that a particular variable makes, holding other factors constant. These probability estimates are based on simulations where we model, for example, a White female holding all other variables at their mean or modal values. In this section, we report the results of some of the probability estimates shown in more detail in Appendix Table 3.

Minority women are at a considerable disadvantage in Internet access compared with White women. White women are 18% more likely to have home Internet access than African–American women and 21% more likely to have home access than Latinas.[11] African–American women have a slightly higher probability (.03) of home access than a similar Latina respondent, but in general, minority women have considerably lower rates of access to technology than White women.

Differences between minority men and minority women are substantively less pronounced. Appendix Table 3 also allows us to see the substantive effect of the interaction terms for race and gender (Columns 3 and 4). Black females have a 5% lower probability of home Internet access than Black males, while the opposite is true for Hispanics; Latinas have a 5% higher probability of home access than Latino males. So while there is virtually no difference in access rates between White men and women, there is a gender divide among minority populations, but women are not unilaterally disadvantaged. Moreover, gender differences among minorities are smaller than differences between minorities and Whites.

Systematic disparities in income account for much of the effects of race and ethnicity. We are also interested in any conditional relationship between race and income. Do higher earnings overcome the disadvantages faced by minorities in terms of technology access? Table 2 (Column 4) includes an interaction term measuring the earnings of the respondent multiplied by race (income x Black), while Column 5 includes a similar interaction for ethnicity (income x Latino). We find that wealth is able to overcome the racial disparities in technology access. African–American respondents with higher incomes are significantly more likely to have home access. Similarly, Latino respondents with increased weekly earnings have a higher probability of Internet access at home. Thus income, and structural causes, remain critical in the access divide. Those who are without home access are primarily poor minorities rather than all minorities.

Home Access for African–American Women and Latinas—Subsample Analyses

Another way to understand technology access rates for minority women is to conduct statistical tests where only African–American women are included in the sample, or only Latinas are included. Such tests are reported in Appendix Table 4 and also summarized in Table 1 in the previous section. To preserve the large sample sizes, the models are estimated without weekly earnings (Columns 1 and 3) and with weekly earnings (Columns 2 and 4). A similar set of predictor variables is included as in the models above, but variables for gender and race are omitted because of the restricted sample selected on race and gender characteristics of the individuals. The models provide a superior test of what factors increase home Internet access for minority females.

10. We can also see this from the base term for Latino (which represents a male Latino with the interaction term in the model), which is negative and statistically significant.

11. Simulating the coefficients in Appendix Table 2, Columns 3 and 4, by holding the explanatory variables at their mean or modal values, a White female is predicted to have an 18% higher probability of home Internet access than a similarly-situated Black female (SE =.01). Likewise a median/modal White female is predicted to have a 21% higher probability of home access than a Latina (SE =.01).

Models for African–American females are reported in the first two columns, and estimates for Latinas are reported in the last two columns.

Among African–American women, some patterns resemble Internet access in the general population. Age and education are important: younger women are more likely to have access, as are those with higher education. In Column 2, the coefficient for weekly earnings is positive and statistically significant; again we provide evidence that Black women with higher incomes are more likely to have the Internet at home. Occupation matters, as those in professional, managerial, and secretarial occupations are more likely to have home access.

Only managerial occupations promote home Internet access for African–American females; children do not encourage home access, in contrast to the general population. There are some distinctive findings for African–American women as well. When we control for income, only African–American females in management occupations have higher access rates to the Internet at home. This tells us that the occupation variables are measuring much of the same variance as weekly earnings. African–American women who are parents are not more likely to have access, although overall, women with children have higher access rates. This may indicate greater economic stress among African–American women who are parents. African–American women who are married have a higher probability of access than those who are single.

African–American women living in urban areas are disadvantaged in home access. Finally, Black females living in the suburbs are significantly more likely to have home Internet access. Since the modal category for location is urban, this indicates that place of residence may be particularly important for Black females (Mossberger, Tolbert, & Gilbert, 2006). Escaping an environment of concentrated poverty, regardless of income, may increase technology access among African–American females.

For Latinas, age is not important for Internet access, but the effects of education are pronounced. There are patterns of overlap and divergence when we compare African–American women and Latinas in terms of home Internet access. Surprisingly, for Latinas (Columns 3 and 4) age doesn't matter, in contrast to the experience of African–American women and Americans overall. But, education has a strong and positive impact on technology access. Again, income is a statistically significant predictor of increased access.

Many types of jobs increase home Internet access among Latinas. Occupation matters more for Latinas than Black females. Even after controlling for income, individuals in professional, management, service, and secretarial/administrative occupations have a higher probability of home Internet access. It is likely that these occupations require technology use at work, and studies have found technology use at work leads to a higher probability of home access (Mossberger, Tolbert, & McNeal, 2007).

