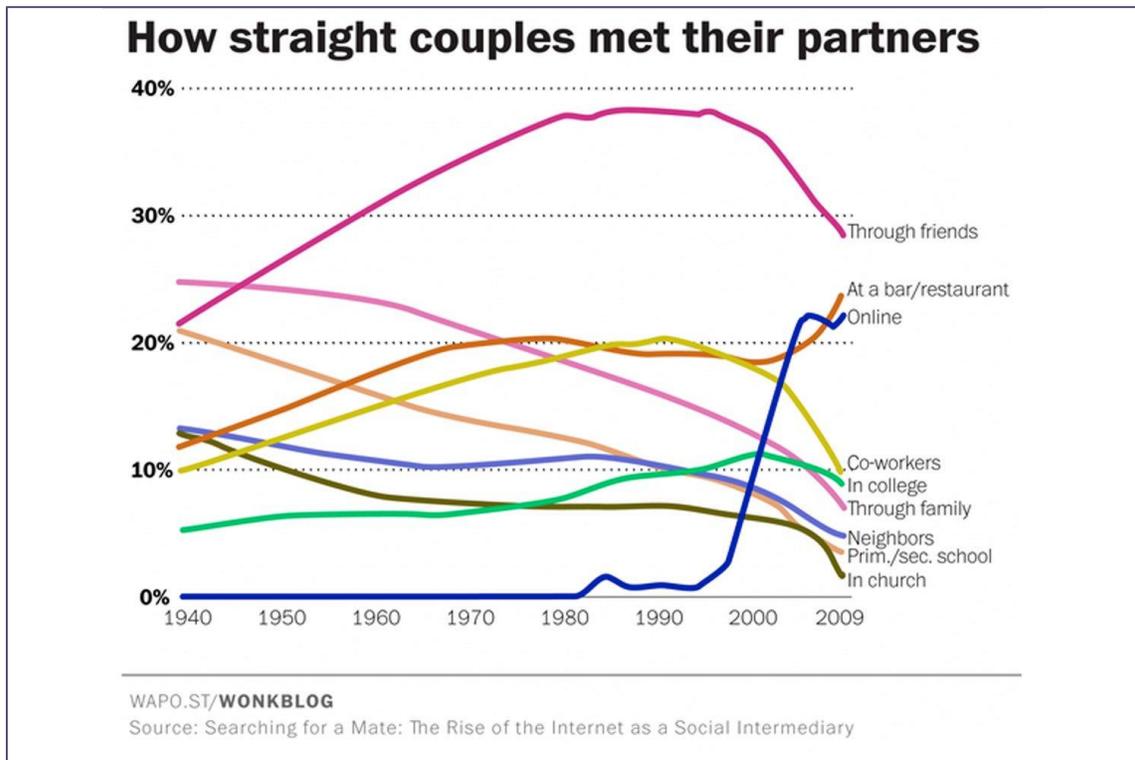


The Dating Market: Thesis Overview

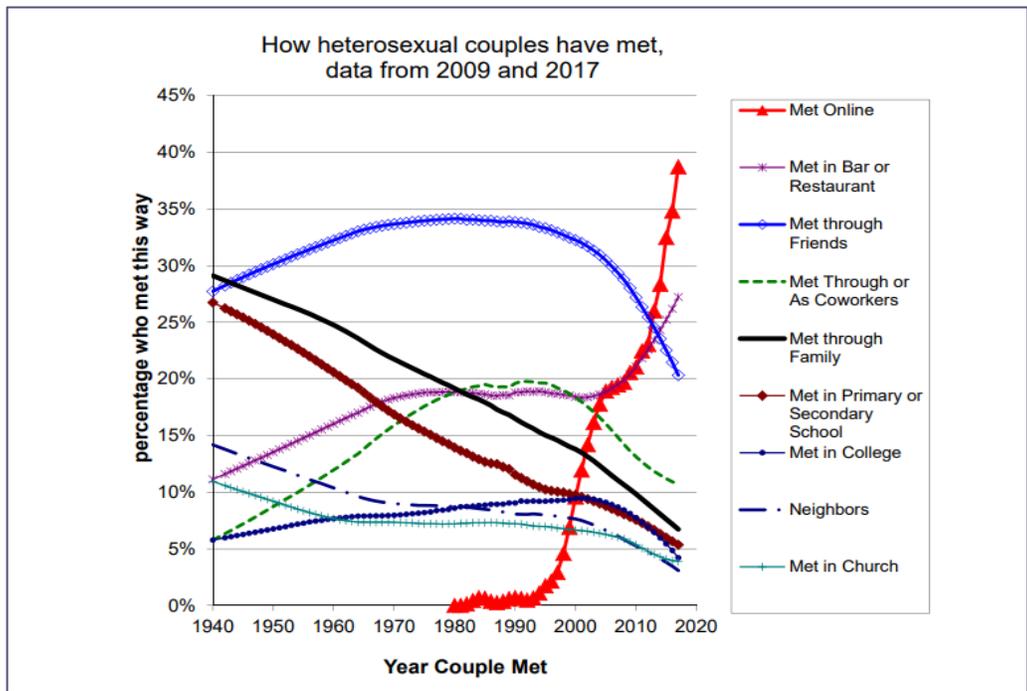
Most academic researchers have attempted to explain changes in dating, marriage, and household formation data using legacy frameworks based on commonly accepted variables from research done in the 1950s and 1960s, which are themselves heavily biased by the post-war household formation boom. No one would disagree with the proposition that cultural attitudes toward sexual behavior and the nature of marriage have changed materially since then, but models remain outdated due to the pace of change in the dating market compared to the pace of change in academia. We propose that viewing the phenomenon of online dating as a means to reduce market frictions is sufficient to explain the vast majority of changes in outcomes, with other variables having scalar effects.

