HOW TECHNOLOGICAL ADVANCES HAVE IMPACTED MARRIAGE IN AMERICA

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ABSTRACT

Significant increases in mobile phones, Internet use, and high-speed connections have changed the way Americans communicate and access information. Workplaces, homes, and relationships have all been impacted by widespread technological advancements. Anecdotal evidence, as well as several high-profile situations, indicate that technological advances have made it easier to cheat on one's spouse, and easier to get caught doing so. In this paper, I attempt to determine the relationship that mobile phones, Internet, and particularly high-speed Internet have with marital status. After analyzing a pseudo-panel dataset drawn primarily from the Current Population Survey, I found that relative to married individuals, divorced Americans are about 2 percentage points more likely to use the Internet, and roughly 10 percentage points more likely to do so through a high-speed connection at home. I further find that the mobile phone penetration level in a respondent's region is strongly associated with a lesser chance of being divorced, but the magnitude is very weak. Although I am unable to determine whether increased technological adoption precipitated divorce, my results clearly show that divorced individuals, specifically men, are much more likely to adopt high-speed Internet than married people. The government has a clear interest in promoting marriage and spreading high-speed Internet. Policymakers should consider which persons stand to benefit the most from the growth of broadband Internet, and possibly target their policies differently.

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Introduction

What do golfer Tiger Woods, former governor of Detroit Kwame Kilpatrick, and Senator John Ensign have in common? All were unfaithful in their marriages and all were caught—and publicly embarrassed—via technology. A series of lurid voicemails—one of which ironically stressed the need for heightened secrecy—facilitated Tiger's digressions becoming water-cooler gossip. Kwame Kilpatrick's affair with an aide—which eventually led to his resignation—was discovered and made public due to a series of text messages made on government phones. And, Senator Ensign's infidelity came to light when an aide discovered his wife's phone number hidden on the senator's phone (Holson, 2009). Infidelity is not new, but recent technological growth has transformed both how cheaters cheat and, much to the chagrin of the above-mentioned philanderers, how cheaters get caught.

Infidelity is one of the most consistent predictors of divorce. South and Lloyd (1995) found that in at least one-third of divorce cases, one or both spouses had been involved with another person prior to their marital dissolution. Technological advancements—particularly the rise of mobile phones and high-speed Internet—have made it both easier to cheat on one's spouse—physically and emotionally—and to get caught. Divorce-Online—an organization dedicated to providing free articles and information on the financial, legal, psychological, and other aspects of divorce—reviewed 5,000 divorce papers and found that nearly 20 percent referenced Facebook; often revealing that marriages fell apart after partners discovered their spouses engaging in secret, sexual online chats. Public reports out of England similarly found that roughly 20 percent of divorce filings mention technologically facilitated infidelity (CNN, 2009). Technologically facilitated infidelity has risen to such a level that, in the fall of 2009, the American Bar

Association began offering seminars for marital attorneys on how to use electronic evidence—text messages, Internet browsing history, and social networks—in proving a divorce case (Holson, 2009).

Clearly, significant increases in mobile phones, Internet use, and high-speed connections have changed the way Americans communicate and access information. In a brief seven years, mobile phones have gone from saturating about half of all metropolitan areas to nearly 90 percent. The number of Internet users has jumped from only about a third of the nation to well over 80 percent. And high-speed connections, in just seven years, have grown from how approximately 5 percent of respondents in the nationally representative Current Population Survey (CPS) accessed the Internet in 2000 to how over 60 percent did in 2007. The staggering growth in these areas necessarily impacted many aspects of our day-to-day lives. In the workplace, increased reliance on mobile phones has allowed workers to remain connected while away from their office land line. Increased adoption of the Internet—particularly high-speed Internet—has changed the way workers communicate, receive information, and spend their idle time. Away from the office, mobile phone growth has changed how families and friends keep in touch and ensured that virtually anyone could talk to virtually anyone else from virtually anywhere. Internet adoption and the growth of high-speed connections have begun to change how people communicate, have fun, and spread ideas.

Surely these changes have impacted relationships. Where people meet, who people meet, and how people cheat have all certainly been impacted. It is the third consideration I am interested in exploring. This paper will attempt to parse out the relationship between technological advances,

particularly the rise of the mobile phone and of high-speed Internet, and marital status in America. I hypothesize that technology has made it both easier to cheat and easier to get caught, and should therefore be associated with an increase in the propensity for a household head to be divorced.

Motivation/Background

The state has a long history of promoting marriage because of the notion that marriage benefits society. According to various studies, married individuals are better off economically, physically, and mentally than their unwed counterparts (Waite and Lehrer, 2003). In addition, many states confer tax and lifestyle benefits to married individuals that are denied to their single counterparts, regardless of the level of dedication and fidelity in a relationship.

A large body of literature documents that married individuals receive economic benefits. A rigorous and comprehensive statistical analysis found that married white men in America earned 11 percent more than their unmarried counterparts, controlling for all standard human capital variables (Korenman and Neumark, 1991). Other research has shown that married people have higher family income than the unmarried, with the gap between the family income of married and single women being wider than that between married and single men (Hahn 1993). Further research has found that married people, on average, have higher levels of wealth and assets and that the magnitude of the difference suggests that the result is not merely due to the aggregation of the wealth of two persons (Lupton and Smith, 2003). The federal government clearly takes a

stand supporting marriage over the single life by allowing married people to enjoy their spouse's social security pensions after they've died; a benefit denied to single individuals.

