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Coital Frequency in Contemporary China and its Implications for Historical Fertility

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Introduction

Coital frequency is the linchpin of several theories about Asian demography. Rindfuss and Morgan (1983) attribute declining first birth intervals in Asia to rising coital frequency early in marriage. Fricke and Teachman (1993) and Wang and Yang (1996) make similar arguments for Nepal and China, respectively. Wolf (1995) argues that the low fertility of minor marriages in colonial Taiwan is due to sexual aversion between spouses, while Lee and Wang (1999) theorize that low marital fertility in late imperial China was due to "marital restraint." What all of these studies have in common is that they are built on circumstantial evidence. None have any data on coital frequency.

The present study presents evidence relevant to one of these issues, the debate over low marital fertility in late imperial China. Princeton demographers used Brass techniques to revise the fertility estimates from John Lossing Buck's Chinese Farm Survey of 1929-31. Barclay et al. (1976) concluded that pre-transition China had a natural fertility regime at a low level relative to historical European populations. Incredulous that a society so manifestly pro-natal could truly have such low marital fertility, Wolf (1984) questioned the quality of the data on which it was based. Coale (1984) defended it. It might have ended there, except that Lee, Wang, and Campbell, in a series of books and articles (including Wang, Lee, and Campbell 1995; Lee and Campbell 1997; and Lee and Wang 1999), proposed that historical Chinese deliberately controlled marital fertility by making "deliberate, parity-specific adjustments to marital fertility" to limit population growth (Wang and Campbell 1997: 102), and further claimed that "the low fertility and long birth intervals of late imperial parents were, at least in part, the result of their ability and even willingness to regulate coital frequency" (Wang, Lee and Campbell 1995: 399-400). Wolf (2001) objected, proposing that poverty and malnutrition, rather than parental volition, could explain low fertility. More defense was mounted (Lee, Campbell and Wang 2002; Campbell, Wang, and Lee 2002).

The issues raised by this debate are connected to broader intellectual currents. Moderate marital fertility, and certainly, fertility control, is inconsistent with the reigning orthodoxy that late imperial China was in Malthusian crisis due in some part to weak checks on fertility. On the other hand, the proposition that historical Chinese deliberately controlled fertility fits the revisionist mood of demographers who question the concept of natural fertility

and stress the behavioral continuities of pre- and post-transition societies (Mason 1997). It is also consonant with current Chinese historiography that aims to "de-center" Europe (Wong 1997; Pomeranz 2000). Several scholars are in the search for evidence that Chinese deliberately controlled fertility within marriage (e.g., Zhao 1997; Li 2000; Holman et al. 2003; Han forthcoming). If it could be shown that such control was an important element in China's historical demographic regime, it would give China a distinctive position and simultaneously strike a blow to European exceptionalism.

This study addresses both sides of this debate by examining two proximate determinants of the level of natural fertility, coital frequency and breastfeeding behavior. Following the birth of a child, the length of the inter-birth interval is determined by a period of temporary sterility, and then by a "wait time to conception." Breastfeeding tends to suppress ovulation. The period of post-partum amenorrhoea is strongly influenced by the length of breastfeeding and related customs, including the nature and timing of infant supplementation. The conception wait time, also known as the fecundable interval, is mainly influenced by the frequency of intercourse. In a population that is not deliberately practicing birth control, variations in marital fertility are primarily due to length of breastfeeding and coital frequency (Bongaarts and Potter 1983; Wood 1994). Although breastfeeding variation is probably the more important determinant, most of the paper is devoted to the problem of coital frequency while the breastfeeding argument is merely offered in outline.

Briefly stated, this paper uses contemporary data on coital frequency as evidence of the rates in late imperial China. It would be useful to know whether coital frequency could have contributed to low marital fertility in late imperial China. But an assessment of the frequency of intercourse in earlier times depends on the plausibility of the continuity of marital sexual behavior from late imperial times into the present.

There are sound reasons for believing that coital frequency has been on a rising trend. Many aspects of Chinese development in the past century could have promoted higher coital rates, including a revolution in public health that vanquished most diseases of youth and middle age; an economic revolution that eliminated famine, provided basic welfare, and reduced the physical labor requirements of occupations; a family revolution that undermined patriarchal authority and set a trajectory towards a more companionate form of marriage; and an

educational revolution that brought most females into gender-integrated classrooms. The market reforms of the 1980s further opened China to a wave of romantic and sexual imagery, fostering an ethos of sexual hedonism and raising expectations of marriage.

Government-sponsored family planning, ubiquitous in rural China since the 1970s, would have broken taboos about sexuality and forced a broad acknowledgment that most sexual activity is directed toward pleasure and not procreation (Friedman 2000: 26). Lower fertility would have reduced time spent in a pregnant or post-partum state, and smaller families would allow parents more privacy. The use of contraception could have reduced inhibiting concerns about pregnancy. Lee and Wang (1999:91) argue that "The low fertility and long birth intervals of Chinese couples in the past were at least in part the result of their ability and even willingness to regulate coital frequency" (1999:91). If such "marital restraint" was intentionally used to limit childbearing in the past, then the universal use of contraception would remove any such restraint.

A classic article by Rindfuss and Morgan (1983) attributes the decline of first birth intervals in East Asia to increased freedom of mate selection. Drawing on ethnographic literature, they argue that arranged marriages "begin with an awkward, uncomfortable period and low levels of intercourse" (1983: 273). Mating practices permitting more choice and pre-marital contact are conducive to romance and higher rates of coital frequency early in marriage. Subsequent studies of the timing of first births come to similar conclusions (e.g., Fricke and Teachman). Wang and Yang (1996: 313) attribute a halving of the first birth interval in China to increased coital frequency, a result in part due to the decline of arranged marriage and "increased attraction and intimacy between bride and groom at the time of marriage."