Family structure and place are less important for Latinas than for African–American women. As with African–American women, the presence of children in the home does not significantly promote home Internet access. While being divorced or widowed significantly decreased home access rates for African–American females, this is not the case for Latinas. Only single women and those separated have lower access rates than married Latinas. Although living in an urban area is a statistically significant disadvantage for technology access for Latinas, overall place factors seem to matter less for Latinas than Black females. This is consistent with research on segregation—African–Americans tend to be segregated into high-poverty areas somewhat more than Latinos, and residence in high-poverty areas explains disparities less for Latinos than African–Americans (Massey & Denton, 1993; Mossberger, Tolbert, & Gilbert, 2006).

Education is important for access in both groups, but matters even more for Latinas. Probability simulations are again useful for understanding the substantive magnitude of these effects (See Appendix Table 5). Holding the explanatory variables at their mean or modal values (for Latinas, this is a married woman residing in a suburban area; for Blacks, this is a single woman living in an urban area), and simulating the logit coefficients reported in Appendix Table 4 (Columns 1 and 3), we can see

dramatic increases in technology access at home for both minority female groups based on educational attainment. African–American women with a bachelor's degree have a 29% increased probability of home technology access than the same individual with only a high school degree, all else equal. Latinas with a college degree have a 33% increased probability of access at home compared with the same women with only a high school degree. Thus education seems to be particularly important in increasing technology access at home for minority females.

Frequency of Internet Use: General Population

As discussed earlier, access alone may mask important variations in use of technology that measure skill and the depth of technology use. Table 2 summarizes the results for Appendix Tables 6 and 7, which examine frequency of Internet use. Since the dependent variable is a 5-point ordinal scale, ordered logistic regression coefficients are reported. The highest values on this scale measure daily Internet use (which can occur at work or home). The lowest values on this scale indicate no Internet use.

Race and ethnicity affect frequency of Internet use, but gender does not when we control for a number of factors. The baseline model in Column 1 (Appendix Table 6) again indicates that Latinos and African–Americans have considerably lower probability of being daily Internet users, or digital citizens. While Asians were no different than Whites in the probability of home Internet access, we find they have lower usage of the Internet than Whites (reference category). However, the coefficient for gender is not statistically significant; overall females and males have an equal probability of being frequent Internet users. The control variables are in the expected direction, with education, youth, income, and suburban location increasing the frequency of Internet use. Occupation again matters, with those in professional, management, service, sales, and secretarial positions significantly more likely to be daily users. The results showing that women have closed the gap for frequency of use contradict much of the literature, which shows some differences in frequency of use between men and women. However, few other studies have included occupational factors, which apparently explain some gender differences for frequency of use.

African–American women and Latinas are online more frequently than their male peers. The most important models for this study are those adding in the interaction terms for Black females (Column 2, Appendix Table 6) and Latinas (Column 3, Appendix Table 6). Both interaction terms are positive and statistically significant. Thus, we find empirical evidence that African–American females have higher use of the Internet (home or work) than African–American males, even though they have slightly lower rates of home Internet access in comparison with African–American men (see Table 2). Similarly, Latinas have a higher probability of using the Internet on a regular basis (daily or weekly) than Latino males. Here, our findings extend recent Pew survey research showing the African–American women are going online more frequently than their male counterparts (Fallows, 2005). This is in fact true of both African–American women and Latinas, even when we control for socioeconomic conditions.

Yet, minority women are still disadvantaged compared with White women. However, probability simulations for these models (see Appendix Table 3, Column 2) show that Black females have a 0.16 lower probability of being daily Internet users than White females, while Latinas have a 0.18 decreased probability of being daily users than White females. So while the positive interaction terms offer a glimmer of hope (minority females are doing better than minority males), there remain marked disparities in technology use among women based on race.

Daily Internet Use for African–American Women and Latinas: Subsample Analyses

Again, we report subgroup analyses modeling the frequency of Internet use among only Black females (Columns 1 and 2) and Latinas (Columns 3 and 4) of Appendix Table 7. The models in Columns 2 and 4 include weekly earnings, but have a much smaller sample size because of missing values on this variable compared to Columns 1 and 3.

Patterns for frequent use for minority women largely parallel the factors that encourage home Internet access. Consistent across both minority groups, we find that youth matters; younger women are more likely to be regular Internet users, regardless of whether they are African–American or Latina. Education also is a consistent

and positive predictor of increased usage of technology, whether or not we control for income, and so is wealth; minority women with higher weekly earnings and more education are more likely to be online.

Urban residence and children decrease frequent use among African–American women; occupations are most important for frequent Internet use among Latinas. Again, location appears to have a particular effect for African–American females; Black females living in the suburbs have higher frequency of Internet use than those residing in urban areas, all else being equal. Latinas living in urban environments are disadvantaged, too, but place factors do not play as great a role for Latinas. In contrast, occupation continues to have more of an effect on technology use for Latinas than Black females. A whole range of occupations (e.g., professional, management, service, sales, secretarial) leads to more frequent technology use among Latinas, while only professional and secretarial jobs increase Internet use among African–American females, when we control for weekly earnings. This suggests that much of the technology use Latina women report may be on the job. Having a child at home may reduce the frequency of use for Black women, but it has no effect on technology use among Latinas.

