



# Competing for love: Applying sexual economics theory to mating contests

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## ABSTRACT

Sexual economics theory analyzes the onset of heterosexual sex as a marketplace deal in which the woman is the seller and the man is the buyer, with the price paid in nonsexual resources. We extend that theory to analyze same-gender contests in that marketplace, and to elaborate the idea that what the woman sells is not just sex but exclusive access to her sexual charms. Women compete on sex appeal and on the promise of exclusiveness (faithfulness), with the goal of getting a man who will provide material resources. Men compete to amass material resources, with the goal of getting a good sex partner. Female competition includes showing off her sexual charms, offering sex at a lower price than rivals, seeking to improve her physical assets (e.g., by dieting), and use of informational warfare to sully rivals' reputations while defending her own reputation against malicious gossip. We review evidence of these patterns, including evidence that female body dissatisfaction and pathological eating patterns increase when women perceive an unfavorable sex ratio (i.e., shortage of eligible men). Men compete in groups to amass resources, so men see other men not just as sexual rivals but also as coalition partners. Male homophobia is often not about sex but rather invokes the stereotype that a homosexual man will not be an effective coalition partner. Misunderstandings about whether sex or exclusivity is the central commitment can complicate marital adjustment for couples.

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## 1. Introduction

A contest is a situation in which different competitors have incompatible goals, so that success for one entails failure for the other(s). Often all want the same thing but only one can have it, such as the trophy, or the monogamous mate, or the auctioned painting. Biological evolution can be understood as a contest: winning is measured by reproductive success, and strictly speaking the criterion is not total offspring but rather successfully reproducing offspring. Put another way, natural selection is a contest in which nature measures success by the tally of grandchildren. Toward that end, individuals compete to attract and retain high-quality mates, with whom they will raise thriving offspring.

Of course, individuals do not necessarily or consciously care about nature's yardstick and may measure success in other ways. Individuals may judge their and each others' success in terms of attracting romantic partners and even enjoying sexual relationships without reproduction. Potential mates may also evaluate an individual based on his or her success in other con-

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tests. As a familiar example, a man's sex appeal to women is bolstered insofar as he bests other men in sports, business, or art. In contrast, men's mate choices are largely indifferent to which women outperform other women in those arenas.

The purpose of this manuscript is to update and extend an economic marketplace analysis of human sexual behavior, and in particular to incorporate an understanding of contest competition into that analysis. The theory of sexual economics was articulated by [Baumeister and Vohs \(2004\)](#). In simple terms, it treats sex as a resource, for which there exists a marketplace in which women are the sellers and men are the buyers. Although mating is typically a matter of one man and one woman, or in economic terms one buyer and one seller, the main contest is not buyer against seller. Rather, sellers compete against other sellers, and buyers compete against other buyers. Thus the most important and theoretically interesting competitions are within the same gender.

Sexual economics theory rests on standard basic assumptions about economic marketplaces, such as the law of supply and demand. When demand exceeds supply, prices are high (favoring sellers, that is, women). In contrast, when supply exceeds demand, the price is low, favoring buyers (men).

The original articulation of sexual economics theory by [Baumeister and Vohs \(2004\)](#) emphasized buying and selling, so to speak, but did not much elucidate the contest aspects. Hence we shall use sexual economics theory as a framework for exploring how men compete against other men to get a good woman, and, perhaps even more important, how women compete against other women to get a good man. First, however, it is necessary to revise and update sexual economics theory, including to specify that often what is sold is not just sex but exclusive access to sex with a particular person.

## 2. Sexual economics theory

Psychology's theory of sexuality has borrowed heavily from two other fields. One is political science, as reflected most prominently in feminist analyses of sexual behavior as reflecting gender politics, with emphasis on male domination and female victimization. The other is biology, most prominently in the form of evolutionary psychology, based on different reproductive contingencies. [Baumeister and Vohs \(2004\)](#) sought to broaden the intellectual base of sexuality theory by turning to economics for possible insights.

To be sure, money and sex have some different properties. Money is the same everywhere, and dollars are fully interchangeable: A dollar is worth the same regardless of who has previously owned it or used it for what. Sex is different. Sex with some people is worth more than sex with others, and it matters who has previously had sex with the same partner (especially if offspring ensued). Nonetheless, there are many features of financial marketplaces that can be used to understand sexual mating activities.

The focus of sexual economics theory applies the logic and principles of economic marketplaces to the onset of sexual intercourse among heterosexual couples. The core idea is that women are the sellers and men are the buyers. This starts with the abundant evidence that "everywhere sex is understood to be something females have that males want" ([Symons, 1979, p. 253](#)). One major psychological basis is presumably the mismatch in sexual desire: By and large, men want sex more often than women, including desiring to commence sex earlier in the courtship and with lower standards for finding someone acceptable as a sex partner (e.g., [Kenrick, Sadalla, Groth, & Trost, 1990](#); [Simpson & Gangestad, 1991](#)). A review by [Baumeister, Catanese, and Vohs \(2001\)](#) compared men and women on about a dozen different markers of sexual desire, including desired frequency of sex, desired number of partners, frequency of spontaneous arousal, thoughts about sex, positive attitudes toward genitalia, sexual fantasy, willingness to sacrifice and risk for sex, masturbation, and self-rated desire. On all measures, evidence indicated men wanted sex more than women.

Because the man typically wants sex more than the woman, she has a power advantage. According to the "principle of least interest," the person who desires something less has greater control and can demand that the other (more desirous) person sweeten the deal by offering additional incentives or concessions ([Waller & Hill, 1951](#)). Hence sexual economics theory begins with the assumption that female sexuality has exchange value, whereas male sexuality does not.