At a high level, it is important to understand that most new relationships in 2019 begin online. Traditional methods such as introductions by friends and family, meeting at work, etc. have been outmoded and are increasingly outlier outcomes.

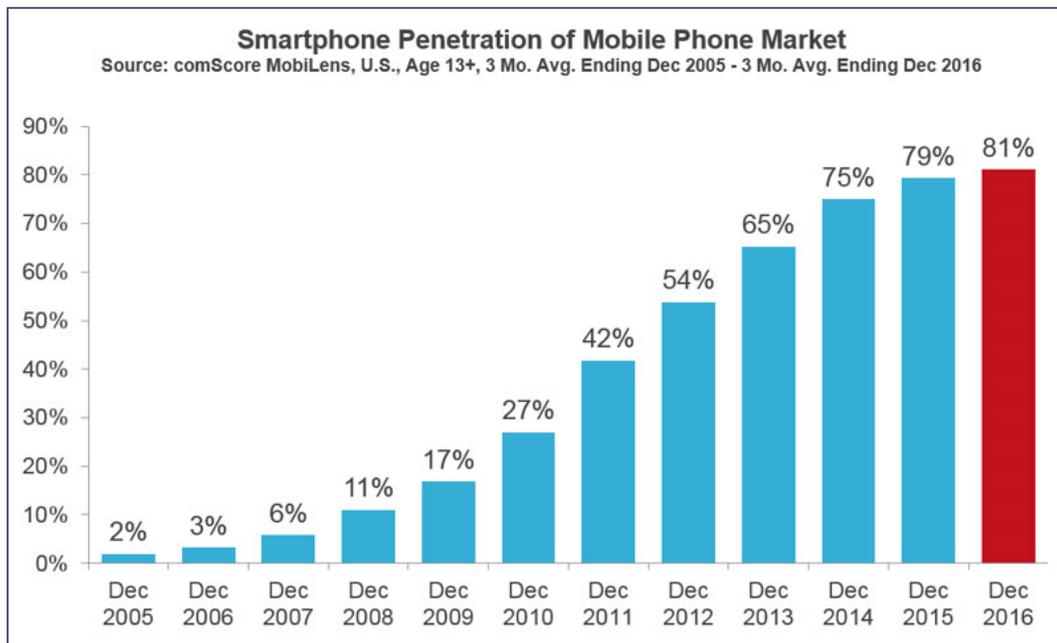
The graphs below show what “Generation 1.0” of online dating did to matching dynamics, and then the inflection that occurred in “Generation 2.0.” Adoption in the US was slow and then exploded as the cultural taboo faded, and online dating flipped from being a cultural taboo to a cultural norm. This is now occurring in many other markets globally. The culture flipping dynamic is why dating company metrics appear to stall and then spike at seemingly strange intervals¹. In the US, the confluence of the financial crisis causing individuals to look for free ways to meet people, the inflection in smartphone penetration, and resulting shift to mobile apps caused the mix shift to radically accelerate.



¹ https://web.stanford.edu/~mrosenfe/Rosenfeld_How_Couples_Meet_Working_Paper.pdf



The primary explanatory factor for why the share of dating online grew rapidly is likely platform access via smartphone proliferation and the shift to mobile only websites.