Better physical health and longer life are also correlated with marital status (Waite and Lehrer, 2003). Married individuals are less likely than the unwed to suffer from long-term illness or disability (Murphy et al., 1997), and have better survival rates for some illnesses (Goodwin et al., 1987). For example, in divorced men the rates are double for heart disease, hypertension, stroke, and lung and intestinal cancer. Divorced men drink more heavily, are seven times more likely to die of cirrhosis of the liver, are four times more likely to die of suicide, nine times more likely to succumb to pneumonia and homicide, and ten times more likely to die of tuberculosis (Lynch, 2000). Divorced women are much more likely to die of all forms of cancer compared to married women. Specifically, divorced women are 49% more likely to have lung cancer and 238% more likely to succumb to cervix or uterine cancer than a married woman of the same age (Lynch, 2000).

These marriage-related health benefits naturally translate into longer life. A longitudinal analysis of data from the Panel Study of Income Dynamics (PSID) documents a significantly lower mortality rate for married individuals (Lillard and Waite, 1995). Specifically, simulations based on PSID data found that 9 out of 10 married women alive at age 48 would still be alive at age 65; versus 8 out of 10 never-wed women. The effect on men was more severe; with 9 out of 10 married men alive at age 48 living until 65 compared to 6 out of 10 of their unwed contemporaries (Waite and Gallagher, 2000).

Along with the physical health benefits mentioned above, studies have found that getting married—and staying married—is associated with positive mental health outcomes and improved general happiness (Horwitz et al., 1996; Marks and Lambert, 1998; Simon, 2002; Waite, 2000). These studies provide evidence of improvements in emotional well-being following marriage; and declines following divorce and find that these psychological benefits apply equally to men and women (Horwitz et al., 1996; Simon, 2002). Overall happiness is also associated with being married. Data from the 1972-1996 General Social Surveys found that, other factors held constant, married people are substantially more likely to report being happy with life in general than unmarried people (Waite, 2000).

Furthermore, many state benefits—taxes and otherwise—are impacted by one's marital status. Many state governments provide married individuals with tax benefits that single people do not enjoy; a consideration that affects state budgets and indicates that many state governments have come firmly down on the side of supporting marriage over the single life. Along with these financial benefits, married people enjoy other lifestyle advantages as well. For example, in many states the right to visit a loved one in the hospital is reserved solely for a legal spouse. That these benefits exist is clear evidence that marriage is valued and preferred by the federal government, as well as many states.

Literature Review

Marriage and divorce have been examined through a number of prisms; with each researcher attempting to add to the body of knowledge of what factors help predict healthy marriages or,

conversely, divorce. Other quantitative papers have primarily focused on the demographic and economic variables that impact the likelihood of divorce. Some studies have looked at non-economic, relationship factors that impact marriages—including infidelity—but none have quantitatively considered how technological advances are associated with marital status.

Studies are mixed on whether economic factors impact a couple's decision to divorce or remain married. Several articles found that changes in taxes and transfers are correlated with marriage and divorce propensities (Alm, Dickert-Conlin, and Whittington, 1999; Moffitt, 1998). Regarding timing of marriage and divorce, one study found that couples with high marriage income tax penalties are more likely to delay marriage into the following tax year (Sjoquist and Walker, 1995; Gelardi, 1996), while another found no evidence that taxes influence the timing of divorce (Alm and Whittington, 1997), suggesting that the costs of remaining in an unhappy marriage outweigh any financial benefits. Furthermore, a significant body of literature suggests that lower income couples are more likely to have their union end in divorce. One study merged data from the Panel Study of Income Dynamics with Census data describing the socioeconomic composition of local communities to determine whether the socioeconomic status of neighborhoods had an influence on divorce rates (South, 2001). Although the study found that socio-economically disadvantaged neighborhoods were positively associated with increased divorce rates, the effect was entirely explained by the low incomes of husbands in the distressed neighborhoods.

Other studies have shown that demographic factors impact the propensity to divorce, but again the findings have been mixed. Previous research has produced an understanding of the links

between demographic and life course characteristics and divorce (Amato and Rogers, 1997).

Variables that increase the risks of marital dissolution include being black (Cherlin, 1992) and attaining a lower level of education (Martin and Bumpass, 1989). One study found that the marital status differs so significantly between blacks and whites primarily due to lower and slower entry into marriage by blacks, rather than by higher or more rapid divorce rate (Stevenson and Wolfers, 2007). Stevenson and Wolfers (2007), in fact, found that among those marrying, divorce rates for blacks and whites were similar. Although the racial gap in the incidence of marriage does not reflect a difference in divorce rates, differences across education levels have been shown to reflect a "divorce gap," with college graduates 10 percent less likely to have their marriages end in divorce (Stevenson and Wolfers, 2007). Generally speaking, previous studies found that higher levels of education for both husband and wife—which were often highly correlated—were associated with more stable marriages (Mott and Moore, 1979; Moore and Waite, 1981; Frisbie and Opitz, 1985).

Literature related to non-economic factors' impact on marriage and divorce decisions has focused on relationship-impacting behaviors and activities (Amato and Rogers, 1997). Amato and Rogers (1997) found that jealousy, infidelity, spending money foolishly, and drinking or using drugs were the most consistent behavioral predictors of divorce. Moodiness, poor communication, and anger appeared to increase the odds of divorce as well. They found that these problems increased the prevalence of a union ending in divorce, regardless of which spouse was perceived as having caused the problem; and further found that infidelity was associated with an especially large increase in the odds of divorce. Their infidelity results were consistent

with a previous study that found that in at least one third of divorce cases, one or both spouses

had been involved with another person prior to their marital dissolution (South and Lloyd, 1995).