Probability Estimates for Education

Simulating the coefficients in Appendix Table 7, we reported predicted probabilities of daily Internet use for Black females and Latinas in Appendix Table 8. Holding the explanatory variables at their mean or modal values, but varying the educational attainment of the respondent, we again see how important education is for technology use for minority females.

Education has large effects on frequency of use for both groups of minority women, but Latinas experience an even greater increase from education. A Black female with only a high school degree is predicted to have only a 9% (*SE* = .00) probability of being a daily Internet user. This same individual with a college degree has a 34% probability (*SE* =.01) of being a frequent user; a 25% increased probability based on education alone. Latinos as a group have even lower educational attainment than African–Americans (Hero, 1993), and we see the effects of education are even greater for Latinas. Latinas with only a high school diploma are predicted to have only a 13% (*SE* =.00) probability of being a daily Internet use. This same respondent with a college degree is a predicted to have a 50% probability (*SE* = .02) of being a daily user: a 37 percentage point difference.

Conclusion: Economic and Educational Opportunity Are Necessary for Digital Inclusion

In many ways, American women are indeed "catching up" with men online. Not only has the gender gap in access closed, but once we take into consideration occupational variables as well as other factors, there are no longer statistically significant differences in frequency of use, either. Descriptive reports show a narrowing gap in frequency of use (Fallows, 2005), but they do not control for possible causes other than gender. As previous multivariate studies have shown some continued differences in frequency of use, this unexpected finding suggests that occupation plays some role in whatever apparent differences persist for men and women—perhaps access to the managerial and professional jobs where Internet use is most intensive.

The unique contribution of this research, however, is its exploration of the experiences of African–American women and Latinas in terms of technology access and use. There are signs of hope for African–American women and Latinas as well, although the most striking findings are the differences between White women and minority women. On the optimistic side, we find broader and more compelling evidence than the Pew surveys (Fallows, 2005) that minority women are making some strides in frequency of use—they go online somewhat more frequently than their male counterparts (African–American and Latino males), controlling for other factors. While some of the research on gender suggests that women are less interested in information technology, this does not seem to be true for minority women. What is clear, however, is that African–American women and Latinas have not caught up with White women or with the population as a whole. When respondents are asked why they do not use the Internet, noninterest does not differ among White and minority females, but minority females do cite cost and lack of a computer.

Unequal opportunities for education and eco-

Table 2 *What Increases the Frequency of Home Internet Use? (Results for Appendix Tables 6 and 7)*

General Population	African-American Women	Latinas
(App. Table 6, Model 1)	**(App. Table 7, Model 2)**	**(App. Table 7, Model 4)**
White race		
Non-Hispanic ethnicity		
Youth	Youth	Youth
Higher Income	Higher Income	Higher Income
Higher Education	Higher Education	
Suburban Residence	Suburban Residence	Higher Education (Urban Residence decreases)
Professional Job	Professional Job	Professional Job
Management Job		Management Job
Service Job		Service Job
Sales Job		Sales Job
Secretarial Job	Secretarial Job	Secretarial Job
Repair Job		Repair Job
	No Children under 18	
Marriage	Marriage	Marriage, Widowed
Interaction Terms (Appendix Table 6)		
Race, Ethnicity, and Gender: Within the general population, interaction terms show that African-American women and Latinas are more likely than their male peers to go online frequently, controlling for other factors. For the general population as a whole, there are no differences in frequency of Internet use based on gender.		

Note. The results below show only the variables that are statistically significant, controlling for other factors.

nomic opportunity constrain the ability of minority women to participate in the information age, according to the evidence revealed here. African–Americans and Latinos, both men and women, continue to earn substantially less than Whites, and their systematically disadvantaged position in the labor market has repercussions for technology access, as the interaction terms here show. For minority women, increased education has a profound effect for access and daily Internet use, and yet we know that African–Americans and Latinos have lower educational attainment than Whites and are more likely to attend schools in poor communities that struggle and often fail to offer adequate education (Orfield & Lee, 2005). Residential geography matters for both African–American women and Latinas, but is more pronounced for African–Americans. Segregation and concentrated poverty are most prevalent for African–Americans, and prior research has shown that place effects are more dramatic for African–Americans than for Latinos (Massey & Denton, 1993; Mossberger, Tolbert, & Gilbert, 2006). Our ability to incorporate occupational influences into this analysis lends further support to the importance of social and economic opportunity for including all women in the information age. Professional and secretarial jobs increase technology use among African–American women, and a great variety of jobs enhance the chances that Latinas will be online. The workplace can become a means for achieving digital citizenship, especially for Latinas. Family responsibilities may act as a particular constraint for minority women because of poverty, especially in single-parent households. In contrast to most Americans, African–American women are not more likely to have the Internet at home if they are parents, and having children may reduce frequency of use.