Note in the charts above the up spike in “met in bar or restaurant.” In data science, the technical term for these reporting individuals is “liars.” They reported meeting in a bar because that is technically where the pair met in

² https://web.stanford.edu/~mrosenfe/Rosenfeld_et_al_Disintermediating_Friends.pdf

person for the first time, but the match was generated online. This was discussed in the source paper.³ It's important to note that this academic data only goes through 2017, and we know from disclosures from app stores and company filings that the growth spike has only continued.

Tinder Average Subscribers (000s)⁴

Lower Costs

A conservative estimate of the percentage of new relationships begun online in 2019 is at least 65%, but likely over 75%. So, online dating now produces most new relationships. Why? From the perspective of prime reproductive age individuals, cost structures (safety, monetary, time, social frictions, etc.) have shifted, with many dropping to effectively zero. Because costs (physical safety, social stigma) have been disproportionately impactful to women, their elimination has had the effect of flipping the power dynamic in the market to favor women in prime reproductive age, though the dynamic changes with age.

The cost of instantly searching for potential mates is now effectively zero. Click a button, download the app. Photos, etc. automatically populate your profile from Facebook, Twitter, etc. A user can be looking for matches within 2 minutes. Further, the number of available potential mates is now effectively infinite, thus materially changing marginal and opportunity costs for market participants.

The social costs of rejecting a potential mate are now likewise effectively zero, making introductions within existing social groups (friends, family friends, church, etc.) structurally inferior propositions given significant social and reputational risk in the event of an adverse outcome. This has led to the rise of “ghosting,” where one side of a relationship simply stops responding rather than suffer an uncomfortable break up conversation. Rude? Sure. But given no actual viable retribution mechanism, it has become the norm. It's important to note that Facebook integration into dating with their proposed dating product reintroduces potential retribution threats and social downside. This is a primary reason why we think Facebook's dating efforts will stall.

The growing generational cohorts (Gen X, Gen Z) structurally lack the balance sheet and income power to purchase many fixed assets (housing, etc.) that the Baby Boomer generation participated in, leading to a secular rise in a “renter's economy.” Because housing, transportation, etc. are now largely short-term commitments, many of the financial limitations that contributed to marriage decisions are now void, and the marginal costs of trial cohabitation are lower (12-month leases, etc.).

³ https://web.stanford.edu/~mrosenfe/Rosenfeld_et_al_Disintermediating_Friends.pdf

⁴ Match Group Q3 2019 Earnings Presentation

Reductions in marginal and opportunity costs lead individuals to exit potential or new relationships faster, and over time allow individuals to acquire more information about long term mate compatibility. People are less likely to stay in negative relationships, more likely to cut things off when red flags are spotted, and less likely to go on multiple dates when a spark is not there. This is leading to more short-term relationships, significant delays in marriage age, and increases in required marriage circumstances. This also has an effect of forcing people onto the dating apps, as market participants who are not on dating apps are attempting to pair with people who have structurally superior cost structures than them, leaving them generally unable to compete. Practically speaking, if PERSON A is on dating apps and PERSON B is not, PERSON B is effectively definitionally desperate in comparison to PERSON A, which is generally not an attractive look. PERSON A is dating with the understanding that they can literally instantly have another date.

Girl Power

With the advent of online dating, women in prime reproductive age are in the dominant position in the dating market for the first time in human history. This comes with huge social ramifications. Setting aside local and recent context, dating has historically been drastically riskier for women than men (and it still is, but less so). Physical safety has been an ever-present issue for women in meeting potential dates, not to mention after agreeing to be alone with them on a date. In the era of online dating, women are at significantly less risk simply by not being in the immediate proximity of their prospects, and rejecting a prospect has no downside risk. Women globally also have more upside potential because they can draw from larger prospect pools than ever before. Due to the significantly higher biological risks associated with reproduction, women are intrinsically far more selective when evaluating potential mates than males. In an online dating context, this selectivity is more apparent than ever, with significant knock-on effects for the rest of the culture. There is less pressure to "settle" than at any other time in modern history because of the availability of alternatives and the speed of interactions. This is an area ripe for further academic research.

“Thank you, next” – Ariana Grande, prolific dater

The options available to women on their phones mean they do not have to participate in some preexisting social power structures that function to limit their overall life options. The cascading implications are profound. Some may quibble with this view as it applies to developed countries, but the online dating phenomenon is intersecting with culture in a major way in emerging markets, particularly in Muslim countries.