This study argues that low coital frequency was the norm in late imperial Chinese marriage, a natural outgrowth of the family system and related sexual culture, as well as of particular beliefs and childrearing customs. A century of family revolution has only partially transformed the sexual culture, thus contemporary behaviors provide the basis for inference about coital frequency in the past and about the reasons for it. China's historical levels of marital fertility can be explained by a combination of low coital frequency and long breastfeeding durations. Independent of this proposition is a second, admittedly more speculative, line of argument suggesting that the contrastingly high marital fertility of Europe

was due to relatively high coital frequency and relatively short breastfeeding durations. Further, a comparison of Chinese and European reproductive behaviors with that of other agrarian societies suggests that China was fairly typical while Europe was the outlier. Thus, far from de-centering Europe, these comparisons only tend to confirm a story of European demographic exceptionalism.

Coital Frequency in Contemporary China

Coital frequency in contemporary China is low relative to the rates of western populations. Average monthly coital frequency of married women of reproductive age is between four and five times per month in China as compared to seven or more times per month in western populations. Available data on China are summarized in Table 1. Frequency estimates for a selection of non-Chinese populations are provided in Table 2.

[Table 1 here]

In Table 1, urban frequency estimates range from 4.0 to 4.6 times per month, while rural range from 4.1 to 5.7. However, the surveys from which these data were derived are not of uniform quality and coverage. Some surveys used convenience samples, and one (the CHFLS) used probability sampling but employed imprecise questions for eliciting information on coital frequency (data sources and method of collection are discussed in the notes to the table).[1] The three "best practice" surveys for our purposes are the IDFS, the Taiwan KAP VI, and the NPRHS. If we limit consideration to surveys that used both probability sampling and the best question on frequency, the ranges narrow to 4.0 to 4.5 for urban China and 4.1 to 4.8 for rural. Taiwan is culturally a Chinese population but has developed in isolation from the

[1] The "gold standard" for measuring coital frequency is a prospective diary of sexual activity, generally impractical for use in large-scale population surveys. Population surveys thus use a retrospective question. The Demographic and Health Surveys (DHS), for example, inquire about coital frequency in the month prior to the survey, the approach taken by KAP VI and the NPRHS. It is consistently found that the shorter the reference period, the more accurate the report. Frequencies for longer periods tend to be over-reported because respondents fail to take account of travel, illness, and other transient factors that interrupt their normal behavior (Hornsby and Wilcox 1989; Legarde et al. 1995; Graham et al. 2003). The IDFS used a reference period of two weeks. The CHFLS used a one year reference period, an approach typical of social surveys attempting to assess general levels of sexual activity but not aimed at providing a precise estimate of coital frequency.

mainland for a century. If we consider only the best mainland surveys, the IDFS and the NPRHS, the range narrows for urban to 4.0 to 4.3, and for rural to 4.7 and 4.8. Considering that the two surveys were done nearly 15 years apart and have different coverage, there is very remarkable agreement.

[Table 2 here]

Do respondents provide accurate responses to questions about coital frequency? In mainland China, it is plausible that decades of intrusive birth planning administration has desensitized female respondents to questions about reproductive behavior. Even so, respondents may be hesitant to voice their answers given the general lack of privacy in survey interviews. Among the surveys in Table 1, only Taiwan KAP VI and the CHFLS employed self-administered questionnaires instead of face-to-face questions, which could have improved the quality of the information obtained.

Frequency of intercourse is generally observed to decline by age of wife, age of husband, and marital duration. Because the means in Table 1 could be influenced by age composition, we offer evidence that any such compositional effects are inconsequential. Spousal ages and marital duration are highly correlated, so for the present purposes, a single measure can reasonably substitute for all three. Figure 1 portrays the mean monthly coital frequency of married women by age derived from three western population surveys and from the three best sources of data on coital frequency in rural China. For IDFS and KAP VI (the two for which micro-data are available), presence of husband is also controlled. In all six populations, coital frequency declines with age as expected. The two mainland surveys are virtually identical over ages, further evidence of the reliability of estimates. Rural Taiwan, although a separate society, nonetheless faithfully mirrors the low frequency of the rural mainland.

[Figure 1 here]

The data on Chinese coital frequency are substantial and consistent. They indicate that contemporary coital frequency is between 4 and 5 times per month, substantially below

contemporary western rates. They further indicate that in mainland China, but not in Taiwan, urban rates are below rural.

Aspects of Chinese Sexual Culture

Few aspects of the traditional Chinese family system were conducive to sexuality within marriage. Previous writers have emphasized the problem of adjustment presented by the custom of arranged marriage. A young woman begins marital life with a man she did not choose, and whom she did not know before her wedding day. This adjustment is compounded by the unfamiliarity and insecurity of starting a new life in a new household under the supervision of a mother-in-law. Under such circumstances, it takes time to establish the warm spousal relations conducive to sexual intimacy. This argument is entirely reasonable, yet its focus on marriage arrangement and early adjustment, by neglecting the broader familial and cultural context, vastly understates the obstacles to marital sexuality.

The broader approach taken here emphasizes key elements of late imperial Chinese sexual culture as they pertain to marital sexuality.[2] These include gender segregation, premarital chastity as a female virtue, and a lack premarital sexual experience for females; norms of behavior that restrain spousal intimacy, both within and outside the household; a male-centered sexuality that places the wife in a passive role in sexual matters; the impossibility of divorce; and the assumption that sexuality within marriage is primarily for procreation, with the related expectation that romance, passion, and sexual hedonism are extramarital phenomena. Childrearing customs, particularly long breastfeeding and the related custom of sharing a bed with young children, inhibit sexual intercourse. Health beliefs also play a role in restraining marital sexuality, in particular, belief in the deleterious effects of sex on male health.[3] In what follows we take up each of these elements briefly in turn.

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[2] Gilbert Herdt (1997: 10) defines a sexual culture as "a consensual model of cultural ideals about sexual behavior" involving "a world-view of norms, values, beliefs, and meanings regarding the nature and purpose of sexual encounters. It also involves an affective model of emotional states and moral guidelines to institutionalize what is felt to be 'normal, natural, necessary, or approved' in a community of actors."

[3] Fear of menstrual blood, another example of an inhibitive sexual health belief, it is not discussed here because it would not have reduced fecundability.