Sexual economics theory is not primarily or specifically about exchanging money for sex, as in prostitution, although that does constitute one instance (especially insofar as countless men have paid women for sex in many different cultures and contexts all over the world, whereas the reverse, women paying men for sex, has been extremely rare). Rather, a broad range of valued goods can be exchanged for sex. In return for sex, women can obtain love, commitment, respect, attention, protection, material favors, opportunities, course grades or workplace promotions, as well as money. Throughout the history of civilization, one standard exchange has been that a man makes a long-term commitment to supply the woman with resources (often the fruits of his labor) in exchange for sex — or, often more precisely, for exclusive sexual access to that woman's sexuality. Whether one approves of such exchanges or condemns them is beside the point. Rather, the key fact is that these opportunities exist almost exclusively for women. Men usually cannot trade sex for other benefits.

The onset of a sexual relationship thus involves the man and woman choosing each other. In perhaps overly simple terms, he chooses her presumably on the basis of her sex appeal, that is, how much he expects to enjoy having sex with her. Meanwhile, she chooses him on the basis of the resources he can provide, that is, on the basis of nonsexual benefits he can furnish to her. This exchange defines the nature of the same-sex competition. Women compete to seem more sexually attractive than their rivals. Men compete to seem a better provider than their rivals.

Characterizing women as sellers and men as buyers in a sexual marketplace offers a basis for several other key aspects of sexual economics theory. First, the decisions of various individuals (and couples) are interlinked. In particular, a local mating

community will converge on a standard “price” for sex. This refers to how much the man must normatively give the woman in order to persuade her to commence a sexual relationship. Second, a high price favors women (as sellers), and a low price favors men (buyers). Third, the price will rise and fall according to laws of supply and demand.

Evidence for the operation of supply and demand dynamics in sexuality goes back at least to the landmark work by [Guttentag and Secord \(1983\)](#), who showed that imbalances in the local gender ratio have reliable effects on sexual norms. These changes suggest economic market fluctuations rather than political dominance: It is the minority, not the majority, whose preferences prevail in the marketplace. When women outnumber men, such as after a war in which many men were killed, supply exceeds demand, and so the price of sex is low, as indicated by liberal norms for premarital and extramarital sex ([Schmitt, 2005](#)). In contrast, when men outnumber women, norms tend to be prudish, with very little premarital or extramarital sex. Such prudish norms reflect the high price of sex (because demand exceeds supply): Often a man must make a lifetime commitment to share all his wealth with the woman and vow to forsake all other women forever before he can go to bed with her.

Sexual economics theory also expands on evolutionary theory’s point that behavior is often context sensitive. Men’s sexual behavior adjusts to market conditions. When women are scarce, so that short-term sexual encounters will be mostly unavailable, men seem to understand this and give up on searching for them ([Schacht & Mulder, 2015](#)). In a similar vein, [Moss and Maner \(2016\)](#) showed that when one perceives one’s own gender to be in the majority, one shifts toward adopting the sociosexual orientation of the other gender: Men become more restricted when there is a scarcity of women, and women become more unrestricted when men are scarce. Unlike in democratic politics, but consistent with economic market patterns, the minority holds the power to get its way. The relevance to money is also apparent: [Griskevicius et al. \(2012\)](#) showed that a scarcity of women makes men more willing to spend money and incur debt, both in terms of broad economic activity and specifically in connection with courtship.

A fourth point introduces complications. Sexual economics theory was guided by [Becker’s \(1976\)](#) assertion that sellers compete and collude more than buyers, but we understand that today’s economists would no longer accept that as generally true. One point is that seller collusion often takes the form of a cartel in which the sellers drive up prices. Cartels are however unstable, especially because it is in the best interest of each individual to undercut the official price for her favored buyer. (A cartel is thus apparently the opposite of a Nash equilibrium!) Nonetheless, we note extensive evidence that women do generally collude to try to keep the price of sex high, especially when they are at severe economic disadvantage (see [Baumeister & Twenge, 2002](#), for review of evidence on cultural suppression of female sexuality). Perhaps the rational strategy for each woman is to support the general practice of pressuring other women to withhold sex unless the price is high – while herself undercutting the market price slightly for her most favored customer. Unlike mass market cartels, each woman needs only a single customer, and so the incentive structure that undermines most cartels would be far less powerful in the sexual economics case.

In any case, it is essential to recognize that buyer and seller contests in sex take quite different forms. Generalizing from one gender to the other is likely to mislead.

### 2.1. *Selling sexual exclusivity*

A full understanding of mating contests calls for sexual economics theory to be elaborated in one more crucial respect: exclusivity of access. Whereas the initial exposition of sexual economics focused on sex, we elaborate an important second aspect here. The mating process does not lead just to sex but often to the establishment of lasting relationships marked by sexual exclusivity, particularly on the woman’s part. She thus has two goods to offer him, that is, both sex and fidelity. For short-term mating, to be sure, sex may mainly what she offers, but for a long-term, committed partnership, she offers him exclusive access to her sex organs and reproductive system. In evolutionary terms, the fact of paternity uncertainty may have guided natural selection to instill a high concern in men to have their partners refrain from sex with other men. Men who were unconcerned about wifely infidelity may have ended up raising other men’s offspring instead of their own, thereby leaving fewer genetic descendants.

The double goal creates complexities for the woman. To signal sexual allure, she may want to seem highly aroused and sexually interested, whereas to signal potential fidelity, she might do best to seem uninterested in sex.

### 2.2. *Relevance to contests*

The sexual marketplace is a complex cultural phenomenon marked by rituals, gifts, deception, distinct public and private aspects, marketing, and more. It is built over the basic biological substructure, in which males and females compete for mates, measuring their own success and failure in terms of pleasures and advantages, but measured by nature in terms of successfully reproducing offspring. The buyer and seller are not primarily in competition with each other but rather compete against others like themselves who want the same mate.

The nature of the contest differs as a function of local norms for exclusivity. In most modern countries, monogamy is enforced, so each person can have only one committed mate at the same time. To win the contest to obtain the mate you want, you must therefore defeat all rivals. In contrast, when multiple simultaneous mates are permitted, the nature of competition changes. In world history, polyandry has been rare, but polygyny has been relatively common. Polygyny (one husband, multiple wives) intensifies competition among men but reduces it among women. To illustrate, if there are equal

numbers of men and women in a society, and men can have multiple wives, then a given woman has a large assortment of possible mates, including many who are already married. Meanwhile, for men, the odds of finding a mate become more difficult, because each woman can only have one husband and some men have many wives, thus inevitably leaving some men with none.