Given how greatly recent technological innovations have changed how we communicate and

interact, several papers have explored the notion of how technology has changed relationships

and possibly expanded the scope of unfaithfulness. Traditionally, infidelity has been viewed as

someone having a physical, sexual relationship with someone outside of marriage (Griffiths,

2001). The widespread adoption of mobile technology and the Internet may also require us to

think about broadening the scope of what we define as "infidelity."

According to Griffiths (2001), one of the most unexpected consequences surrounding the growth

of the Internet concerns the development of online relationships and the Internet's unique

potential to increase the scope of what constitutes infidelity. Young, Griffin-Shelley, Cooper,

O'Mara, and Buchanan (2000) define an online relationship as a romantic and/or sexual

relationship that is initiated via online contact and maintained predominantly through electronic

conversations that occur through e-mail and in virtual communities such as chat rooms,

interactive games, or newsgroups. The emergence of computer mediated relationships may have

implications for how we think about infidelity in the context of one's off-line relationships as

well. The availability of sex, pornography, and erotic chat rooms add another dimensions to the

magnetism of computer mediated relationships that troubled partners may be attracted to when

their real-life relationships are experiencing discord (Merkle and Richardson, 2000).

While the ubiquity of sex on the Internet is often over-represented in the pop-culture media, one recent consequence of the popularity of computer mediated relating is the increase in Internet mediated real-life relationship infidelity (Shaw, 1997). Husbands, wives, and partners may view the discovery of a nonphysical online sexual liaison as a bona fide form of infidelity, and it may be just as damaging for the long-term future of the relationship as physical sexual infidelity (Griffiths, 2001). It is clear that technological growth and adoption—while endowing mankind with myriad advantages—has also resulted in some unintended consequences; some of which impact marital status.

Conceptual Framework

I will measure the impact that technological advancement—captured by the growth of high-speed Internet and mobile phone penetration—has on the prevalence of divorce in America. Although mobile and Internet technology offer numerous communication and information advancements to society, I hypothesize that their rise has had the unintended consequence of facilitating the act of and discovery of infidelity—in all its forms—and thus increases the prevalence of being divorced among high-tech citizens at a relatively greater rate than their low-tech counterparts.

As other papers related to divorce and marriage decisions have done, I will first consider and control for demographic and economic differences between respondents; all of whom are within the age range most likely to marry. Disparate factors have previously been found to be associated with the prevalence of one being divorced. One's age, race, gender, level of education,

employment status, income, family structure, and geographic region have all been found to impact divorce decisions. The main purpose of this paper will be to control for such characteristics and attempt to isolate what effect technological adoption has had on the prevalence of being divorced between 2000 and 2007.

Data and Methods – Current Population Survey

To determine the relationship between technological adoption and prevalence of divorce, I am using the Computer and Internet Use Supplement of the Current Population Survey (CPS). The CPS is a nationally representative survey consisting of approximately 57,000 households each month.

Although the main purpose of the survey is to collect information on employment, a very important secondary purpose is to collect information on demographic characteristics such as age, sex, race, marital status, educational attainment, and family structure. Each month, additional questions are included on specific areas of interest, such as computer and Internet use. The Computer and Internet Use Supplement—known only as the Computer Use Supplement until 2000—has been distributed seven times since 1984. Given that the major advances in Internet and mobile phone adoption have occurred only in the past 10 years or so, and given that divorce proceedings take time, I will examine my question by looking at data from the Computer and Internet Use Supplements from August of 2000, October of 2003, and October of 2007.

Ideally, I would like to have information on mobile phone ownership. The CPS, however, does not gather this information. To address the growth in the use of mobile phones throughout this period, I gathered information regarding mobile phone regional penetration rates from a series of Commercial Mobile Radio Services (CMRS) Competition Reports covering these same years. Congress created CMRS in 1993 to promote the consistent regulation of mobile radio services and established the promotion of competition as a fundamental goal for CMRS policy formation and regulation. Towards this end, Congress required the Federal Communications Commission (FCC) to submit annual reports that analyze competitive conditions in the industry; including subscribership information. The FCC reports this information for each Economic Area (EA), a geographic grouping that is similar to the Metropolitan Statistical Area (MSA) found in the CPS.

Each EA is made up of one or more economic nodes and the surrounding areas that are economically related to the node. The main factor used in determining the economic relationship between the two areas is commuting patterns, so that each EA includes, as far as possible, the place of work and the place of residence of its labor force. Thus, an EA would seem to capture the market where the average person would use his or her mobile phone most of the time—around work, around home, and all of the places in between (CMRS, 2002).

I was able to merge the CMRS mobile phone penetration rate data with the CPS data resulting in most respondents having a geographical level-of-connectedness indicator associated with them. Certain respondents were not responsive to the CPS question regarding metropolitan statistical area and—given that these were the indicators I used to match CPS respondents to the regional mobile phone rates—I was unable to obtain mobile phone penetration rates for these

observations. Furthermore, since this information was cross-walked based on CPS's metropolitan statistical area data, rural respondents were left out when considering mobile phone penetration rate.

Analysis Plan

As other papers related to divorce and marriage decisions have done, I will control for demographic, social, geographic, and economic differences between individuals; all of whom will be within the age range most likely to wed. The main purpose of this paper will be to control for such differences and attempt to isolate what effect technological growth has had on the propensity of being divorced.