With its emphasis on paternity and the patriline, the Chinese family system put a high valuation on female chastity. The sexes were segregated before marriage, except for contact with other agnatic kin, and daughters were isolated and chaperoned before entering marriage at a young age. Although males might have opportunity for premarital sexual experience, "at the time of marriage the young girl was commonly lacking not only actual experience of sexual intercourse, but also in the type of preliminary sex play which has become an accepted part of experience in the modern industrialized west" (Levy 1949: 111). A new bride's sex education consisted of observations of barnyard animals, her childhood observations of her parents, and what her mother might have told her. In the ideal major marriage, a woman's first sexual experience would be with a virtual stranger on her wedding night.

In the new household, husband and wife were expected to behave with emotional restraint. Marion Levy's (1949) classic account of spousal relations establishes the ideal type for Chinese major marriage. The physical and emotional adjustment of a newlywed was never cushioned by a "honeymoon"; in her new status, "the emphasis was on her not being alone with her husband but upon her taking up life in his family" (1949: 112-113). In the grand family, "the relation between husband and wife was neither the strongest nor the most intense relationship" (1949: 173).

> Obviously no relationship involving a continued and repeated performance of sexual intercourse could have its basis in a pattern of avoidance, but every care was taken to confine the intimacy of the relationship to a specific sphere. Romantic love was no part of what husband and wife expected in a marriage. The degree of reserve maintained between husband and wife was remarkable. Respect was a more frequently encountered affect, particularly as regards the wife's emotional orientation to her husband. …The sharp division of spheres of action between men and women was an important factor toward the maintenance of such reserve (1949: 177).

Such reserve was expected outside the household as well. In the satirical Qing novel *The Scholars* 儒林外史 by Wu Jingzi 吴敬梓 , the free-spirited scholar Du Shaoqing took his wife on an outing near Nanjing:

> …reveling in the spring warmth and balmy breeze, he carried the goblet to the balustrade and started to do some heavy drinking. Very drunk at last, he took his wife's hand and walked out to the garden, holding the golden goblet and roaring with laughter. So they strolled several hundred yards down the hillside while the other women followed them, laughing merrily. All who saw them were shocked and amazed (Wu 1964: 449).

Public displays of spousal affection were out of place Qing China, an aspect of Chinese sexual culture that survived the family revolution of the twentieth century. This is attested by a biographical account of life in a Jiangsu village, not far from Nanjing, in the 1980s:

> In the summer, village women carried an umbrella to protect their skin from the sun. He [Lingdi's husband] always carried Lingdi's umbrella for her and walked beside her. Most shocking of all, they held hands when they walked in the countryside. Sometimes they even paused and Lingdi's husband kissed her on the hand or on the cheek. The other villagers were scandalized. They had never before seen this sort of brazen public behavior. Indeed, I had never before see a man and woman embrace or hold hands or in any way publicly reveal romantic feelings in the village. I was utterly fascinated when I watched them (Xu and Engelmann 1999:28).

A male-centered sexuality that placed the wife in a passive role in sexual matters was another key element of late imperial sexual culture, along with the related expectation that romance, passion, and sexual hedonism were something to be enjoyed by males outside of marriage. Married men could and did amuse themselves with prostitutes (Levy 1949: 261; Fried 1953: 42), and if they were wealthy and found married life unsatisfactory, they had other options.

> There is no need for sex irregularity for the married husband, for if does not secure satisfaction of the wishes for personal response, in other words, if he does not fall in love with his wife, he may, provided he has the financial resources, take a soul-mate, a love-wife, or in common terms, a concubine. Because marriage is a matter entirely of the familist group, the wife represents no personal choice. And yet, most husbands either fall in love with their wife or tolerate them out of necessity. The attitudes toward

> fate greatly facilitate the acceptance of the wife. If relations with the wife are not accompanied by affection, then concubinage relieves the husband from sex irregularity that would come under social condemnation (Kulp 1925: 329).

Male-centered sexuality meant that wives could neither initiate nor refuse sex. The best evidence of this comes from a contemporary source, the 1997 National Population and Reproductive Health Survey, conducted by the State Family Planning Commission of China, a national probability sample of over 15,000 female respondents of reproductive age (Jiang 2000). Table 3 tabulates the percent of married women who responded that they are unable to or find it difficult to initiate sex with their husband, respondent's education and by rural or urban residence. In the total sample 47.5 percent report that it would be difficult to initiate sex. There is a strong and monotonic relationship between respondent's level of education and her ability to initiate, and at every educational level (with one exception involving 48 cases), urban residents are more able to initiate sex. Corresponding data on the ability to refuse sex with husband is contained in Table 4. Overall, 31.7 percent of women responded that they are unable or find it difficult to refuse sex with their husband. Again, there is a monotonic ability between this ability and education, and at every educational level (again with one exception) urban residents are more able to refuse. Extrapolating from these tables to an earlier time, prior to a century of family revolution and a concerted ideological struggle against patriarchy, we can glimpse a time when most wives had little or no control over sexual matters.

[Tables 3 and 4 here]

This is not to argue that affectionate marriages did not exist, or that romance was absent. One can only hasten to agree with Yan Yunxiang's (2003: 44) minimalist contention that rural Chinese were (and are) interested in and capable of romantic love. In this view Yan is by no means at odds with earlier generations of ethnographers such as Daniel Kulp (1925: 329), Martin Yang (1945: 55), and Morton Fried (1953: 43). In many cases an arranged marriage can grow into romance, or at least an affectionate relationship. As Martin Yang put it:

> It is true that the husband has been hardened by the heavy work, by the rude country life, and in many cases by his never-joking father. But, on the other hand, he is just a fully grown adolescent who has not been permitted to be alone with a grown-up girl before.

> Now he has a wife to whom he can express his romantic ideals and reveal his love. For these reasons the young people usually become much attached to one another (Yang 1945: 55).

But it could also happen that spouses were incompatible, in which case

> The partners of an unsuccessful marriage are in an unhappy plight. Divorce is out of the question: they must make the best of it. Outwardly they may seem no different from any other couple. They will not quarrel openly; the husband will not beat his wife; she does her work dutifully. However, it is easy to note that the loved wife is active, cheerful, and energetic, while the unhappy wife is listless and slow at her work. Although the newly married couple must put a show of indifference in the presence of others, a keen observer can soon discern whether the indifference is pretended, as in the case of a happy couple, or real. The indifference of the ill-mated pair continues even into the privacy of their room. The husband goes to bed with a great sigh; the wife can only weep in secret and swallow her tears into her stomach. The husband will not approach her unless driven to do so, and she will be merely permissive. The two live together and have children, but their marriage is a gloomy one (Yang 1945: 55).