In both monogamous and polygamous societies, the woman's appeal rests partly on offering exclusive access. (The only difference is whether the man reciprocates the exclusivity, in principle at least.) Hence in both cases the woman offers both sex appeal and exclusive access to attract a mate. If anything, in polygamous society the importance of sex appeal may decline relative to exclusivity, because she does not have to convince the man that she is the best sex partner he can get. All of this suggests, crucially, that the woman may see the mating negotiations more in terms of her offering exclusive access than sex per se.

Given the decline of polygamy in the modern world, our analysis focuses on contests under monogamous circumstances. It is a quaint fact that the institution of monogamy is widely celebrated as a benefit to women, whereas in fact it deprives women of options while its main beneficiaries are low-status men. Regardless of the reason, monogamy appears to be firmly entrenched in modern life, though in many modern societies it is less a matter of ensuring that each couple mates for life than of enforcing mandatory divorce, insofar as each person must shed his or her current mate before marrying a new one. The result has been increasing turnover in committed relationships, so people of all ages find themselves back in the mating market looking for a new partner. Mating contests in the modern world are therefore not confined to the brief period of late adolescence when people find a mate and settle down permanently.

### 3. Women against women

We begin with women's competition. She is not competing for sex, per se, because sex is readily available to most young women, and during the bloom of youth most young women can find sex if they want it. Usually more men are interested in having sex with her than she wants (opposite to the situation of most young men).

Instead of sex, therefore, her primary goal is to get a high quality man. Quality matters more than quantity (unlike for men, for whom quantity is a viable biological strategy). Across a woman's life she can only have a few children, so being choosy is important for maximizing her success in the biological contest (e.g., [Trivers, 1972](#)). Quality in a sex partner means a man who will provide for her and her children, as well as protecting them from danger (and contribute high quality genes to her offspring). Resources are mostly created in the male sphere, so she wants a man to bring her a goodly share of what the men produce. She may be also physically and sexually attracted to a man who has indications of high quality genes (e.g., being symmetrical), a pattern that natural selection will reward insofar as the quality of his genes will improve the quality and success of her offspring.

Sex appeal (very much including sexual fidelity) is what the woman offers the man in exchange for his providing her with resources. She competes against other women to be the most sexually desirable. Sex appeal is her means of competition, the goal of which is nonsexual resources. As we shall see below, this is precisely reversed for the males, who compete among themselves to accumulate resources, toward the goal of obtaining sex.

#### 3.1. Game structure of female mating contests

In mating competition, the woman's goal is to get a man to provide for her and her offspring over a long period of time. In evolutionary history, women often obtained food mainly by gathering, whereas men hunted, and so women sought access to the greater protein and other caloric benefits of the men's activities. Once civilization commenced, most wealth was created in social structures built by men; women rarely have worked together to build institutions capable of producing surplus wealth. The deficit in women's cooperation with women has been apparent throughout history and continues to be evident among modern samples (for meta-analysis of gender differences in cooperation in economic games, see [Balliet, Li, Macfarlan, & Van Vugt, 2011](#)). [Tomasello \(2016\)](#) reviewed evidence of cooperative prosociality among nonhuman primates and concluded that early cooperation is mainly for purposes of physical combat, and therefore males tend to be more social than females. Female apes do not usually band together to fight other females, except that occasionally two adult females will work together to steal and kill another one's baby.

Thus, to women, other women are primarily rivals, and the formation of female alliances and coalitions is much rarer than among men (see below). Adding a highly competitive (i.e., sexually attractive woman) to the social group is a straight loss for the women in the group, insofar as men will choose her above them, and the more the men spend on her, the less they have left to spend on the others. We may speculate that women's competition is more zero-sum than men's, for whom the addition of a highly competitive man to the social group may boost the team's chances of success. If the team prevails over the enemy, then all the men in the winning team may have improved success, and so adding a strong male can benefit them.

Moreover, human children remain dependent for a long period of time, and so a mother is doubly needy, first because of the inadequacy of female-created resources to sustain herself, and second because of the need for additional resources to provide for children. Human males are essentially unique among primate species in providing resources for their offspring, let alone for the mothers of those offspring ([Geary, 2000](#); [Van Creveld, 2013](#)). This increase in female dependency on males thus intensifies the importance of competing to secure a long-term male provider.

Viewing women as the sellers of sex adds several dimensions. In principle, women are offering variations on the same product (sex). They can make their product more attractive than their rivals according to a limited set of criteria. First, having a more attractive face and body might increase the man's pleasure. Second, she may hint at being more passionate, so that he would enjoy her more. Third, she may promise to be faithful, so he can enjoy her exclusively rather than sharing her with other men, thus freeing him from pangs of jealousy.

In exchange for commencing sex with her, the woman wants the highest price, and insofar as that is tied to getting a man to share his wealth, it means attracting the wealthiest man (or the future wealthiest). Other women are rivals for these desirable men, and they may reduce the woman's ultimate take-home price, particularly if the man chooses one of them instead of her, leaving her to find another buyer at presumably a lower price. Essentially she has to persuade the most desirable man that a sexual relationship with her is his best bet, superior to what he could get elsewhere (and therefore worth the exclusive commitment to her).

The rivals can defeat her by offering sex at a lower price, which puts competitive pressure on her to commence sex with less commitment. This sets off a downward spiral of lower-price sex that is ultimately costly to all the women involved, as the limiting case is that women get almost no benefit from their sexuality. (This may be what happens when men are extremely scarce, such as after a major war, or in minority groups with male shortages; [Guttentag & Secord, 1983](#).) Generally women try to band together to impose common norms among themselves and punish (such as with acerbic gossip) the individuals among them who grant sexual favors too liberally ([Baumeister & Twenge, 2002](#)). The relevant thing about this is that it imposes restrictions on female competition. Like a setting a legal minimum price, it prevents the price from dropping as response to competition based on market pressures when rivals lower their prices.