Ideally, I would be able to use panel data to explore my question. Unfortunately, the CPS does not follow the same households over the years so I used a repeated sample of the CPS to create a pseudo-panel. I will focus on a subpopulation of household heads that fall within the age range most likely to wed. I choose household heads to ensure that only one respondent is considered per household, thereby avoiding double counting married couples. I limit the age range to those aged 25 to 44 in 2000 because according to the 2002 National Survey of Family Growth, over 70% of men and women aged 25 to 44 have ever been married (Goodwin, McGill, and Chandra, 2009). To follow the same cohort, I limit my 2003 data to those aged 28 to 47 and limit my 2007 data accordingly.

My regression will measure the likelihood that a person is divorced by looking at marital status over 7 years, accounting for various economic and demographic variables, and seeing what, if anything, is explained by Internet use—particularly high-speed use—and mobile phone penetration rate. Accordingly, my regression will include numerous characteristics that might be related to marital instability and divorce. I run the following regression:

$$Divorced = \beta_0 + \beta_1 Demographic + \beta_2 Economic + \beta_3 Technology + \beta_4 State\ Effects + \beta_5 Time\ Trend + \varepsilon$$

The demographic variable includes factors such as each respondent's gender, race, education, geographic region, metropolitan status, and whether or not there are children present in the household. Consistent with other studies (Amato and Rogers, 1997), the race variable will only differentiate between whether or not a respondent is white. Also consistent with previous work, I expect college graduates to be less likely to be divorced than non-college graduates and have therefore limited my education variable to only distinguish between college graduates and non-graduates. The geographic information is included to control for regional and rural/urban differences in incidence of marriage; and I expect urban respondents to be more likely to divorce than rural respondents. Furthermore, studies have shown that the presence of children in a marriage impact divorce decisions, so I will control for their presence and expect children to be negatively associated with the probability of being divorced.

The economic controls include factors such as whether each respondent is employed and the total household income. Economic considerations impact marriages and—all else being equal—I

expect unemployment to be positively associated and income to be negatively associated with probability of being divorced. Lastly, state effects and time are included to account for any state-wide divorce trends and overall change in divorce patterns between 2000 and 2007.

After controlling for these demographic and economic differences, I will explore my primary question by looking at the impacts that computer ownership, mobile phone penetration rate, Internet usage, and Internet connection have on the probability of being divorced throughout the years. I am not interested in whether respondents use a computer or the Internet at work because such technology is now required at many workplaces and I don't expect that to have any bearing on marital status outside of the effect already captured by employment status. The same goes for any other Internet use outside of the home. I wouldn't expect an individual to trek to the library or their nearest coffee shop solely for social networking or online dating purposes. I expect that most Internet use of the nature I'm interested in would take place at home. Therefore, to determine whether a respondent uses the Internet at home I created a variable interacting computer ownership with Internet usage. Furthermore, given that high-speed Internet is much more useful for the types of social networking and communication I believe may be associated with divorce, I am more interested in high-speed connections than dialup. I therefore interacted whether a respondent uses a high-speed connection with whether they own a computer to capture home, high-speed Internet use. To capture an individual's level of regional connectedness—and to serve as a weak proxy for mobile phone use—I will include mobile phone penetration rates in my regressions, which measure the percentage penetration rate that mobile phone subscribership had attained in each region.

Descriptive Statistics

Table 1: Descriptive Variables by Marital Status

Description	Total	Divorced	Married	Single
Demographic Factors				
Respondent is employed	0.827	0.822	0.835	0.812
	(0.378)	(0.382)	(0.371)	(0.391)
Employed full-time	0.781	0.794	0.775	0.787
	(0.414)	(0.405)	(0.418)	(0.410)
Children present in household	0.563	0.456	0.735	0.230
	(0.496)	(0.498)	(0.442)	(0.421)
Respondent is white	0.799	0.790	0.846	0.693
	(0.400)	(0.407)	(0.361)	(0.461)
Respondent is a college graduate	0.314	0.203	0.340	0.339
	(0.464)	(0.402)	(0.474)	(0.474)
Respondent is female	0.455	0.612	0.385	0.499
	(0.498)	(0.487)	(0.486)	(0.500)
Respondent lives in metropolitan area	0.839	0.816	0.829	0.881
	(0.368)	(0.387)	(0.376)	(0.324)
Income Factors				
Household income is less than $10,000	0.056	0.098	0.020	0.111
	(0.231)	(0.297)	(0.142)	(0.314)
Household income is $10,000 - $25,000	0.128	0.208	0.079	0.182
	(0.334)	(0.406)	(0.269)	(0.386)
Household income is $25,000 - $50,000	0.245	0.301	0.212	0.281
	(0.430)	(0.458)	(0.409)	(0.449)
Household income is $50,000 - $75,000	0.173	0.127	0.206	0.127
	(0.378)	(0.333)	(0.405)	(0.334)
Household income is greater than $75,000	0.227	0.090	0.322	0.109
	(0.419)	(0.287)	(0.467)	(0.311)
Technology Factors				
Mobile phone penetration rate in respondent's geographic area[a]	0.659	0.669	0.662	0.648
	(0.171)	(0.176)	(0.171)	(0.166)
Respondent uses the Internet	0.635	0.599	0.666	0.588
	(0.481)	(0.490)	(0.472)	(0.492)
Respondent has PC at home	0.684	0.575	0.777	0.545
	(0.465)	(0.494)	(0.416)	(0.498)
Respondent accesses Internet via high-speed connection	0.312	0.267	0.360	0.229
	(0.463)	(0.443)	(0.480)	(0.421)
Respondent accesses Internet via dial-up connection	0.310	0.242	0.355	0.257
	(0.462)	(0.428)	(0.478)	(0.437)
Number of Observations	62,166	11,899	36,250	14,017

a Given how the mobile phone penetration rate was generated, not every respondent is associated with one. In all, 46,059 respondents have associated mobile phone penetration rates. This figure is broken down into 8,465 divorced people; 26,360 married people; and 11,234 single people.