If it can be granted that arranged marriage is not the most auspicious conditions for romance, then the unavailability of divorce condemned many to chilly, if not tempestuous, relationships.

But, what's love got to do with it? "The sexual relations between man and wife were not primarily oriented to amusement, but rather to the production of posterity" (Levy 1949: 261). Both husband and wife were driven to engage in conjugal relations by a powerful imperative, to produce children, a son in particular. Not to produce a male heir was a disaster for a family and a shameful failure for a man. And a wife who could not produce an heir risked being cast out or replaced by another wife, and could never gain a secure position in her husband's family. In her description of life in rural Taiwan in the 1960s, Margery Wolf emphasizes the internal and external pressures for a new bride to become pregnant.

> A young woman wants a baby because she has been told that her reason for existence is to produce one, because the family pressure on her to do so is uncomfortably urgent,

> and because she is desperately lonely. …She *wants* to become pregnant, and if she is married to the eldest son she is made to feel she *must* become pregnant. Her mother-in-law begins asking embarrassingly blunt questions about her menstrual cycle and allows her to overhear the disgusted comments she makes to her friends. The watchful eyes of village women with few other interests take note of any swelling of her breasts or expanding of her waistline and as the months go by comment questioningly on the absence of such symptoms (Wolf 1972: 148-149).

The one aspect of the family system that was conducive to sexual relations for both spouses was the imperative to reproduce. But once basic fertility goals were attained—G. William Skinner (1997) has argued that persuasively that the ideal minimum was two sons and one daughter—this spur to sexual intercourse would cease to exist.

Childrearing customs also pertain to sexual culture. It was the custom to breastfeed children for long durations (evidence on this point will be discussed in greater detail below). More importantly, breastfeeding was on demand, and parents often shared their bed with young children. Barbara Harrell notes that rural Taiwanese had difficulty conceiving of any other arrangement (1981: 810). This is true even for urbanites in contemporary China. In Wuhan in 1980, neighbors reacted strongly to learning that American parents slept in a separate room from their infant (Henderson and Cohen 1984: 41). In the CHFLS of 1999-2000, half of women age 25-29 reported often sleeping in the same bed with a child in the previous 12 months. These data reflect contemporary low fertility conditions. Prior to demographic transition, infants and small children would have been a common feature of the bedroom across a woman's reproductive span, and could have inhibited sexual activity.

Beyond the effects of family system, marriage, and childrearing, traditional health beliefs exerted another influence over sexuality. Among these, the health risks to males of intercourse form a prominent and enduring theme. As Charlotte Furth notes:

> Medical authorities … long preached the health benefits of the conservation of seminal *qi*. The classic passage by the Tang master Sun Simiao suggested that like the oil in a lamp the primordial *qi* endowed at birth is finite; if squandered recklessly, it would flare up like a lamp just before going out (2002: 45).

This medical tradition was paralleled in esoteric Daoist sexual practice. Both held to the theory that vital essence (*yang qi*) depends on seminal essence (*jing*), which is dissipated by ejaculation. Douglas Wile writes:

> Although mainstream medicine and esoteric sexual practices share a common emphasis on conservation, where the two part ways is that the former stresses minimizing contact and reducing desires, whereas the latter seeks to maximize contact to stimulate the yang principle and absorb sexual essence from female partners (1992: 19).

Mainstream medicine counseled moderation, minimizing contact, and reducing desires, while the D aoists advocated frequent sex with occasional ejaculation, using either intercourse without ejaculation *(coitus reservatus)* or the more extreme "retrograde ejaculation" *(coitus thesauratus)* (Wile 1992: 58-59; Needham 1983: 199, fn.d). In both traditions, loss of semen exacts a cost in health or longevity.

The idea that intercourse poses health risks remains influential in contemporary China. Chairman Mao's physician and biographer notes that Mao in his later years took up Daoist sexual practices and believed that it promoted longevity.[4] Daoist ideas remain sufficiently popular that an official sex education manual published recently in Shanghai takes pains to debunk them (SJSXJZ n.d.).[5] While the practice of sexual yoga is probably rare in contemporary China, concern about the potential debilitating effects of sexual congress persists. The Shanghai sex education manual notes:

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[4]According to Dr. Li, Mao had his consorts read the Daoist sex manual *The Classic of Su Nu* 素女经as training material, although many of them had trouble reading the classical Chinese. See Li 1994: 358, as well as the Chinese edition, p. 343.

[5] The manual states:

> Some people who feel fatigued after intercourse or masturbation believe that this fatigue is due to the ejaculation of semen. From this they draw a pessimistic conclusion: to maintain physiological ability and health, they must avoid or curtail sex and control orgasm. There are also those who, under the influence of the erroneous conceptions of ancient medicine, believe that semen is more precious than blood, that "a drop of semen is worth ten of blood," and that intercourse will seriously impair vital essence. There are even those who believe that having intercourse a hundred times without ejaculating will promote longevity. In fact, this is all a misunderstanding (SJSXJZ n.d.: 22-23).

> A moderate sex life is beneficial to the health of both sexes. Giving rein to passion will lead to illness and can impair longevity. Unrestrained lust is the major cause of premature ejaculation, impotence and infertility. There is large individual variation in capacity for sex. Post-coital languor, dizziness or unclear vision, backache, or general weakness, are signs of sexual excess (SJSXJZ n.d.: 20).

The manual further warns:

> After physical labor the body is exhausted. At such times sex consumes too much energy, which could easily undermine "*yang qi*." Avoid sex after bathing. While bathing, more blood flows to the vessels near the skin; after bathing this condition continues for a while. If one has sex immediately after bathing, the engorgement of the sexual organ with blood can lead to an imbalance in blood circulation (SJSXJZ n.d.: 20).

