

Research Note:
Disintermediating your friends

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Abstract:

We present new data from a nationally representative 2017 survey of American adults. For heterosexual couples in the U.S., meeting online has become the most popular way couples meet, eclipsing meeting through friends for the first time around 2013. Moreover, among the couples who meet online, the proportion who have met through the mediation of third persons has declined over time. We find that Internet meeting is displacing the roles that family and friends once played in bringing couples together.

Research Note:

Disintermediating your friends

From the end of World War II until 2013, the most popular way heterosexual Americans met their romantic partners was through the intermediation of friends. One's close friends and family have, probably since the beginning of time, been the essential network foci that enable connections to other people, i.e. the friends of one's friends (Feld 1981). More distant ties have the potential to create a bridge to a new, previously unknown network of people and information (Granovetter 1973). Friends, the close and the not-so-close, have been historically a crucial source of connections to others. The rise of the Internet has allowed individuals in the dating market to circumvent friends.

Rosenfeld and Thomas (2012) with data from 2009 showed that the percentage of heterosexual couples who met online had risen from 0% in 1995 to about 22% in 2009. In the 2009 data, Rosenfeld and Thomas showed that meeting online had grown but was still significantly behind friends as the most prevalent way heterosexual couples met. Furthermore, the 2009 data appeared to show that the rate of meeting online had plateaued for heterosexuals at around 22%. In this paper we present new data from a nationally representative 2017 survey showing that meeting online has continued to grow for heterosexual couples, and meeting through friends has continued its sharp decline. As a result of the continued rise of meeting online and the decline of meeting through friends, online has become the most popular way heterosexual couples in the U.S. meet.

There are many critics of Internet dating and Computer Mediated Communication (CMC) more generally. Some scholars view CMC and its most recent manifestation of messaging via cell phone as hollowing out our social well-being by substituting attention-seeking devices for more rewarding face-to-face interaction (Turkle 2015). Other theorists, however, have found that CMC has potential advantages over face-to-face interactions. Asynchronous CMC communication gives people the time and distance to frame questions and answers more carefully, to find communities of interest outside the immediate vicinity, and to share things that might be awkward to share in person (Walther 1996; McKenna, Green and Gleason 2002). In the case of Internet dating, meeting online is not a substitute for face-to-face interaction; meeting online facilitates subsequent face-to-face interaction.

The traditional system of dating, mediated by friends and family, was supposed to provide guarantees that any potential partner had been personally vetted and vouched for by trusted alters, the friends and family members. Classic work by Bott (1957) found that social closure had benefits in terms of relationship quality and duration. More recent empirical tests, however, have not yielded evidence to support the theory that social closure benefits relationship stability (Rosenfeld and Thomas 2012).

Whereas family and friends are the most trusted social relations, Internet dating and hookup apps such as Tinder, Match.Com, and eHarmony are faceless corporations.¹ Why might someone rely on

¹ Tinder and Match, two of the most popular online dating platforms, are subsidiaries of the same corporate parent, IAC.

matches suggested by Tinder instead of relying on dating tips from their mother,² their friend, or their friend's friend? There are several potential reasons for the ascendancy of Internet dating. First the sets of people connected to Tinder, Match, and eHarmony are larger than the sets of people connected to one's mother or friend. Larger choice sets are valuable to everyone engaged in search (Rosenfeld 2017). Larger choice sets are especially valuable for people who are searching for something unusual or hard-to-find, which is why online dating is even more valuable for gays and lesbians than it is for heterosexuals (Rosenfeld and Thomas 2012).

Second, the ability of a family member or friend to successfully broker a romantic partnership depends in part on the broker knowing what both individuals desire in a partner. Individuals might not *want* to share their dating preferences with their mother or with their friends. Dating perfect strangers encountered online is potentially more discreet than dating a friend's friend.

A corollary to the discretion inherent in online dating is that the online precursor to face-to-face meeting inserts a layer of physical distance that can have benefits for safety. Messaging starts through the phone app. If the other person sends a text or a picture that is rude or inappropriate, the rude message sender can be blocked within the app and they have no recourse to overcome the block. The ability to block people within the apps is useful to anyone who might feel physically vulnerable meeting a stranger face-to-face (Rosenfeld 2018). Once the face-to-face meeting has taken place, the security advantage of the phone apps largely dissipates. It is difficult to block the person sitting next to you at the bar, or to permanently extricate oneself from encounters with a friend's friend.