Again, modern economic theory recognizes such cartels as unstable. Each woman can benefit by offering sex at a lower price than the going rate. Still, it remains in the best interest of each individual woman to enforce the high cartel price by pressuring other women to maintain it, such as by shaming women who offer low-price sex. Widespread evidence indicates that such social pressures have often been maintained, even if erratically, in many societies and over extended periods of time ([Baumeister & Twenge, 2002](#)). Meanwhile, she can undercut the collective price for her favored customer, thereby locking in the man she wants most. This will not do a great deal of damage to the cartel as long as she only does it once in a while, such as with the man she intends to marry. (Thus, histories of sex note that in many historical and cultural periods that embraced the value of retaining virginity until marriage, in actual fact couples often commenced sex during the engagement period; e.g., [Tannahill, 1980](#).)

Undercutting the market price for her favored man—that is, going a bit farther sexually than is the apparent local norm—may have a second advantage, in light of the emphasis on sexual exclusivity. Again, she competes not only to convince him that sex with her will be better than with her rivals, but also that she will be more faithful to him than they will. The difficult task is to convince him that she is not interested in sex with different men but is quite interested in having it with him. This can be served by conveying the impression that she has high standards of sexual morality and restrictive preferences—so that she desires him but nobody else.

To bolster this strategy, she may derogate rivals as promiscuous. Meanwhile, of course, they may do the same to her. Female contests may therefore take on an aspect of “informational warfare.” Female friends may share information about sexual antics of others, as a way of storing up ammunition should one of them find herself competing against the other for male attention.

In terms of sex appeal, one major competitive threat to a woman's market power is an attractive rival who offers sex at a relatively low price. If the attractive woman maintains a high price, the other women can attract mates by undercutting it occasionally for their preferred man. But if the most attractive woman offers sex at a low price for multiple men, what can the other women do? The apparent answer is that they can depict her as incapable of fidelity, so that men will not regard her as a promising long-term partner.

A major empirical question is how much women's gossip about each other finds its way to the male object of her affections, and if and when it does reach him, how much it actually does change his decision about whether to mate with her. When it does reach the man, it does seem to have some influence. By pairing women's photos with a negative statement ostensibly made by another woman, [Fisher and Cox \(2009\)](#) found that women's comments about target females' appearance affected men's evaluations of the target women's attractiveness. Men were most swayed by the derogatory comments by attractive women. Still, such evidence is far short of indicating that men's choices actually change in reality.

The main dimensions of female competition are therefore as follows. First, they compete on sex appeal, that is, to be the most sexually desirable. The goal is to persuade the man that sex with her will be preferable to sex with other women. Having a desirable body is one aspect, so she takes care of herself to look good and achieve a desirable shape (such as by dieting). A woman can increase her sex appeal by advertising. She seeks to dress in clothes that show off her body to best advantage, as well as enhancing her beauty with jewelry. Makeup is designed chiefly to simulate sexual arousal (e.g., flushed face, large eyes, reddish lips), which can thus in principle dupe the man into believing that she will be an eager and thrilling sex partner. To be sure, this may be false advertising: Evidence suggests that many women's sexual desire is limited to begin with and drops off sharply as soon as she settles into a committed relationship (e.g., [Arndt, 2009](#); [Baumeister et al., 2001](#); [Hakim, 2015](#); [Kontula, 2015](#)). We shall return to this problem later.

Second, women can compete on price. A woman may attract a man by offering him more or better sex than her rivals can offer, and for less of an initial investment by him. This is presumably the mechanism by which sexual norms become looser

when the gender ratio shifts toward a surplus of women, so that supply exceeds demand (Guttentag & Secord, 1983; Moss & Maner, 2016; Uecker & Regnerus, 2010).

Third, women compete on exclusivity. A woman can assume that a man prefers a long-term mate who will refuse sex with anyone else. This is not easy to convey, but perhaps the more she conveys to him that he totally fulfills and satisfies her sexual desires, the more he can assume that she will not go looking for other sex partners. More important, perhaps, she can try to convince him that other women are sexually indiscriminate and possibly incapable of fidelity, so that if he were to choose one of them over her, he would be setting himself up for years of being cuckolded.

Also unlike men, women do not generally form task-oriented groups, with the proviso that her success in attracting the best male partner would depend on the status she achieves among the women. She does not become a more attractive mate by creating resources and thereby gaining a high-status position in a work group. Hence female competition focuses on sex appeal to men and on creating the impression that other women would be unfaithful.

### 3.2. Recent evidence about female Competition: Sex appeal

Longstanding stereotypes suggested that women were not competitive, but for decades now, many observers have noted that this was due to understanding competition in male terms and thereby missing female competition for love and male attention (e.g., Friday, 1977). In our analysis, women do compete in subtle ways. We shall emphasize two. The first is sex appeal.

It should hardly be controversial that women compete to look sexually attractive to men. Women have long sought to use clothing, jewelry, and makeup to enhance their attractiveness. They also select clothing that shows off their bodies, in order to attract men. In a field study at a disco, Grammer, Renninger, and Fischer (2004) found that the more motivated women were in terms of seeking sexual partners, the more skin they displayed. They noted that women were aware of altering their garb for purposes of attracting men. Durante, Li, and Haselton (2008) found that women showed up to the laboratory wearing more sexually revealing clothing when they were close to the most fertile segment of the menstrual cycle (when presumably the biological impetus to compete for male attention is strongest), and they also expressed more preference to wear such clothing to an evening social event.

Women also engage in physical competition to make their bodies be more attractive. In modern Western society, as in many others, a slim figure with an hourglass shape is considered desirable, and women have increasingly sought to get their bodies into the most desirable shape by dieting, exercise, and even surgery (e.g., liposuction, breast enlargement). Dieting in particular often borders on pathological eating patterns such as bulimia and anorexia. These can be viewed as excesses of the “female ego,” just as the male ego has long been known to produce undesirable and dangerous consequences through inordinate competition.