Minority women are constrained by diminished

opportunities in their communities and workplaces, and lesser access to technology may reinforce these inequalities. Both minorities and women are even more likely than other Americans to say that technology matters for economic opportunity, demonstrating both that they view technology as important, and that they are motivated to overcome disadvantages in the job market (Mossberger, Tolbert, & Stansbury, 2003). By exploring their technology experiences in greater detail than before, we discover that African–American women and Latinas are making strides forward online, along with White women, but that they face larger hurdles because of discrimination, poverty, and educational disparities. ■

Appendix 1 *Descriptive Statistics (Percentages) for Overall Population, White Females, Black Females, and Latinas*

	Entire Population	White Females	Black Females	Latinas
Internet Access at Home				
Yes	60	61	39	39
No	40	39	61	61
Frequency of Internet Use Over Last Year				
At least once a day	35	35	22	19
At least once a week but not every day	19	20	17	13
At least once a month but not every week	4	4	5	3
Less than once a month	2	3	3	2
No Internet Access	40	37	53	62
Reason for No Internet Use				
Costs are too high	9	9	21	22
Lack of confidence	2	2	3	3
Don't need it; not interested	16	16	17	15
Privacy and security concerns	.35	.32	.40	.37
Concern that children will access inappropriate sites	.41	.39	.52	.69
Have access elsewhere	.83	.83	.63	.69
Lack of time to use internet	.90	.85	1	.83
Language barriers	.20	.15	.07	.79
No computer/Inadequate computer	9	9	16	17
Not in universe/did not answer question	60	61	39	39
Device Used to Access Internet				
Home PC (desktop)	45	48	29	25
Portable laptop computer	3	3	2	2
Through a TV-based internet device or set top box	.37	.41	.23	.22
Through a mobile (for example, cellular) phone	.07	.07	.10	.04
Through a personal digital assistant or other handheld device	.05	.05	.05	0
Through a games machine with internet connection	.01	.10	0	0
Not in Universe/did not answer question	51	49	68	73

Note. The percentages of overall population, White female population, Black female population, and Latina population indicating no interest as the primary reason for lack of home Internet access are roughly the same (16%). However, only 9% of the overall population indicates "costs" are prohibitive, compared with more than a fifth of the Black female and Latina population. Internet access at other locations (e.g., library, school) is not a significant explanation for not having home Internet access among any of the three groups.

Appendix 2 *Predicting Who Has Home Internet Access, 2003 Current Population Survey Data*

Model Specification	Baseline		With Black female interaction		With Latina interaction		With Black income interaction		With Latino income interaction	
	b (*SE*)	P< z	b (*SE*)	P< z	b (*SE*)	P< z	b (*SE*)	P<z	b (*SE*)	P<z
Female	−.05 (.04)	.246	−.03 (.04)	.528	−.08 (.04)	.067	−.05 (.04)	.217	−.05 (.04)	.252
Latino	**−1.12 (.06)**	**.000**	**−1.12 (.06)**	**.000**	**−1.26 (.08)**	**.000**	**−1.12 (.06)**	**.000**	**−1.33 (.11)**	**.000**
Latino*female					**.30 (.12)**	**.012**				
Latino*Income									**$.41^{-3}$ ($.18^{-3}$)**	.024
Black	**−.79 (.06)**	**.000**	**−.68 (.09)**	**.000**	**−.79 (.06)**	**.000**	**−1.14 (.12)**	**.000**	**−.79 (.06)**	**.000**
Black*Female			**−.19 (.12)**	**.117**						
Black*Income							**$.60^{-3}$ ($.19^{-3}$)**	**.002**		
Asian	.02 (.09)	.792	.02 (.09)	.786	.02 (.09)	.796	.02 (.09)	.806	.02 (.09)	.802
White (Reference Category)										
Age	−.03 ($.19^{-2}$)	.000	−.03 ($.19^{-2}$)	.000	−.01 ($.19^{-2}$)	.000	−.01 ($.19^{-2}$)	.000	−.01 ($.19^{-2}$)	.000
Education	.33 (.01)	.000	.33 (.01)	.000	.33 (.01)	.000	.33 (.01)	.000	.33 (.01)	.000
Urban	−.02 (.05)	.663	−.02 (.05)	.659	−.02 (.05)	.681	−.02 (.05)	.677	−.01 (.05)	.714
Suburban	.22 (.04)	.000	.22 (.04)	.000	.23 (.04)	.000	.22 (.04)	.000	.23 (.04)	.000
Professional	.54 (.08)	.000	.54 (.08)	.000	.55 (.08)	.000	.55 (.08)	.000	.54 (.08)	.000
Management	.66 (.09)	.000	.66 (.09)	.000	.67 (.09)	.000	.67 (.09)	.000	.66 (.09)	.000
Service	.20 (.07)	.010	.20 (.07)	.010	.20 (.07)	.009	.20 (.07)	.008	.20 (.07)	.010
Sales	.45 (.08)	.000	.45 (.08)	.000	.45 (.08)	.000	.46 (.08)	.000	.45 (.08)	.000
Secretary	.53 (.08)	.000	.52 (.08)	.000	.53 (.08)	.000	.53 (.08)	.000	.52 (.08)	.000
Farming	−.59 (.20)	.004	−.59 (.20)	.004	−.58 (.20)	.005	−.60 (.20)	.003	−.58 (.20)	.005
Construction	−.15 (.09)	.111	−.15 (.09)	.118	−.14 (.09)	.146	−.15 (.09)	.109	−.16 (.09)	.096
Repair	.45 (.11)	.000	.45 (.11)	.000	.45 (.11)	.000	.45 (.11)	.000	.44 (.11)	.000
Transportation	−.06 (.09)	.482	−.06 (.09)	.464	−.06 (.09)	.490	−.06 (.09)	.522	−.07 (.09)	.453