Third, Tinder, eHarmony, Match and the other Internet dating sites are in the business of having up-to-date information about the people in the dating pool. Mothers and friends may have useful information about a small set of individuals in the dating pool, but how up-to-date is the information? The architecture and ubiquity of the Internet make it easier for Match.com to have up-to-date information on 10 million people, than for a mother or friend to have up-to-date information on 20 people.

Fourth, the online dating sites have the potential to improve their matching algorithms through data analysis, experiments, and machine learning over time (Wells 2018; Markowitz 2018). In any business where matching is a core function, the quality of the matching algorithms are vital for the success of the business. Netflix has improved its various algorithms for matching people to movies over time (Gomez-Urbe and Hunt 2015). The problem of matching people to each other is a more difficult two-way matching problem, compared to the one-way matching problem of matching people to movies. While there are reasons to be skeptical of the claims that the online dating sites make about the scientific nature of their various matching algorithms (Finkel et al. 2012), the online dating sites have at least the *potential* for technological advance, whereas the social network of friends is a more static technology.

The information on Match, Tinder, and eHarmony about the individuals one is interested in could be misleading, of course. Stories abound of online dating scuttled by out-of-date profile photos, misleading relationship statuses, and overly generous self-descriptions (Slater 2013). It is not clear,

² Personal mediation for dating is heavily gendered, as is most social interaction. Mothers introduce far more couples than fathers do (Falcon 2015).

however, that false representations are any more common in online dating than they were in the pre-Internet era (Hancock, Toma and Ellison 2007).

Data and Methods:

We use the 2017 wave of the How Couples Meet and Stay Together (Rosenfeld, Thomas and Hausen 2018; hereafter HCMST 2017) dataset along with wave 1 of HCMST 2009 (Rosenfeld, Thomas and Falcon 2018). Both HCMST surveys were nationally representative surveys of English literate adults in the U.S. In both HCMST surveys, subjects were asked an open-ended question, "Please write the story of how you and [partner_name] first met and got to know one another, and be sure to describe 'how' and 'where' you first met." Subjects who wrote too little were prompted several times to write more. There were 2,934 open text answers to "how did you meet" in HCMST 2009, and an additional 3,295 from HCMST 2017, with no duplication of respondents between the two surveys. The HCMST surveys are the only nationally representative surveys that we know of that include open text questions about how couple met.

The "how did you meet" question is retrospective because the question can be only be asked about relationships that have already formed. In HCMST 2009, the "how did you meet" question was asked only of subjects who were partnered at the time of the survey. In HCMST 2017, the "how did you meet" question was asked of both partnered respondents, and unpartnered respondents. Unpartnered respondents in HCMST 2017 were asked about their most recent past partner. Subjects were also asked when they first met the partner in question. The year of meeting forms the X-axis of Figure 1 below.

Codes for the open text answers to "how did you meet" were built up inductively and collaboratively by P.I. Rosenfeld, Reuben Thomas, Ariane Fisher, and Rachel Lindenberg in 2009. A coding rubric was developed and published along with data (see <https://data.stanford.edu/hcmst>). In 2017, Sonia Hausen used the original rubric from 2009 to code the 2017 "how did you meet" text answers. Hausen also re-coded a random subsample of 569 of the original 2009 stories so as to allow for measures of inter-rater reliability between the HCMST 2009 and HCMST 2017 coders. For the nine categories of how couples met that are described in Figure 1 below, Kappas for inter-rater reliability ranged from a high of 0.98 for meeting online, to 0.89 for meeting through friends, to a low of 0.83 for meeting in a bar, restaurant or public place. According to Landis and Koch (1977), Kappas of greater than 0.81 constitute nearly perfect agreement. We are confident, therefore, that the 2009 and 2017 stories were coded in a sufficiently similar way.

Answers to the "how did you meet" question were longer on average in 2009 (67 words) than in 2017 (37 words). The average total number of codes recorded (across the 9 codes we report on below) was 1.29 codes per story in 2009, and 1.21 codes per story in 2017.

HCMST 2009 and 2017 were internet surveys, conducted by survey firm GfK (formerly Knowledge Networks), using subjects who were regular survey subjects in an established panel. Subjects were recruited into the GfK panel by random digit dialing, and by address based sampling. Subjects who did not have Internet access at home were given Internet access and a device with which to answer regular surveys. The quality of representative Internet surveys such as the GfK panel has been shown to equal or exceed the quality of the best representative phone surveys (Chang and Krosnick 2009; Fricker

et al. 2005). Response rates were 71% in HCMST 2009 and 60% in HCMST 2017. Self-identified lesbian, gay, and bisexual respondents were oversampled in both HCMST 2017 and HCMST 2009. Considering historical data on the rate at which subjects answered initial requests to join the GfK panel at some prior time, and the rate at which subjects completed their initial demographic surveys (Callegaro and DiSogra 2008), the cumulative response rate³ is 13% for HCMST 2009 and 11% for HCMST 2017. Survey response rates have declined over time for GfK as they have for other survey companies and all survey modes (Berrens et al. 2003; de Heer 1999).