HALAL LOVE

Western Muslims Swipe Right To Find Their Match on 'Minder'

Mobile apps are helping Western-raised Muslims date like everyone else.

Shaheen Pasha | Updated 04.14.17 12:07PM ET / Published 02.23.15 5:15AM ET

f t e

We Spent a Month Swiping Right on Minder, the Muslim Tinder

One guy's profile read: "Looking for a Khadija in a world of Kardashians."

By Maroosha Muzaffar, Zeyad Masroor Khan, and Partheshri Arora

Jul 9 2016, 2:00pm f Share t Tweet S Snap

⁵ <https://www.thedailybeast.com/western-muslims-swipe-right-to-find-their-match-on-minder>

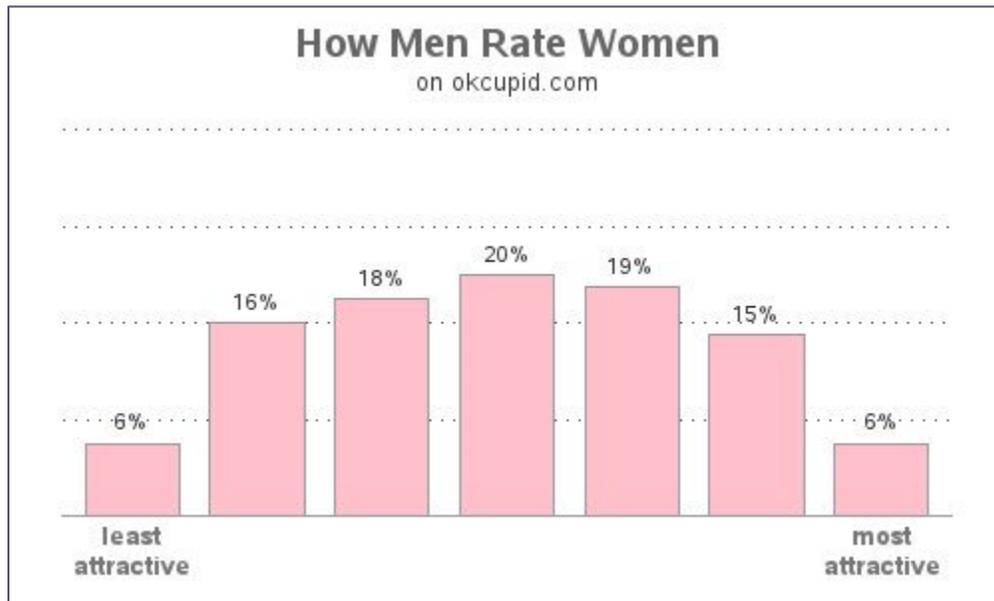
⁶ https://www.vice.com/en_us/article/mbkmey/we-spent-a-month-swiping-right-on-minder-the-muslim-tinder

The shifts in market opportunities and costs have the effect of lowering the market value of the median male and also incentivizing the female cohort to hold out for better values, which they are more likely achieve given the number of iterations of the game they can play by simply swiping on a phone. This has led to Tinder and other app usage time being as high as 45 minutes per day per user. These dynamics have also led to prime reproductive age individuals having less sex, with men being disproportionately priced out of the market. This is a material driver of the “incel” (involuntary celibate) social movement/problem.

There is a very interesting paper by Melanie Li-Wen Long and Anne Campbell entitled *Female Mate Choice: A Comparison Between Accept-the-Best and Reject-the-Worst Strategies in Sequential Decision Making* that attempts to evaluate female mate selection criteria and constraints around it.⁷ While the paper is too nuanced to go into in this overview, the punchline is that the general dominant constraint for women has been not the risk of selecting too low quality of a mate, but rather the risk of not settling for an adequate mate and in doing so ending up alone. We would expect online dating as a medium to materially alter this dynamic as a constraint.