Appendix 2 *(Continued)*

Model	Baseline		With Black female interaction		With Latina interaction		With Black income interaction		With Latino income interaction	
Specification	**b (*SE*)**	**P< z**	**b (*SE*)**	**P< z**	**b (*SE*)**	**P< z**	**b (*SE*)**	**P<z**	**b (*SE*)**	**P<z**
Production (Reference Category)										
Child	.31 (.04)	.000	.32 (.04)	.000	.31 (.04)	.000	.32 (.04)	.000	.31 (.04)	.000
Divorced	−.61 (.06)	.000	−.61 (.06)	.000	−.61 (.06)	.000	−.61 (.06)	.000	−.62 (.06)	.000
Widowed	−.79 (.13)	.000	−.79 (.13)	.000	−.78 (.13)	.000	−.79 (.13)	.000	−.79 (.13)	.000
Separated	−1.01 (.12)	.000	−1.01 (.12)	.000	−1.02 (.12)	.000	−1.01 (.12)	.000	−1.01 (.12)	.000
Never Married	−.55 (.06)	.000	−.54 (.06)	.000	−.55 (.06)	.000	−.55 (.06)	.000	−.55 (.06)	.000
Married (Reference Category)										
Weekly Earnings	$.39^{-3}$ ($.55^{-4}$)	.000	$.39^{-3}$ ($.55^{-4}$)	.000	$.39^{-3}$ ($.55^{-4}$)	.000	$.34^{-3}$ ($.56^{-4}$)	.000	$.41^{-3}$ ($.18^{-3}$)	.000
Constant	−.06 (.12)	.615	−.08 (.12)	.517	−.04 (.12)	.734	−.04 (.12)	.743	−.03 (.12)	.778
N	**14851**		**14851**		**14851**		**14851**		**14851**	
Wald Chi^2	2196.34	.000	2197.38	.000	2193.35	.000	2214.27	.000	2201.68	.000
Pseudo R^2	.1509		.1510		.1512		.1515		.1512	

Note. Unstandardized logistic regression coefficients with robust standard errors in parentheses to control for heteroskedasticity. Probabilities based on two-tailed test. Dependent variable is binary, coded 1 for home Internet access and 0 for no access.

Appendix 3 *Predicted Effect of Gender and Race on Home Internet Access and Daily Internet Use*

Probability of Home Internet Access Estimated from Table 2 (Columns 2 & 3)		**Probability of Daily Internet Use Estimated from Table 6 (Columns 2 & 3)**	
	Prob. of Access		**Prob. of Use**
Black Female	.60 (.02)	Black Female	.30 (.01)
White Female	.78 (.00)	White Female	.46 (.01)
Diff Race (Black to White)	**−.18**	**Diff Race (Black to White)**	**−.16**
Black Female	.60 (.02)	Black Female	.30 (.01)
Latina female	.57 (.02)	Latina female	.28 (.01)
Diff Race (Black to Latino)	**+.03**	**Diff Race (Black to Latino)**	**+.02**
White Female	.78 (.00)	White Female	.46 (.01)
Latina female	.57 (.02)	Latina female	.28 (.01)
Diff Race (White to Latino)	**−.21**	**Diff Race (White to Latino)**	**−.18**
Black Female	.60 (.02)	Black Female	30 (.01)
Black Male	.65 (.02)	Black Male	.29 (.01)
Diff Gender (Female to Male)	**+.05**	**Diff Gender (Female to Male)**	**−.01**
Latina female	.57 (.02)	Latina female	.28 (.01)
Latino Male	.52 (.02)	Latino Male	.22 (.01)
Diff Gender (Female to Male)	**−.05**	**Diff Gender (Female to Male)**	**−.06**
White Female	.78 (.00)	White Female	.46 (.01)
White Male	.79 (.00)	White Male	.46 (.01)
Diff Gender (Female to Male)	**+.01**	**Diff Gender (Female to Male)**	**0**

Note. Predicted probabilities estimated with Clarify. Numbers in parentheses are standard errors. We hold all explanatory variables (income, education, age, job category) at their mean or modal values, varying race and gender of the respondent. The respondent is assumed to reside in a suburban area and be married without children under 18 residing in the home (modal values).