Given the tenor of such official publications, it is not surprising that 82 percent of male and 80 percent of female respondents in the China Health and Family Life Survey agree that too much sex will damage a man's health.[6]

This brief account of Chinese sexual culture suggests that marital sexuality could have been inhibited by numerous factors, including gender segregation, women's lack of premarital sexual experience, lack of choice in mates, male-centered sexuality and the passive role of women in sexual matters, the norm of emotional reserve inside and outside the household, the general assumption that marital sexuality is not for pleasure, the inability to escape bad marriages through divorce, the custom of sleeping with small children, and belief in the harmful effects of sex for males. A plausible result of these factors was a high probability of marriages that lacked emotional intimacy, were low in libido, or were utterly a-sexual. The imperative to reproduce was the sole aspect of the family system that positively encouraged marital coition.

While this review has employed the past tense, it is clear that there are strong continuities between late imperial sexual culture and that of today. Contemporary sexual behavior can thus provide the basis for inferences about coital frequency in earlier times.

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[6] This is consistent with Jankowiak's (1993: 232) ethnographic account of urban Chinese attitudes.

Analysis of Coital Frequency: IDFS

Two data sets will be employed for the analysis of coital frequency, the In-Depth Fertility Surveys (IDFS) of 1985 and 1987, and the China Health and Family Life Survey (CHFLS) of 1999-2000. We begin with the IDFS, a series of seven provincial surveys based on Demographic and Health Surveys (DHS) protocols and conducted by the State Statistical Bureau. Phase I (1985) surveyed Hebei, Shaanxi, and Shanghai, and Phase II (1987) surveyed Guangdong, Liaoning, Shandong, and Beijing. The surveys used a multi-stage stratified clustered sample in which villages or urban residence committee were the primary sampling unit. Every married woman of reproductive age in a sample village was selected for survey. Individual, household, and community questionnaires were administered, however, only individual and household data were publicly released. Because household data are unavailable for Shanghai, it has been dropped from the present analysis. Minus Shanghai, and restricted to non-pregnant, currently married women in first marriages with husband present, the merged data set provides 32,255 women in 643 villages for analysis. Together the six provinces account for roughly a quarter of China's population. While not a nationally representative sample, there is no reason to believe that the included provinces are biased with respect to sexual behavior.

The IDFS inquired about the respondent's frequency of intercourse in the two weeks prior to the survey. For the purpose of this analysis, this number was multiplied by 2.166 to derive an estimate of monthly frequency, which serves as the dependent variable in an OLS regression analysis of coital frequency. The variables used in this analysis, their means, standard deviations, and ranges are displayed in Table 5. The mean monthly frequency is 4.76, with a range of 0 to 50. All categorical variables have been transformed into dummy variable format, taking the value of 0 or 1. Dummy variable means are equivalent to the proportion in the category, thus, for example, the mean of the variable "Hebei" indicates that .142 of respondents reside in Hebei province. The mean of "Residence type" indicates that .391 of respondents reside in an urban area as defined by IDFS coders.

[Table 5 here]

Although the community-level data are unavailable, the clustered nature of the sample permits the construction of village-level variables based on respondent data. A measure of community literacy was created, based on the literacy of married women 15-49 in the village, and partitioned into four dummy variables representing literacy level. Approximately 20 percent of the sample resides in communities of the lowest category (0-34% literate), while approximately 30% reside in communities of the highest category (85-100% literate). Female literacy in the community is taken as a proxy for the level of women's status as well as a general indicator of socioeconomic development.

Numerous studies have shown that frequency of intercourse declines with age of both wife and husband, as well as with duration of marriage, although relatively few studies consider all three variables together. Most studies have been based on U.S. data with modest sample sizes. It is generally found that wife's age has a larger and more significant effect than does husband's, although some analysts believe that marital duration is the prime influence on frequency (Wood 1994: 307-309). IDFS data permit control for all three.

We include measures of respondent's nationality and education. Approximately 95 percent of the sample is Han Chinese. The single largest official minority group is the Manchu, representing 2.9 percent of the sample. An additional 1.7 percent of the sample is made up of "other" minorities, the most numerous being the Hui with approximately 1 percent. Respondent's educational level is represented by five dummy variables. Approximately 25 percent of respondents are illiterate, which will serve as the omitted reference category.

Household structure and composition is represented by four variables. Twenty percent of respondents residing with husband's parents are in a classic virilocal setting, presumably in subordinate position relative to those in neo-local or other household forms. Only two percent reside with respondent's parents. Although in urban areas such households are less likely to pertain to traditional uxorilocal marriages in which the husband has subordinated himself (and sacrificed his offspring) to his wife's patriline, the presence of wife's parents undoubtedly contribute to her authority in the household. The variable persons per room is an index of crowding which could affect privacy and interfere with conjugal life. Children age 0-4 in the

household represents the particular influence of young children which may share the parents' bed and interfere with conjugal life in other ways.

As it is hypothesized that fertility goals may influence coital frequency, three indicators of demand for children are included. The first is the simple response to the question of whether more children are wanted, the second is whether the respondent has a son, and the third is whether the respondent has a daughter. As noted above, it has also been suggested that Chinese couples historically curtailed coital frequency after demographic goals had been attained so as to avoid conception. It is difficult to test this proposition in contemporary China where over 95 percent of respondents report using some method. In the present case, 40 percent of respondents report sterilization, 32.7 percent indicate a passive method (mainly IUD), 13.1 percent report an active method (mainly pill and condom), and only 4.3 percent report using no method.

The analysis used OLS regression in Stata, with the robust cluster option appropriate for use with clustered samples. Resultant model coefficients and t-values are displayed in Table 6. To summarize briefly: net of all other variables, Shaanxi, Liaoning, and Guangdong have significantly lower frequency than the omitted province (Hebei), with Guangdong the lowest. Urban residents have lower frequency than rural. Consistent with the urban-rural contrast, there is a monotonic relationship between community female literacy and coital frequency, with the most literate communities having the lowest frequency. Respondent's age and husband's age are both negatively associated with frequency, with respondent's age more influential. Duration of marriage has no significant effect, although its sign is in the expected direction. Respondent's education bears no relation to frequency, with the exception that college-educated women have significantly higher frequency than illiterate women.

[Table 6 here]

Residence with respondent's or with husband's parents has no significant effect on frequency, although the former is on the verge of statistical significance, suggesting that uxorilocal residence tends to coital reduce frequency. Similarly, the coefficient of persons per room is negative but not significant. Children age 0-4 in the household has a strong negative effect. Respondents who declare that they want more children also report higher coital

frequency. The two other fertility demand indicators, have no son and have no daughter, have a positive effect. Contraceptive status has no influence on coital frequency.