Table 1 looks at the demographic, economic, and technological adoption differences between divorced, married, and single respondents. Relative to married people divorced people are 1.3 percentage points more likely to be unemployed, 27.9 percentage points less likely to have children, 5.6 percentage points less likely to be white, and 13.7 percentage points less likely to have a college degree. Relative to single respondents, divorced people are about 1 percentage point more likely to be employed, nearly twice as likely to have children present in their households, and about 9.7 percentage points more likely to be white. And while there appears to be a difference between the likelihood of being a college graduate between these two groups, it is not statistically significant.

Compared to married respondents, divorced people are 7.8 percentage points more likely to live in households whose total income is less than $10,000. This gap fluctuates slightly when looking at other income categories, and then skyrockets when looking at respondents living in households with total income greater than $75,000. Married people are 23.2 percentage points more likely to live in such households than divorced people. There is very little difference between divorced and single respondents when looking at household income levels.

Interestingly, and consistent with my hypothesis, divorced respondents appear to live in areas of higher mobile phone penetration, though only by one or two percentage points when compared to their married and single counterparts, respectively. Inconsistent with my hypothesis, relative to married persons, divorced respondents appear to be 6.7 percentage points less likely to use the Internet, about 20 percentage points less likely to own a computer, and 9.3 percentage points less

likely to connect to the Internet via a high-speed connection. Technological adoption and usage

habits are rather similar between divorced and single people, and are all statistically significant.

Table 2: Descriptive Variables by Year

Description	Total	2000	2003	2007
Demographic Factors				
Respondent is employed	0.827	0.849	0.815	0.819
	(0.378)	(0.357)	(0.388)	(0.385)
Employed full-time	0.781	0.807	0.772	0.766
	(0.414)	(0.395)	(0.419)	(0.423)
Children present in household	0.563	0.579	0.582	0.531
	(0.496)	(0.494)	(0.493)	(0.499)
Respondent is white	0.799	0.806	0.799	0.794
	(0.400)	(0.395)	(0.401)	(0.404)
Respondent is a college graduate	0.314	0.301	0.314	0.326
	(0.464)	(0.459)	(0.464)	(0.469)
Respondent is female	0.455	0.432	0.457	0.474
	(0.498)	(0.495)	(0.498)	(0.499)
Respondent lives in metropolitan area	0.839	0.829	0.832	0.855
	(0.368)	(0.377)	(0.374)	(0.352)
Respondent is divorced	0.191	0.175	0.183	0.215
	(0.393)	(0.379)	(0.386)	(0.411)
Respondent is married	0.575	0.559	0.584	0.579
	(0.494)	(0.496)	(0.493)	(0.494)
Respondent is single	0.234	0.266	0.233	0.206
	(0.423)	(0.442)	(0.423)	(0.405)
Income Factors				
Household income is less than $10,000	0.056	0.064	0.060	0.046
	(0.231)	(0.244)	(0.238)	(0.210)
Household income is $10,000 - $25,000	0.128	0.155	0.125	0.105
	(0.334)	(0.362)	(0.331)	(0.307)
Household income is $25,000 - $50,000	0.245	0.286	0.253	0.200
	(0.430)	(0.452)	(0.435)	(0.400)
Household income is $50,000 - $75,000	0.173	0.182	0.173	0.164
	(0.378)	(0.386)	(0.378)	(0.370)
Household income is greater than $75,000	0.228	0.182	0.223	0.274
	(0.419)	(0.385)	(0.417)	(0.446)
Technology Factors				
Mobile phone penetration rate in respondent's geographic area[a]	0.659	0.513	0.577	0.869
	(0.171)	(0.063)	(0.059)	(0.083)
Respondent uses the Internet	0.635	0.317	0.747	0.815
	(0.481)	(0.465)	(0.435)	(0.388)
Respondent has PC at home	0.684	0.611	0.724	0.723
	(0.465)	(0.487)	(0.447)	(0.448)
Respondent accesses Internet via high-speed connection	0.312	0.056	0.254	0.601
	(0.463)	(0.229)	(0.435)	(0.489)
Respondent accesses Internet via dial-up connection	0.310	0.448	0.389	0.108
	(0.462)	(0.497)	(0.488)	(0.309)
Number of Observations	62,166	18,665	22,237	21,264

a Given how the mobile phone penetration rate was generated, not every respondent is associated with one. In all, 46.059 respondents have associated mobile phone penetration rates. This figure is broken down into 13,937 people in 2000; 16,323 in 2003; and 15,799 in 2007.

Table 2 shows how demographic, economic, and technological factors changed between 2000 and 2007. Employment rates declined between 2000 and 2003, but rebounded some by 2007. The number of college graduates rose slowly but steadily during the same timeframe. Regarding relationship statuses, divorced respondents increased by roughly 4 percentage points between 2000 and 2007. Married respondents grew roughly 2 percentage points between 2000 and 2003; but then fell slightly by about half a percentage point by 2007. The number of single respondents dropped by about 6 percentage points between 2000 and 2007.

