Broadband to the Neighborhood: Digital Divides in Detroit

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Abstract

This reports on the results of a study of Internet (non)use in three neighborhoods of Detroit, Michigan. The study was conducted by the Quello Center at Michigan State University, working in collaboration with the Center for Urban Studies at Wayne State University, which administered telephone interviews with 525 residents. Support for this research was provided by Rocket Fiber, a Detroit-based Internet company.

This research involves a survey of three neighborhoods in Detroit to gauge levels of access to the Internet, and the factors facilitating and constraining use and adoption. The study is based primarily on a survey of residents in Cody-Rouge, Milwaukee Junction and 7/8 Mile and Woodward neighborhoods, from November through December 2017. The survey was complemented by qualitative interviews and three focus groups with Detroit residents.

The findings of this study identify key digital divides within these neighborhoods, and illuminate a common pattern of Internet use in the city – what might be called Detroit's Internet ecosystem – that helps explain the relative lack of Internet access across its households. The findings provide the basis for a set of recommendations for narrowing the digital divide, including ways to address such issues as the affordability of the Internet.

Executive Summary

This report presents the findings and recommendations of a study focused on digital divides in Detroit. The study explores what digital divides exist in the city, what are the barriers to narrowing these divides, and what initiatives might be effective in reducing these divides.

Digital divides are important because they generally follow and reinforce social and economic divides, and therefore exacerbate inequalities in societies. There are exceptions, such as well-to-do elderly who are not online, but as this report demonstrates, households in Detroit with higher incomes are more likely to be online.

The study was based on interviews, focus groups, and a survey of 525 individuals in households located in three Detroit neighborhoods from September through December 2017. The summary of findings reported below provide a general overview of our results, which are described in more depth and accompanied by the field research evidence in the body of the report. Details of the methods, questionnaires, and the full set of findings are also presented in the body of this report.

Digital Divides

- Most Detroit residents are online and use the Internet, suggesting conventional wisdom that Detroit residents are disconnected from the Internet and not interested in being online is a myth.
- Detroiters use the Internet for a wide array of purposes, but primarily use the Internet for information seeking and work related activities. Internet use is not simply focused on entertainment and leisure.
- A divide exists in subscription to an Internet Service Provider (ISP). Many residents need to improvise in getting online without a subscription to a service in their homes. Most say that cost is the biggest barrier to having or maintaining an ISP subscription.
- Another divide emerges in a reliance on mobile-only access to the Internet. A large proportion of users, particularly among the younger age groups, rely only or primarily on a mobile smartphone for online access. This reliance limits the capacity to do some specialized tasks related to work, homework and even gaming. Relatedly, not all websites or online information are "mobile friendly."

Multiple Barriers to Access

- Affordability is a major barrier to access, such as the cost of home computer, software and a subscription and fees with an ISP. For example, lower income is negatively associated with having a home subscription. Even those with an ISP report delaying or avoiding other important bills to pay for service. Focus group discussions underscored the sophistication of residents in assessing Internet marketing strategies to avoid being fooled by costly sales gimmicks. Attitudes and beliefs about the Internet are also crucial, with individuals who believe the Internet is a means to do things more efficiently being more likely to have a contract with

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an ISP, and those who perceive it as being more concerned about its costs and affordability being less likely to have an ISP contract.

- A person's social network proves to be important in shaping attitudes and beliefs about the Internet. Detroiters who know people who can help with practical support (like getting a ladder to work around the house, or solving a problem with a computer), are more likely to perceive the Internet as efficient, less likely to view it as costly, and therefore more likely to have an ISP contract.
- Other demographic factors beyond income are influential, but primarily by shaping attitudes and beliefs. Those who view the Internet as an efficient way to do things are more likely to be younger and know people who can help them with practical or instrumental support (a factor we call "Know-Who"), in addition to having higher incomes. Likewise, those who know more people who can help them with practical or instrumental support are less likely to perceive the Internet as too costly, as are those who have children living in their homes and those with higher incomes.
- Having children in the home appears to make the Internet a more valuable investment, such as in supporting homework or creating more activities for their children.

The Mobile-Only Divide

- Over-reliance on cell phones, and having data slowed as a result of reaching data caps was reported as a major barrier to Internet use.
- Those who have an ISP contract tend to use the Internet for a wider array of activities than those who are primarily dependent on mobile. Those who are highly dependent on mobile access, for example, are less involved in information seeking and work-related activities, such as doing school or work projects or looking for a job, than are those less mobile dependent.
- A broad array of factors are contributing to a greater dependence on mobile access to the Internet. For instance, those who are older, disabled, and with less schooling, are more likely to be more dependent on mobile only. In addition, those who perceive the Internet as more costly (such as those with less Know-Who) and without children, are also likely to be more dependent on mobile.

Detroit has an Internet ecosystem anchored around mobile-only Internet access. Digital divides in Detroit are less centered around access to the Internet as previously thought. Instead, divides have more to do with barriers to having Internet access through an ISP and dependence on mobile-only smartphone access. While ingenious and routine use of smartphones is pervasive among those we interviewed and surveyed, those who do not have a wider array of devices to access the Internet from home or work, are less likely to be using the Internet in ways that can counter socioeconomic divides. For example, those with limited devices or mobile dependence are less likely to use the Internet for school or work related projects and less likely to seek information online as opposed to consuming entertainment online. These patterns are driven largely by device limitations, as compared to interest in or need for information and work related activities. In other words, Detroiters want to do more work and information seeking activities but have restraints because all they have is a cell phone to work with.

Implications

These findings are suggestive of ways to address digital divides in the city. Potential initiatives include changes in policy, awareness campaigns, practice and research.

Policy

Government and civil society efforts should focus on the provision of affordable Internet infrastructures in all neighborhoods of Detroit. Improvised and mobile-only access helps, but it is not equivalent to access over devices that enable people to read and write and produce more complex or extended content.

Technical initiatives, subsidies and other schemes for providing lower cost ISP subscriptions should be supported to make subscriptions easier to obtain and retain in distressed areas of major cities.

While broadband access is part of the affordability problem, access to devices such as laptops, tablets and desktops are also an important part of the ecology of digital divides in Detroit. Initiatives to provide laptops to school children or residents in distressed areas should be an aspect of initiatives to bring broadband to under-subscribed areas of cities.

Provision of municipal broadband or other infrastructures that could enhance competition for broadband service options in cities should be permitted as a means for ensuring low cost options for lower income residents.

Awareness Raising

The beliefs and attitudes of individuals are crucial in understanding why people have home access or rely only on mobile access. This is valuable to know in that it reinforces the potential of awareness raising campaigns that could help address the digital divide. Based on our findings, awareness campaigns should focus on the issues critical to users, such as efficiencies that can be realized in everyday life and work, and how to reduce and manage the costs.

Many Detroiters believe that mobile-only Internet access is sufficient. The evidence in this report suggests that mobile-only access limits the range of activities pursued online in important ways by constraining the use of the Internet for work and information seeking. Therefore, awareness campaigns might address this mobile-only myth.

Also, the importance of what we have called Know-Who – knowing people who could help with practical things around the house, such as a computer – makes it useful to nudge individuals to help one another in access to the Internet. Knowing someone who can help a person get online or stay connected can help reduce the perceived cost of access, and help Detroiters understand the ways the Internet can enhance the efficiency of many tasks.

Libraries, community centers and non-governmental organizations working with residents in distressed areas often provide support for accessing the Internet. They might also play a powerful role by encouraging and enabling individuals to help one another in their respective social networks, such as by identifying individuals who can coach others.

Practice

There is a need in Detroit for more affordable devices and broadband infrastructures through wireless broadband services to households or neighborhoods. For example, cellular services have limitations that could be addressed by extending WiFi access to households. Those interested in the social and economic development of Detroit need to prioritize initiatives aimed at reducing digital divides.

Research

Research on households in distressed areas is extremely difficult. For example, it is more difficult to obtain response rates to surveys that are comparable to surveys in more affluent areas due to such issues as a lack of trust, and concerns over privacy.

Therefore, it is important to recognize limitations to the reliability and validity of our findings based on this single survey of a limited number of neighborhoods. That said, it is the most reliable data available about Internet access in Detroit. It is therefore important to trust the data while remaining open to countervailing evidence. Overtime panel surveys could help enhance confidence in our findings and as other research teams survey other cities there are opportunities to compare and contrast findings in ways that will reinforce or challenge the findings of this study.

Introduction

Access to the Internet is a critical issue for residents in the City of Detroit. Official statistics suggest that more than a third (38%) of Detroit residents do not have broadband Internet access at home. Among low income households in Detroit, this figure drops to nearly two-thirds who lack home Internet access.[1] However, there are serious questions about the accuracy of information about the use of the Internet in Detroit, and many more questions about individual differences and the barriers to greater uptake. The current study, entitled Broadband to the Neighborhood, looks at issues faced by Detroit residents regarding Internet use and adoption.[2] The goal is to better understand if and why the city is under connected and to inform strategies aimed at narrowing the access gap.

This Broadband to the Neighborhood study is directed and undertaken by the Quello Center at Michigan State University, which focuses on policy responses to the societal implications of the digital age.[3] The project is a central part of the Quello Center's ICT4Detroit program.[4] Through a combination of survey data collection, focus groups, key informant interviews, and market/demographic analyses, the Quello Center team focused on the digital divide and issues of connectivity in Detroit. The Quello Center team conducted sampling and data collection in collaboration with the Survey Research Unit in the Center for Urban Studies at Wayne State University. The Broadband to the Neighborhood study is designed to inform Rocket Fiber of Detroit's digital ecosystem and, more specifically, the divides in connectivity among the neighborhoods across Detroit.

Background

Detroit, Michigan, is a geographically large city of nearly 700,000 people in a metropolitan area of over 4.3 million. Detroit prospered in the 1940s, reaching a peak in its population in the 1950 census at 1.85 million, before experiencing a decline and declaring bankruptcy in 2013. However, there is evidence of a resurgence of the economy and a slowing of population decline since 2013, with renewed development of the central business districts bringing professionals and jobs moving back to greater-Detroit. Nevertheless, many neighborhoods across the city remain distressed, and underserved by the Internet.

Interest access is important for the social and economic development of Detroit and other cities. It is well understood that business and industry increasingly rely on digital networks. But the economic and social vitality of households and neighborhoods across the city can also be enhanced by broadband Internet and the information and communication services it supports. Moreover, the lack of access could exacerbate or reinforce social and economic divides. The Internet can enable households to get things

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[1] Among households with incomes below $35,000, the Census Bureau's 2014 American Community Survey estimates that 63 percent of Detroit households have no in-home Internet access. See http://www.digitalinclusionalliance.org/blog/2015/9/20/worst-connected-cities-2014.

[2] http://quello.msu.edu/research/broadband-to-the-neighborhood/

[3] http://quello.msu.edu/about/about-the-quello-center/

[4] See: http://quello.msu.edu/research/ict4detroit-the-role-of-ict-in-collaboration-for-detroits-revitalization

done more efficiently, find jobs, do homework online, and much more. Therefore, digital divides need to be identified and addressed in order to reduce social and economic inequalities in society.

During Rocket Fiber's first year of development and operation, its network expanded to serve businesses across the Central Business District, Midtown, Brush Park, and Corktown neighborhoods in Detroit. It also began to reach a growing number of residential customers, who live and work in areas of the city that are being redeveloped Rocket Fiber asks the question of how the company's fiber backbone could be utilized to reach underserved areas of Detroit.

Using a survey fielded in residential areas that can potentially benefit from the trials, the Broadband to the Neighborhood study seeks to inform decisions related to technology deployment in low-income communities and neighborhoods of the City.

Framework

The analysis of data on the up-take and use of the Internet in Detroit is based on a simple but relatively comprehensive framework, presented in Figure 1. This chart illustrates the relationship among six key sets of explanatory factors explored in the study: demographics, neighborhood attributes and characteristics, participant attitudes and beliefs about the Internet, social networks, broadband and access issues (such as perceived affordability), and patterns of Internet use (or non-use).

A series of questions were included in the survey and focus group discussions to inform these areas of study (see questionnaire in Appendix 1 and outline of focus group discussions in Appendix 2). Each of these sets of factors will be developed in detail in the following sections.

Approach

This research uses survey data and focus group findings from three Detroit neighborhoods (7-8 mile and Woodward, Milwaukee Junction, and Cody Rouge). Households in these three neighborhoods are reflective of Detroit's varying socio-economic make-up and each neighborhood is among those that could be reached by broadband networks developed by Rocket Fiber and other partners.

Figure 1. A Framework for Analysis of Internet Use in Detroit.
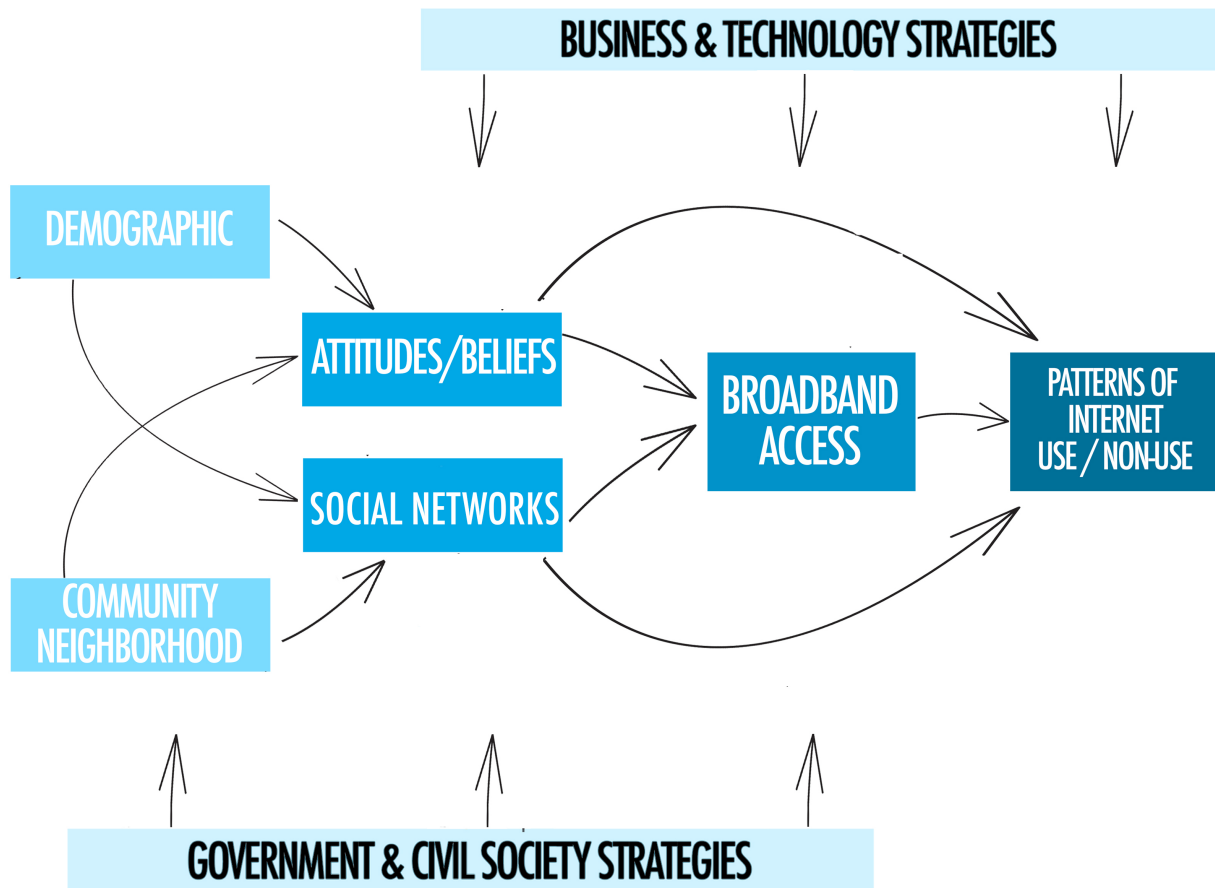
The phone survey and focus groups were conducted from November into December of 2017.[5] Phase one involved mailing a postcard (Appendix 1) to all households in each area. This postcard explained the focus of this research and invited residents to call Wayne State University to complete a survey. Research assistants at Wayne State utilized a Computer Assisted Telephone Interviewing system (CATI) to conduct the survey interview with residents. Postcards that were returned as not deliverable were used to identify vacant homes, improving the available data on occupied dwellings within each neighborhood. Response rates were improved by three subsequent waves of additional postcards that were sent as reminders. A database of fixed and mobile phone numbers, which were associated with addresses within each area, was used in parallel with the postcard mailings. The calls were conducted by research assistants at Wayne State who attempted to contact residents to complete interviews.

The resulting samples in the three districts are 'opt-in' samples, based on those individuals who chose to respond to a postcard or responded to phone invitations. Respondents were given a $10 CVS gift card and entered into a raffle for $100 Visa gift card. The target sample size for survey responses was 600 individuals, each within a unique household. Our final sample included 525 phone interviews, which is about 12

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[5] The plan is for any follow-up survey to be conducted 6 months after the baseline survey.

percent response rate.

Targeted interviews with Detroit residents were conducted in September and October 2017. These interviews were crucial in the development of the survey instrument. Focus group interviews were conducted in October and November 2017. Focus group findings were crucial to understanding survey results and providing contexts for many of the themes and patterns discovered in the surveys.

Three focus groups were conducted. The first focus group included community level stakeholders, including community organizers, individuals that worked with local youth and individuals that worked seniors. The second focus group included area youth, ranging in age from 15 to 17 years-old. The third focus group included adult working-age residents. The third focus group was primarily male participants, as compared to the survey, which had a female bias.

We present the focus group findings first, since these complemented the survey results and help us explain the descriptive findings of the survey.

Focus Group Research Findings

The focus group research included three focus groups. The first focus group met at 10:30 A.M. on Monday, October 23 at the Cody Rouge Community Action Alliance, located at 19321 W. Chicago Road, Detroit MI, 48228. Focus group included 5 participants from the area, observed by Emily Dabish, Abbie Spector, Carmine DiMaro and Ty Damon of Rocket Fiber and facilitated by Bibi Reisdorf and Laleah Fernandez from MSU Quello Center.

Participants were female ranging in age from late 20s to 60s. Participant occupations included: A director for the local community center, a youth coordinator and former high school teacher, community engagement coordinator, manager from the mayor's office, and a community development specialist from the Joy-Southfield area. Among our participants, all are considered stakeholders in the revitalization effort and have careers associated with community building, safety and/or neighborhood sustainability. Most had a direct role in coordinating residents for action in various causes. One participant works primarily with area youth, and focused most of her answers on her experiences and observations of this group (approx. 14-18 years of age). Another participant dedicated a great deal of time to advocating for and working with area seniors, for example, as part of her work she successfully secured a grant for a local senior center to bring in computers and training.

All participants actively participated in the discussion and were articulate about their points. Participants overwhelming agreed on the following issues: More people need and deserve home Internet access; without home Internet access people are falling behind and those falling behind recognize this is happening; costs associated with service, devices and training are major barriers to access; Internet speed is important to access.

The second focus group met at 4:45 P.M. on Monday, Nov. 13, 2017 at the Central Detroit Christian Community Development (CDC) located at 1550 Taylor St. Detroit, MI 48206. Focus group participants included 9 area youth, ranging in age from 15 to 17-years-old. The focus group was facilitated by Bibi Reisdorf and Laleah Fernandez from MSU Quello Center, and observed by Emily Dabish, Ty Damon and Abbie Spector from

Rocket Fiber and Bill Dutton from the MSU Quello Center.

Five of the 9 participants were male. All participants were full-time high school students. The teen focus group was particularly savvy about the Internet, and had very defined and informed preferences. The teens overwhelming agreed that speed was important, they recognized that there is a dark side to Internet use and each recognized and appreciated the importance of being online. Teens also put an emphasis on their desire and expectation for customization, and the importance of choosing the content they watch and interact with. They had no interest in broadcast or service packages that restricted their use, the number of or types of devices they use or the amount of data they are allowed.

The third focus group met at 6:00 P.M. on Monday, Nov. 13, 2017 at the Central Detroit Christian Community Development (CDC) located at 1550 Taylor St. Detroit, MI 48206. Focus group participants included 8 Detroit residents, ranging in age from 24 to 38-years-old. The focus group was facilitated by Bibi Reisdorf and Laleah Fernandez from MSU Quello Center, and observed by Emily Dabish from Rocket Fiber and Bill Dutton from the MSU Quello Center.

Seven of the 8 participants were male. Five participants were employed part-time, three were unemployed or laid-off. All participants were actively looking for full-time employment. Two participants were single-head of households, all participants had children 18 or younger living with them.

Overall, this group of participants were very knowledgeable of the ins and outs of Internet access and each expressed some level of ingenuity to gain access on the go and/or to connect devices to allow their children access. In fact, much of the focus group was spent information-sharing with one another on the details of different plans and places that offer greater service speed or reliable connections.

Each focus group lasted about an hour, organized into four sections: Use, Barriers, Motivations and Plans/Services. Major themes and support for or examples of those themes are outlined below.