Separate models, for urban and rural sub-samples, otherwise identical to that in Table 6, were estimated in order to test for interaction effects. Four interactions were detected. Extracts from those models are presented in Table 7. The effect of "other nationality" on frequency is an urban phenomenon. Over three-quarters of the urban "other nationalities" are Hui. College education is positively related to frequency for urban residence, but has no significant effect for rural residents. Persons per room reduces frequency for urban residents, but not for rural. This is consistent with ethnographic accounts of the effects of crowded conditions on coital frequency in urban China (Honig and Hershatter 1988: 185-186; Jankowiak 1993: 231). The desire for more children has a strong positive influence on coital frequency for urban residents, but none for rural.

[Table 7 here]

The Paradox of Declining Frequency

Among the several findings from these models, one is strong, consistent, and paradoxical: frequency declines with rising levels of socioeconomic development, contradicting the notion that frequency should increase as a function of the modernization of marriage. Using IDFS data, we will investigate one hypothesis that would explain this finding. As we have seen, in the more traditional Chinese marriage, husbands tend to control sexual relations and wives can neither initiate nor refuse intercourse. In the process of modernization wives gain more control over sexual relations, with the result that they are better able to refuse to engage in intercourse with their husbands. The decline of coital frequency could thus represent rising ability of women to refuse coitus.

Nearly a quarter of IDFS respondents reported having had no sexual relations in the two weeks prior to the survey. Table 8 displays the percent distribution of the reasons for no sexual relations by rural and urban residence. For the total sample, no intercourse is explained by husband's absence in 5.74 percent of cases and by recent pregnancy in 1.65 percent. Another 5.34 percent is due to illness, and 10.94 percent is due to "other reasons." Notably, urban

women are more likely to have had no sex due to illness and for "other reasons." Further analysis of these responses demonstrates that women in positions of power are more likely to report no intercourse.

[Table 8 here]

Respondents reporting no sex in the past two weeks were coded 1 and all others were coded 0. Logistic regression was then use to analyze this response, using the same independent variables used in the frequency model in Table 4. This procedure was repeated for each of the four reasons for no intercourse: husband absent, illness, recent pregnancy, and other reason. This set of five logistic regressions was then repeated separately for urban and rural resident samples, for a total of 15 models. Odds ratios derived from the 15 models are displayed in Table 9 for three independent variables of particular relevance to respondent power: residence with respondent's parents, residence with husband's parents, and residence in a community in which 85-100 percent of females are literate.

[Table 9 here]

Residence with her own parents empowers the respondent in her marriage. A husband in an uxorilocal marriage is in a subordinate role, and even if not in the humiliating position of a traditional *zhuixu* 赘婿 he would be ill-advised to compel sex from his wife while living under the same roof as his parents-in-law. By contrast, residence with her husband's parents is the least powerful position for the respondent, as the authority of her husband is reinforced by the authority of his patrilineal kin. Residence in a community with high rates of female literacy places the respondent in an empowering milieu, where norms are likely to favor a more egalitarian marriage and in which women know their rights. For similar reasons, urban residence is expected to be more empowering than rural.

More powerful contexts are associated with higher odds of no intercourse. For all reasons, respondents resident with their own parents are 1.72 times more likely to report no intercourse than respondents in other household forms, while those resident with husband's parents are no more likely to report no intercourse. However, the most important factor in the uxorilocal households is husband's absence, which does not bear directly on the power

hypothesis. Women residing in highly literate communities are 1.43 times more likely to report no intercourse than those in the least literate. Other things being equal, women in urban contexts should be more powerful than in rural, and, as expected, the results are stronger for urban contexts than for rural.

The results for specific reasons for no intercourse are consistent with the general pattern, with one curious exception to be discussed below. Respondents with a recent pregnancy are 1.5 times more likely to report no intercourse if they reside uxorilocally, as are those resident in high literacy communities. Residence with husband's parents has no effect. These effects are stronger in urban areas and fade to insignificance in rural. A possible interpretation of this is that urban women are more empowered by the family context and are thus better able to command a period of post-partum abstinence. However, an alternative explanation involves the custom of *zuoyue* 坐月 or "sitting the month," in which a woman's mother assists her following a birth in her husband's home. In urban areas a new mother might be more likely to go to live in her parents' house following a birth, in which case her husband might not accompany her, or she may be subject to the taboo of intercourse in her natal home (*bufafang* 不发放) described by Han (2003).

Women residing in high literacy communities are 2.7 times more likely to cite "other reasons" for no intercourse, an odds ratio that rises to 4.2 for urban women. "Other reasons" is presumably a code that reflects the respondent's preferences. Although uxorilocal residents are no more likely to cite this reason, it should be noted that rural residing with their husband's parents have a significantly lower odds (.76) of citing "other reason" compared to other household forms. No intercourse due to husband's absence, it should be noted, is not taken as evidence of spousal power relations, although there is a clear tendency for husbands to be absent from uxorilocal marriages. It is possible that some women residing with their parents are doing so temporarily because of husband's absence. The lower likelihood of husband's absence in high literacy communities probably indicates the availability of employment in more urbanized areas.

Illness as a reason for no intercourse is more likely to be cited by residents of literate communities, although it is unlikely that rates of illness are higher in those communities. This

finding is consistent with the proposition that empowered women are more able to refuse sex if they have a real or fictive illness. Also consistent is the odds of no intercourse due to illness for women who reside with husband's parents (.82) although this does not hold for urban areas. There is one glaring exception to this pattern. Rural women residing with their own parents are very much less likely to report no intercourse due to illness (.43). I have no explanation for this discrepancy. The hypothesis that women in uxorilocal households are more able to refuse sex receives weak support, but there is some support for the proposition that women residing with husband's parents are less able to refuse.