Between 2000 and 2007, respondents living in households with a total income of less than $10,000 per year dropped by 1.8 percentage points. All other income categories saw declines during the same time period, except the highest. Respondents living in households with a total income of over $75,000 increased by 9.2 percentage points between 2000 and 2007.

Not surprisingly, all indicators of technological growth and adoption increased between 2000 and 2007. Mobile phone penetration rates rose from an average of about 50 percent in 2000 to over 85 percent in 2007, an increase of 35 percentage points. Respondents saying they regularly use the Internet rose even more dramatically by about 50 percentage points; from about 32 percent in 2000 to around 82 percent in 2007. Computer ownership rose about 10 percentage points in the same timeframe. Those answering that they connected to the Internet via a high-speed method rose drastically by 20 percentage points between 2000 and 2003; and then even more drastically by about 35 percentage points between 2003 and 2007. Accordingly, those using slower, dialup connections fell by about 35 percentage points between 2000 and 2007.

Regression Results

Table 3: Internet Use and Divorce

Covariate	Model 1	Model 2	Model 3	Model 4
Technological Factors				
Own PC		-0.029***	-0.033***	-0.034***
		(0.004)	(0.006)	(0.007)
Use Internet			0.021***	0.022***
			(0.008)	(0.008)
Own PC * Use Internet			-0.006	-0.009
			(0.010)	(0.009)
High-speed				-0.106***
				(0.042)
High-speed * Own PC				0.112***
				(0.042)
Demographic, Income, State, and Time Factors				
White	0.024***	0.027***	0.026***	0.027***
	(0.005)	(0.004)	(0.004)	(0.004)
Female	0.135***	0.135***	0.134***	0.134***
	(0.004)	(0.004)	(0.004)	(0.004)
Children	-0.080***	-0.077***	-0.077***	-0.077***
	(0.004)	(0.004)	(0.004)	(0.004)
Employed	0.000	0.000	0.000	0.000
	(0.006)	(0.006)	(0.006)	(0.006)
Full-time	0.080***	0.080***	0.080***	0.079***
	(0.006)	(0.006)	(0.006)	(0.006)
College	-0.055***	-0.050***	-0.053***	-0.053***
	(0.004)	(0.004)	(0.004)	(0.004)
Metropolitan	-0.001	0.000	-0.001	-0.001
	(0.005)	(0.005)	(0.005)	(0.005)
HH income is: $10K<x<$25K	0.076***	0.074***	0.074***	0.074***
	(0.007)	(0.007)	(0.007)	(0.007)
HH income is: $25K<x<$50K	0.002	0.005	0.004	0.004
	(0.006)	(0.006)	(0.006)	(0.006)
HH income is: $50K<x<$75K	-0.077***	-0.070***	-0.071***	-0.071***
	(0.006)	(0.006)	(0.006)	(0.006)
HH income is: >$75K	-0.126***	-0.117***	-0.118***	-0.119***
	(0.005)	(0.005)	(0.005)	(0.005)
State Fixed Effects	Yes	Yes	Yes	Yes
Time Trend	Yes	Yes	Yes	Yes
Observations	62,166	62,166	62,166	62,166

*** significant at 99% confidence level
** significant at 95% confidence level
* significant at 90% confidence level

Table 3 shows the results of 4 different regression models. Model 1 shows the impact of

demographic and economic factors on the likelihood that an individual is divorced, and each

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subsequent model adds a different technology variable. All models contain controls for state-specific effects and time.

Consistent with previous research, model 1 shows that the presence of children, having a college degree, and a high household income all decrease the likelihood of an individual being divorced. The sign and magnitude of these demographic and economic factors remain relatively consistent regardless of what technological considerations are added to the regression. Interestingly, in all models being female increases the probability of being divorced by about 13.5 percentage points. This may be because divorced females in the survey responded that they were divorced while divorced males responded that they were single, possibly skewing my results. It is also possible that divorced women are less likely to remarry than divorced men. Model 2 shows that computer owners are 2.9 percentage points less likely to be divorced than non-computer owners. Models 3 and 4 indicate that people that use the Internet at any location are about 2.2 percentage points more likely to be divorced than non-Internet users and show that using the Internet and owning a computer—indicating home Internet use—has no impact on the likelihood of being divorced. Consistent with my hypothesis, model 4 shows that respondents who have a high-speed Internet connection at home are 11.2 percentage points more likely to be divorced than those that don't.