Use of the Internet

1) Most Detroiters are already using the Internet regularly

Across all three focus groups participants report using the Internet "every day and everywhere." A few participants reported not having home access themselves, or knowing someone who does not have home access, however, even these individuals use the Internet regularly (e.g., through open networks, hot spots, temporary subscriptions, at work or public spaces, etc.). Based on these focus groups there is no evidence that Detroiters are under-connected. In fact, they are knowledgeable and creative about ways to access the Internet even when lacking home service.

2) Most Detroiters primarily use cell phones to access the Internet – not only "on the go."

Participants report that phones are convenient, always on hand, more accessible and faster than home computers or other devices. Many participants noted that phones have less limitations than home Internet connections because personal hotspots allow mobility,

while home Internet connections anchor them to one place and restrict the number of devices that can be connected.

   3) Mobile Internet use is different than home Internet use

Phones are used more for information seeking and acquisition than entertainment. Entertainment, and gaming in particular, require home access and specialized devices. A majority of adult participants say that home Internet use is for work or entertaining the kids. Youth say home Internet allows them to do homework and play video games. Both youth and adults recognize limitations to mobile Internet use for more complicated tasks like homework, job applications, applying for benefits or access tax information.

Barriers to Internet Access

   1) Cost is the biggest barrier to home Internet access

Cost was universally cited as the biggest barriers across all focus groups, even among those that have home access. Those with home Internet access say it comes at the cost of delaying, diverting or avoiding other important bills or purchases. Those without access say it is because it costs too much, that pricing plans are confusing and that it just isn't worth it when they access the Internet elsewhere.

   2) Skills gaps were the second most cited barrier to Internet access

Each focus group mentioned a skills gap, generally related to age, as a barrier to Internet access. However, this skills gap was not evident among participants but isolated to family members (aunties and grandmas) and acquaintances. The first focus group, in particular, discussed how this skills gap was driven in part by fear, but exposure to the Internet and regular use seem to lessen fears and bridge gaps.

   3) Service restrictions such as data caps, slower speeds, throttling, and limitations on the number of devices were cited as major barriers to Internet access

Preservation of cell phone data was noted as a major advantage to having home Internet use. Universally, participants expressed frustration with the slowing of their service once they reached those data caps. Similarly, participants expressed their frustration with Internet speed when multiple devices tried to connect.

Motivations for Internet Use

   1) Internet access is necessary to develop needed skills, keep in touch with people and get work and homework done

Across focus groups, one point was crystal clear, Internet access is essential. The youth said they needed it to submit homework and remain reliable if they have a social media following. Adults say they need it to communicate with educators, keep up with current events, get directions and check facts. Participants say that seniors and young people are most impacted by gaps in access. For young people, they are missing out in the development of necessary skills that they will need to be successful in the future. For adults, they are unable to search for and apply for jobs online because applications are

not usually mobile friendly. Seniors risk isolation because they can't communicate with family since they lack the skills to use apps like FaceTime.

2) Adults, parents and youth have different wants and needs for home Internet access

Adults and parents overwhelming report that home Internet use is important to work, primarily because working on a mobile phone is tricky or impossible. As such, they require specialized devises like laptops or desktops. Youth say home Internet access allows them to do their homework and have confidence that they can submit by the deadline. Youth also say that home Internet is essential for gaming, and posting content they produce (a handful of adults echoed this). However, parents, in particular, say that home Internet access is important to entertain their children.

3) Home Internet access has downsides and risks

Youth participants believe that fewer people should be online and those that are online should spend less time online because it leaves them vulnerable to trouble. The youth focus group mentioned that people get bolder, and start conflicts in from of an audience while online and this often moves to offline trouble. They also mentioned that people they know will often post too much personal information which can get them in trouble. Adult participants say that home Internet access can take away from family time, cause distractions, and become an addiction or create more pressure to work at home when they should be relaxing.

Perspectives on Data Plans and Internet Services

1) No bundles and a straight rate

Across all the focus groups, participants were clear about their distaste for bundled services and suspicion of hidden fees. Only one participant across all three focus groups conceited that bundles offered a better deal. Overwhelming, Detroiters said bundles were a gimmick, trick or way to introduce future costs. Detroiters were also very suspicious of contracts, hidden fees and small print. Across all the focus groups, participants say that any company that provides a clear and honest explanation of the service with a rate that does not change over time, will have a competitive advantage.

2) Detroiters want to try the service to decide if it is worth the cost

Across all the focus groups, participants agreed that the best way to introduce a new service is through trial. Universally, participants say this is the best way to influence their decision, or provide enough information to make a decision about switching services. A number of participants say they canceled previous services because of costs, unexpected changes to their bill or bad experiences.

3) Calls for customization to increase home Internet adoption

While a majority of the focus group participants called for a customizable plan (e.g., varying degrees of speed and varying number of devices connected), youth were particularly interested in this feature. In fact, the youth focus group said that with the right

amount of speed it is reasonable to pay $70 to $100 a month for service. All youth rated speed as very or extremely important. Adults were more conservative with their estimates, suggesting rates closer to $50 or $20 a month for high speed. The third focus group emphasized the importance of mobile service as an essential feature for home Internet service. Across all focus groups, Detroiters said that lower cost services should be available to allow basic access to people who may not need to connect multiple devices or require high speed service.

Survey Research Findings

The central focus of the study involved our survey of three neighborhoods. Here we describe the survey sample, the descriptive findings on key attributes of the responses on all aspects of our framework, and then move to an analysis if factors explaining patters of use and access. This section looks at each set of variables observed within each of the categories outlined in our framework (demographics, neighborhood attributes/characteristics, participant attitudes/beliefs, social capital, broadband/access issues, and patterns of Internet use/non-use). While these are separate sets of factors, they are interrelated in complex and also straightforward ways. We therefore follow this section of descriptive findings with an analysis of explanatory factors to pull together these separate factors and provide a more systematic basis for identifying the most important explanatory variables. Interviews and focus group findings are used to help concretize and offer qualitative explanations of key descriptive and explanatory findings. The goal is to better understand if and why the city is under connected and to inform strategies aimed at narrowing the access gap.

The Sample

The survey yielded 525 respondents distributed across the areas described in Table 1.

Table 1. Broadband to the Neighborhood Survey Statistics*

Rocket Fiber Neighborhood Survey Stats				
	Cody Rouge	7-8/Woodward	Milwaukee Junction	TOTAL
Postcards mailed, less invalid addresses	3218	533	581	**4332**
Completes	344	97	84	**525**
Response Rate	10.7%	18.2%	14.5%	**12.1%**

Composition of the Sample

The sample is predominantly female, older, African-American, report a high percentage of disabilities and health problems, and low-incomes. Most participants described themselves as the head of their household. As Table 2 suggests, the sample is likely to have over-represented women, and older residents, and these sampling biases need to be considered in understanding potential limitations of the study. `

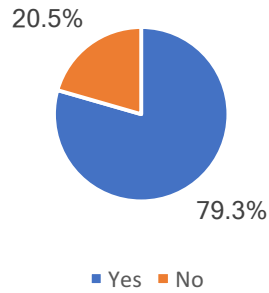**Table 2. Sample Demographics as compared to Neighborhood Composition**

	Cody Rouge		7-8/Woodward		Milwaukee Junction	
	Sample	Census	Sample	Census	Sample	Census
Total population	344	12,486	97	2,648	84	3,201
AGE						
18 to 24 years	4.7%	10.3%	3.2%	15.1%	0%	14%
25 to 34 years	11%	13.4%	10.8%	12.8%	12.2%	12.1%
35 to 44 years	14.8%	10.4%	21.5%	12.2%	12.2%	12.7%
45 to 54 years	18.4%	13%	21.5%	15.3%	20.7%	13.9%
55 to 64 years	24.9%	13.1%	18.3%	9.4%	26.8%	19.5%
65 years and over	26.1%	9.36%	24.7%	13.5%	28.0%	8.7%
SEX						
Male	14.7%	47.3%	28.7%	57%	24.4%	52%
Female	85.3%	52.7%	70.2%	43%	75.6%	48%
RACE						
White	3.7%	3.8%	21.3%	11.9%	10.4%	7.9%
Black	92.9%	93.1%	73.0%	78.8%	85.7%	90.9%
Asian	0%	0.4%	0%	4.8%	0%	0%
Native American	0.6%	0.7%	0%	0%	2.6%	0.1%
Mixed	2.8%	1.9%	5.6%	4.5%	1.3%	1.2%
Hispanic or Latino (of any race)	3.8%	0.8%	7.2%	2.15%	1.2%	0.8%

Patterns of Internet Use and Non-Use

Almost all respondents (98%) report using the Internet, while two-thirds (66%) say they use social media, which might be expected given the older average age of our sample. More than three-quarters (79%) access the Internet on handheld devices, with a little less than half (48%) using the Internet *primarily* on cell phones. This suggests that Detroiters are more dependent on mobile Internet than the national average. For example, in 2016, a Pew survey found that about 12 percent of American adults did not have broadband at home but they owned a smartphone.[6] Using the same definition, about one quarter (25%) of Detroiters have a smartphone but no broadband Internet at home (measured as contract with an ISP).
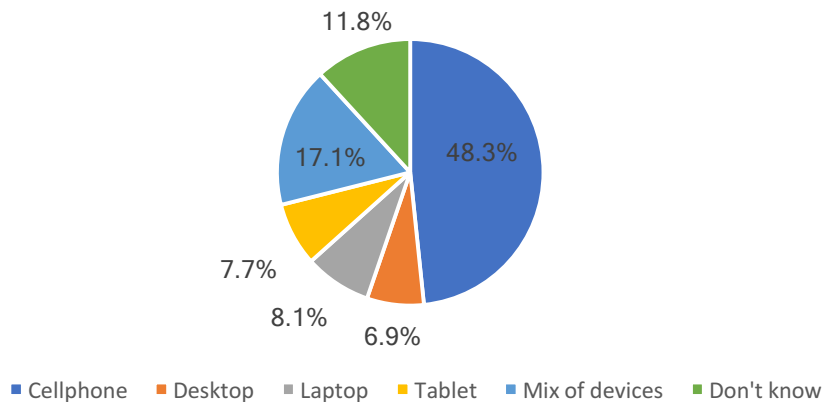
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[6] See: http://www.pewresearch.org/fact-tank/2016/10/03/smartphones-help-those-without-broadband-get-online-but-dont-necessarily-bridge-the-digital-divide/

**Do you ever access the Internet on a cellphone, tablet, or other mobile handheld device?**

20.5%

79.3%

■ Yes ■ No

N=518

On which device(s) do you primarily use the Internet or social media?

11.8%

17.1%

48.3%

7.7%

8.1%

6.9%

■ Cellphone ■ Desktop ■ Laptop ■ Tablet ■ Mix of devices ■ Don't know

N=491

About 78 percent of the sample have access to the Internet in their homes, although only 62 percent report having a contract with an ISP. The percentage of Detroiters that report having home access is not isolated to those with a fixed broadband connection. Focus group interviews suggest that some Internet users connect devices by other means (e.g. by turning their cell phones into hot spots or "sharing" Wi-Fi across neighbors).

% who have…
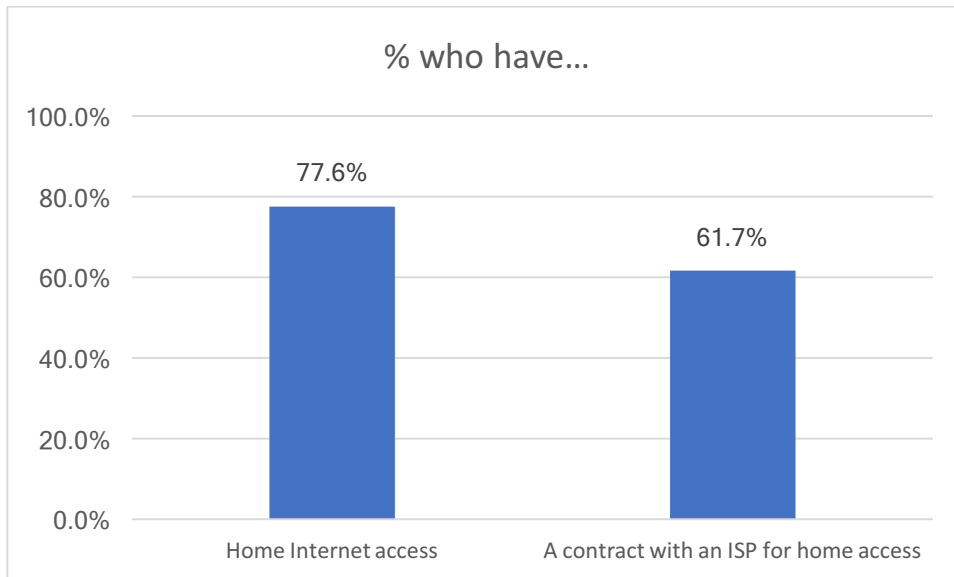
N=525

Detroiters use the Internet everywhere, but despite the mobile nature of many people's access points, most say they use it at home (76%). However, focus groups indicate that home use through the mobile phone is far from ideal, most participants say that data caps and the slowing of data on their phone are a major barrier to access.
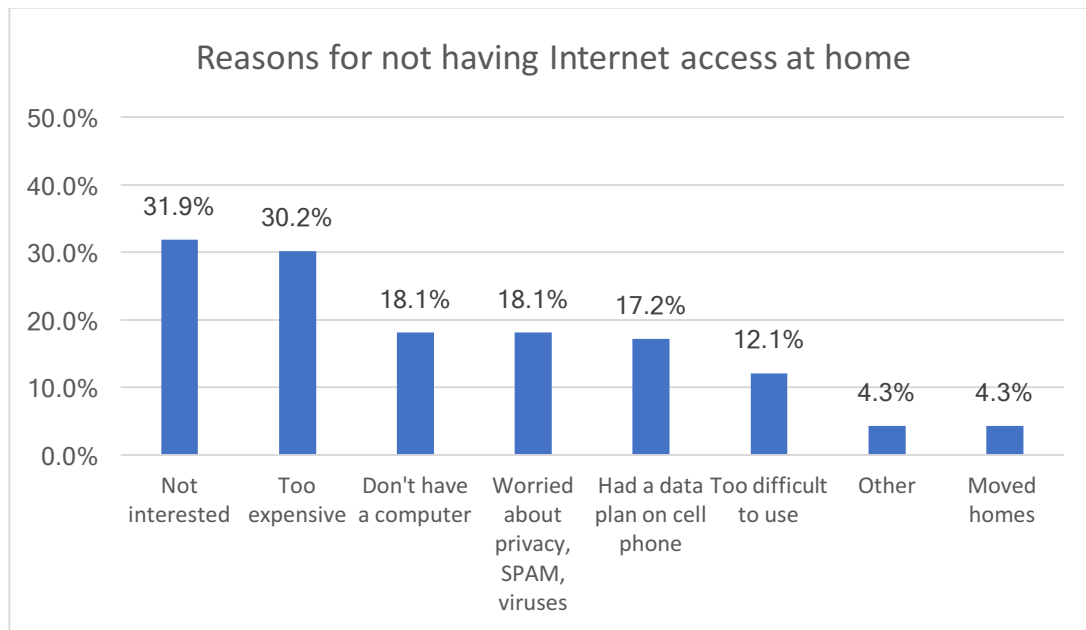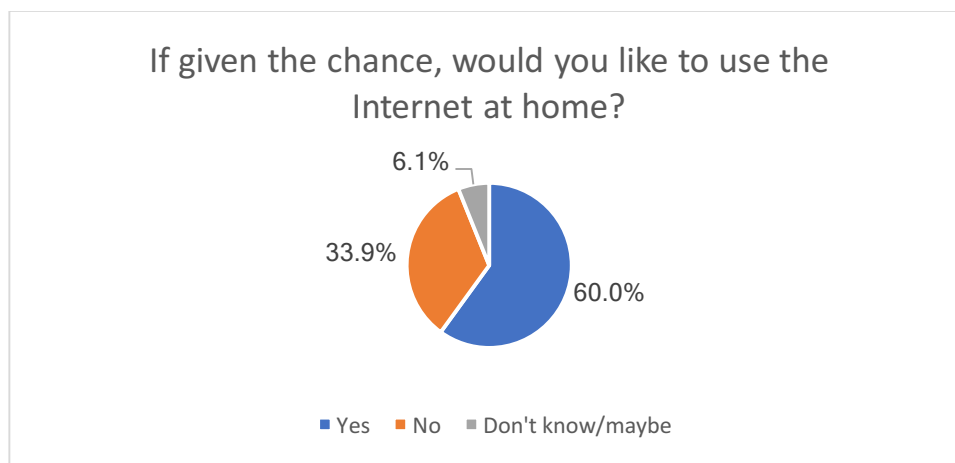

% who use the Internet at…
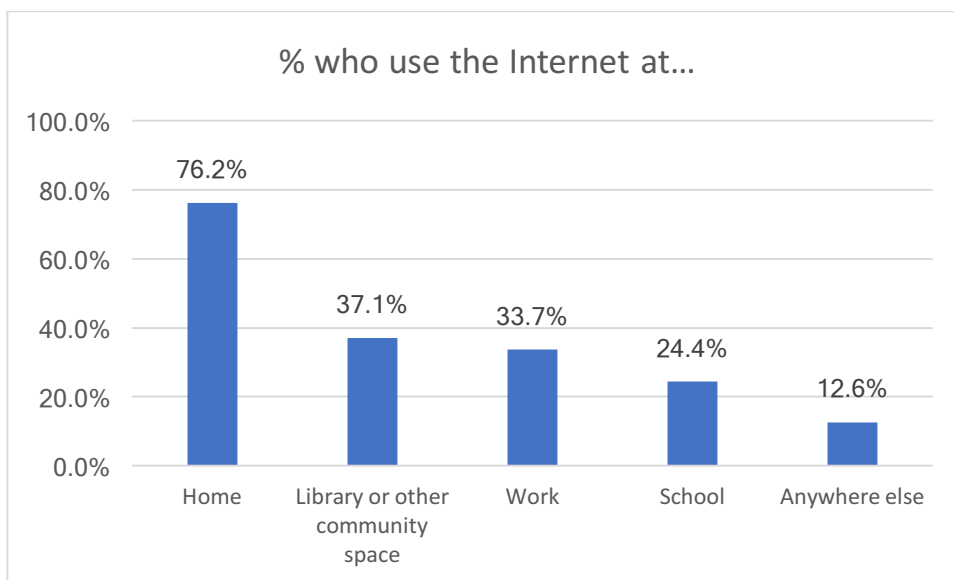
N=525

The qualitative responses in the "anywhere else" category further indicate that mobility is key in the daily lives of Detroit residents. For example, participants say they are using the Internet at coffee shops and restaurants, while waiting at the doctor's office, at the park or other public spaces. Respondents also say that they use it while visiting friends, neighbors or family. This was echoed in the focus groups, many participants said they go to friends or neighbors to access the Internet, particularly if for higher speed services.

While most Detroiters are using the Internet frequently, across multiple devices and on the go, about 22 percent of respondents say they do not have home internet access. A lack of interest (32%) is the biggest reason cited for not having home access, followed by cost (30%). Largely, participants deny that factors such as relocation (4%) and difficulty

using the Internet (12%) play a role in their lack of access. Despite the apparent lack of interest in home Internet access, most (60%) say they would like home Internet access if given the chance.

Reasons for not having Internet access at home

Reason	Percentage
Not interested	31.9%
Too expensive	30.2%
Don't have a computer	18.1%
Worried about privacy, SPAM, viruses	18.1%
Had a data plan on cell phone	17.2%
Too difficult to use	12.1%
Other	4.3%
Moved homes	4.3%

N=116

If given the chance, would you like to use the Internet at home?