[Figure 1 here]

Results:

Figure 1 shows updated smoothed graphs (using data from both the HCMST 2009 and 2017 surveys) of how couples have met by the year of first meeting, separately for heterosexual and same-sex couples. Same-sex couples were early adopters of Internet services for meeting partners. About 65% of same-sex couples who met in 2017 met online, compared to about 39% for heterosexual couples. The 65% of recently formed same-sex couples who met online is very similar to what Rosenfeld and Thomas (2012; Figure 1) reported for same-sex couples in 2009 using the 2009 data alone. As the pattern for same-sex couples has not changed as much, we focus here on the changes in how heterosexual couples have met since 2009.

The most traditional ways of meeting for heterosexual couples, i.e. meeting through family, meeting through church, meeting in the neighborhood, and meeting in primary or secondary school have all been declining sharply since 1940.

In 2009, meeting through friends was by far the most common way heterosexual couples met, and this had been true for 60 years since the immediate post World War II period. Since 2009, however, meeting through friends has declined sharply, and meeting online has continued to grow. As a result of the decline in meeting through friends and the rise in meeting online, heterosexual couples in the U.S. are now much more likely to meet online than to meet any other way. We identify 2013 as the approximate year when meeting online surpassed meeting through friends for heterosexual couples in the U.S. Previous research with the HCMST surveys showed that breakup rates were not influenced by how couples met, so the retrospective nature of the HCMST “how did you meet” question should not introduce couple survivor bias (Rosenfeld 2017; Rosenfeld and Thomas 2012).⁴

The coding of the “how did you meet” question coded as many categories as could be identified in every open-ended response. None of the categories are mutually exclusive. Some respondents met

³ Cumulative response rate is a product of the recruitment rate of subjects into the panel years ago, and the rate at which these subjects completed an initial profile survey, multiplied by the completion rates of the HCMST surveys. See AAPOR (2011). An additional factor in the lower response rate of HCMST 2017 compared to HCMST 2009 is that HCMST 2009 was in the field for 4 weeks, whereas HCMST was in the field for 2.5 weeks.

⁴ The Rosenfeld (2017) and the Rosenfeld and Thomas (2012) both used HCMST 2009’s prospective data on couple breakup, based on longitudinal follow-up with partnered subjects. HCMST 2017 has as of yet only retrospective data on couple breakup. Analysis of the HCMST 2017 retrospective breakup data show, consistent with prior results from HCMST 2009, that how couples met had no significant effect on the hazard of breakup once decade of meeting was controlled for (results available from the authors).

online *and* met through friends, for instance if the friend had made the introduction online, or if the friend forwarded an online profile. Some people who met online met through a friend-mediated online social networking website such as Facebook or Myspace. Meeting online could have grown without displacing the intermediation of friends. Figure 1 shows, however, that the growth of meeting online has strongly displaced meeting through friends.

Figure 1's apparent post-2010 rise in meeting through bars and restaurants for heterosexual couples is due entirely to couples who met online and subsequently had a first in-person meeting at a bar or restaurant or other establishment where people gather and socialize. If we exclude the couples who first met online from the bar/restaurant category, the bar/restaurant category was significantly declining after 1995 as a venue for heterosexual couples to meet.

[Table 1 here]

Table 1 shows that the rise of meeting online and the decline of meeting through friends among heterosexual couples in the U.S. were both highly significant trends. The z-scores represent tests of whether a line through the data from 1995 to 2017 for each way of meeting had a slope significantly different from zero, tested with logistic regressions. More specifically, the Z-scores represent the significance level of the coefficient β_i in the equation $\text{Ln}\left(\frac{P_{i,j}}{1-P_{i,j}}\right) = \beta_i Y_j$, where $P_{i,j}$ is the predicted probability that a heterosexual couple meeting in year j would meet in the i th way; $Y_j = (\text{year of meeting} - 1995)$ if year of meeting ≥ 1995 and $Y_j = 0$ if year of meeting < 1995 . All changes (from 1995 to 2017) in how heterosexual couples meet in Figure 1 are significant as well, except for the apparent decline in meeting in college, whose decline was mainly in the last few years of data, where the number of meetings was sparse.