Table 4: Internet Use, Mobile Phone Penetration, and Divorce

Covariate	Model 1	Model 2	Model 3	Model 4	Model 5
Technological Factors					
Mobile Phone Penetration Rate		-0.001*** (.0001)	-.001*** (.0001)	-0.001*** (.0001)	-0.001*** (.0001)
Owns PC			-0.019*** (0.005)	-0.026*** (0.007)	-0.027*** (0.007)
Use Internet				0.015* (0.009)	0.016* (0.009)
Own PC * Use Internet				0.001 (0.011)	-0.001 (0.011)
High-Speed					-0.086* (0.046)
High-speed * Own PC					0.090** (0.047)
Demographic, Income, State, and Time Factors					
White	0.021*** (0.005)	0.020*** (0.005)	0.022*** (0.005)	0.021*** (0.005)	0.021*** (0.005)
Female	0.133*** (0.004)	0.133*** (0.004)	0.133*** (0.004)	0.133*** (0.004)	0.133*** (0.004)
Children	-0.072*** (0.004)	-0.072*** (0.004)	-0.071*** (0.004)	-0.070*** (0.004)	-0.070*** (0.004)
Employed	0.001 (0.007)	0.001 (0.007)	0.002 (0.007)	0.001 (0.007)	0.001 (0.007)
Full-time	0.084*** (0.007)	0.084*** (0.007)	0.084*** (0.007)	0.083*** (0.007)	0.083*** (0.007)
College	-0.055*** (0.004)	-0.054*** (0.004)	-0.051*** (0.004)	-0.053*** (0.004)	-0.054*** (0.004)
HH income is: $10K<x<$25K	0.069*** (0.008)	0.069*** (0.008)	0.067*** (0.008)	0.067*** (0.008)	0.067*** (0.008)
HH income is: $25K<x<$50K	0.016*** (0.006)	0.016*** (0.006)	0.017*** (0.006)	0.017*** (0.006)	0.017*** (0.006)
HH income is: $50K<x<$75K	-0.062*** (0.006)	-0.062*** (0.006)	-0.057*** (0.006)	-0.059*** (0.006)	-0.059*** (0.006)
HH income is: >$75K	-0.114*** (0.006)	-0.113*** (0.006)	-0.108*** (0.006)	-0.110*** (0.006)	-0.110*** (0.006)
Time Trend	Yes	Yes	Yes	Yes	Yes
State Fixed Effect	Yes	Yes	Yes	Yes	Yes
Observations	46,059	46,059	46,059	46,059	46,059

*** significant at 99% confidence level
** significant at 95% confidence level
* significant at 90% confidence level

Table 4 contains the results of running the same regressions with mobile phone penetration rate data as an added indicator of interconnectedness in a respondent's area and as a weak proxy for mobile phone use. Due to how the variable was constructed—utilizing metropolitan statistical

area information from CPS and cross-walking it with CMRS mobile phone data—I dropped

individuals who did not live in or report on a metropolitan statistical area in the CPS. The signs

and magnitude of the demographic and economic factors are comparable to those in table 1. The

mobile phone penetration level is strongly associated with a lesser chance of being divorced in

all regressions, but the magnitude is very weak. This is contrary to what I expected and given

that the variable measures mobile phone penetration rate in a region—and not individual mobile

phone ownership—determining the cause of this difference is not easy. It may be that mobile

phones have become so ubiquitous that there's not a lot of variation between divorced and non-

divorced individuals who own them. It may also be the case that mobile phone penetration rate

information is a bad proxy for what I wanted to test; respondents' levels of technological

adoption and connectedness.

As in previous models, owning a computer results in between a 1.9 and 2.7 percentage point

decrease in the probability of being divorced, while Internet use is associated with about a 1.5

percentage point increase in that likelihood. Once again, and of most note, respondents who

access the Internet through a high-speed connection from home are 9 percentage points more

likely to be divorced than those that don't.

To test whether one's gender affects technology's impact on the probability of being divorced, I

separated the respondents by gender and re-ran each regression.

Table 5: Internet Use, Mobile Phone Penetration, and Divorce in Men

Covariate	Model 1	Model 2
Technological Factors		
Cell Rate	--	-0.001***
		(.0001)
Own PC	-0.054***	-0.047***
	(0.008)	(0.009)
Use Internet	0.018*	0.017
	(0.010)	(0.012)
Own PC * Use Internet	-0.005	0.002
	(0.012)	(0.014)
High-speed	-0.105***	-0.094**
	(0.038)	(0.042)
High-speed * Own PC	0.112***	0.100***
	(0.038)	(0.042)
Demographic, Income, State, and Time Factors		
White	0.014**	0.007
	(0.006)	(0.006)
Children	-0.148***	-0.140***
	(0.004)	(0.005)
Employed	-0.019*	-0.021*
	(0.011)	(0.012)
Full-time	0.027***	0.023**
	(0.010)	(0.011)
College	-0.051***	-0.052***
	(0.004)	(0.005)
Metropolitan	-0.010*	--
	(0.006)	
HH income is:	0.036***	0.029***
$10K<x<$25K	(0.009)	(0.010)
HH income is:	0.025***	0.029***
$25K<x<$50K	(0.007)	(0.008)
HH income is:	-0.007	-0.002
$50K<x<$75K	(0.007)	(0.008)
HH income is:	-0.036***	-0.033***
>$75K	(0.006)	(0.007)
State Fixed Effects	Yes	Yes
Time Trend	Yes	Yes
Observations	33,860	24,842

*** *significant at 99% confidence level*
** *significant at 95% confidence level*
* *significant at 90% confidence level*

Table 5 contains the results of regressions run exclusively looking at male respondents. Model 2 differs from 1 only in that it adds mobile phone penetration rate data into the regression, greatly decreasing the number of observations. Model 2 does not include information on metropolitan status because this data directly correlates with how the mobile phone penetration rate variable

was generated. The direction of the impact of non-technological factors on divorce remains the same as for both genders, but some of the magnitudes are curious. Specifically, the negative impact that having children in a household has on the probability of being divorced is nearly doubled when looking at just men, jumping from about 7.7 percentage points to about 15 percentage points in model 1 and 14 in model 2. This is probably due to the fact that men rarely become the primary caretaker of children after a divorce. The magnitude of the impact that household incomes have on marital status is also much less when looking at just men, and not always statistically significant. Models 1 and 2 show that men who own computers are roughly 5 percentage points less likely to be divorced than those that do not. Most remarkably, both models respectively show that men who access the Internet via a high-speed connection from home are 11 percentage points and 10 percentage points more likely to be divorced than those that don't.