Appendix 4 *Predicting Home Internet Access for Black Females and Latinas, 2003 Current Population Survey Data*

	Black Female Population		Black Female Population (with weekly earnings)		Latina Population		Latina Population (with weekly earnings)	
Model Specification	**b (*SE*)**	**P<z**	**b (*SE*)**	**P<z**	**b (*SE*)**	**P<z**	**b (*SE*)**	**P<z**
Age	**−.02 (.26^{-2})**	**.000**	**−.01 (.78^{-2})**	**.053**	**−.13^{-2} (.25^{-2})**	**.592**	**−.32^{-2} (.78^{-2})**	**.676**
Education	**.43 (.02)**	**.000**	**.28 (.07)**	**.000**	**.46 (.02)**	**.000**	**.39 (.07)**	**.000**
Urban	.05 (.07)	.433	.13 (.20)	.502	−.07 (.08)	.343	−.45 (.23)	.051
Suburban	**.41 (.08)**	**.000**	**.65 (.22)**	**.003**	**.16 (.08)**	**.037**	**−.10 (.23)**	**.650**
Professional	**.59 (.10)**	**.000**	**.27 (.38)**	**.467**	**.70 (.12)**	**.000**	**1.34 (.42)**	**.001**
Management	**.75 (.13)**	**.000**	**.77 (.45)**	**.086**	**1.23 (.17)**	**.000**	**2.01 (.52)**	**.000**
Service	−.00 (.09)	.980	−.40 (.35)	.251	.33 (.08)	.000	.84 (.34)	.013
Sales	.10 (.12)	.403	.01 (.41)	.966	.60 (.12)	.000	.63 (.40)	.119
Secretary	.50 (.09)	.000	.45 (.35)	.195	.76 (.10)	.000	1.19 (.36)	.001
Farming	−.93 (.91)	.310			−.29 (.38)	.442		
Construction	−.09 (.61)	.876	1.18 (1.12)	.292	1.68 (.59)	.005	.85 (1.27)	.502
Repair	.19 (.55)	.721			.19 (.58)	.742	1.20 (.86)	.165
Transportation	−.29 (.24)	.235	−.64 (.59)	.275	−.31 (.25)	.212	−.23 (.81)	.773
Production (Reference Category)								
Child	−.04 (.06)	.487	−.05 (.17)	.748	.12 (.07)	.089	−.00 (.19)	.964
Divorced	**−.55 (.09)**	**.000**	**−.40 (.25)**	**.107**	**−.26 (.11)**	**.025**	**−.49 (.33)**	**.137**
Widowed	**−.57 (.12)**	**.000**	**−.73 (.43)**	**.093**	**−.32 (.16)**	**.049**	**.16 (.53)**	**.760**
Separated	**−.77 (.14)**	**.000**	**−.61 (.33)**	**.070**	**−.81 (.16)**	**.000**	**−1.21 (.43)**	**.005**
Never Married	**−.76 (.08)**	**.000**	**−.64 (.20)**	**.002**	**−.34 (.08)**	**.000**	**−.55 (.22)**	**.012**
Married (Reference Category)								
Weekly Earnings			**.69^{-3} (.28^{-3})**	**.013**			**−.22^{-3} (.37^{-3})**	**.554**
Constant	−.56 (.17)	.001	−.72 (.54)	.189	−1.70 (.15)	.000	−1.51 (.49)	.002
N	5730		774		5071		644	
Wald Chi^2	823.97	.000	110.23	.000	623.14	.000	88.77	.000
Pseudo R^2	.1407		.1293		.1154		.1328	

Note. Unstandardized logistic regression coefficients with robust standard errors in parentheses to control for heteroskedasticity. Probabilities based on two-tailed test. Dependent variable is binary, coded 1 for home Internet access and 0 for no access.

Appendix 5 *Predicted Effect of Education and Parenting on the Probability of Home Internet Access for Black Females and Latinas*

Black Females Estimated from Table 4 (Column 1)		Latinas Estimated from Table 4 (Column 3)	
	Prob. of Access		**Prob. of Access**
Average Educational Attainment	.28 (.01)	Average Educational Attainment	.43 (.01)
Less than High School Diploma	.16 (.01)	Less than High School Diploma	.30 (.01)
High School Diploma	.23 (.01)	High School Diploma	.40 (.01)
Some College	.31 (.01)	Some College	.52 (.01)
Associate's Degree	.41 (.01)	Associate's Degree	.63 (.02)
Bachelor's Degree or Higher	.52 (.02)	Bachelor's Degree or Higher	.73 (.02)
Change College Grad to High School Grad	**+.29**	**Change College Grad to High School Grad**	**+.33**

Note. Predicted probabilities estimated with Clarify. Numbers in parentheses are standard errors. We hold all explanatory variables (age, job category) at their mean or modal values, varying educational attainment and parenting. The respondent is assumed to reside in a suburban area and be married for Latinas (modal values), but be single and residing in an urban area for Black females (modal values).