Changes in the local sex ratio can alter the intensity of female competition, as shown by Reynolds, Forney, Frederick, and Baumeister (2017). An online survey of American women assessed their perception of the local sex ratio, as well as each woman’s desire for thinness and signs of pathological eating. The more women perceived the local mating market to have a shortage of men, the more they wanted to be thin (in particular, they reported higher levels of dissatisfaction with their bodies), and the more signs of eating disorders they reported. Women who were highly competitive (particularly in mating domains) were most likely to desire to be thin, consistent with the view that orientation toward competitive contests underlies these reactions.

The causal role of sex ratio perceptions was confirmed in two experiments. In the first, 152 female college students read bogus news articles (taken from Griskevicius et al., 2012) ostensibly documenting that the campus sex ratio was changing either toward ever more women or ever more men. When women read that more and more women were flooding college campuses, their body dissatisfaction increased, as measured by the difference between how they rated their own body and how they rated what they thought men preferred, as well as self-ratings on a one-item measure asking how satisfied was she with her body. Women who believed that their college experience matched what was described in this article were less happy than other women with their weights and shapes. But if they believed that their college experience matched the reverse article (in which there were more and more men on campuses) they were happier with their weights and shapes. In the second experiment, 269 single women were recruited to test out an ostensibly new university dating service. In the lab, they viewed a series of the ostensible dating profiles of their fellow students. However, the ratio of dating profiles had been manipulated to have either more men or more women. When the women saw a mating market flooded with competitors (more women), they became less satisfied with their own bodies.<sup>1</sup>

Thus, in sexual economics terms, a shortage of buyers (eligible single men) increases the competitive pressure among sellers (single women). They respond to the marketplace situation, in which supply exceeds demand, by becoming increasingly critical of their product (their bodies). Although these experiments did not measure behavioral change, they combine with correlational evidence reported earlier on pathological eating patterns to suggest that women respond to a shortage of men by trying extra hard to be thin.

<sup>1</sup> One reviewer questioned the use of deception in these studies. Economists generally avoid deceptive research practices but psychologists often use deception to improve experimental control. We sought to understand the effects of perceived sex ratios, and for that it was useful to create different perceptions of what the sex ratio is – some of which therefore had inevitably to be false (hence deception).

In further work, [Reynolds and Baumeister \(2016\)](#) asked women to imagine being the fashion editor of the local newspaper and to make recommendations as to what women should wear. They made selections based on a variety of outfits that ranged from sexy, revealing fashions to conservative clothes that covered up much of the female body. Older, heavier, and otherwise relatively unattractive women favored conservative clothes, whereas younger, thinner, and otherwise attractive women favored sexy, revealing outfits.

Once again, women's choices and responses indicated sensitivity to competition. Women who are at a disadvantage on the mating market (i.e., are relatively less attractive) favor conservative, non-revealing clothing fashions, in an apparent attempt to prohibit their competitors from advertising their relative advantages. Attractive women favored conservative clothing for others but more revealing garb for themselves, which would obviously maximize their advantage.

### 3.3. Informational warfare in female competition

The second sort of contest among women involves reputational competition and manipulation. It is a long-familiar observation that women sometimes engage in gossip, by which they disparage and derogate each other. Recent analyses have suggested that female gossip is not an idle or frivolous activity and may in fact reflect earnest competition for mates ([Campbell, 2004](#); [Hess & Hagen, 2006a](#); [Hess & Hagen, 2006b](#); [Hess & Hagen, 2009](#); [McAndrew, 2014](#)). Women collect and pass on information about each other, perhaps especially information depicting other women's sexuality in a negative, undesirable, or socially inappropriate fashion. [Hess and Hagen \(2009\)](#) have labeled this "informational warfare," as a way of denoting that women's gossip is a means by which they seek to defeat rivals for male attention and mates.

One might think that men would use informational warfare just as much as women, because men might wish to damage their rivals' reputations so as to improve their own chances. But perhaps females would rely on it more. Male reputations are often tied to objectively verifiable factors, such as physical prowess, the amassing of resources (e.g., money), and social status based on cultural achievement. It is easier for a man to rebut reputational challenges than for a woman, insofar as the man can prove he has resources or can display strength and courage, whereas a woman cannot easily refute accusations of promiscuity. Also, the very threat of physical aggression may operate to deter men from slandering each other, in a way that would not occur among women. The history of dueling provides ample evidence that derogating another man can put another man in physical danger. Women have hardly ever dueled and hence do not face this risk in connection with gossiping and slandering.

Still, absence of male gossip over rivals' promiscuity poses a challenge for the simple view that women do it to sway men's choices and are also eager to secure a faithful mate. Gossip may flourish mainly in the women's community, because it is the community of women who collectively benefit from restraining each other's sexuality. Crucially, evidence overwhelmingly depicts the cultural control of female sexuality as something that is done mainly in the women's sphere, with men playing minor, limited, or secondary roles, or indeed being opposed. A review of evidence on the phenomenon by [Baumeister and Twenge \(2002\)](#) found, to the authors' admitted surprise, a sweeping preponderance of evidence that female sexuality is mainly suppressed by other women. The sexual economics explanation is that this is a rational, indeed standard tactic of monopolies and cartels in economics: restrict the supply so as to drive up the price. The evidence for this unromantic view is extensive, including ample data on proximal influences on female sexuality. Indeed, a minor but revealing sign is the use of economic terminology to derogate women who offer sex with a lower commitment of resource transfer by the man than is the locally prescriptive norm of what women expect to receive for sex in that community. In plain terms, women sometimes describe a woman as "cheap" if she is willing to have sex for less male investment than is the norm favored by the local women.

To be sure, there are issues that will require further data and theoretical development. Cartels are generally unstable, because there is always an incentive for each one to cheat on the agreement and undercut the collective price. In most economic markets, that would disrupt the system hugely, but in sexual economics, each woman who bends the price does so only slightly and only for one buyer, so the prevailing price is maintained at the same level. The women don't really need to organize. They just need to have an automatic understanding that sexually loose women in their social group will lower their own appeal, and so they put pressure on the loose girls to tighten up. The woman can gossip about and otherwise punish women who undercut the market price – while still undercutting it just once or twice herself, so as to reel in the mate she really wants. This would be a completely rational strategy in her circumstances, and so this version avoids the Nash disequilibrium of cartels.