Table 6: Internet Use, Mobile Phone Penetration, and Divorce in Women

Covariate	Model 1	Model 2
Technological Factors		
Cell Rate	--	-0.001**
		(.0001)
Own PC	-0.003	0.002
	(0.011)	(0.012)
Use Internet	0.020*	0.007
	(0.012)	(0.013)
Own PC * Use Internet	-0.018	-0.009
	(0.015)	(0.017)
High-speed	-0.096	-0.058
	(0.077)	(0.086)
High-speed * Own PC	0.098	0.057
	(0.077)	(0.087)
Demographic, Income, State, and Time Factors		
White	0.053***	0.048***
	(0.007)	(0.008)
Children	0.014**	0.021***
	(0.006)	(0.007)
Employed	0.021***	0.023***
	(0.008)	(0.009)
Full-time	0.113***	0.121***
	(0.007)	(0.008)
College	-0.047***	-0.048***
	(0.006)	(0.007)
Metropolitan	0.006	--
	(0.008)	
HH income is:	0.091***	0.084***
$10K<x<$25K	(0.011)	(0.012)
HH income is:	-0.016*	0.003
$25K<x<$50K	(0.009)	(0.010)
HH income is:	-0.141	-0.118***
$50K<x<$75K	(0.009)	(0.010)
HH income is:	-0.214***	-0.195***
>$75K	(0.008)	(0.009)
State Fixed Effects	Yes	Yes
Time Trend	Yes	Yes
Observations	28,306	21,217

*** *significant at 99% confidence level*
** *significant at 95% confidence level*
* *significant at 90% confidence level*

Table 6 shows the results of the regressions when just looking at the women in the survey.

Curiously, when looking at just women the presence of children increase the likelihood of being

divorced by 1.4 percentage points. This is probably because the children of divorce

disproportionately tend to live with the mothers. Also of note is how much greater the impact of

income is on a woman's marital status. Regarding the impact of technology, the only significant results show that women who use the Internet are roughly 2 percentage points more likely to be divorced, and that's only in Model 1. In Model 2, with the exception of regional mobile phone penetration rate having a very weak, negative impact on the probability of being divorced, no other technological factor is statistically significant. Because divorced women tend to be the primary caretaker of any children, their lack of leisure time may explain why technological factors aren't associated with the probability of being divorced as they are for men.

Discussion

After accounting for various demographic and economic factors commonly associated with marital status, I find that divorcees are about 2.1 percentage points more likely to use the Internet and 11.2 percentage points more likely to access the Internet from home via a high-speed connection than married people. This is not a causal relationship and I am unable to determine whether Internet usage and high-speed home usage existed prior to or following a divorce. Breaking respondents down by gender, it becomes evident that divorced men—and not divorced women—are driving the results. I am unable to parse out why this relationship exists, but one possibility involves the role children play in impacting leisure time for divorcees.

Generally speaking, women are charged with caring for any children after a divorce, decreasing the amount of time they may have for Internet surfing and other leisure activities. Divorced men, unburdened by childcare, may have more leisure time and may spend that time online. Men and women may also merely have different preferences and habits when it comes to technology.

What is it about being divorced and male that leads to such a large increase in high-speed Internet use? Unfortunately, the limitations in this study preclude an answer. Ideally I would have had access to more detailed information about respondents' Internet use at home, such as whether they frequented social networking sites, engaged in online dating, and information on what activities caused divorced people to be so much more likely to use high-speed Internet at home. Future research should utilize a panel dataset to follow the same group of respondents over time. Rather than creating a pseudo-panel, a true longitudinal analysis would disentangle when respondents' made technology adopting decisions, such as switching to high-speed Internet, and when they got divorced. In that same vein, information about what caused divorces among respondents would be useful in determining if technology played any role. Lastly, better information regarding individual mobile phone ownership and use would have been a better indication of interconnectedness than the area penetration rate I created and used.

Congress considers the spread of broadband—or high-speed Internet—to be the great infrastructure challenge of the early 21st century. It views broadband as a crucial foundation for economic growth, job creation, global competitiveness, and a better way of life. Congress foresees broadband changing how we educate children, deliver heath care, manage energy, ensure public safety, engage government, and access, organize and disseminate knowledge. Towards this end, in early 2009 Congress directed the Federal Communications Commission (FCC) to develop a National Broadband Plan to ensure every American has "access to broadband capability." Although some benefits Congress expects will doubtless occur, we should not fail to consider potential unintended consequences related to ubiquitous broadband.

Policy makers should consider that divorced men are roughly 10 percentage points more likely to take advantage of high-speed Internet at home than government-backed "traditional" families. Given the government's interest in promoting marriage—and the growing prevalence of divorce—policy makers should consider ways to ensure that the benefits of high-speed Internet are adopted and utilized by all Americans, regardless of marital status or gender. Consideration should be given to possibly better-targeting married couples and families to adopt and utilize high-speed Internet. Policy-makers should also think about why divorced women do not appear keen on high-speed Internet adoption. Considering that they are more likely to be in charge of raising children, the fact that they lack high-speed at home not only hinders them, but potentially their children as well. Furthermore, divorced women are more likely to want to seek further education or job skills to make up for productivity lost while raising children. To that end, the educational and economic benefits the government associates with high-speed Internet would seem to be able to benefit them the most. Yet they don't appear to be interested. Divorced women, and any children they live with, seem poised to benefit the most from high-speed Internet adoption and policy makers should consider why they're currently less likely to have broadband at home before determining who to target in their Broadband Plan.

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