Response	Percentage
Yes	60.0%
No	33.9%
Don't know/maybe	6.1%

N=115

Overall, whether Detroiters have home Internet access or not, respondents rate their ability to use the Internet slightly lower than we have seen in US-wide samples. About 35 percent ranks their abilities as excellent, and 34 percent think their ability is good. A bout 30 percent of Detroit residents believe their ability to use the Internet is either fair (22%) or poor (9%).
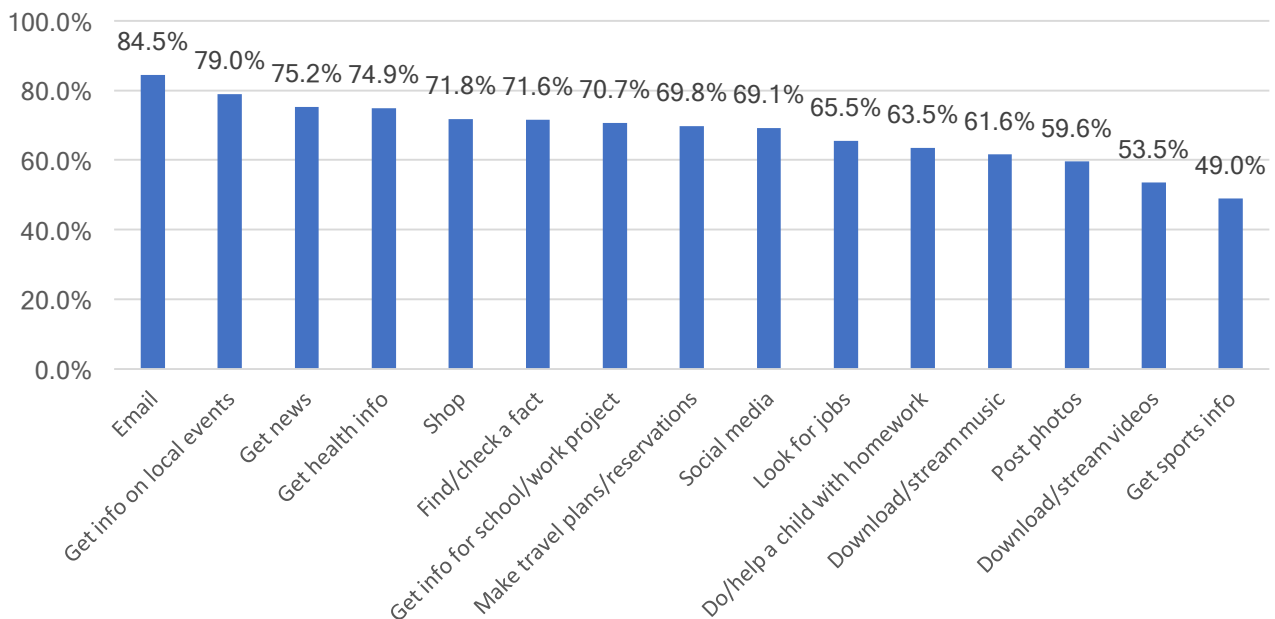
Ability to use the Internet

- 35.2% Excellent
- 34.2% Good
- 21.6% Fair
- 8.9% Poor

■ Excellent ■ Good ■ Fair ■ Poor
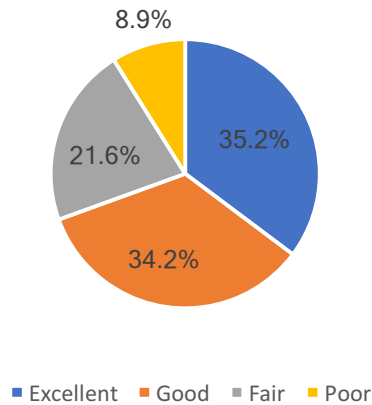
N=514

Detroiters that go online are using the Internet primarily for information acquisition purposes as compared to entertainment and leisure. For example, the most prominent uses of the Internet among our sample are emails, getting information on local events, and getting health information and news. More than two-thirds (71%) use the Internet to get information for school or work, and a majority of respondents use the Internet to look for jobs (65%). Almost two-thirds (63%) go online to do homework or to help a child with homework, highlighting the need of the Internet for school aged children and the resulting "homework gap" for those who have no home Internet access. In other words, Detroit residents are using the Internet for a range of activities, including information seeking, work and entertainment, and they are using the Internet often to do these things. The high use of the Internet for a breadth of different activities indicates the central role that it plays for their daily lives.

% who do this online

Activity	%
Email	84.5%
Get info on local events	79.0%
Get news	75.2%
Get health info	74.9%
Shop	71.8%
Find/check a fact	71.6%
Get info for school/work project	70.7%
Make travel plans/reservations	69.8%
Social media	69.1%
Look for jobs	65.5%
Do/help a child with homework	63.5%
Download/stream music	61.6%
Post photos	59.6%
Download/stream videos	53.5%
Get sports info	49.0%

N=525

Our data suggest a slightly higher willingness to pay for news content online, as compared to paying for a print news subscription. However, most of the online news that is consumed is freely available, as compared to paid content. While three quarters of our respondents get news from the Internet, only about 13 percent have paid for online content in the past year, only about 10 percent, subscribe to a newspaper.
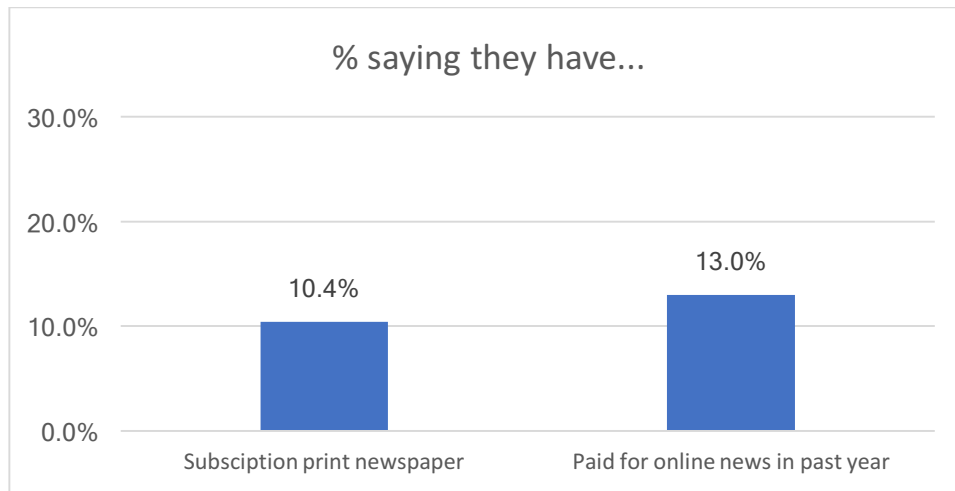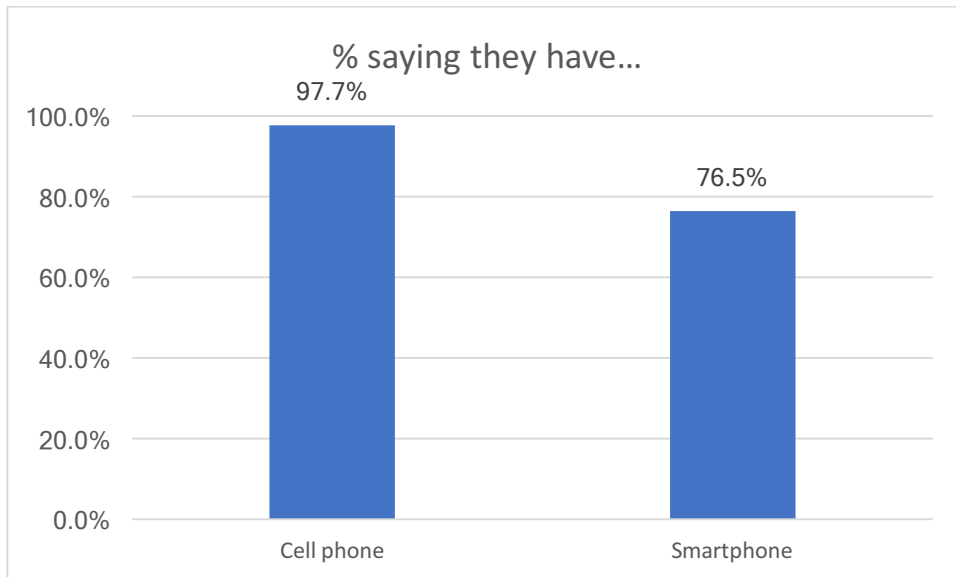

N=520 (print); N=524 (online)

This need for use and the largely positive attitudes toward the Internet provides an important context for the following sub-section on household media, ability to pay, and market forces.

Broadband Access and the Household Media and Information Ecosystem
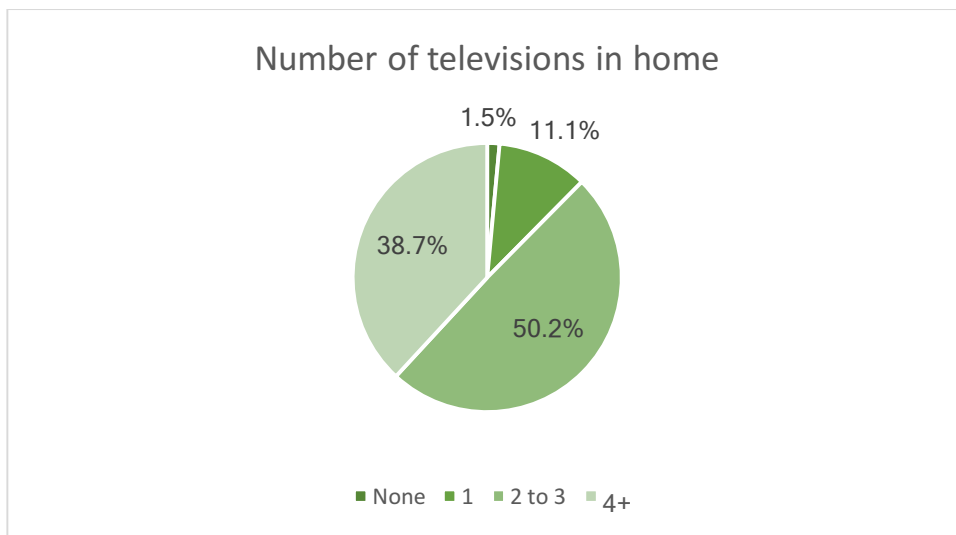
A key explanatory set of factors from our framework includes the availability of broadband Internet infrastructures and services in the neighborhood and community and how it fits into the household's media and information ecosystem. Here we look at issues such as perceived affordability and the use of different media and communication devises.

About 40 percent of respondents have a landline, whereas nearly 98 percent have a cell phone. Of those, 77 percent are smartphones that are capable of connecting to the Internet. According to a 2016 Pew Research study of mobile phone ownership, this is consistent with the national average.[7] In addition to cell phones, televisions are the most widespread technology in Detroit homes. Detroiters have an average of about 3 televisions per household (M=3.12, SD=1.3, N=524). Nearly 89 percent of respondents have two or more televisions in the home, and 39 percent have four or more. However, only about half (52%) have a cable television subscription and about a fifth (21%) has Satellite television. More than two-thirds (68%) report having some kind of computer (e.g. a desktop computer, a laptop, or a tablet in their home), which is below the 78 percent national average reported by Pew in 2016.
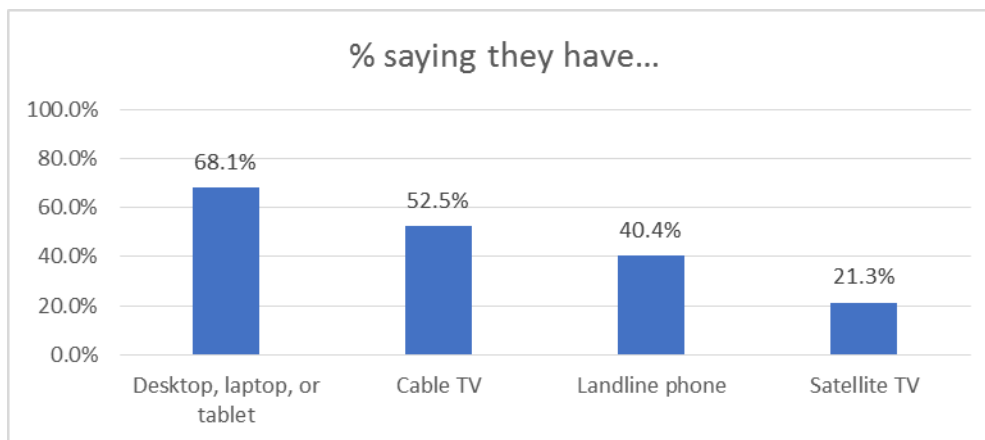
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[7] http://www.pewresearch.org/fact-tank/2016/10/03/smartphones-help-those-without-broadband-get-online-but-dont-necessarily-bridge-the-digital-divide/

% saying they have…

N=523 (cell); N=520 (smartphone)

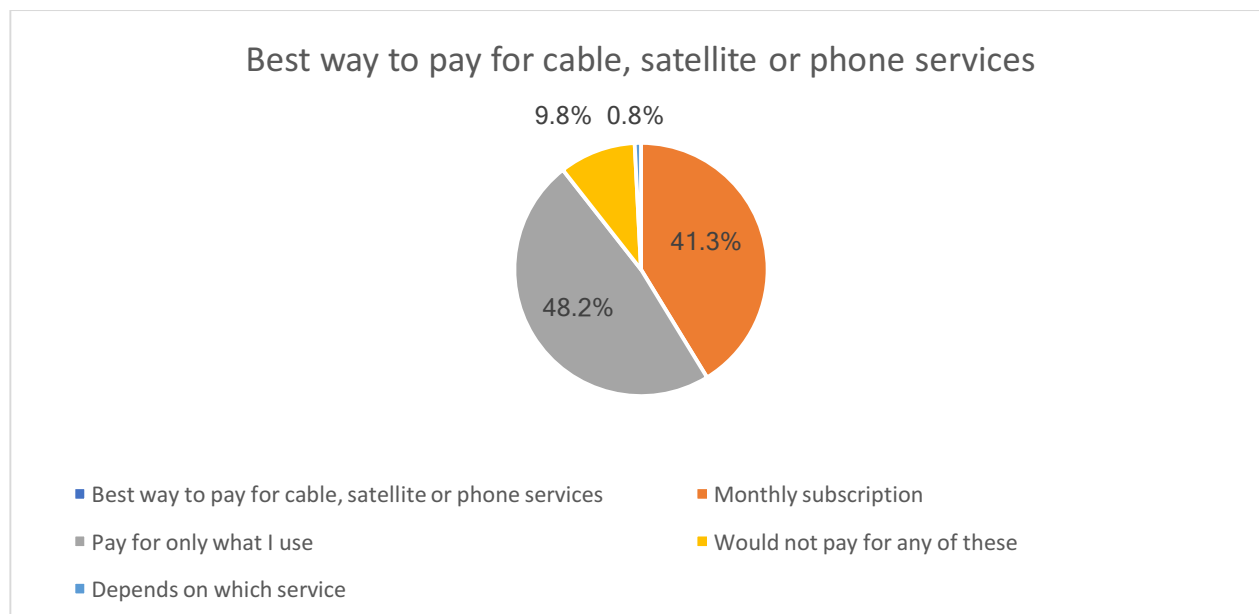## Number of televisions in home

N=524

% saying they have…

N=520 (desktop); N=518 (cable; landline); N=508 (satellite)

When asked about the best way to pay for cable, satellite, or phone services, almost half of the respondents prefer to pay for only what they use (48%); slightly fewer prefer a

monthly subscription (41%).

Best way to pay for cable, satellite or phone services

- 9.8%
- 0.8%
- 41.3%
- 48.2%

Legend:
- Best way to pay for cable, satellite or phone services
- Monthly subscription
- Pay for only what I use
- Would not pay for any of these
- Depends on which service

N=521

When it comes to cell phone service specifically, about 76 percent of respondents say their cell phone connects to the Internet. Most (85%) pay a monthly subscription, only a fraction (4%) use pay as you go—although 8 percent are not sure how they pay for their cell phone.

% who pay their cellphone through...

- 8.3%
- 4.4%
- 85.3%

Legend:
- A monthly subscription
- Pay as you go
- Other/don't know
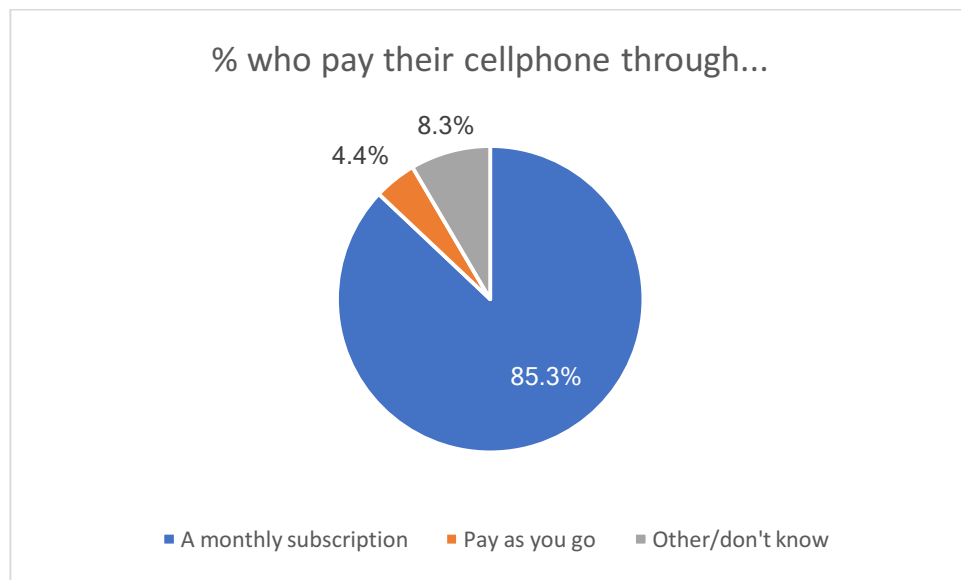
N=525

Issues of affordability to pay monthly subscriptions for data start to emerge when participants were asked about their cell phone plans. For example, about 30 percent cell phone users report having stopped service at some point due to cost. Among all respondents, 76 percent say their phone CAN connect to the Internet, however, only 65 percent are paying for a data plan on their cell phone.
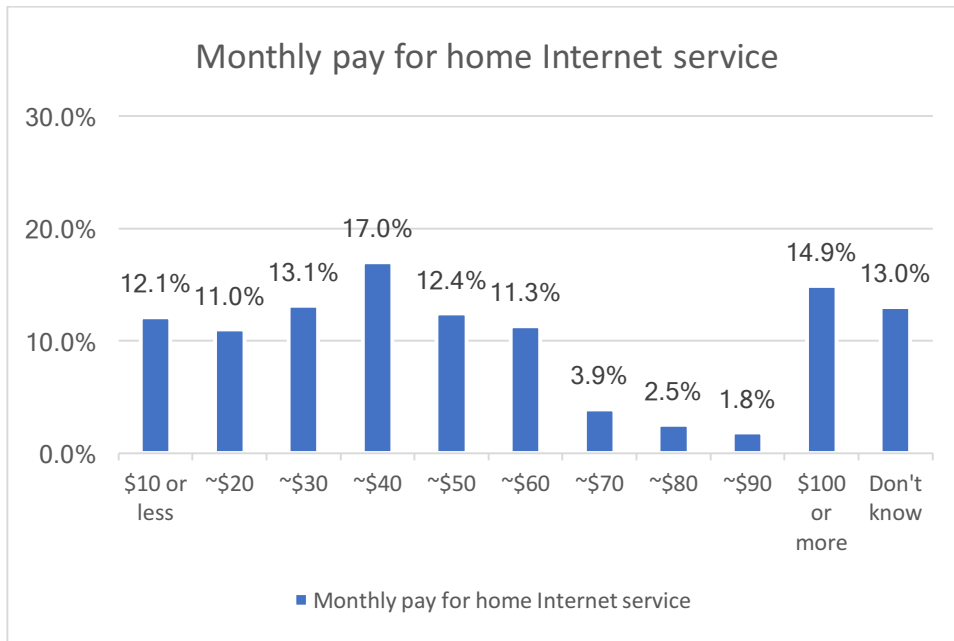
% who have...
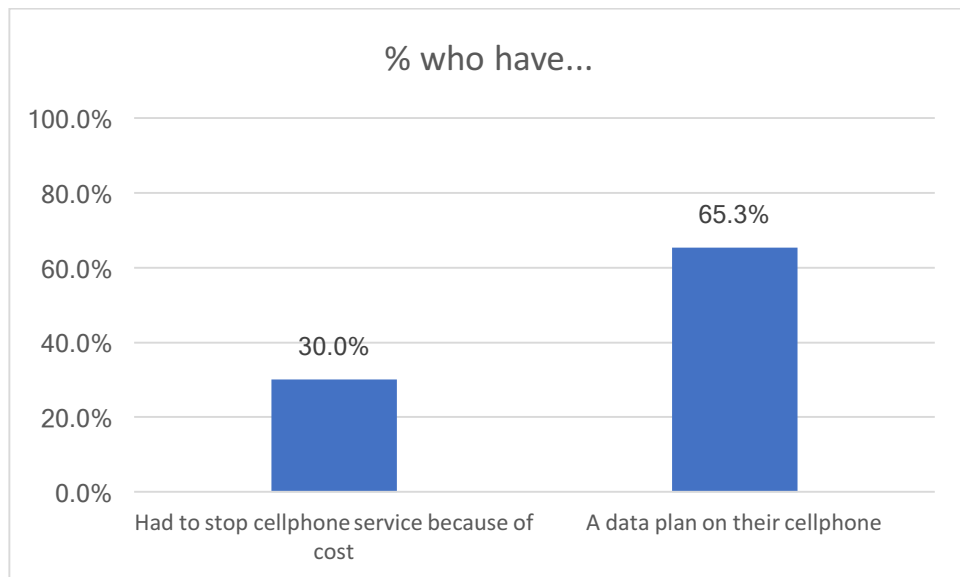
N=457 (stop service); N=507 (data plan)