In any case, informational warfare in the form of gossip is important in female competition. Female informational warfare was investigated in a series of studies by [Reynolds \(2016\)](#) and [Reynolds, Baumeister, and Maner \(submitted for publication\)](#). Their results indicated several main patterns of female informational warfare, as well as confirming that women engage in these activities more than men. In two surveys, [Reynolds \(2016\)](#) found that women exceeded men in frequency of engaging in gossip, that is, in expressing interest in the personal lives of others, and in being the victim of malicious gossip by same-sex peers. Women did exhibit some reluctance to acknowledge actively participating in informational warfare. There was a general pattern of saying that "I do not spread malicious gossip about others, but other women do it to me." A similar pattern was also found when [Tracy \(1991\)](#) interviewed women about their competitiveness. Many reported that other women were competitive, but few believed they themselves engaged in this competition.

The three main patterns of female informational warfare were as follows ([Reynolds, 2016](#)). First, reconnaissance: Women showed much more interest than men in acquiring personal information about same-sex peers. They expected their friends

to disclose personal information and to tell them juicy information about other women. Women reported “Facebook stalking” more than men, that is, surreptitiously following someone else on social media to gain information without disclosing anything about oneself.

Second, women passed on more negative information about rivals than men did. The strongest findings involved behaviors by others rather than self, consistent with the pattern that women accuse other women of engaging in malicious gossip but deny doing it themselves. However, in further studies, Reynolds et al. (2017, submitted for publication) showed that women reported higher likelihood of passing on negative information about another woman who had recently entered their social circle insofar as the other woman was attractive or had been observed flirting with the participant’s boyfriend. Such circumstances rendered the other woman as a competitive threat, and women responded to that threat (at least in these hypothetical scenarios) by passing along information that the other woman was sexually unfaithful or promiscuous. Again, more competitively inclined women spread malicious gossip more than other women, especially about a rival.

A behavioral study by Reynolds et al. (2017, submitted for publication) found that women did in fact share information selectively. In the study, a female confederate posing as another participant disclosed to the (female) research participant that she had been intoxicated the previous evening, as indicated by a bad hangover, and added that she had had sex with two different guys the previous evening. Later, another confederate sat alone with the participant and recorded whether the participant passed on the information about the first woman’s indiscretion. Women were more likely to pass on the information if the other woman was dressed in a sexy, attractive manner than if dressed in a less alluring manner. The implication is that women passed on the information to discredit a sexy rival. Participants did not report liking the woman any less when she was dressed provocatively, further supporting that women may not hold consciously malicious motives when they damage their rivals’ reputations. Indeed, the seemingly malicious gossip was often couched in terms implying concern for the confederate’s welfare.

The third pattern involves defense rather than offense. If women compete by damaging each other’s reputations, then the successful competitor must defend herself against attacks by rivals. As already noted, this is not easy, as there is no foolproof way to prove that one has not engaged in casual or promiscuous sex. However, women do expect their friends to defend them when their reputation is being trashed. Reynolds (2016) found that women reported greater concern than men about being talked about in their absence, and they expressed much stronger expectations that their friends would uphold and defend their reputations. Women also asserted (more than men) that their friends should refuse to talk about them, presumably in a negative manner, when they were not present.

In short, women exceed men in the three main dimensions of informational warfare: they seek out damaging information about rivals, they pass along such information when they get it, and they try to defend their own reputations from being similarly trashed. Thus, a major part of the female mating contest, namely competition among sellers in sexual economics terms, is focused on using information to damage the reputations of rivals and uphold a good one for oneself.

#### 4. Men against men

We turn now to competition among buyers (i.e., men). As already noted, history has seen multiple sorts of arrangements regarding mating, and the structure of male competition changes drastically across these. With polygamy, a few rich men have multiple wives, while many others are consigned to celibacy. Monogamy amid equal sex ratios enables nearly all men to find a mate, and the competition is therefore over attracting the preferred and desirable ones rather than over getting anyone. In yet other societies, such as when there is a severe shortage of women, sometimes men have shared the women, including arrangements in which the women are mostly prostitutes and the men take turns having sex with them without anyone really gaining exclusive possession of a particular woman.

Still, we focus on the normative case involving monogamous mating. The men compete among themselves to win the affections of the best ones. Other men are rivals. In that respect, men and women are in the same sort of contest. A man desires many other women, but he certainly has preferences and favorites, and he would most like to surpass his rivals to make himself attractive to the one he wants most.

In other respects, however, the male case is more complicated. Unlike women, men do not attract sex partners by hinting that they will be good in bed. Men trade resources for sex, so the man has to get resources. He usually cannot do that all by himself, so he has to work with and/or for other men, or in some cases leading and managing other men to work for him, all to create resources, and then he takes his share to exchange for sex. So he has to view other men not just as sexual rivals but also as vital allies in coalitions. To succeed, and thereby to be able to have enough resources to get a wife, he has to achieve in this coalitionally competitive society that the men created.

Outside of military competition, there are also economic and other sorts of competition, and again male coalitions compete, often fiercely. Cultural myths exalt lone heroes, but in fact most great achievements probably emerged from groups. This is true in science and technology, business and trade, exploration, and more. These coalitions can be stable and indeed become institutionalized, like a regiment or a corporation. In such cases, they have a hierarchy for deciding and performing. The groups obtain rewards, which are often distributed unequally, with those higher in the hierarchy getting more. (That is one factor that can make high status men attractive to women.)

The male advantages from status go beyond having more resources to provide the woman in exchange for sex. For one thing, if other men have coalitions in a violent milieu, a man’s very survival may depend on forming or joining a coalition.



More broadly, [Von Rueden, Gurven, and Kaplan \(2011\)](#) showed that high status men in small Bolivian tribes have more offspring and healthier ones even though they did not get a disproportionately large share of the resources. Status brings reproductive advantages via multiple pathways.