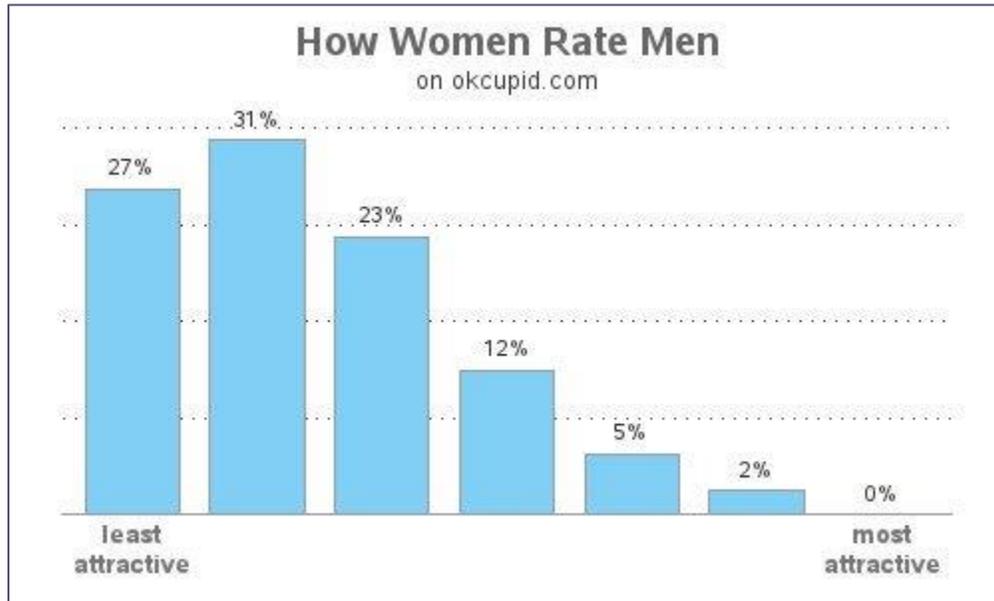
The first two charts below from OKCupid’s data disclosures show how men and women view each other’s attractiveness (the “pricing function” in economics terms) and the third chart below shows the rates of individuals in prime household formation having sex, which we will roughly use as a proxy for some sort of relationship formation (the “market clearing rate” in economics terms). There is a wonderful book that digs into these dynamics and others called *Dataclysm: Love, Sex, Race, and Identity—What Our Online Lives Tell Us about Our Offline Selves* by Christian Rudder that we highly recommend reading. It is hilarious.

Below are some entertaining charts from OKCupid on how men rate women versus how women rate men. Men broadly rate women on a nearly perfect normal distribution.

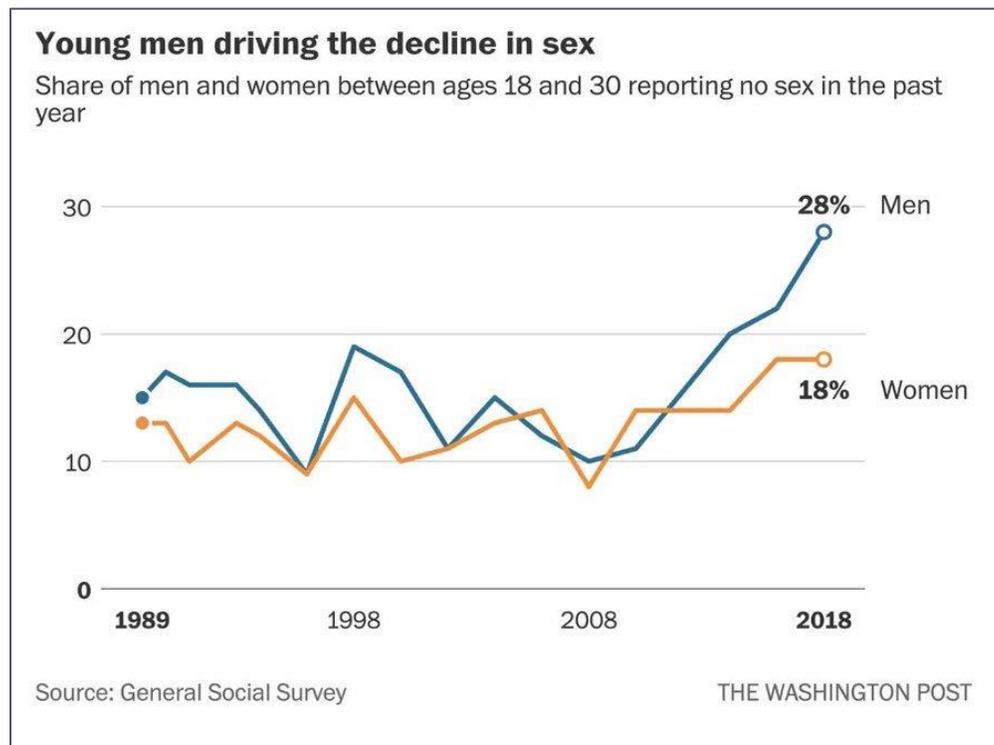


⁷ <https://journals.sagepub.com/doi/full/10.1177/1474704915594553>

Women rate men on a curve that we assume approximates male ownership rates of crocs/cargo shorts. 0% of men rated most attractive makes sense. Women know all men secretly own at least one pair of cargo shorts.