Upon further questioning, of those with a data plan, only a small fraction of respondents would consider switching from a cell phone data plan to home Internet service (2%). However, a majority of respondents would like home Internet in addition to cell phone data plans (52%) and 22 percent already have both. Almost a quarter (23%) would stick to their data plan.
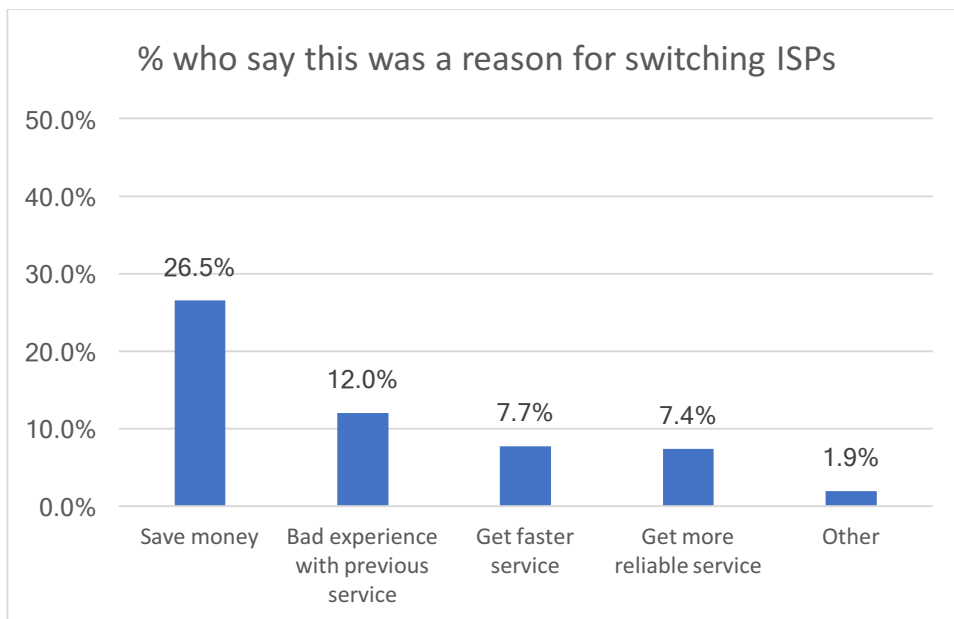

Would you prefer to stick with your data plan, switch to home Internet service, or have both?
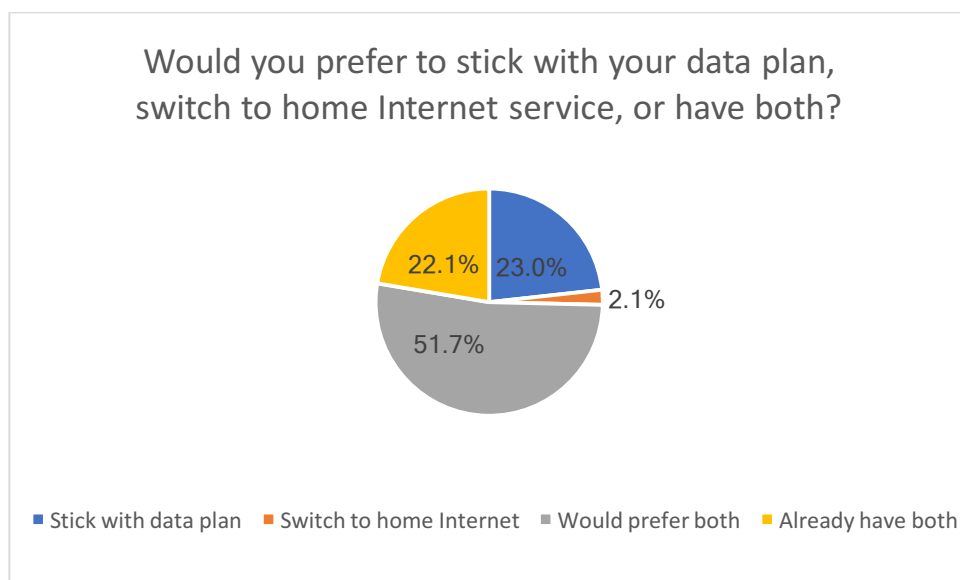
N=331

Of those who *do not* have home access, 63 percent want it. Among those *with* home Internet service, 12 percent report paying $10 or less and about 15 percent report paying $100 or more. Most, about 65 percent say they pay between $20 and $60 a month. The average household in Detroit spends $48 per month for their ISP, about half pay $40 or less per month (mean $48; median $40).

Monthly pay for home Internet service

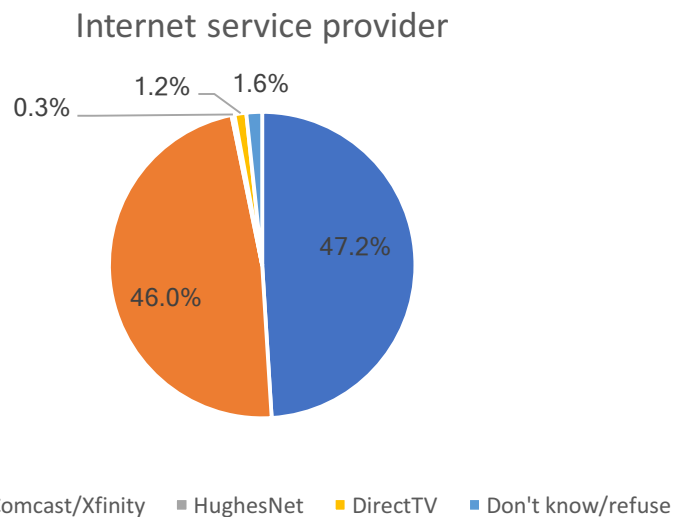| Category	Value
$10 or less	12.1%
~$20	11.0%
~$30	13.1%
~$40	17.0%
~$50	12.4%
~$60	11.3%
~$70	3.9%
~$80	2.5%
~$90	1.8%
$100 or more	14.9%
Don't know	13.0%

N=324

Saving money is the number one reason for switching ISPs among those who have done so before (27%). Poor customer service or bad experiences with an Internet service prompted some churn (12%). While, only about 8 percent say they switched because of speed or the reliability of the service (7%). It is notable that 1 in 10 respondents are subscribing to a low-cost plan that is around $10 or less, such as Comcast Internet Essentials or AT&T Access.

% who say this was a reason for switching ISPs

| Category	Value
Save money	26.5%
Bad experience with previous service	12.0%
Get faster service	7.7%
Get more reliable service	7.4%
Other	1.9%

N=324

Among those with a home Internet service, Comcast (46%) and AT&T (47%) account for an overwhelming majority of Internet subscriptions, with few respondents mentioning other services.

Internet service provider

0.3%   1.2%   1.6%

47.2%

46.0%

- AT&T
- Comcast/Xfinity
- HughesNet
- DirectTV
- Don't know/refuse

N=324

About 31 percent say they would qualify for a program aimed at supporting Internet access for low-income households, such as Comcast's Internet Essentials program. These programs are designed to support low-income households, such as those on housing assistance, families with children who qualify for subsidized school lunches, or seniors who receive public assistance.

% households who qualify for internet at reduced cost

25.5%

31.4%

8.2%

34.9%

- Yes
- No
- Don't know
- Missing data
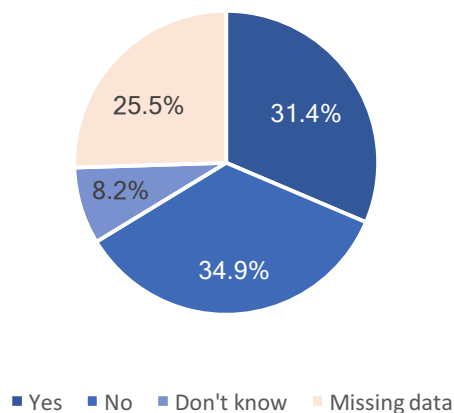
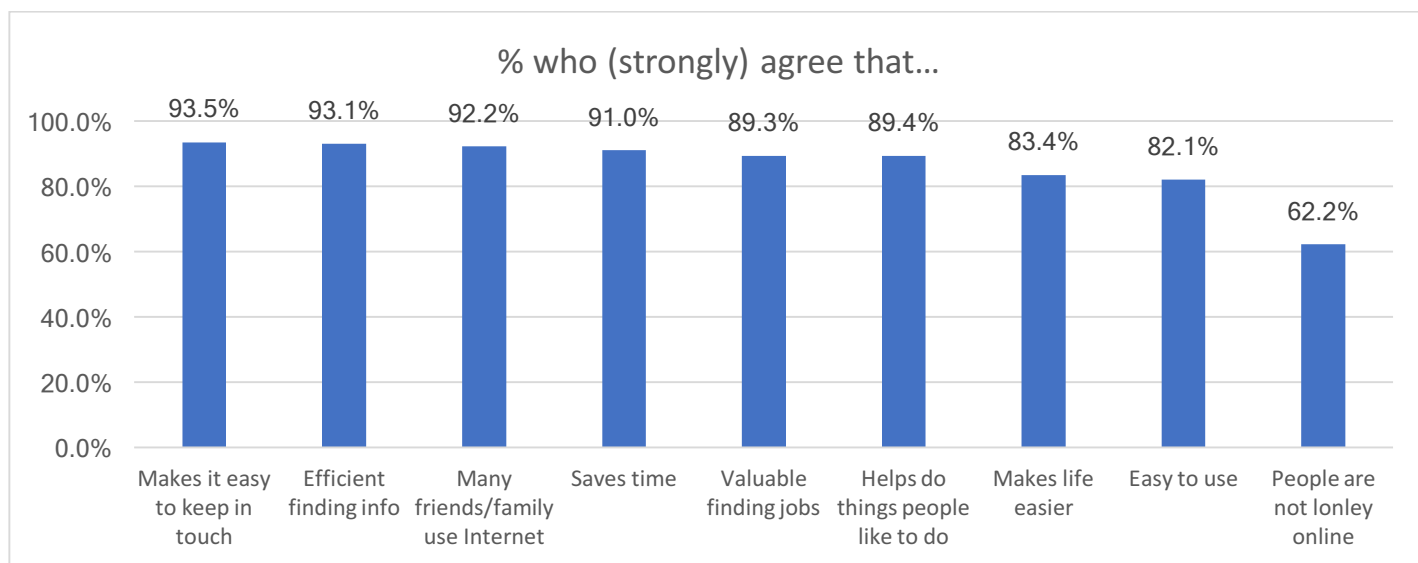N=525 (only asked of homes with children in first week; therefore, a lot of missing data)

Overall, out of those who have a contract with an ISP, most chose their ISP because it was the cheapest option (38%) or because they decided to bundle with other services (34%). Yet, less than a third (31%) think bundles give you a better deal.
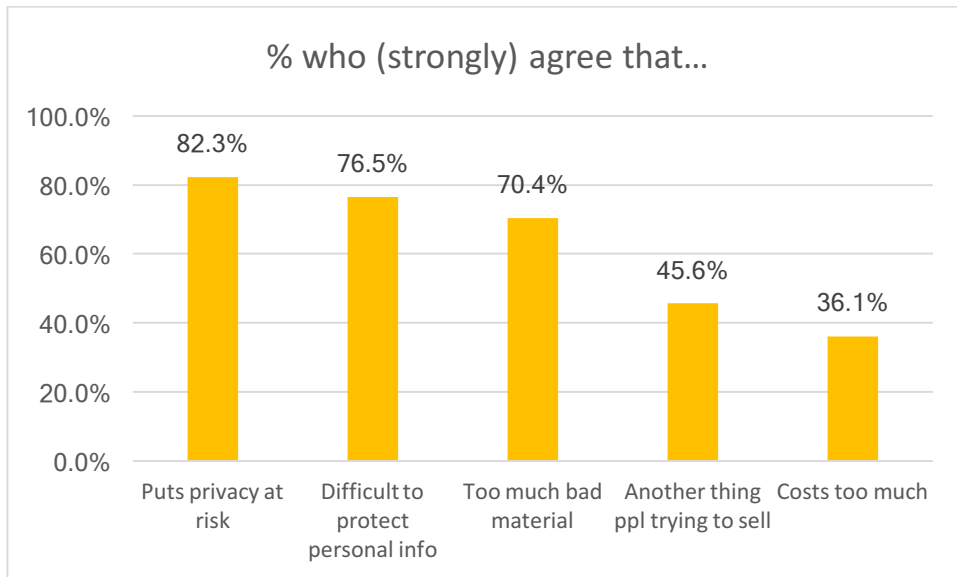
% who say this was a reason for chosing ISP
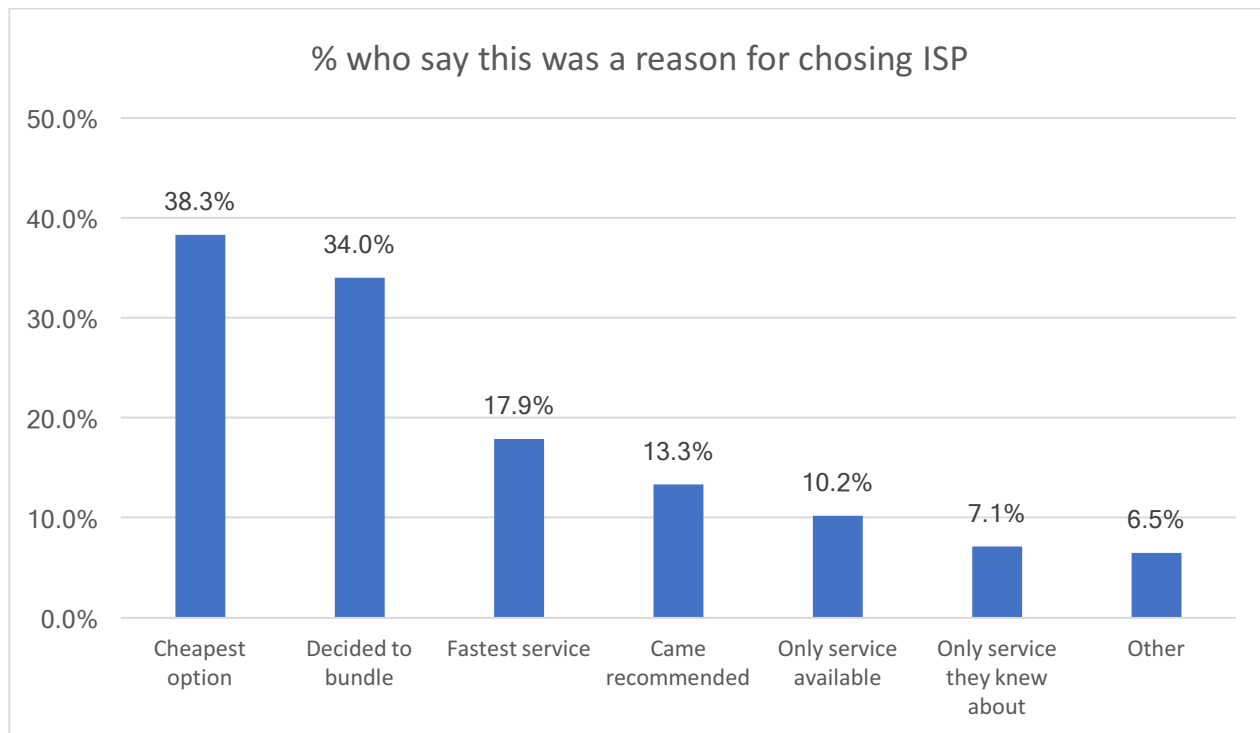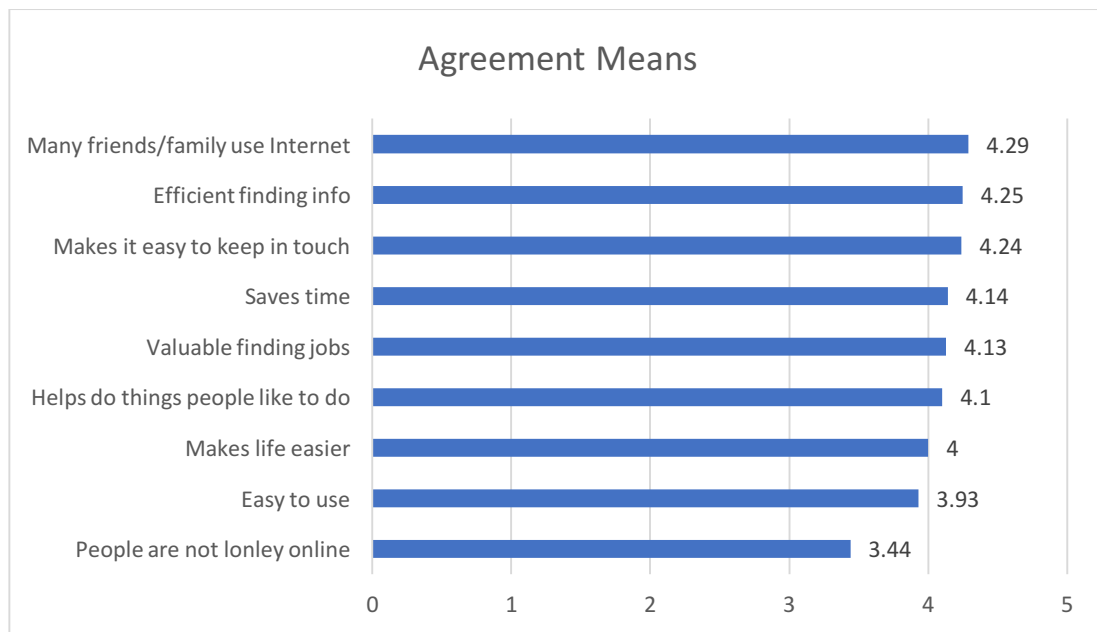
N=324

Attitudes and Beliefs

Most respondents are positive about the affordances of the Internet, but they are also concerned about privacy (82%) and wary of bad material online (70%). When it comes to perceptions of costs, 36 percent think going online costs too much money. Nearly half report attitudes of distrust, for example, 46 percent feel that the Internet is "just another thing people are trying to sell" them while 76-82 percent are worried about their privacy. Despite these concerns, participants have higher levels of agreement among items expressing positive sentiment such as efficiency and time savings as compared to risks and costs.
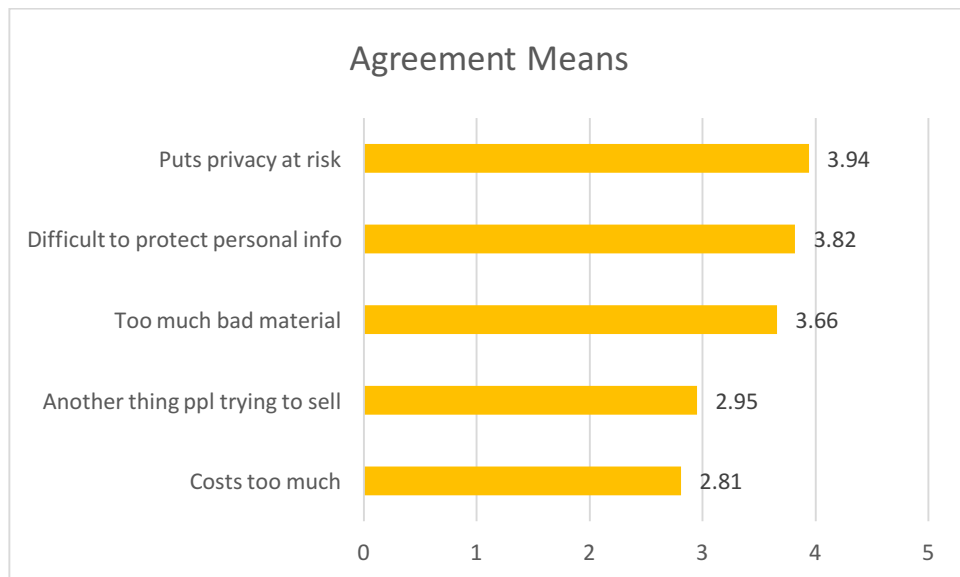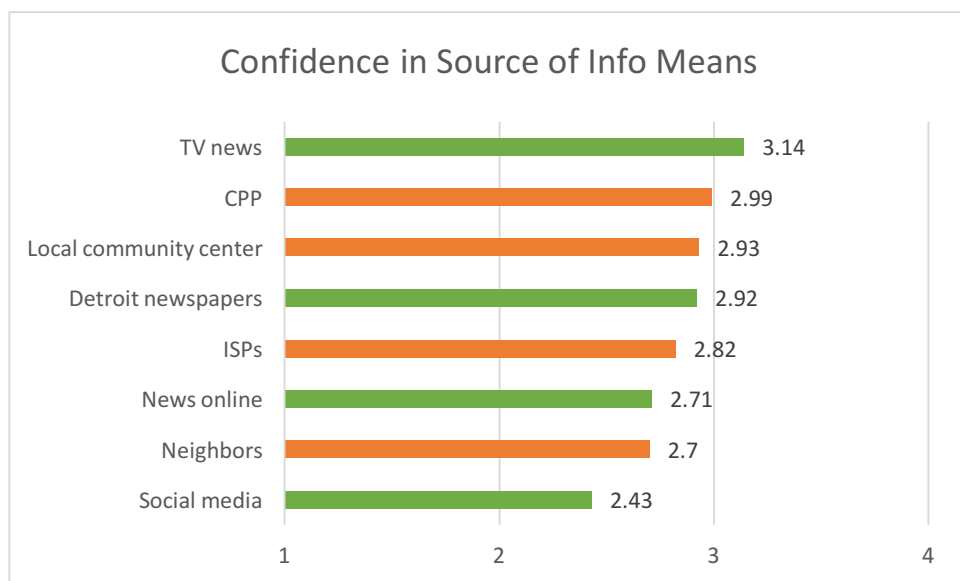

% who (strongly) agree that…

N=525

% who (strongly) agree that…

Category	Percentage
Puts privacy at risk	82.3%
Difficult to protect personal info	76.5%
Too much bad material	70.4%
Another thing ppl trying to sell	45.6%
Costs too much	36.1%

N=525

Agreement Means

Item	Mean
Many friends/family use Internet	4.29
Efficient finding info	4.25
Makes it easy to keep in touch	4.24
Saves time	4.14
Valuable finding jobs	4.13
Helps do things people like to do	4.1
Makes life easier	4
Easy to use	3.93
People are not lonley online	3.44

N=525; Scale 1-5 (strongly disagree to strongly agree)

Agreement Means

Statement	Mean
Puts privacy at risk	3.94
Difficult to protect personal info	3.82
Too much bad material	3.66
Another thing ppl trying to sell	2.95
Costs too much	2.81

N=525; Scale 1-5 (strongly disagree to strongly agree)

Confidence in information from Internet Service Providers (ISP) is rather high (68%), but slightly less than reported confidence in information provided by Cell Phone Providers (73%). To provide a sense of proportion, respondents tend to have somewhat more confidence in both of these service providers when compared to their neighbors (about 61%) and community centers (65%). However, community centers are ranked slightly higher than ISPs when mean scores are calculated.