I use 1995 as the starting point of the test for empirical and historical reasons. The empirical reason is that, as Figure 1, shows, 1995 is the year we can observe the beginning of a sharp increase in the percentage of couples (same-sex and heterosexual) who met online. The historical rationale for 1995 as the starting point is that the first popular graphical web browsers, Netscape and Internet Explorer, were introduced in 1994 and 1995. The rise of the graphical web beginning in 1995 created a potential new market for Internet dating.

[Table 2 here]

Table 2 shows the decline over time in personal intermediation for couples who met online from the 2009 and 2017 HCMST surveys. In the 2009 HCMST survey, 11.2% of the couples who met online met through some form of third person intervention. In the 2017 HCMST survey, only 3.7% of couples who met online met through the intervention or mediation of a third person. Eighty Nine percent of

couples who met online from the 2017 survey were previously strangers, meaning there was no personal connection between the respondent and partner before they met online.

Stories from HCMST 2017 that reflect online meeting without personal intermediation include: “We found each other through [dating site]. We met in person at a local grocery store. We then proceeded to hang out with each other every single day for the next few months,” and “We met online. We had drinks one night and were friends for a while then got into a serious relationship.” An example of an online meeting brokered by a third person from HCMST 2017 starts this way: “We first met on Facebook. I was asked by his then girlfriend to join his new group. About a week later, he and his girlfriend had a falling out... He messaged me.... I took my vacation time from work, drove across the country where I met the love of my life!”

Discussion:

The apparent displacement of meeting through friends by meeting online suggests a process of technology-driven disintermediation. Individuals used to need personal intermediaries, usually friends or family members, to introduce them to new people. Now that the Internet makes a large choice set of potential partners available, the intermediation of friends and family is relied upon less. The role of family as matchmaker had been already in decline for most of the late 20th century, as later age at first marriage and the independence of young adults has removed dating and matchmaking from the oversight of parents (Rosenfeld 2007).

The rapid adoption of smart phones in the U.S. (World Bank 2015) has spurred the increase in adoption of online dating. Tinder, the leading U.S. phone dating app, was first released in 2012. Grindr, the leading dating and hookup app for gay men, was released in 2009, helping to initiate the phone app phase of Internet dating. As people have come to know others who found partners through online dating, the stigma against online dating has waned (Smith and Anderson 2016). As the number of users of the online dating sites has increased, the primary advantage of the online dating sites (i.e. a large choice set of potential partners) has also increased.

Disintermediation, i.e. the removal or subordination of the human intermediary between two parties, is a fundamental social outcome of the Internet. Human travel agents used to be necessary to book hotel and airline flights, until the Internet travel brokers disintermediated the human travel agents (Tse 2003). Despite the disintermediation of friends and family from the matchmaker role, friends and family of course have many other important functions. Friends and family are likely to remain important even if other intermediaries, such as human travel agents, see their roles and numbers diminish.

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Table 1: Changes in How Heterosexual Couples Met in the Internet era

How couple met	1995	2017	Z-score	
Online	2%	39%	23.43	***
Through Friends	33%	20%	-4.55	***
Through Family	15%	7%	-8.47	***
Through or as coworkers	19%	11%	-5.16	***
In a bar/restaurant	19%	27%	2.38	*
In Primary or Secondary school	10%	5%	-6.62	***
In church	7%	4%	-2.52	*
Through or as neighbors	8%	3%	-4.54	***
In college	9%	4%	-1.17	

Source: How Couples Meet and Stay Together 2009 and 2017 waves, heterosexual couples only, N=5421.

* P<0.05; ** P<0.01; *** P<0.001, two tailed tests

Z-scores represent tests of whether the log odds of the probability of each way of meeting has a slope significantly different from zero, from 1995 to 2017, through separate logistic regressions, taking all years of meeting into account. The 1995 and 2017 columns are point values for the observed probabilities of how couples met at the beginning and end of the 1995-2017 period.

Table 2: Couples who met Online increasingly do so without third person intermediaries

	Survey year: 2009	Survey year: 2017
Previously Strangers: Before online meeting, subject and partner did not know each other	81.0%	89.5%
Mediated: Subject and partner were brought together online by a third person	11.2%	3.7%
Reconnected: Subject had known partner in the past; the relationship formed when they reconnected online	7.8%	6.8%
Total	100%	100%
N	179	323
Median year of meeting	2005	2012
Test for independence:		$X^2=10.6^{**}$ on 2 df

Source: How Couples Meet and Stay Together, 2009 and 2017 waves, unweighted. Data include heterosexual couples only. Weighted analysis including same-sex couples yields the same substantive results.