If we assume OKCupid’s data is roughly representative of naïve preferences, and that incentives to “settle” are lower due to decreased market frictions, we would expect women in a given cohort would net choose to opt in to dating or sex at a lower rate. This appears to be exactly what is happening:

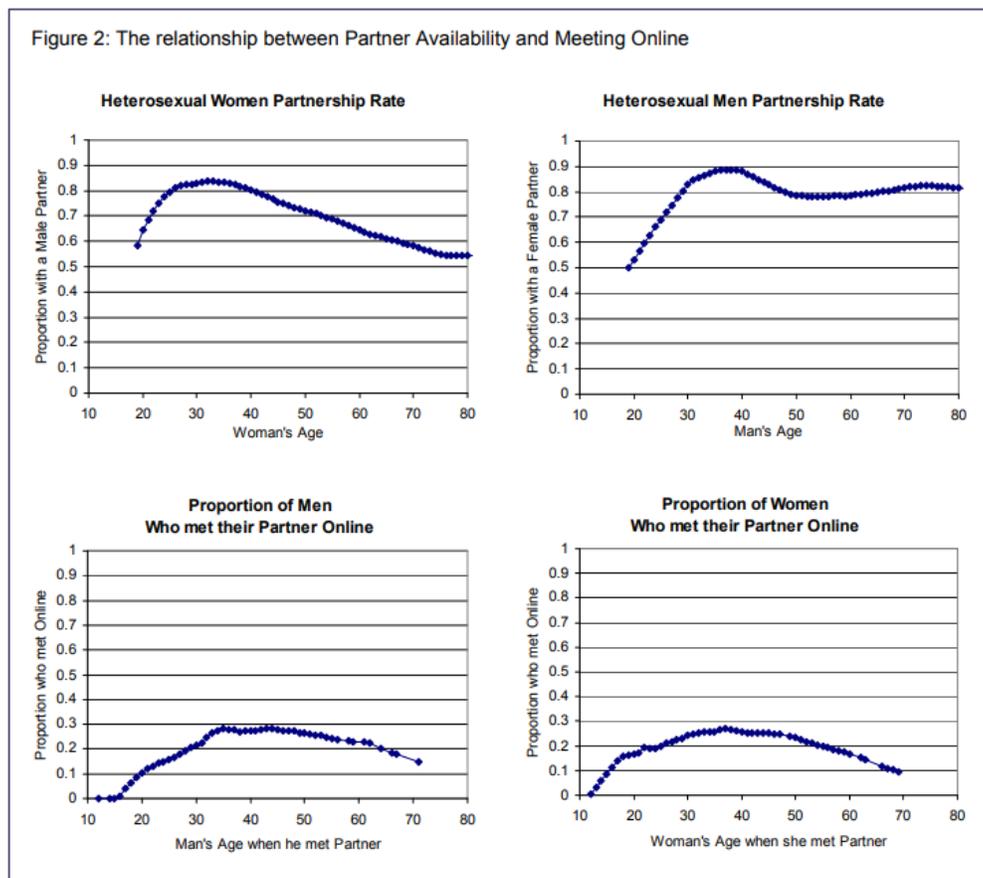


The natural question that follows from a lower overall matching rate is “what causes the market to balance?”

Age

Age is obviously a massive factor in dating, and it remains one of the most important factors in evaluating the market. Women aged 18-25 are the effective “price setters” of the market and are able to select at will from the available inventory of males aged 18-60. Generally, women will only date older and men will only date younger. Thus, as women age from 20 to 30 years of age, 25% of the available inventory of potential mates evaporates. In addition to this, the rates of partnership for both genders is fastest between 20 and 35, going from 50% to 90%. This means that as female market participants move from age 20 to age 35 their available inventory to select from may shrink to a small minority of the original pool. Male market participants face a virtually unchanged opportunity set, if not an increasing pool of opportunities.