Analysis of Coital Frequency: CHFLS

The China Health and Family Life Survey, conducted in 1999-2000, is a nationally-representative sample of the adult population of China (excluding Tibet and Hong Kong) aged 20-64 years.[7] The survey collected a wide range of information about sexual behavior and attitudes. Given the sensitivity of the topic and aware of the potential for biased responses, the investigators took special care to shield respondent privacy, and parts of the questionnaire was self-administered. As noted earlier with respect to the data in Table 1, the CHFLS questions on coital frequency were relatively imprecise as compared to those used in the DHS, but these measurement issues are more than offset by the richness of the data on sexual behavior. We take the identical analytic approach to the CHFLS as taken to the IDFS, using OLS regression to analyze monthly frequency. A major difference is that the CHFLS includes both male and female respondents, although not couple pairs. We restrict the data set to currently married respondents age 20-49, a total of 2,502 cases.

Means and standard deviations of variables used in the analysis are listed in Table 10. Two variables, respondent age and spouse age, are coded in years; all others are coded as dummy variables. Several variables, including age, are close or exact parallels to the variables used in the IDFS models. Monthly coital frequency was constructed from two separate questions about coital frequency.[8] Residence at age 14 classifies the respondent's residence in

[7] Chinese Health and Family Life Survey. University of Chicago/NORC, Renmin University, Beijing Union Medical College, University of North Carolina. http://www.src.uchicago.edu/prc/chfls.php

[8] The CHFLS contains two flawed representations of coital frequency, variables, ax01 and ax02. The former asks the last time respondent had sex with partner in very broad categories; the second asks about

childhood as rural or urban, used in lieu of a less satisfactory contemporary measure of urban residence.[9] Education is coded as a simple dichotomy, illiterate and primary vs. lower middle school and above. Responses on "reside with parents" were recoded to reflect residence in a virilocal or uxorilocal household type, parallel to the coding used in the IDFS models, and again noting that, particularly in urban environments, these may only be examples of elderly parents coming to live with children rather than true virilocal or uxorilocal marriages. In lieu of "husband present" we substitute a measure of "reside with partner in the past 12 months" with always=1.

[Table 10 here]

Several other variables have no parallel in the IDFS. For example, 86 percent of respondents reported that they always share a bed with their partner, while 27 percent reported that they often share a bed with a child in the past 12 months. Only 6.5 percent report that their living conditions affect their sex life "a lot," but a remarkable 50.5 percent report that the have lacked interest in sex for two months or more. Fully 81.5 percent of respondents agree to the proposition that excessive sex damages a man's health.[10]

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frequency over the past 12 months. Such an extended time span requires a considerable feat of memory; the problem comes clear when one tabulates this 12 month recall with the more immediate question of "last time." For example, among 42 respondents who declare that they had sex every day (or more) over the past year, 15 have not had sex during the past week, and among those, 6 have not had sex in the past month. Clearly, recall over 12 months is incomparable to recall over the past month or past two weeks. Although the two measures could not be used individually, it appeared possible to use them together to produce a better measure. The basic principle is to recode the frequency in the past year to accord with "the last time had sex". Whenever "last time" logically conflicts with frequency in the past year, frequency is recoded to restore logic. This procedure always involves down-coding frequency because, for example, it is not logical that a respondent could have sex every day in the past year, but had not had sex in the past week. However, it is possible that a respondent could have had sex in the past week as well as an annual frequency of just once per year. The coital frequency variable used here was adjusted in this manner.

[9] The CHFLS contains two variables related to urban and rural residence, once concerning the respondent's residence at age 14, and the other a contemporary measure that classifies locations with less than 15 percent of the labor force in farming as urban. The latter measure does not follow conventional classifications of the urban population, and as defined, places approximately 80 percent of the sample in the urban category. A more precise urban classification was withheld to preserve anonymity of the sample.

[10] The question about excessive sex used a different response format at different sample sites. Questions jb07 and jb07a were both worded: "There is an old saying in Chinese: 'Too much sex damages one's health'. It means that if the frequency of sexual intercourse for a man is high, and he does not control it, his health is going to deteriorate." At some sites the question continued, "Do you think that men become

Model results are displayed in Table 11. Coital frequency declines with respondent's age, spouse's age has no effect. This is unexpected, but it should be noted that unlike the IDFS model in Table 4, this is a two-sex model. Females report lower frequency than males. Earlier studies have observed that reports of coital frequency do not match very closely even for husband-wife pairs, so it is scarcely surprising that unrelated males and females report different frequencies. However, the male mean frequency (6.44) is 20 percent higher than the female mean (5.37). I have no explanation for this. Residence at age 14 has no effect on frequency (nor, it should be noted, does the alternative contemporary measure of urban residence). Residence in a virilocal household has no effect on frequency, but residence in an uxorilocal household reduces frequency, a finding broadly consistent our results from the IDFS. Respondents always resident with partner in the past 12 months have higher frequency, as expected.

Reports of higher coital frequency are associated with always sharing a bed with partner, while lower frequency is reported by those who often share a bed with a child. Sharing a bed "often" with a child in the past 12 months is reported by 27 percent of respondents, a high proportion given the broad age range of respondents and low fertility rates in contemporary China. In the IDFS model, the number of children age 0 to 4 in the household was associated with lower frequency. This is very plausibly due to the custom of letting children sleep in their parents' bed. Living conditions that affect sex life "a lot" is, unsurprisingly, associated with lower coital frequencies. A lack of interest in sex for two months or more, a measure of libido, is negatively associated with coital frequency. Finally, agreement with the statement that excessive sex damages a man's health is associated with lower frequency.

Separate models by sex, otherwise identical to the model in Table 12, were estimated to test for interactions with sex, and selected results are displayed in Table 12. Comparing the coefficients of the male and female models, we find that education has a positive effect on female coital frequency but not on male. Uxorilocal residence appears to reduce female

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weakened if they have too much sex?" with possible responses: definitely yes, perhaps yes, unlikely, and definitely not. At other sites the question continued, "Do you agree?" with the possible responses: completely agree, somewhat agree, somewhat disagree, and completely disagree. The dummy variable represents a merger of the two formats. It is coded 1 if the response is "perhaps yes" or "definitely yes" or "somewhat agree" or "completely agree."

frequency, but not male. This discrepancy may be explained by the fact that males seem to report less residence with in-laws (2.4%) than females report with their own parents (6.1%). Sharing a bed with a child in the past 12 months produces a significant reduction in frequency for females, but not males. Finally, agreement that excessive sex damages a man's health has a significant effect on male coital frequency but not on female—this despite the fact that males and females are just about equally likely to agree (82.4% for males compared to 80.6% for females).