Still, resources are important. The evolutionary psychology analysis recognizes the coalitional nature of competition, and the economic perspective adds the emphasis on production, that is, creating or obtaining resources. The economic analysis emphasizes that male competition is about resources, indeed producing them. Male hunters gain status by providing more meat to the entire group, sometimes not even getting much themselves because they emphasize sharing and providing. Sports teams do not actually create resources to sustain or improve life, though they do confer status (and by all accounts attract sex partners). But corporations do: they manufacture or import and sell new products that people want. And military groups protect the society's resources from being plundered by its enemies. Indeed, if military groups are effective and proactive, they can plunder other societies to bring home their resources, such as by single raids or by establishing an ongoing extractive relationship involving tribute or taxes. [Fukuyama \(2011\)](#) proposed that forming military groups to protect one's food and/or steal neighbors' food was likely a major contributor to the societal transition from hunting bands to politically organized states. In short, men form coalitions to create resources and accumulate resources.

#### 4.1. Competing in coalitions

From ancient legends to modern movies, most male competition has featured groups or coalitions of men competing against other coalitions of men ([Geary, 2010](#); [Smith, 2007](#)), and indeed most of the progress of human civilization has been driven by just such male coalitional competition. Whereas women are focused on forming close relationships in dyads, men form complicated, extensive networks of shallower relationships, and indeed the widespread impression of women as more the more social gender is contradicted if one looks at large group activities ([Baumeister & Sommer, 1997](#)). Most large group activities are male activities.

Inside these networks, men regulate each other by conferring prestige upon those who strengthen the coalition and by punishing those who weaken it ([Henrich & Gil-White, 2001](#)). Consider a basketball team, for example. Some players are more talented or work harder than others. The players who are better and harder working provide benefits for all of the men in the coalition, by helping the team to win. The players who are less capable and less hard working injure all of the men in the coalition. In a professional team, the men who contribute more are likely to earn higher salaries, while the lesser contributors are paid less and may soon be replaced.

The key point is that men are not just competing against one another individually to win the hand of the desired fair maiden. Long before they address the question of who will be the mother of their children, they must engage in group competition, and toward that end they must ally themselves with other highly competent men. They must make themselves attractive to a male coalition and must also regulate the efforts and inputs of each other into the group effort.

Probably in evolutionary history much of this competition involved consequences far beyond tallying points in a basketball game, indeed extending to life and death. Evidence suggests that lethal warfare is at least 15,000 years old, and some researchers argue that some kind of mortal coalitional combat between groups of human males is much, much older ([Smith, 2007](#)). Even male chimpanzees cooperate to patrol their territory, which includes attacking and killing "foreign" males who invade their territory ([Wrangham & Glowacki, 2012](#)). Early human males probably engaged in similar behavior. It is even likely that human men are *more* tribal than chimpanzees. According to [Alexander \(1990\)](#), many of humans' unique traits evolved in the context of social (tribal) competition. As early hominids became better at controlling local resources and thwarting predators, they became their own most powerful selective forces. This increased human tribalism and cooperativeness—and primarily among males. Abundant evidence suggests that men are more oriented toward large-group sociality than women ([Baumeister & Sommer, 1997](#); [Gabriel & Gardner, 1999](#)).

Of course, much of this coalitional competition is peaceful today. Corporations, sports teams, and other groups compete against each other. Nonetheless, some aspects of the male contest remain in force, such as the fact that all the members of the losing coalition collectively suffer some kind of loss, whilst the members of the winning coalition all obtain some kind of gain. Because of the collective nature of the rewards and losses, the men must be alert to the contributions of their coalition partners. That is, their chances for gaining rewards are best insofar as they choose capable, high-performing partners and regulate each other's performance so as to discourage members who are inclined toward free riding and social loafing.

The importance of coalitional competition helps resolve some seeming paradoxes. In particular, why do men befriend and support other large, strong men? [Benenson \(2014\)](#) noted the irony in such friendships, from a simple analysis of evolutionary mate choice. Women are generally attracted to high status men, because they seek partners who can give them resources (e.g., [Buss & Schmitt, 1993](#); also [Baumeister & Vohs, 2004](#)). Men achieve status by rising to the top of their group, usually on the basis of task performance and contribution to the group effort. Hence each man is seemingly worse off if a powerful, capable man joins the group, because the powerful one will reduce the other men's relative status and, by extension, gain precedence with the desired women. (This would be parallel to how a woman is worse off when a beautiful, sexy woman joins her social group.) But before the men can court the women, they need to amass resources by defeating other groups of men, and toward that end, adding another strong and capable man increases the group's chances of success. Yes, that big strong man might steal the heart of the woman you fancy—but on the battlefield, that same big strong man might save your life and enable your group to prevail so as to claim the disputed resources.

## 4.2. Sexual economics and male homophobia

Sexual economics theory focused heavily on male–female interactions and has not had much to say about homosexual interactions. But the coalition aspect is relevant to anti-gay bias. This bias has been a theoretical puzzle to evolutionary theory, because homosexual men are not rivals for female mates—so one might think that men would rejoice upon learning that other men are homosexual. Most theories of anti-gay bias have focused on objections to the sexual aspect. One theory was that men fear being the target of homosexual advances (Buck, Plant, Ratcliff, Zielaskowski, & Boerner, 2013). (That study found women were especially intolerant of lesbians, presumably for the same reason.) A simpler explanation is that people have disgust reactions to same-gender sex involving their own gender, and the disgust transfers into moral condemnation.

Yet recent work from our laboratory has supported and elucidated the theme that male homophobia is more about group competition than about sex. Winegard, Reynolds, Baumeister, and Plant (2016) found, consistent with other work, that heterosexual males held stereotypes of gay men as lacking in some masculine traits useful for group competition, such as toughness and resilience. They went on to conduct experiments in which heterosexual men had to choose teammates for group competition. The available teammates included gay and straight men—and, cross-cutting those categories, some men who came across as highly masculine and others who were more effeminate. The consistent finding was that male participants chose the highly masculine gay man rather than the more effeminate heterosexual man. Thus, heterosexual men rejected gay men who fit the stereotype of gay men as weak, effeminate, and possibly inclined to cry when hurt. But the objection was not to the sexual inclinations of the gay man. Instead, participants objected to allying themselves to a man who might not be helpful in a competitive contest. These findings confirm and extend the analysis of male competition as oriented toward finding strong partners for group contests.