In terms of confidence in information sources 68 percent have confidence in local print news, slightly fewer, 65 percent have confidence in online news. The most confidence was reported in TV news (81%) and the least confidence expressed in social media (51%). When comparing mean values of confidence, TV news is ranked the highest among all sources, followed by cell phone providers.


Confidence in Source of Info Means

Source	Mean
TV news	3.14
CPP	2.99
Local community center	2.93
Detroit newspapers	2.92
ISPs	2.82
News online	2.71
Neighbors	2.7
Social media	2.43

N=525; Scale 1-4 (no confidence to full confidence); green color=news sources; orange color=institutional/interpersonal information sources.

Social Networks

This study looked at the concept of social capital but also derived a relatively unorthodox indicator of what we called 'Know-Who'.
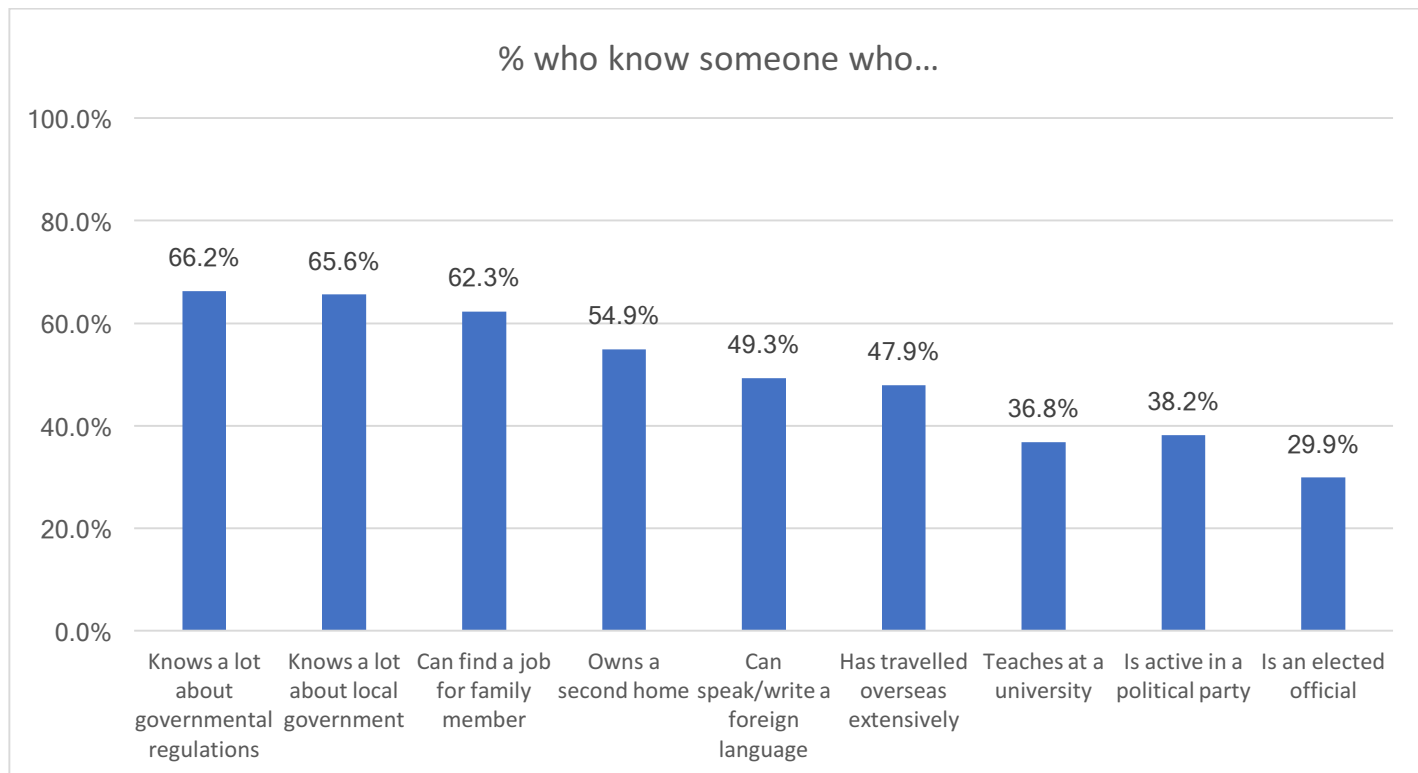
Social capital refers to people's ability to use their network of personal relationships to get access to resources that can be useful in dealing with everyday issues. Different types of resources often require knowing people from different backgrounds. The right type of relationship can be useful in helping people get online and navigate the internet, while using the internet can also help people identify important sources of aid and support and to communicate with those around them.

A high level of social capital can also help individuals and a community to organize when dealing with local problems. In order to access the social capital of Detroit residents, respondents were asked a series of questions about the attributes, skill, resources and expertise of people they know. For example, 86 percent of the respondents say they know someone with computer expertise, whereas only 29 percent know an elected official. In the process of our analysis, we combined a subset of the indicators used to described levels of social capital to create an indicator of Know-Who, which focused on knowing people who could help with practical problems around the household, such as knowing a lot about computers.[8] We hypothesized that such Know-Who could facilitate getting and staying online, and reduce the costs of individuals and households in being online through such social know how.
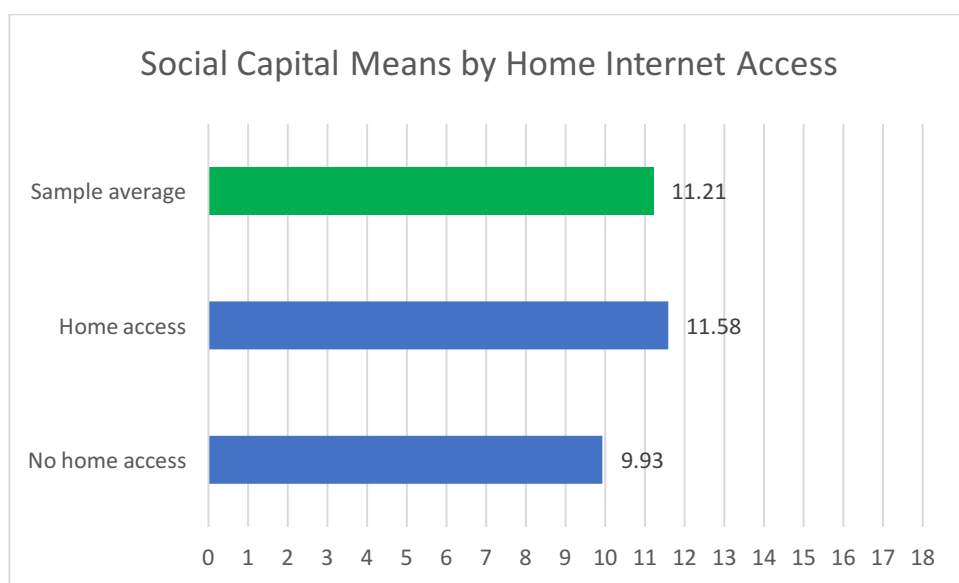

% who know someone who...
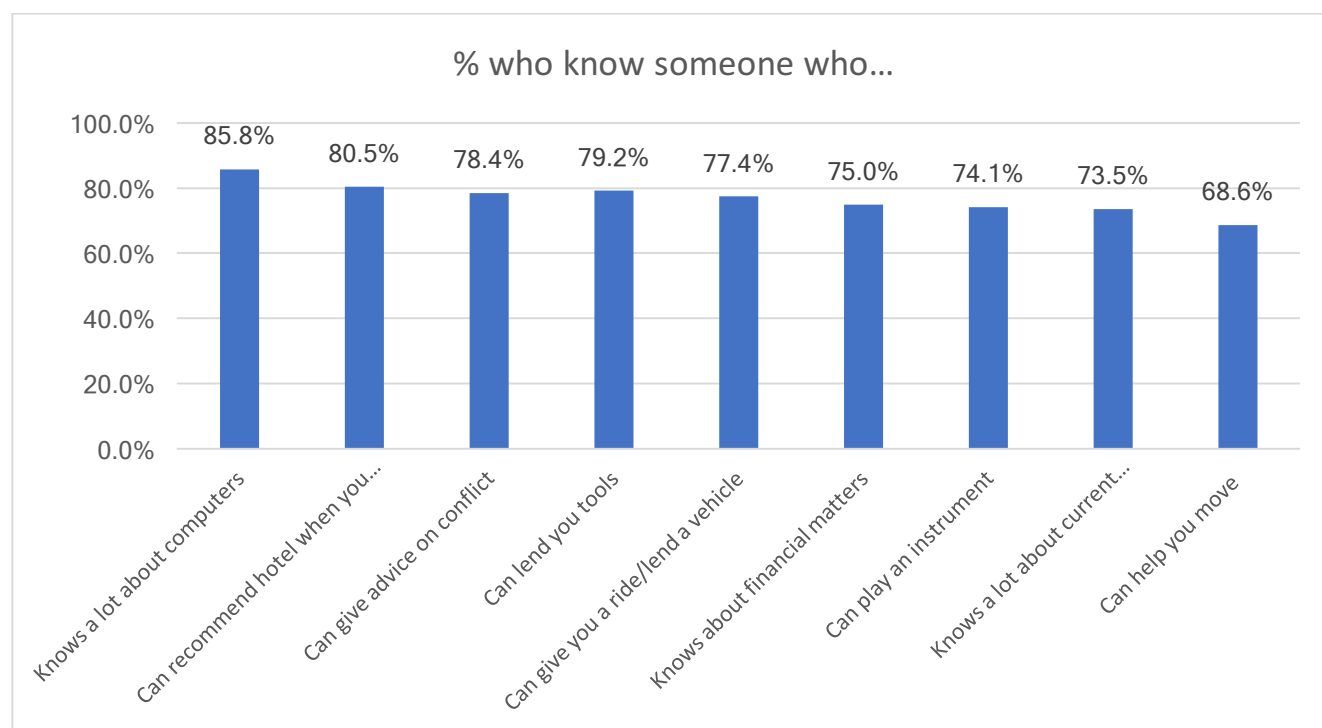
N=525

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[8] Know-Who was created as the first factor we found when we conducted a principal components analysis on the 18 items used to measure social capital (no 0; yes 1). The following 9 items were used to create the Know-Who variable: Do you know anyone who…: knows a lot about computers; owns a second home; can give advice on conflict with a family members; knows a lot about finances; plays an instrument; can help you move homes; can recommend a hotel/restaurant for when you travel; can lend you a home improvement tool such as a ladder; can lend you a vehicle/give you a ride when you are in a pinch.
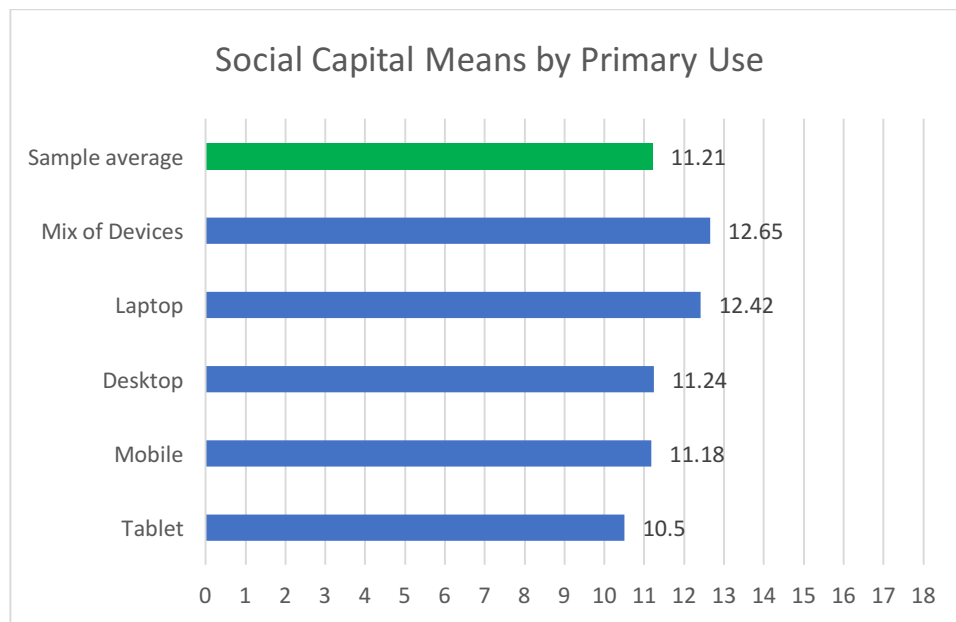
% who know someone who…

Category	Percentage
Knows a lot about governmental regulations	66.2%
Knows a lot about local government	65.6%
Can find a job for family member	62.3%
Owns a second home	54.9%
Can speak/write a foreign language	49.3%
Has travelled overseas extensively	47.9%
Teaches at a university	36.8%
Is active in a political party	38.2%
Is an elected official	29.9%

N=525

An analysis of this data suggests that much of the sample have access to people who can provide "instrumental" forms of support (e.g. borrowing tools), but few have the social capital necessary to access people of diverse socioeconomic status (e.g. an elected official, or someone who knows about government regulations). This suggest that while many Detroit residents have access to a network of local relationships that can provide immediate instrumental aid (e.g., emergency transportation), the limited scope of many people's personal networks may limit the ability of residents to find jobs outside of their local community or to get help with community problems.

Social Capital Means by Home Internet Access

	Value
Sample average	11.21
Home access	11.58
No home access	9.93

N=520

When we compare those with home Internet access to those without home Internet access, the data suggest that those with home access have slightly higher levels of social capital. A comparison of social capital based on the type of device primarily used, those that use a mix of devices report the highest levels of social capital, those that use laptops fair better than the sample average.
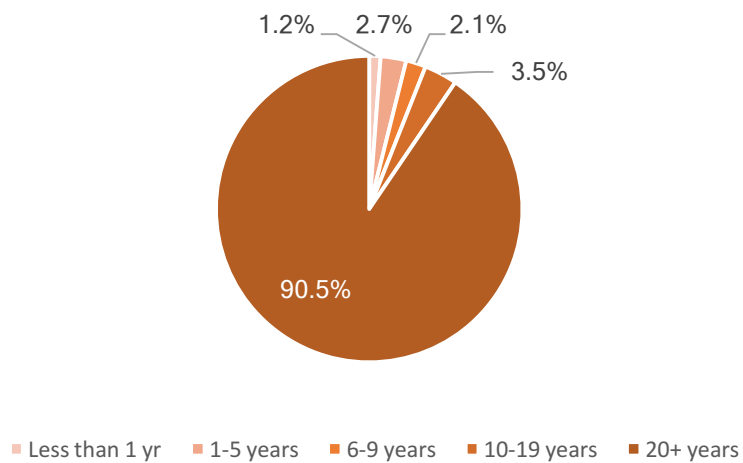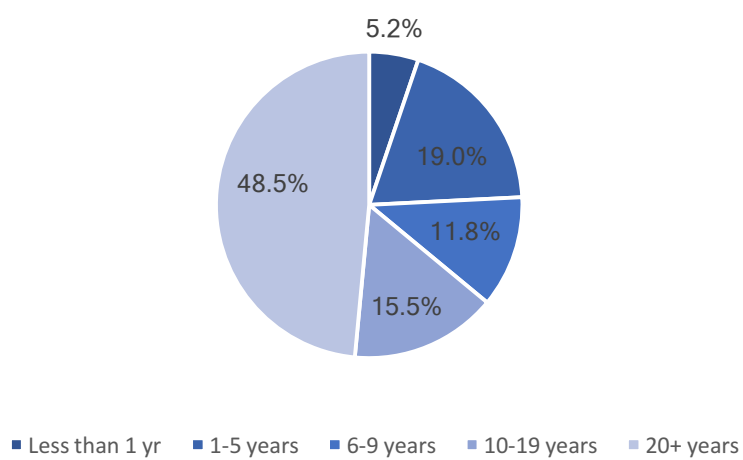
Social Capital Means by Primary Use

Category	Value
Sample average	11.21
Mix of Devices	12.65
Laptop	12.42
Desktop	11.24
Mobile	11.18
Tablet	10.5

N=490

Community and Neighborhood

The vast majority (90%) of our respondents have lived in Detroit for more than 20 years, and about half (48%) have lived in their neighborhood for more than 20 years. Movement within the neighborhoods and within Detroit is more common with 25 percent reporting they have lived in the neighborhood for 5 years or less. About 10 percent say they lived in their home for a year or less. To summarize, on average our respondents have lived in Detroit for 44.3 years with a median value of 46 years (SD=18.1, N=516); in their neighborhood for 20.4 years with a median value of 18 years (SD=16.5, N=518); and in their home for 16.7 years with a median value of 10 years (SD=15.7, N=521).
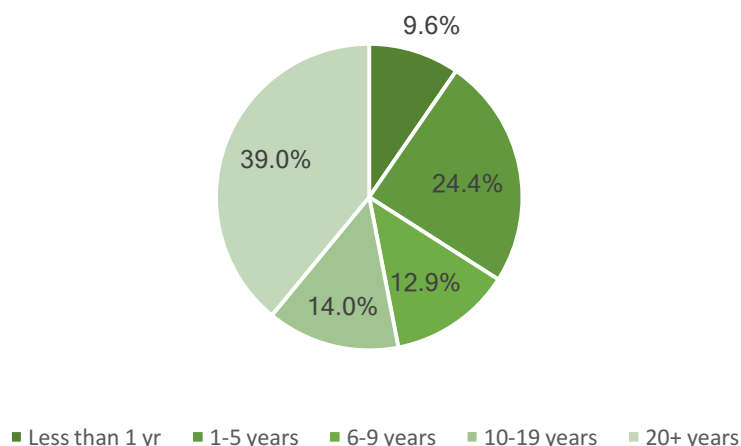
How long lived in Detroit

1.2%   2.7%   2.1%

3.5%

90.5%

Less than 1 yr   1-5 years   6-9 years   10-19 years   20+ years

N=516

How long lived in this neighborhood

5.2%

19.0%

11.8%

15.5%

48.5%

Less than 1 yr   1-5 years   6-9 years   10-19 years   20+ years

N=517

How long lived in this home

N=520

However, most respondents plan to stay in Detroit for at least the next 5 years or longer (83%), almost half (48%) say that they are planning to stay for the rest of their lives. Only a small minority (3%) say they want to leave as soon as they can, while 13 percent plan to stay only for the next year.