This also means that men struggle more in the dating market when young, and over time adjust expectations as the market prices their deficiencies more shrewdly. Between ages 30 and 35, both male and female cohorts are highly predisposed to forming long term partnerships due to visibly shrinking opportunity sets from the female perspective and general exhaustion and expectation rationalizations from the male perspective. When matching occurs, participants are also making decisions with far more experience than past generations, particularly regarding identifying unacceptable risks to a relationship and self-selecting out of those scenarios. People will not stick around in relationships with major red flags if another relationship is 30 seconds of phone usage away and iterating that a few dozen times on average leads to participants effectively creating a more robust database of “deal breaker” issues that are avoided entirely. Below are curves illustrating male and female partnership rates by age, and historical online partnership rates by age.



⁸ <https://journals.sagepub.com/doi/full/10.1177/2378023119873497>

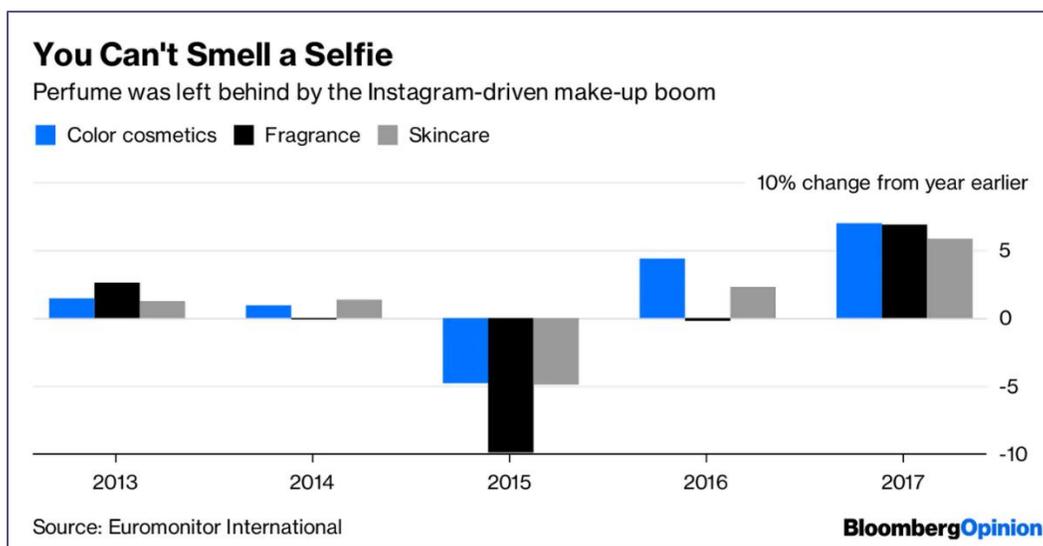
The age dynamic creates significant inter-age cohort competition in the female population and increased overall competition in the male population. This can be conceptualized as the market becoming more efficient, which naturally leads to many market participants anecdotally expressing unhappiness with the status quo as they incorrectly identify an inability to produce low effort excess returns as the circumstances being “unfair.” Basically, the same thing is happening in the dating market as is happening in the Hedge Fund market: things are getting more efficient, very few are pleased about it, and there are lots of strange advice books, blogs, and videos coming out.

Speaking of expectations that may be over inflated by pop culture, we feel it is tremendously important that we highlight the very existence of the film “Long Shot” (2019), in which Seth Rogen, who is unemployed in the film, and Charlize Theron, who is *The Secretary Of State of The United States Of America* in the film, fall in love. Yes, you read that right. “Long Shot” may have actually overdone it and become totally unbelievable as a premise, because the film only grossed \$53.4mm on a budget of \$40mm.