## 5. Discussion

Sexual economics theory is based on both evolutionary theory of sex and the basic principles of economic marketplaces. The present article extends that analysis to cover the different kinds of contests that men and women face when seeking mates, and to incorporate the idea that the sale can involve various combinations of sexual frequency and exclusivity.

Women compete for male affection by seeking to enhance their sex appeal and to diminish that of other women. They also seek to inhibit other women from engaging in “cheap” sex that could diminish the marketplace price of sex, which reduces all the women’s ability to extract resources from men. Their competition includes pursuit of thinness, sometimes with pathological and destructive consequences. It includes seeking to control the sex appeal of other women, such as when different women promote different norms based on personal competitive advantage: Attractive women favor norms that allow their charms to be seen by men (in economic terms, sellers like to advertise), thereby enabling the attractive women to gain maximum advantage from their physical assets. Meanwhile, less attractive women favor norms that reduce such revealing clothes, thereby reducing their disadvantage. Women also use gossip to control each other’s behavior, so as to prevent rivals from offering sex at a lower price and undercutting the competition. Moreover, and crucially, in their view what they have to sell is exclusivity of access, and so they derogate rivals as unable to guarantee exclusivity.

Male contests are less overtly sexual in nature than female ones, because women choose men based on status and resources rather than sex appeal. Whereas a woman sees other women chiefly as sexual rivals, men see other men in a more complex and differentiated manner: They are both rivals for female affection and, importantly, potential allies in coalitional competition, which is where status and resources are built up. We have summarized recent evidence that heterosexual men’s well-documented antipathy toward homosexual men is based mainly on the assumption that homosexual men will not be effective partners in such competitions.

### 5.1. Implications of mismatched contests

Sexual economics theory initially sought to explain the onset of sexual relationships between men and women, and it explicitly disavowed applications to sexual relations in marriage (partly because resources are jointly owned). But the present extension of the theory, adding the dimension of sexual exclusivity, offers speculative implications that may illuminate certain conflicts in marriage. A troublesome basis for conflict may arise if husband and wife interpret the commitment somewhat differently. If the man thinks he is buying a lifetime of great sex while the woman thinks she is selling exclusivity, their interests may clash.

One well-known pattern of marital conflict is about frequency of sex, with the husband wanting more sex than the wife (e.g., Kontula, 2015). As a result of the mating process, they may perceive this conflict quite differently, thereby making the conflict very difficult to resolve (and hence perennial). Even many popular jokes such as that the antidote to female sexual desire is wedding cake acknowledge that wives desire sex less frequently than husbands. Arndt (2009) documented these conflicts in a sample of closely studied couples, and studies of marital therapy have confirmed that complaints of mismatched sexual desire far more often feature greater male than female desire (for review, see Baumeister et al., 2001). Hakim (2015) reviewed evidence from 30 sex surveys to conclude that a “male sex deficit” is a worldwide and possibly increasing problem, meaning that men everywhere get less sex than they want. Most relevant to the present analysis, McNulty, Meltzer, and Baumeister (2017) conducted several longitudinal studies of newlyweds and showed that wives’

desire for sex starts off somewhat lower than husbands' and then declines rather sharply over the first five years of marriage, whereas husbands' desire remains constant or even increases.

Thus, over the early years of marriage, wives lose desire for sex, and this damages the marital bond. We think the sexual economics analysis of differential emphasis on exclusivity versus frequency of sex can illuminate this problem.

Let us assume the baseline of greater male than female sexual desire, and that in a particular mating couple this difference is minimized during passionate love but resurfaces when that phase wanes and the couple settles into a committed relationship. To the man, it may seem that he did not get what he bargained for: He married her thinking she wanted sex every day but then he finds himself with a mate who is content to have sex once or twice per month and resentful of further advances by him. He knows he is committed to continuing to provide resources, whereas she fails to live up to her part of the bargain (as he sees it) to provide him with frequent sex. In what is for him the worst-case scenario, his obligation to provide resources continues even after divorce, whereas by then he gets no sex at all in return for his money.

Meanwhile, consider the woman's perspective. If her view is that marriage is about exclusivity rather than frequency of sex, she may feel that he is the unreasonable one who is seeking to change the terms. During the passionate courtship stage, she had sex with him when she wanted to do so, which was frequent during the courtship phase but now just so happens to be much less often. Having sex when she did not want to have it was never part of the deal, from her perspective. She thinks she is fulfilling her part of the bargain as long as she refrains from having sex with anyone else. (This may be conveniently easy for her, if she no longer has much desire for sex with anyone.) If he wants her to satisfy him when she is disinclined, it may seem to her that he is adding new demands. It may seem especially obnoxious of him to expect sex when she is tired from performing other wifely duties, such as tending his (their) children and home.

From the husband's perspective, it may seem especially hypocritical that his wife refuses to have sex with him most of the time but also is intolerant of his having sex with other women. Yet to her, exclusivity was the essence of the marital pledge, and so for him to seek other sexual stimulation violates the mutual commitment.

Thus, both husband and wife may end up feeling that they are keeping their part of the bargain while the other is not. This would be a recipe for long-running marital discord. Some such explanation would seemingly be needed to account for this pervasive arena of marital conflict. Mismatched assumptions about who owes what to whom may well contribute to a decline in marital satisfaction.

## 5.2. Concluding remarks

The exchange of male resources for female sexuality is a widespread and possibly universal aspect of human social life and mating practices. Sexual economics theory is a decidedly unromantic view of human mating, but it is supported by a vast assortment of evidence and provides a useful framework for understanding not just how men and women connect with each other but also how they compete against same-gender peers, how they negotiate long-term relationships, and perhaps why many become dissatisfied with those relationships.

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