Planning to stay in Detroit for the next...
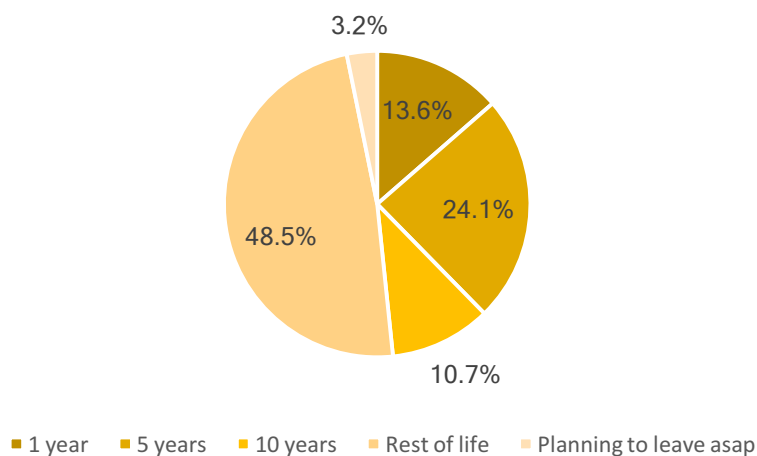
N=507

Demographic Characteristics

The sample of respondents is 81 percent female, and skewed toward higher age groups. The age range is 18-96 years (mean=53.1), with about half of the respondents (50.2%) 55 years of age and older.
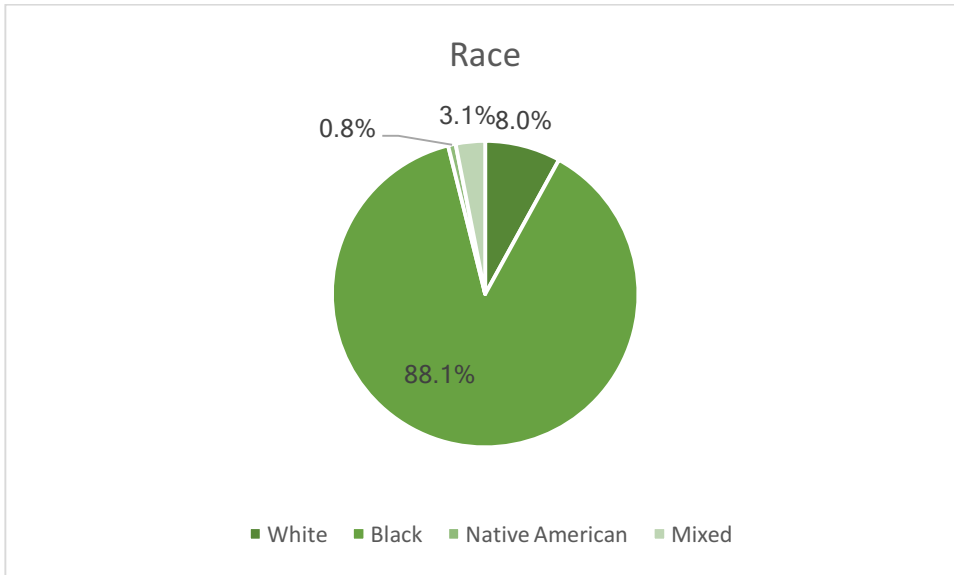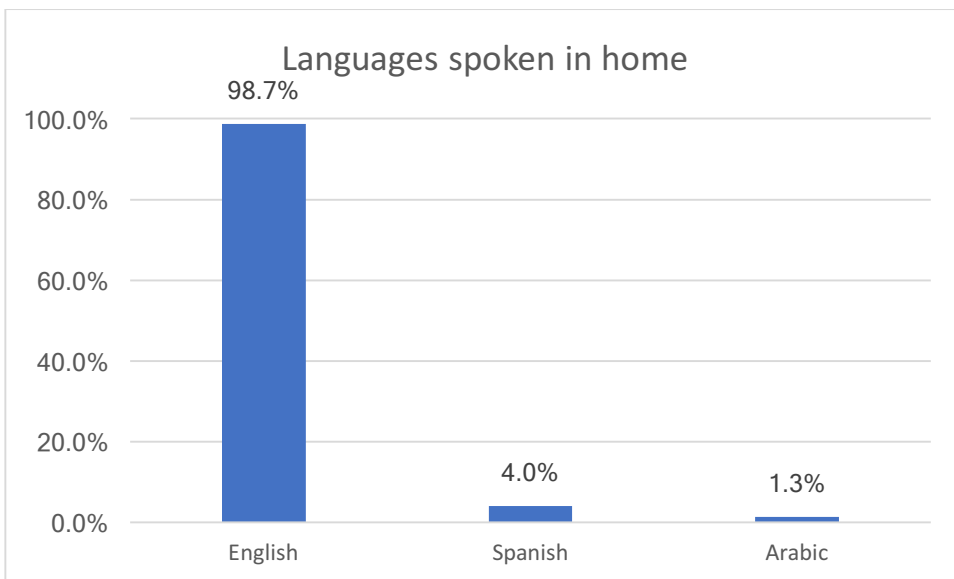
Age

N=512

Gender
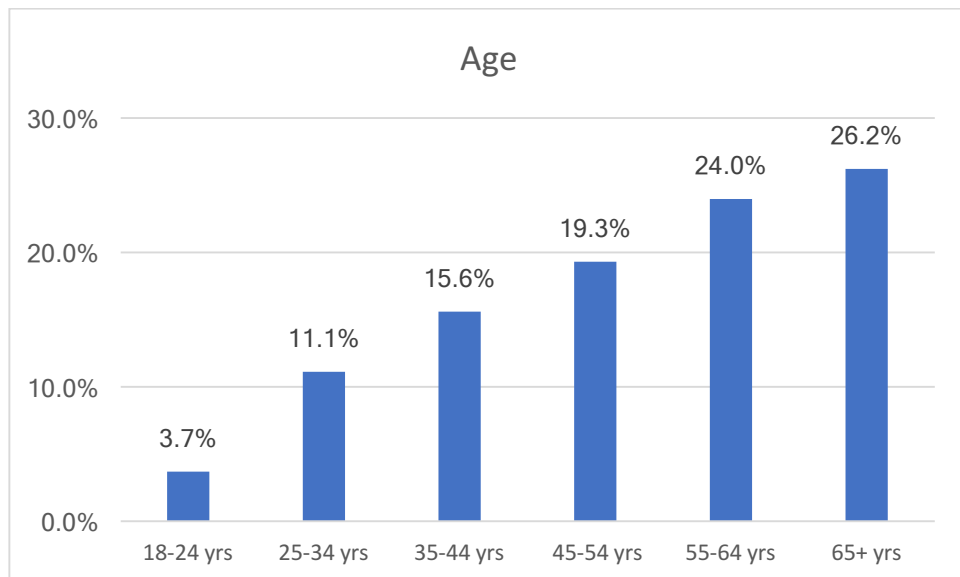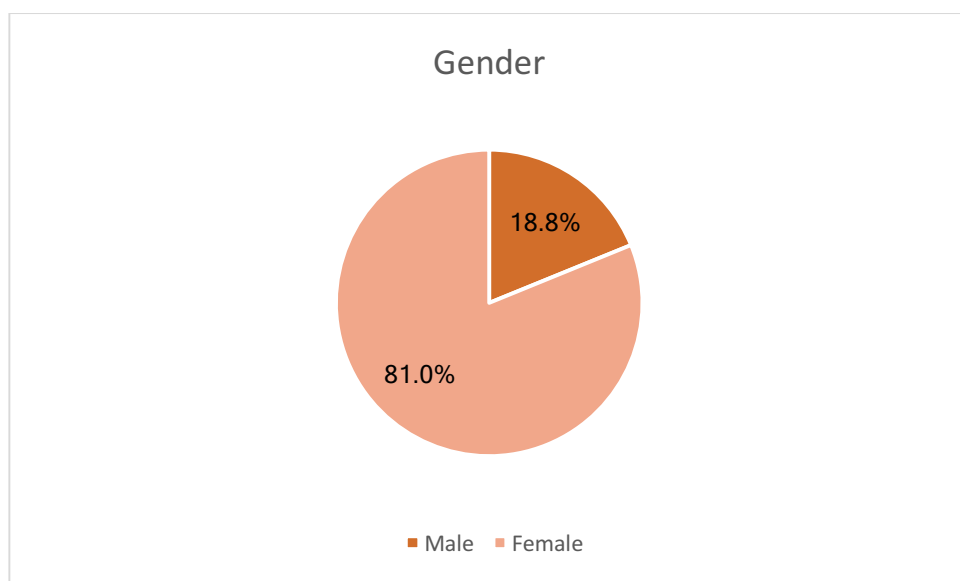
N=512

The sample is predominantly African-American (88%), 8 percent white, and 3 percent mixed. Almost the complete sample (99%) speaks English at home. In addition, 4 percent speak Spanish and 1 percent Arabic. Additional languages mentioned include French, Hebrew, Chinese, Hawaiian, Japanese, Chaldean, and Dutch.

Race

0.8% 3.1% 8.0%

88.1%

■ White ■ Black ■ Native American ■ Mixed

N=488

Languages spoken in home

|		
98.7%		
100.0%		
80.0%		
60.0%		
40.0%		
20.0%	4.0%	1.3%
0.0%		
English	Spanish	Arabic

N=525

A quarter of the sample reports that the highest degree in the household is a high school degree or less, 41 percent say that someone in the household has some college experience or an associate degree, and about another third (34%) report there is someone with a university degree in the household.

Only 35 percent of the sample has children in the home, and about 30 percent of the homes currently consist of two adult partners who are spouses or in a committed partnership.

% children under 18 years in home

35.2%

64.8%

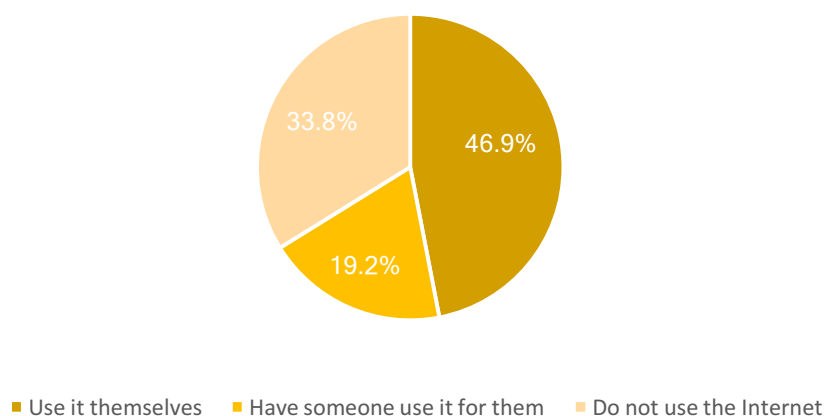■ Children in home　　■ No children in home
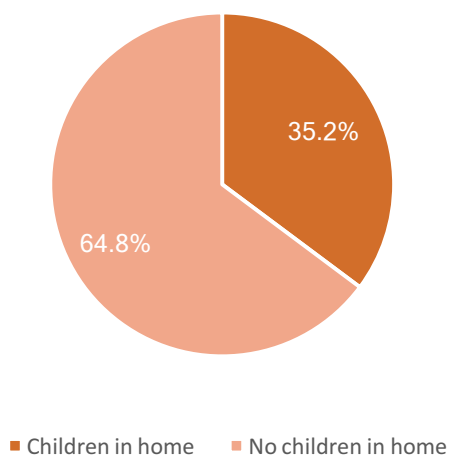
N=517

About 25 percent of respondents report that someone in the home is 70 or older. Among these seniors, about half use the Internet themselves (47%), 19 percent use the Internet with the help of someone else and 34 percent do not use the Internet at all.
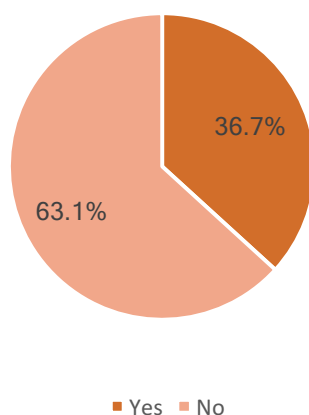
% of homes with seniors 70+ years

25.4%

74.6%

■ Seniors in home　　■ No seniors in home
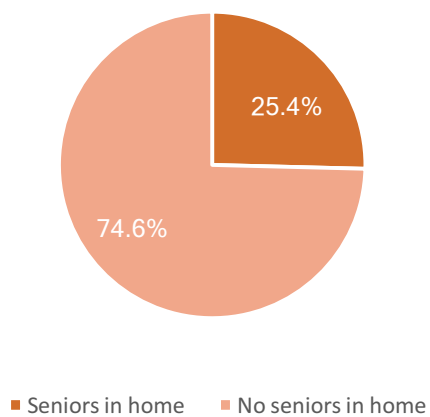
N=525

% seniors who use internet

- 46.9% — Use it themselves
- 19.2% — Have someone use it for them
- 33.8% — Do not use the Internet

N=130

About 37 percent report a disability or a health problem, which is related to the older average age of our sample.

Disability or health problem



- 36.7% — Yes
- 63.1% — No

N=521

More than a third is employed either full-time or part-time (34%), 28 percent are retired, 10 percent not employed for pay, and nearly one-fifth (19%) of our sample report that they are not working because of a disability. Six percent are self-employed and 3 percent report being students.

Employment status

Employed	34.4%
Retired	28.1%
Not employed	9.9%
Self-employed	6.5%
Disabled	18.6%
Student	2.6%
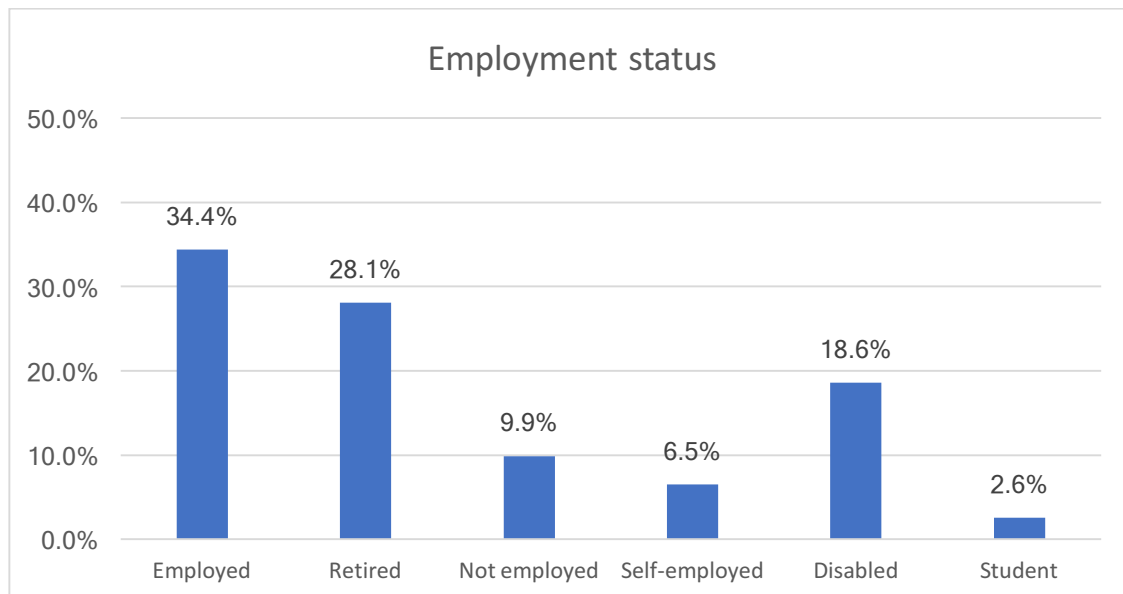
N=506

About 81 percent of our sample report that they are the heads of household.

Head of household

19.1%

80.7%

■ Yes ■ No
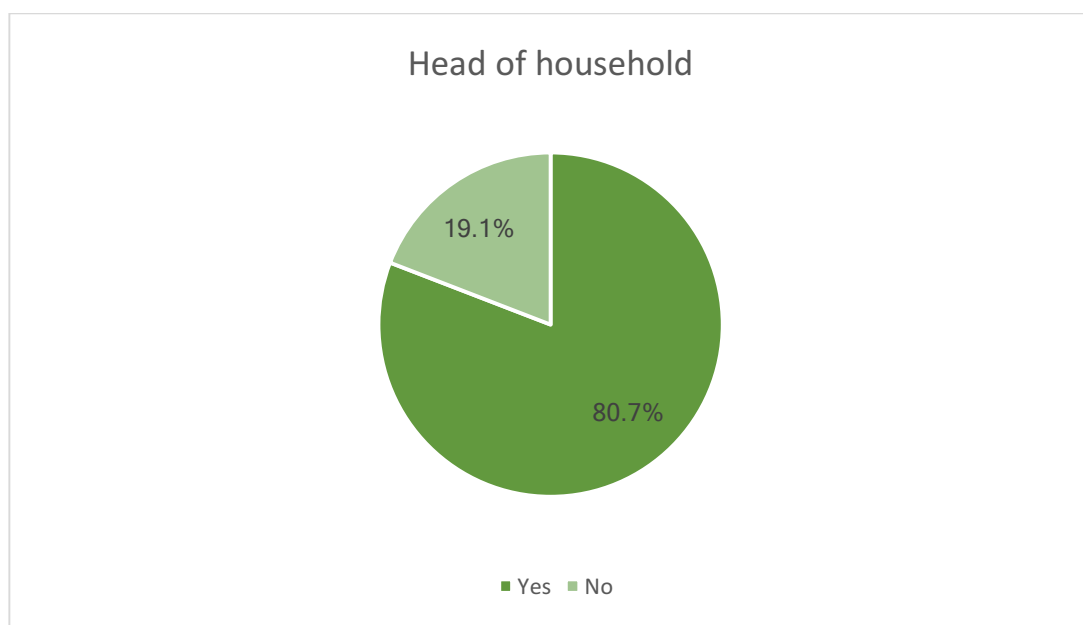
N=512

Almost half (49%) of the respondents report that their annual household income is below, or far below, the Detroit average of $26,000. Less than 5 percent say their annual household income is far above this average.

Annual household income in comparison to Detroit average ($26,000)

4.5%

17.1%

19.8%

6.9%

31.8%

■ Far below ■ Below ■ Average ■ Above ■ Far above
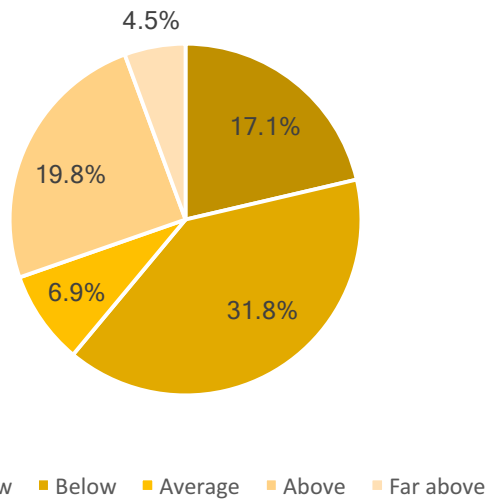
N=410

Explanatory Findings

Having described the responses to questions in the survey and focus groups, this section presents our multivariate analyses to identify key factors that shape important outcomes, such as the breadth of Internet use, and types of Internet uses (e.g., information seeking, work related tasks, and entertainment). Major moderating variables include whether the household has an ISP contract, dependence on mobile-only or whether they can rely on a greater diversity of devices and locations of use.

The following path models depict significant effects of variables, such as demographic factors, attitudinal factors, and Know-Who on access to the Internet, such as having a contract with an ISP and dependence on mobile phones, as well as patterns of use, such as breadth of use (number of activities) and different types of use (for example working or information seeking).