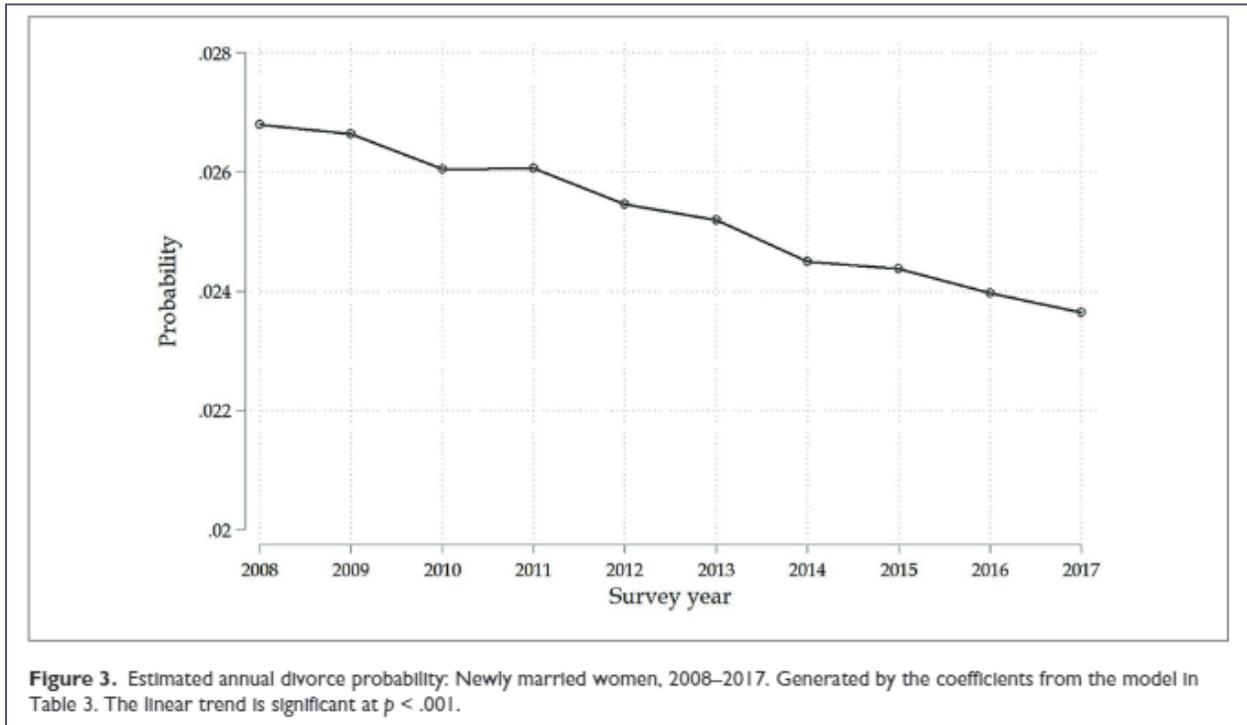
Doing It for the ‘Gram

An additional knock-on effect of online dating that initial potential mate matching is increasingly visual, leading to secular demand growth in cosmetics and photography products, while fragrance sales remain flat because their value is irrelevant in the current market. This is largely facilitated via Instagram and mobile usage, and while it is a less important point to this thesis overview, it is an area for more detailed research and discussion.



Divorce

Divorce rates are dropping as a result of market participants making far more informed and well-vetted decisions versus historical norms. Academics have, in our opinion, misidentified academic and economic achievement as being the driving variables as opposed to a framework of market frictions coming down. The chart below shows the 1-year aggregate divorce probability.



This metric is highly messy due to data gaps, non-static underlying cohorts, and several other factors, but if you compound it over an assumed remaining actuarial life you can impute a lifetime marriage success rate. If you assume average marriage age is 30 years old and average age of death is 80 years old, then a given couple would have a $(1-0.026)^{50} = 26.7\%$ chance of dying married at the beginning of the study. This is fairly close to the aggregate 76.8% of first marriages that end in divorce. The aggregate one year probability has dropped by over 15% during the study, but the entirety of the drop is driven by the younger cohort. The <35 year old cohort has a divorce probability of 18.1% vs 37.2% in the 55+ year cohort. Reasonably people would comment regarding the lack of time in the relationship for the younger cohorts, and that is certainly a factor, but there is a material shift here even controlling for that⁹.

⁹ <https://osf.io/preprints/socarxiv/h2sk6/>

Questions to Consider:

- What is the change in total number of dates an individual has gone on prior to marriage over time?
- How many partners has the average or median individual lived with before marriage? How does this number change looking at a 2019 cohort vs a 1950 cohort?
- How much of the lower divorce rate is increased information by participants? How much is simply sheer exhaustion from the dating grind? Does it matter?
- Will marriages in 2019 maintain lower divorce rates, or are they just delayed?
- Will non-monogamous relationships become a more common phenomenon?
- How have these dynamics impacted non-hetero-normative relationships?
- How will all of these dynamics work in non-city areas? Lagged? Permanently different?
- Is finding dates in real life (IRL) now a relatively more advantageous strategy given fewer and fewer people do it?
- Will localized or specialized dating platforms emerge successful or will Match Group have a monopoly?
- Are there opportunities in older dating markets?

Dating Suggestions:

Everyone who has read this document or any of our research on the subject has asked what they should do in their own dating life. Here are our suggestions, based on research:

- Ask literally anyone other than a Hedge Fund guy for dating advice.
- Seriously.