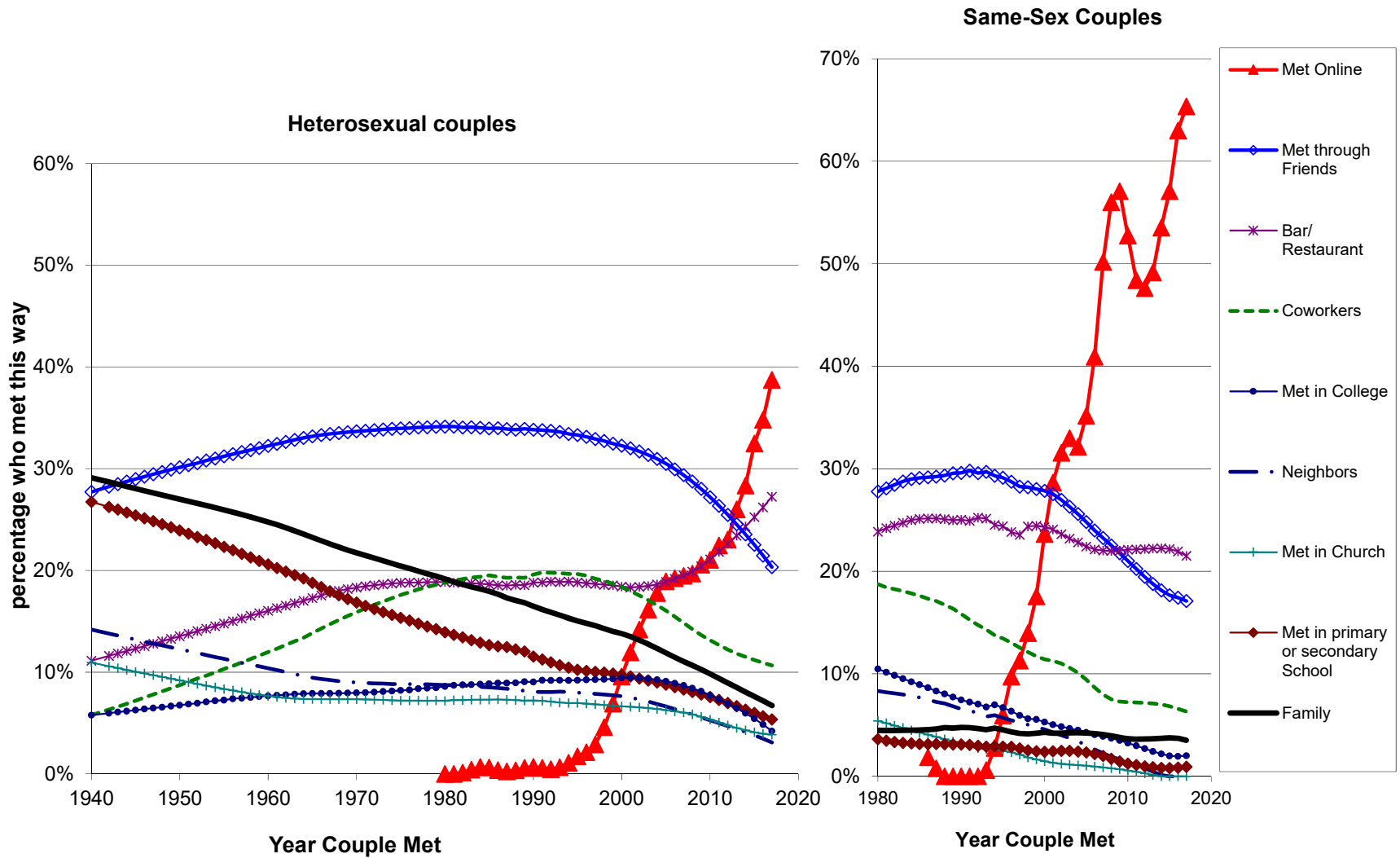


Figure 1: The continued rise of meeting online.

Online meeting displaces friends

Source: How Couples Meet and Stay Together Surveys, 2009 and 2017 waves. Consistent with Rosenfeld and Thomas (2012), all trends are from unweighted Lowess regression with bandwidth 0.8 (Cleveland 1979), except for meeting online, which is a 5 year moving average because meeting online takes place in the more recent and data-rich part of the data. For heterosexual couples, N=2,473 for HCMST 2009 and N=2,997 for HCMST 2017. For same-sex couples, N=461 in 2009 and N=298 in 2017. Friends, family, and co-workers can belong to either respondent or partner. Percentages do not add to 100% because the categories are not mutually exclusive; more than one category can apply.