Appendix 6 *Predicting Frequency of Internet Use, 2003 Current Population Survey Data*

	Baseline		With Black female interaction		With Latina interaction		With Black income interaction		With Latino income interaction	
Model Specification	**b (*SE*)**	**P< z**	**b (*SE*)**	**P< z**	**b (*SE*)**	**P< z**	**b (*SE*)**	**P<z**	**b (*SE*)**	**P<z**
Female	−.01 (.03)	.753	−.02 (.04)	.618	−.04 (.04)	.223	−.01 (.03)	.725	−.01 (.03)	.757
Latino	**−.95 (.05)**	**.000**	**−.95 (.00)**	**.000**	**−1.13 (.08)**	**.000**	**−.95 (.05)**	**.000**	**−1.37 (.11)**	**.000**
Female * Latino					**.39 (.11)**	**.000**				
Latino*Income									**$.77^{-3}$ ($.42^{-4}$)**	**.000**
Black	**−.71 (.05)**	**.000**	**−.76 (.08)**	**.000**	**−.71 (.05)**	**.000**	**−.85 (.10)**	**.000**	**−.72 (.05)**	**.000**
Black*Female			.07 (.11)	.000						
Black*Income							$.22^{-3}$ ($.14^{-3}$)	.127		
Asian	−.27 (.07)	.000	−.27 (.07)	.000	−.27 (.07)	.000	−.27 (.07)	.000	−.27 (.07)	.000
White (Reference Category)										
Age	$-.02\ (.16^{-2})$	.000	$-.02\ (.16^{-2})$	.000	$-.02\ (.16^{-2})$	.000	$-.02\ (.16^{-2})$	.000	$-.02\ (.16^{-2})$	.000
Education	.42 (.01)	.000	.42 (.01)	.000	.42 (.01)	.000	.42 (.01)	.000	.42 (.01)	.000
Urban	.02 (.04)	.553	.02 (.04)	.553	.02 (.04)	.511	.02 (.04)	.544	.03 (.04)	.452
Suburban	.17 (.03)	.000	.17 (.03)	.000	.17 (.03)	.000	.17 (.03)	.000	.17 (.03)	.000
Professional	.91 (.07)	.000	.91 (.07)	.000	.92 (.07)	.000	.91 (.07)	.000	.91 (.07)	.000
Management	1.14 (.08)	.000	1.14 (.08)	.000	1.14 (.08)	.000	1.14 (.08)	.000	1.13 (.08)	.000
Service	.30 (.07)	.000	.30 (.07)	.000	.30 (.07)	.000	.31 (.07)	.000	.31 (.07)	.000
Sales	.72 (.07)	.000	.72 (.07)	.000	.73 (.07)	.000	.73 (.07)	.000	.72 (.07)	.000
Secretary	1.11 (.07)	.000	1.11 (.07)	.000	1.11 (.07)	.000	1.11 (.07)	.000	1.10 (.07)	.000
Farming	−.63 (.21)	.004	−.63 (.21)	.004	−.61 (.21)	.005	−.63 (.21)	.004	−.61 (.21)	.005
Construction	−.36 (.09)	.000	−.36 (.09)	.000	−.34 (.09)	.000	−.36 (.09)	.000	−.37 (.09)	.000
Repair	.40 (.09)	.000	.40 (.09)	.000	.40 (.09)	.000	.40 (.09)	.000	.39 (.09)	.000
Transportation	−.05 (.09)	.557	−.05 (.09)	.567	−.05 (.09)	.567	−.05 (.09)	.577	−.06 (.09)	.490

Appendix 6 *(Continued)*

	Baseline		With Black female interaction		With Latina interaction		With Black income interaction		With Latino income interaction	
Model Specification	**b (*SE*)**	**P< z**	**b (*SE*)**	**P< z**	**b (*SE*)**	**P< z**	**b (*SE*)**	**P<z**	**b (*SE*)**	**P<z**
Production (Reference Category)										
Child	−.03 (.03)	.428	−.03 (.03)	.407	−.03 (.03)	.387	−.02 (.03)	.452	−.03 (.03)	.389
Divorced	−.06 (.05)	.225	−.06 (.05)	.219	−.06 (.05)	.221	−.06 (.05)	.233	−.07 (.05)	.178
Widowed	−.23 (.12)	.050	−.23 (.12)	.049	−.23 (.12)	.052	−.23 (.12)	.049	−.24 (.12)	.046
Separated	−.52 (.10)	.000	−.52 (.10)	.000	−.53 (.10)	.000	−.51 (.10)	.000	−.51 (.10)	.000
Never Married	−.16 (.05)	.001	−.16 (.05)	.001	−.16 (.05)	.001	−.16 (.05)	.002	−.16 (.05)	.001
Married (Reference Category)										
Weekly Earnings	$.44^{-3}$ ($.42^{-4}$)	.000	$.44^{-3}$ ($.42^{-4}$)	.000	$.43^{-3}$ ($.42^{-4}$)	.000	$.42^{-3}$ ($.43^{-4}$)	.000	$.40^{-3}$ ($.42^{-4}$)	.000
N	**14851**		**14851**		**14851**		**14851**		**14851**	
Wald Chi^2	3973.90	.000	3973.99	.000	3961.58	.000	3978.49	.000	3983.09	.000
Pseudo R^2	.1213		.1213		.1216		.1214		.1219	

Note. Unstandardized ordered logistic regression coefficient with robust standard errors in parentheses to correct for heteroskedasitcity. Probabilities based on two-tailed test. Dependent variable ("Internet use, access over the last year"), coded 4 ("at least once a day"), 3 ("at least once a week but not every day), 2 ("at least once a month but not every week"), 1 ("less than once a month"), and 0 (no Internet access).