Factors Explaining Up-Take in Detroit

A number of demographic, attitudinal factors, and Know-Who shape who in Detroit has a contract with an ISP and who doesn't. Higher educational qualifications, higher incomes, and being in a committed partnership contribute positively to Know-Who, which, in turn, contributes positively to attitudes of the Internet being an efficient means to doing things and negatively to thinking the Internet is too costly. Having a higher household income and children in the home also contributes to not regarding the Internet as too expensive, and higher income contributes to positive attitudes about the efficiency of using the Internet. Both attitudinal factors contribute strongly to having an ISP contract—efficiency positively, cost negatively—as does having a higher income. Taken together, this model shows that traditional socio-demographic factors shape both Know-Who and attitudes, which shape digital divides in the form of having an ISP contract.
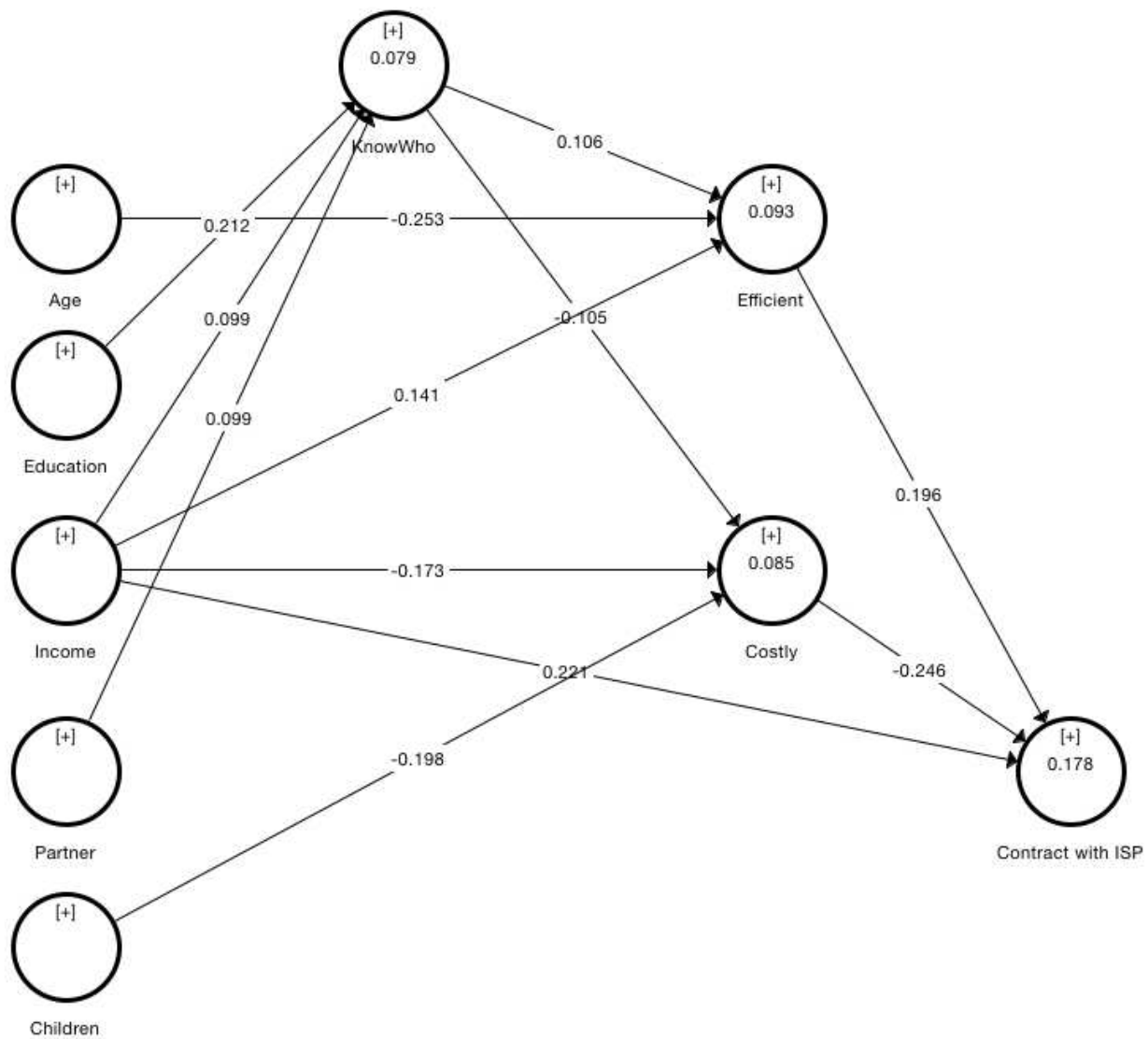
N=472

To examine in more detail how Know-Who and attitudes shape access in form of having an ISP contract across different areas in Detroit, the following model focuses on one of the hardest-hit neighborhoods in Detroit—7/8 Mile and Woodward. Compared to the other two neighborhoods in our study, we find that residents of this neighborhood are more likely to think the Internet is too expensive, and living in 7/8 Mile and Woodward seems to contribute to lower instrumental social support (Know-Who). This lower Know-Who contributes strongly to thinking the Internet is too costly, which has a strong negative effect on having an ISP contract, whereas higher Know-Who contributes positively to thinking of the Internet as an efficient way of doing things, which positively affects having an ISP contract. Just living in this neighborhood in comparison to living in Cody Rouge of Milwaukee Junction means that residents are significantly less likely to have an ISP contract. As this is one of the hardest-hit areas of Detroit, these findings may not be surprising, but they point to the importance of improving both social support and affordable access to those who can least afford it.
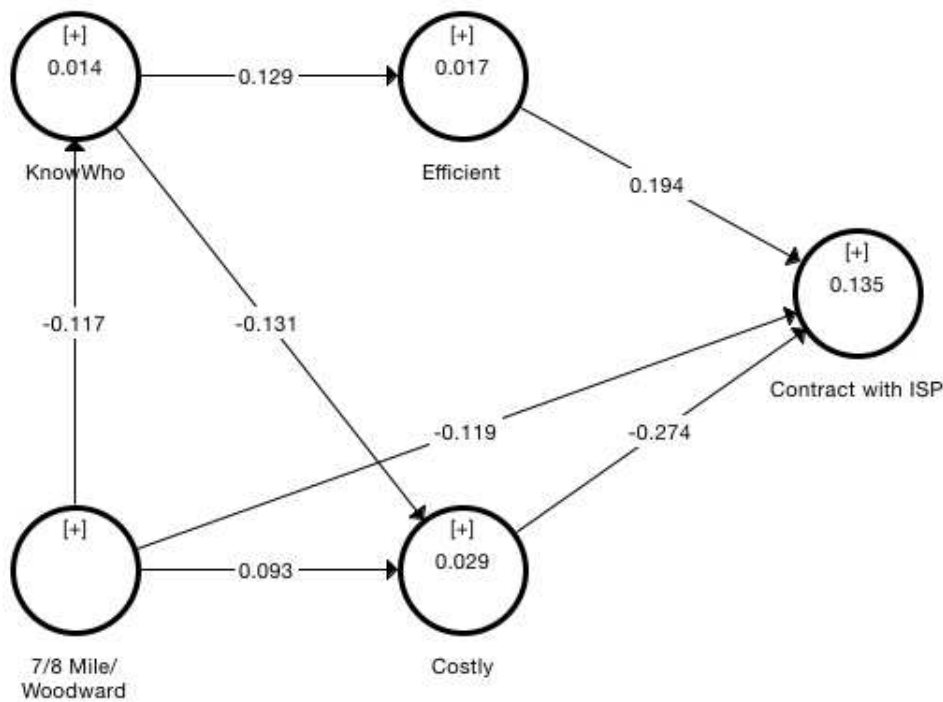
N=504

The third model (below) investigates which factors shape how dependent Detroiters are on their mobile phone. Dependence on mobile phones is measured on a scale from 0 to 6, where a higher value means a higher dependence on mobile phones.[9] The model shows that being older and having a health problem or a disability increase the risk of being highly dependent on mobile phones, whereas those who have higher educational qualifications are significantly less likely to be dependent on mobile phones. Higher educational qualifications and higher incomes also contribute positively to Know-Who, which increases the likelihood of Detroiters regarding the Internet as efficient for their tasks and decreases perceptions of high costs. The same is true for those who have children living in their home—they are significantly less likely to think the Internet is too expensive. However, those who do think the Internet is too expensive are at much higher risk of being dependent on mobile phones, whereas those who focus on efficiency are significantly less likely to depend as strongly on their mobile.

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[9] The mobile dependence scale is constructed from six items (no 0; yes 1): primarily use mobile phone to go online; no ISP contract; no Internet use at work; no Internet use at school; no Internet use in library/community center; no laptop/desktop/tablet computer in household.
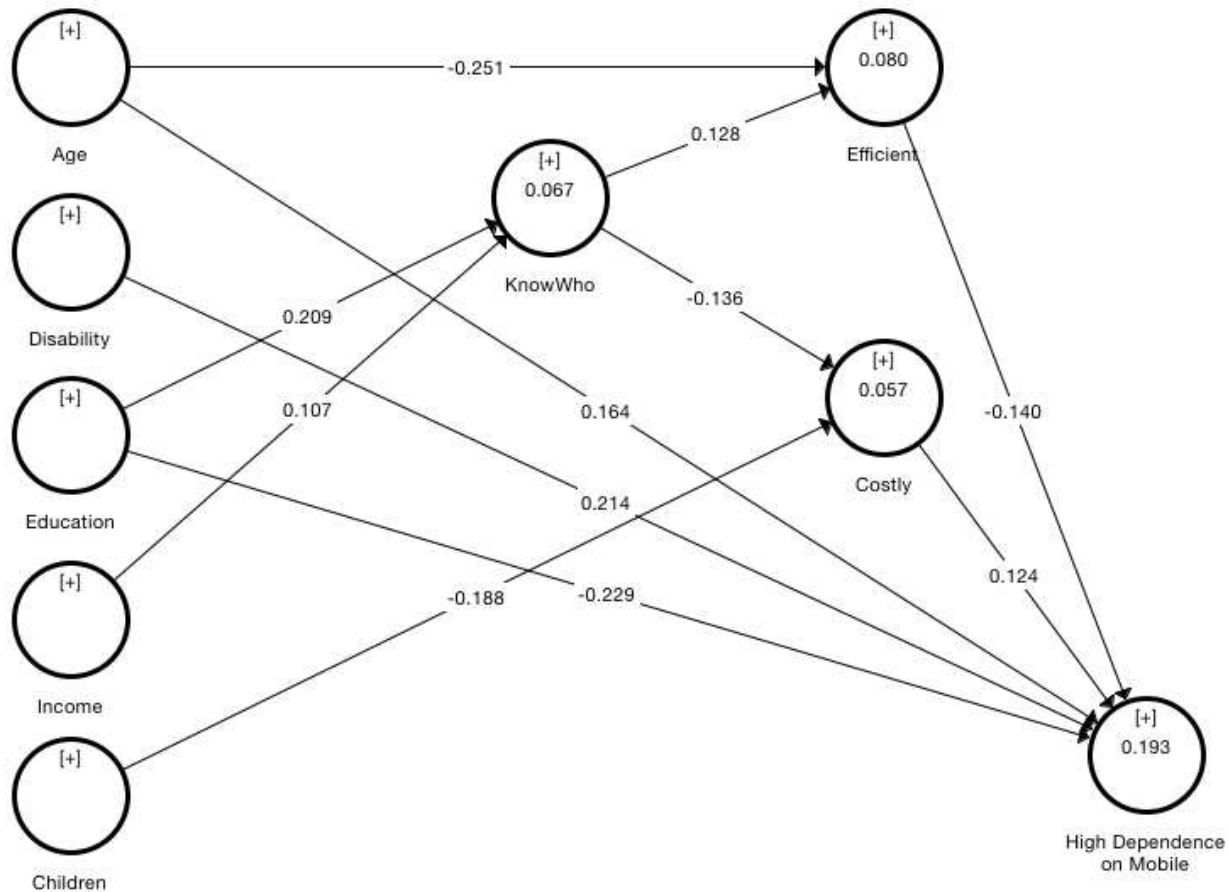
N=477

Factors Shaping Patterns of Use

In this next section, we focus not only on access issues, such as whether someone has an ISP contract, but also on patterns of use and what kinds of factors these patterns are shaped by.

The first model below examines what factors affect breadth of use, as measured by the number of activities that Detroiters do online. The scale runs from 0-15 and includes 15 different potential online activities from email and work to information seeking and leisure activities. The model shows that Know-Who has an effect on all three attitudinal factors: it increases perceptions of efficiency, decreases perceptions of costs being too high, and it slightly increases the perception that being online can be a problem (e.g., that the Internet puts privacy at risk). Know-Who also has a direct and fairly sizeable positive effect on the number of activities people do online, whereas a high dependence on mobile phones has a strong negative effect on breadth of use. This is a strong indicator that relying on mobile phones along prevents Detroiters from engaging in a larger number of activities online. Positive attitudes about the Internet's efficiency also have a strong positive impact on number of online activities, whereas thinking it's too costly has a small negative effect. We also included having a contract with an ISP in this model to control whether this has a direct effect on breadth of use. While there is a fairly small negative effect on breadth of use, there is a very strong effect on dependence on mobile. Those who have an ISP are less likely to be highly dependent on their mobile.
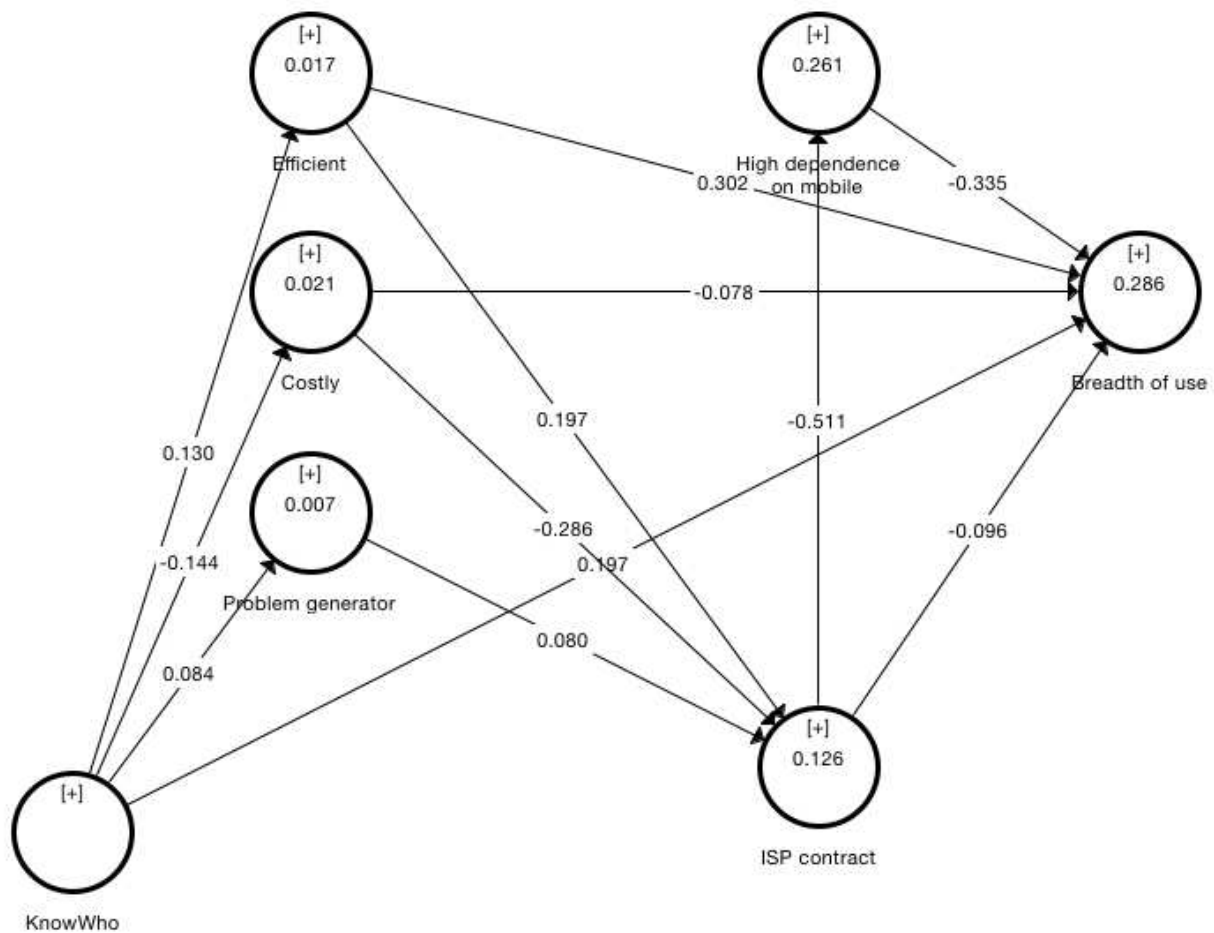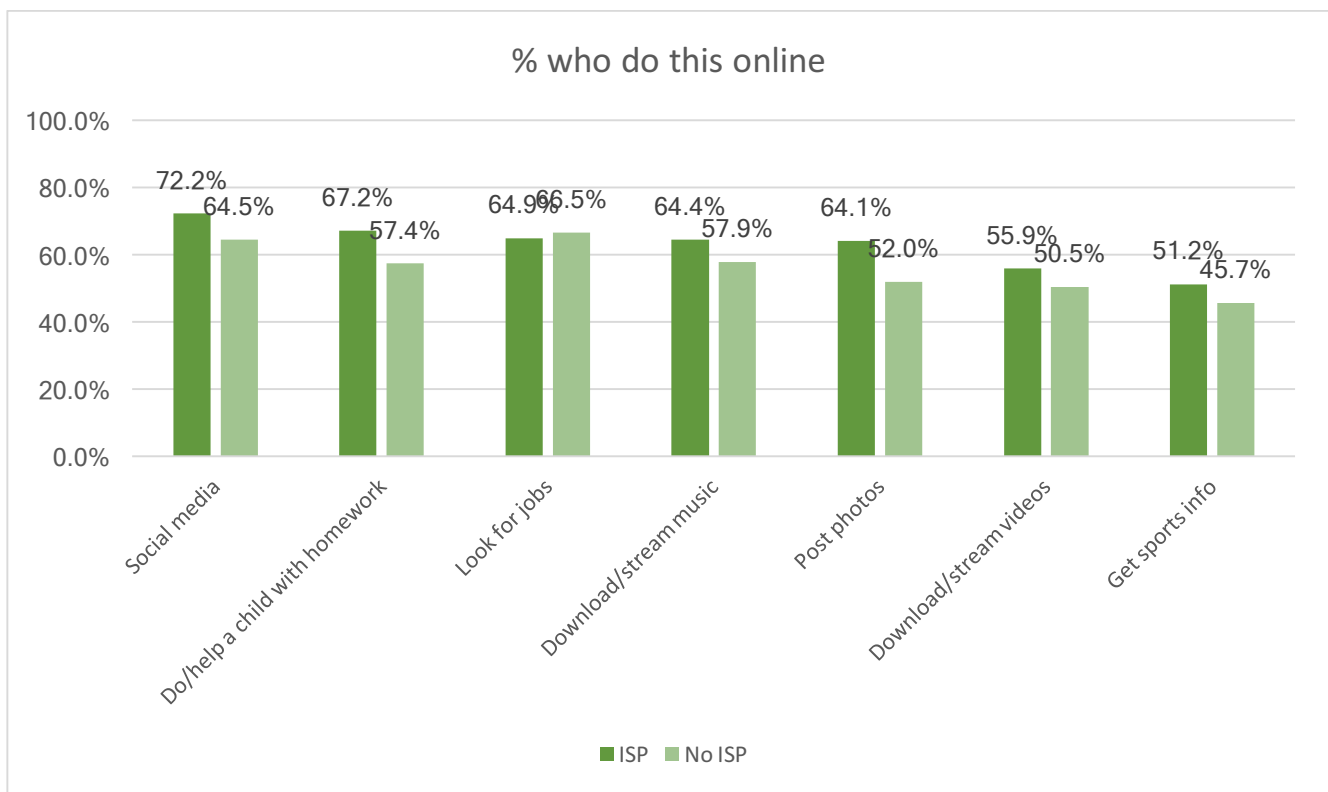
N=503

When we compare those, who have an ISP contract with those who do not, we see a decline in every online activity, except looking for jobs. In particular, we see the biggest drops in sending emails, shopping, and making travel plans.