Appendix 7 *Predicting Frequency of Internet Use Among Black Females and Latinas, 2003 Current Population Survey Data*

	Black Female Population		Black Female Population (with weekly earnings)		Latina Population		Latina Population (with weekly earnings)	
Model Specification	**b (*SE*)**	**P<z**	**b(*SE*)**	**P<z**	**b(*SE*)**	**P<z**	**b(*SE*)**	**P<z**
Age	**−.04 (.26^{22})**	**.000**	**−.02 (.74^{-2})**	**.001**	**−.03 (.27^{-2})**	**.000**	**−.04 (.83^{-2})**	**.000**
Education	**.53 (.02)**	**.000**	**.40 (.06)**	**.000**	**.61 (.02)**	**.000**	**.51 (.07)**	**.000**
Urban	.18 (.07)	.011	.07 (.18)	.708	−.20 (.08)	.012	−.46 (.22)	.037
Suburban	**.40 (.07)**	**.000**	**.60 (.19)**	**.002**	.12 (.08)	.131	.19 (.20)	.347
Professional	.98 (.09)	.000	.58 (.34)	.095	1.31 (.11)	.000	1.60 (.41)	.000
Management	1.40 (.12)	.000	1.16 (.39)	.811	1.75 (.15)	.000	1.74 (.44)	.000
Service	.20 (.11)	.000	−.08 (.32)	.789	.32 (.09)	.000	.48 (.36)	.000
Sales	.45 (.11)	.000	.29 (.36)	.419	.92 (.11)	.000	.94 (.40)	.020
Secretary	1.32 (.08)	.000	.94 (.32)	.003	1.40 (.09)	.000	1.74 (.37)	.000
Farming	1.09 (.80)	.172			−1.14 (.59)	.053	−.32.39 (.48)	.000
Construction	.14 (.59)	.811	.64 (.69)	.357	1.95 (.48)	.000	.20 (.77)	.790
Repair	1.09 (.38)	.004	.39 (1.66)	.811	.89 (.69)	.201	1.97 (.99)	.047
Transportation	.17 (.21)	.426	−.57 (.54)	.295	.25 (.24)	.300	−.19 (.93)	.833
Production (Reference Category)								
Child	−.15 (.06)	.012	−.02 (.14)	.840	−.11 (.07)	.118	−.24 (.18)	.181
Divorced	−.15 (.08)	.086	.04 (.22)	.831	.05 (.11)	.628	.13 (.29)	.649
Widowed	−.45 (.13)	.001	.31 (.43)	.463	−.10 (.18)	.583	1.27 (.65)	.050
Separated	−.53 (.13)	.000	−.61 (.30)	.044	−.33 (.16)	.046	−.70 (.38)	.064
Never Married	−.40 (.07)	.000	−.26 (.18)	.147	−.00 (.08)	.984	−.31 (.23)	.169
Married (Reference Category)								
Weekly Earnings			.51^{-3} (.23^{-3})	.026			.67^{-3} (.39^{-3})	.000
N	5716		777		5067		653	
Wald Chi^2	1761.09	.000	166.76	.000	1417.87	.000	8938.74	.000
Pseudo R^2	.1560		.0983		.1647		.1807	

Note. Unstandardized ordered logistic regression coefficient with robust standard errors in parentheses to correct for heteroskedasitcity. Probabilities based on two-tailed test. Dependent variable ("Internet use, access over the last year"), coded 4 ("at least once a day"), 3 ("at least once a week but not every day), 2 ("at least once a month but not every week"), 1 ("less than once a month"), and 0 (no Internet access).

Appendix 8 *Predicted Effect of Education and Parenting on the Probability of Daily Internet Use for Black Females and Latinas*

Black Females Estimated from Table 7 (Column 1)		**Latinas Estimated from Table 7 (Column 3)**	
	Prob. of Daily Use		**Prob. Of Daily Use**
Average Educational Attainment	.13 (.00)	Average Educational Attainment	.15 (.01)
Less than High School Diploma	.05 (.00)	Less than High School Diploma	.07 (.00)
High School Diploma	.09 (.00)	High School Diploma	.13 (.00)
Some College	.15 (.00)	Some College	.22 (.01)
Associate's Degree	.23 (.01)	Associate's Degree	.35 (.01)
Bachelor's Degree or Higher	.34 (.01)	Bachelor's Degree or Higher	.50 (.02)
Change College Grad to High School Grad	**+.25**	**Change College Grad to High School Grad**	**+.37**
Parent (Child under 18 living at home)		Parent (Child under 18 living at home)	
No	.13 (.00)	No	.15 (.00)
Yes	.11 (.00)	Yes	.13 (.00)
Change Yes to No	**−.02**	**Change Yes to No**	**−.02**

Note. Predicted probabilities estimated with Clarify. Numbers in parentheses are standard errors. We hold all explanatory variables (age, job category) at their mean or modal values, varying educational attainment and parenting. The respondent is assumed to reside in a suburban area and be married for Latinas (modal values), but be single and residing in an urban area for Black females (modal values).

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