**% who do this online**

N=525

% who do this online
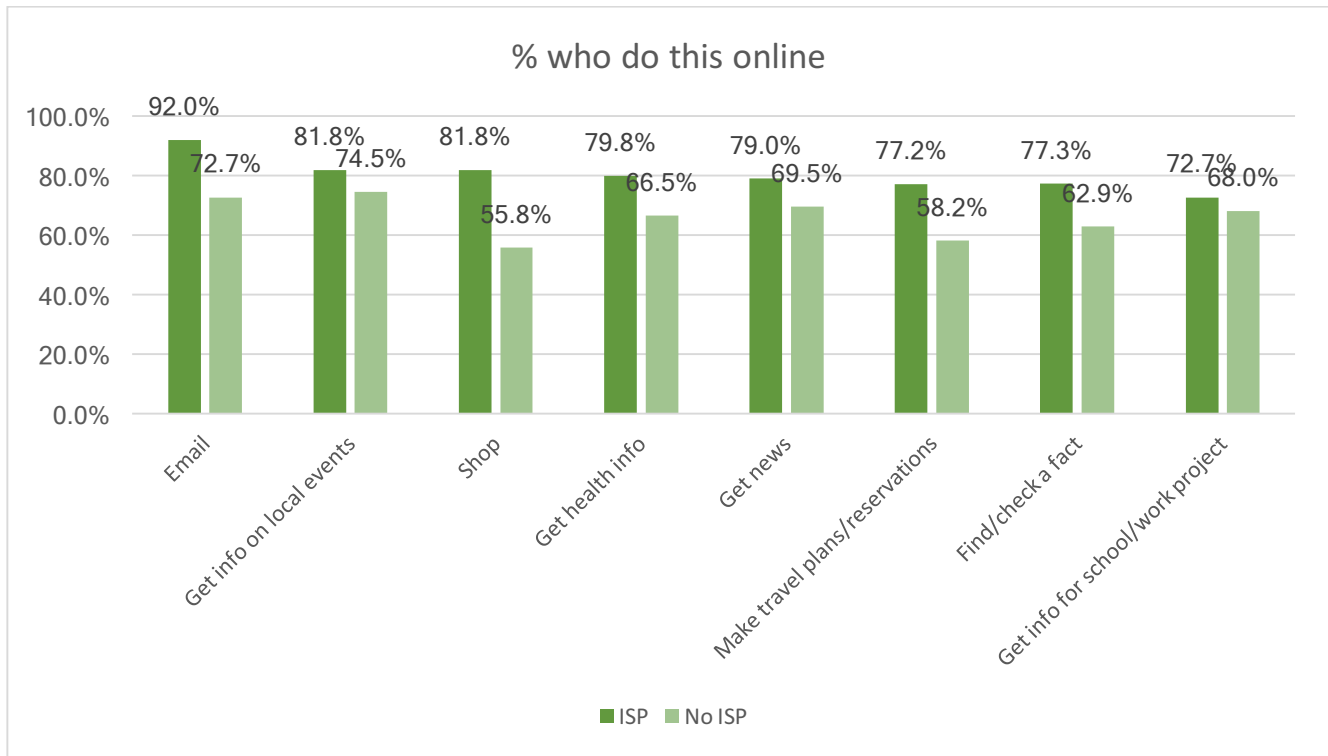
N=525

Work uses are some of the most mentioned uses among the 15 Internet activity items. Between 64% and 70% of Detroiters say that look for information for work or school projects, do or help with homework, or look for a job online. However, in addition to comparing those who have a contract with those who do not, it is important to gather the

effect of mobile dependence on different types of Internet uses. As we can see in the model below, there is no direct effect of Know-Who or attitudinal factors on using the Internet for work purposes. However, higher Know-Who can reduce mobile dependence, which has a strong negative effect on work uses—this effect is much stronger for work uses than for any other type of use (information seeking, socializing, and leisure) as we will see in the subsequent models. We also see again the strong mitigating effect of having an ISP contract on mobile dependence. However, we also see a small but statistically significant negative effect of having an ISP contract on work-related uses. Perhaps this is due in part to one item of the working variable, looking for a job, since many of those with ISP contracts are employed and therefore don't need to look for a job. The bar graphs above showed that this is the only variable where those without ISP contracts have a slightly higher use than those with ISP contracts. The focus group results also suggested that many Detroiters felt that work should be done at work, and that home access was more important for children. Nonetheless, the core message of this model is that mobile access only is not enough to be able to do serious work for school or a job, and that having an ISP contract can help mitigate high dependence on mobile-only smartphones.
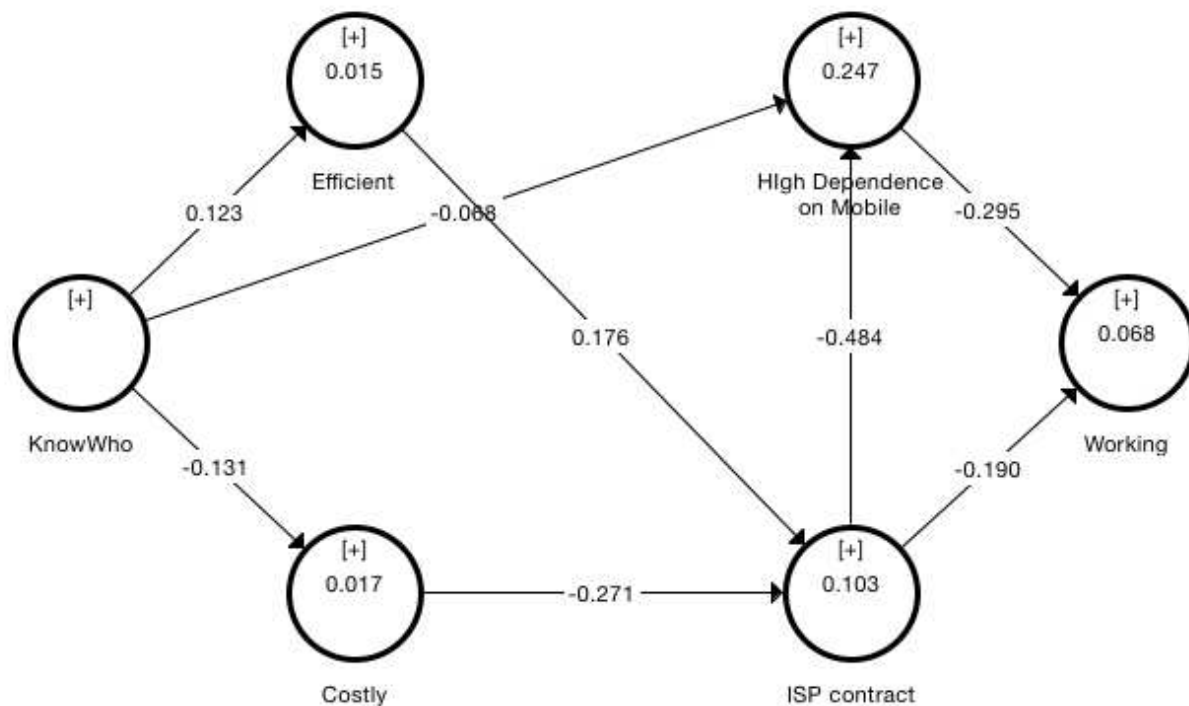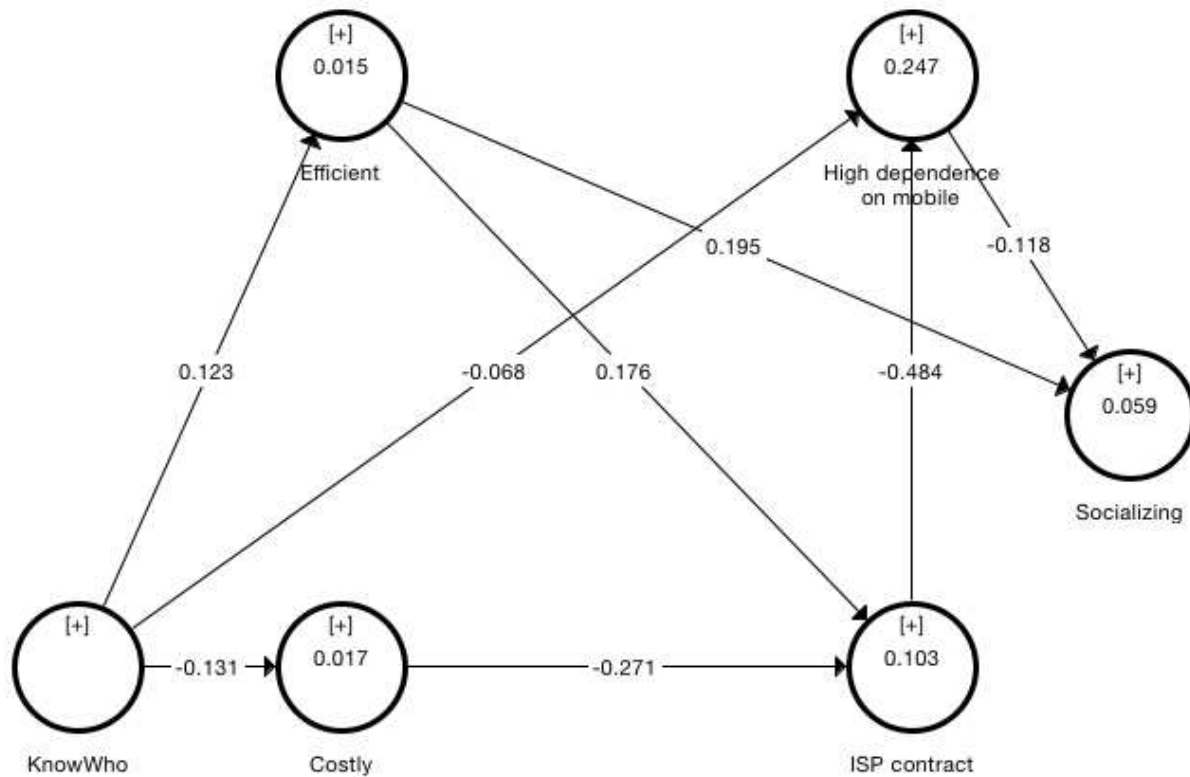

N=469

In the model below, we find similar patterns for information seeking online, such as finding health information or information about local events. Know-Who has a strong direct effect on information seeking as well as a positive effect on attitudes on efficiency, which, in turn, have a positive effect on information seeking. Again, high dependence on mobile phones has a negative effect, albeit not as strong as for working. Having an ISP contract has no effect on information seeking, but a strong effect on mobile dependence—again confirming that mobile only is not enough to bridge digital divides.
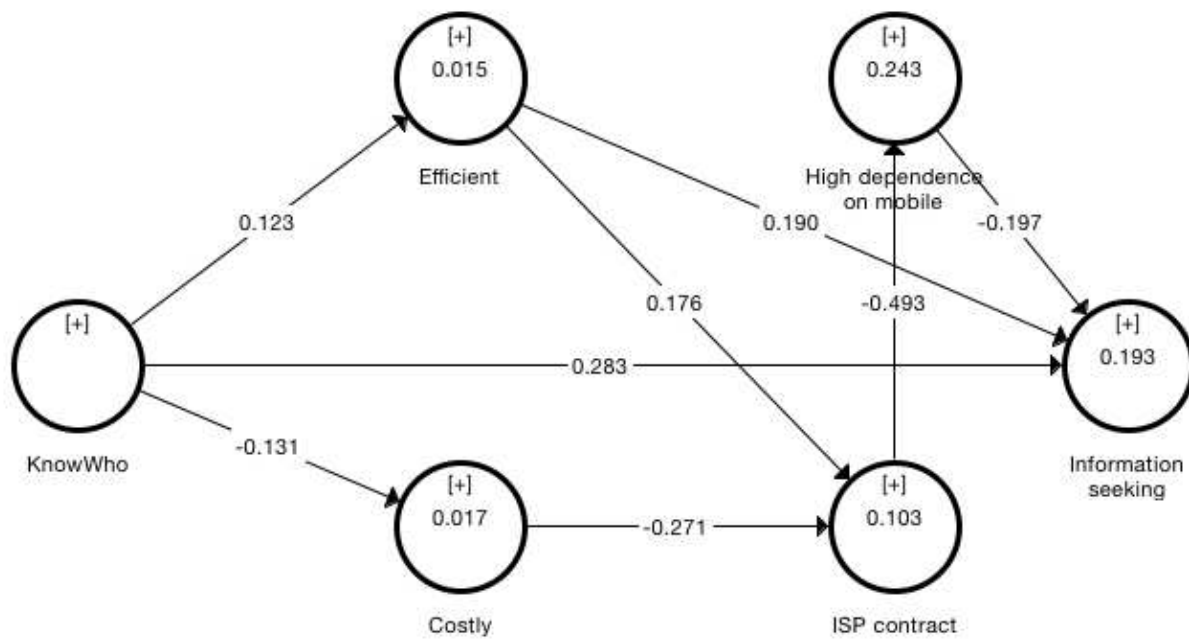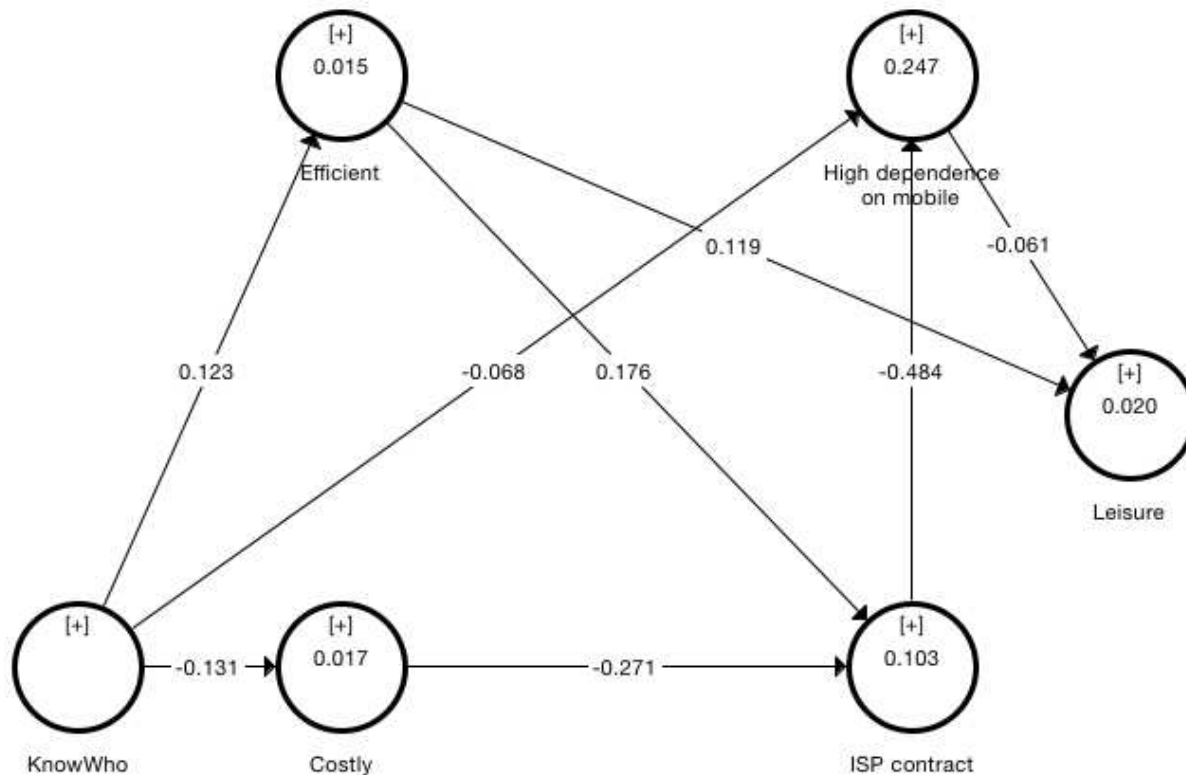
N=469

Socializing uses are mainly measured through spending time on social media, posting photos, and emailing. We can again see an effect of positive attitudes towards the Internet's efficiency and a negative effect of mobile dependence. However, the effect of the latter is much lower than for working and information seeking. While there is no direct effect of Know-Who on socializing online, Know-Who has a mitigating effect through decreasing perceptions of the Internet being costly as well as being positively associated with its perceived efficiency benefits. Know-Who also has a mitigating effect on mobile dependence—those who have higher Know-Who are less likely to be highly dependent on their mobile. Similar to the previous model, having an ISP contract has a strong effect in decreasing mobile dependence. This lower dependence on mobile-only then translates into more Internet use for social purposes.

N=469

The final path model below examines leisure uses, such as streaming music or videos, or looking for information on sports. It is important to note that these were the least popular uses in our sample. Less than half of our respondents, for example, use the Internet to find information on sports, and those who do not have an ISP contract are less likely to use the Internet for entertainment and leisure than those who do have a contract. This low importance of leisure activities is also somewhat represented in the path model below. There is only a small negative effect of mobile dependence on online leisure activities, and a positive effect of efficiency attitudes. Know-Who has a positive effect through increasing attitudes of efficiency and decreasing dependence on mobiles. The strongest effect is, again, the negative effect of having an ISP contract for mobile dependence.

[+]
0.015
Efficient

[+]
0.247
High dependence
on mobile

0.119   -0.061

0.123   -0.068   0.176   -0.484

[+]
0.020
Leisure

[+]   -0.131 →   [+]
0.017   -0.271 →

[+]
0.103

KnowWho   Costly   ISP contract

N=469

Overall, the results from our multivariate analyses emphasize two major points:

1) Socio-demographic factors, social support, and attitudinal factors have a strong impact on access and use patterns; and
2) High dependence on mobile phones has a strong negative effect on both breadth of use and the various usage types that we identified above.

It is most notable that the negative effect of mobile dependence is strongest for important types of use for productivity and economic stability, such as working and information seeking. These are the kinds of uses that could potentially help mitigate some of the social inequalities that Detroit residents face. However, the strong dependence on mobile phones—while it mitigates some of the worst digital divides somewhat—may be holding Detroiters back. High dependence on mobile phones and data caps means they cannot fully participate in the information society.

Limitations of this Research

This study sample is disproportionately female and older with more disabled respondents than the national average. There are several factors that may explain why the sample over-represents these individuals relative to the actual population of the neighborhoods. First, the postcards are likely retrieved by those who are home during the day, these tend to be non-working adults. Elderly people and those with disabilities are more likely to be home than younger individuals. Second, older people, and those with disabilities, may be more motivated by our incentive. However, the sample might well be indicative of actual population characteristics, as the validity of earlier census results are unclear. We will continue to explore potential sampling biases and the degree our sample is representative of the populations in the neighborhoods surveyed.

Appendix 1. Operational Indicators

Variable	Operationalization
Age	Age in years (range: 18-96)
Female	Gender (male 0; female 1)
Education	Educational qualification (scale of 1-8; no high school to doctoral degree)
Partner	Being in a committed partnership (no 0; yes 1)
Children	Children living in home (no 0; yes 1)
Disability	Disability or health problem getting in the way of everyday tasks (no 0; yes 1)
Income	Household income in comparison to Detroit average (scale of 1-5; far below average to far above average)
Social capital	Scale of 0-18 with 18 indicating highest social capital; created from 18 items measuring social capital (Q41; Do you know anyone who…)
KnowWho	Scale of 0-9 with 9 indicating highest Know-Who: created from first component found in principal components analysis of 18 social capital items (no 0; yes 1); 9 items (Q41; Do you know anyone who…): knows a lot about computers; owns a second home; can give advice on conflict; knows about finances; plays an instrument; can help move; can recommend a hotel/restaurant; can lend a tool; can lend a vehicle/give a ride)
ISP contract	Has ISP contract (no 0; yes 1)
High mobile dependence	Scale of 0-6 with 6 indicating highest dependence on mobile phone; constructed from six items (no 0; yes 1): primarily use mobile phone to go online; no ISP contract; no Internet use at work; no Internet use at school; no Internet use in library/community center; no laptop/desktop/tablet computer in household
Efficient	Created from factor loadings of principal components analysis of 14 attitudinal items (Q1)
Costly	Created from factor loadings of principal components analysis of 14 attitudinal items (Q1)
Problem generator	Created from factor loadings of principal components analysis of 14 attitudinal items (Q1)
Breadth of use	Scale of 0-15 based on 15 possible Internet uses
Working	Created from factor loadings of principal components analysis of 15 Internet use items (Q31)
Information seeking	Created from factor loadings of principal components analysis of 15 Internet use items (Q31)
Socializing	Created from factor loadings of principal components analysis of 15 Internet use items (Q31)
Leisure	Created from factor loadings of principal components analysis of 15 Internet use items (Q31)

Appendix 2. The Quello Research Team

Professor William Dutton directed the project in collaboration with Professor Keith Hampton. The project team was supported by Assistant Professors Laleah Fernandez, Bianca Reisdorf, and Aleks Yankelevich. The team was assisted by a Ph.D. student.

Bill Dutton is the Quello Professor of Information and Media Policy at MSU, where he directs the Quello Center. He has undertaken research on the role of ICTs in cities for decades, such as being a contributor and lead editor of Wired Cities (1987), and a study of the first electronic city hall in the U.S., Santa Monica's Public Electronic Network (Dutton and Guthrie 1991). Before coming to MSU, he was the founding Director of the Oxford Internet Institute (OII) as the first Professor of Internet Studies at the University of Oxford. During his tenure at the OII he launched Britain's Oxford Internet Surveys (OxIS), which have tracked the (non)use of the Internet in Britain from 2003 through 2013. He is directing a Quello study of the political implications of search, which is funded by Google.

Laleah Fernandez joined the Quello Center in September 2017 as the Quello Postdoctoral Research Fellow. She is an MSU alumna who earned her Ph.D. in Media and Information Studies, her M.A. in Advertising and her B.A in Journalism. Previous to coming to the Quello Center, Laleah was an Assistant Professor in the Department of Information and Computing Science at the University of Wisconsin – Green Bay. Her research interests include network analysis and the role of new and emerging media in community-level and global mobilization efforts. Laleah has published research and reviews in the areas of advertising, economic development, mobilization, and science communication.

Keith Hampton is a Professor in the Department of Media and Information at MSU, and an Associate Director of the Quello Center. Hampton received his Ph.D. in sociology from the University of Toronto, and has held faculty appointments in the Department of Communication at Rutgers, the Annenberg School for Communication at the University of Pennsylvania, and in the Department of Urban Studies and Planning at MIT. Over the past eighteen years, Hampton has published a series of pioneering works in the study of social capital, neighborhoods, and civic/civil engagement. He has broad methodological experience; he has conducted studies as an urban ethnographer, observational studies of public spaces, content analysis of video archives, and a number of large-scale, nationally representative surveys, collaborating with the Pew Research Center.

Bianca C. Reisdorf is an Assistant Professor in the Department of Media and Information at MSU and the Assistant Director of the Quello Center. She has been conducting research into social inequalities and digital inequalities across Europe and the United States for the past ten years, using a variety of different methodologies, including surveys and qualitative interviews, focus groups, and observations. Bibi is a co-principal on the Quello Center's Google study of the political influence of search in the US and six European nations.

Aleksandr Yankelevich is a Research Assistant Professor in the Quello Center. Prior to joining the Quello Center, Aleks was an Industry Economist at the FCC's Wireless and Wireline Telecommunications Bureaus. While at the FCC, he provided economic expertise on various rule makings, mergers, and secondary market transactions involving the allocation of electromagnetic spectrum.