[Table 12 here]

The CHFLS data were collected almost 15 years after the IDFS data in a period of rapid urbanization, rising incomes, and increasing education. Yet it provides additional insight into aspects of Chinese sexual culture that are probably of long standing. Sharing a bed with small children is a custom of long standing that remains important. The belief that excessive sex damages a man's health is not of recent origin. Significantly, the CHFLS also suggests that low libido is fairly common in China among both males and females. About 40 percent of males and 60 percent of females 20-49 report a lack of interest in sex for two months or more, and 4 percent of males and 18 percent of females report a lack of interest for 12 months or more. Urban females are more likely to report very low libido than rural (19% to 13%) while urban males are less likely than rural males to report very low libido (3.6% to 6.4%). These findings should certainly be viewed with caution, particularly since the validity of these measures cannot be tested, and comparable data from other populations is not readily available. However, taken together, they are consistent with the view that frequency of intercourse in China is restrained by customs related to childcare, by health beliefs, and by an ethos that restrains libido in both males and females.

Breastfeeding

Contemporary evidence suggests that historical Chinese breastfeeding practice was conducive to long birth intervals. There is a general tendency for breastfeeding durations to decline in the course of modernization, thus contemporary practice in less developed areas provide a conservative indicator of behavior in times past. Late 20th century observations

provide a consistent picture of traditional customs. They suggest that breastfeeding practice was relatively homogeneous across regions; that breastfeeding was universal and of long duration; and that it was done in ways most favorable to the suppression of ovulation. This presents a clear contrast to European breastfeeding customs that emerged in the 18th century.

Because breastfeeding tends to suppress ovulation, breastfeeding duration has an important effect on the level of natural fertility (Bongaarts and Potter 1983). Several conditional factors influence the effect of breastfeeding, including the frequency and timing of nursing and the timing and nature of supplementary feeding. Full breastfeeding is more effective than partial breastfeeding in suppressing ovulation, and a high frequency of suckling is more effective than a low frequency (Elias et al. 1986). By reducing the infant's appetite, nutritious supplements undermine the sterility-promoting effects of suckling.

The traditional confinement of Chinese women to maternal roles was no doubt conducive to breastfeeding, just as the movement of women into the labor force in the 20th century naturally conflicted with it. Nonetheless, breastfeeding customs in rural China in the late 20th century probably offer a reasonable "backward look" into the norms of an earlier era. Bernard Gallin's study of a Hokkien village in rural central Taiwan in the late 1950s noted that infants are usually nursed for two years or more, or until the mother becomes pregnant again (Gallin 1966: 193). Mid-1960s surveys in Taiwan report a mean breastfeeding duration of 17.7 months in rural areas (Harrell 1981). Similar findings come from survey conducted in mainland China in the 1980s. Breastfeeding was virtually universal among rural women surveyed in the 1985 IDFS and the 1998 NSFC.[11] In rural Hebei and Shaanxi, the mean length of breastfeeding of the first child was 21 months. Rural respondents of the 1988 survey reported a mean duration of only15 months; however, durations were higher for older and illiterate women, consistent with the view that duration has declined with social and economic change.[12]

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[11] In the IDFS of Hebei and Shaanxi, among rural women whose first child was alive at the time of the survey, 98.7 percent had breastfed the child; among all women, including those whose first child was dead at the time of the survey, 97.1 percent breastfed the child. In the National Two-per-1000 Survey, among rural Han women with surviving singleton first births, 98.7 percent had breastfed the child; including those whose first child was dead at the time of the survey, 98 percent breastfed the child.

[12] Illiterate and semi-literate women age 40 and over reported a mean length of breastfeeding of 17 months.

Other aspects of Chinese breastfeeding are conducive to suppression of ovulation. Night nursing is important in prolonging post-partum amenorrhoea, especially after introduction of supplementation (Elias et al. 1986; Liestøl et al. 1988: 424). As noted above, babies share their parents' bed and feeding on demand is the norm. Mixed feeding tends to undermine the anovulatory effects of breastfeeding. Harrell observes that supplementation with solid food, usually rice gruel, starts at 9 to 12 months of age. She further notes that supplementation was more prevalent for working as opposed to non-working mothers; this suggests that supplementation was less prevalent in the days before mothers worked outside the home.

Europe, the Exceptional Case

By comparison to early modern Europe, Chinese breastfeeding durations were long, and, there are strong reasons to believe, coital frequencies were low; but in comparison to other Asian populations, China was by no means exceptional. China's breastfeeding behavior has much in common with agrarian societies around the world. Breastfeeding durations of two years or more were typical of most Asian and African societies a few decades ago.[13] Coital frequencies below five times per month also appear to be common in Asian societies. According to DHS surveys, coital frequencies in Indonesia, Sri Lanka, and Thailand are all lower than China (see Table 2).[14] But if these crucial proximate determinants were similar across Asia, what accounts for China's extraordinarily low marital fertility?[15]

There was, in fact, nothing extraordinary about China's marital fertility. Low marital fertility (as compared to Europe) was fairly typical of South and Southeast Asia prior to transition. Figure 2 portrays marital fertility rates for three historical European populations, three Chinese populations, and for India and rural Indonesia, all in periods prior to major

[13] Most recent DHS surveys found median breastfeeding durations of 24 months or more in India, Indonesia, Bangladesh, and Nepal, and 18 months or more in virtually all of sub-Saharan Africa (Haggerty and Rutstein 1999: Table 2.14). For Africa, also see Mondot-Berndard 1977.

[14] An earlier Thai survey included in Table 2 shows a considerably higher coital frequency, which casts some doubt on the Thai case.

[15] "…while late imperial China had the largest population of any country in the world, it seems also to have had the lowest known marital fertility rates" (Lee and Campbell 1997: 102).

fertility transitions (the data are contained in Appendix table 1). These marital fertility curves share the characteristic shape of natural fertility populations. The three Chinese cases—the Princeton reconstruction of the Buck Survey, Wolf's data from Haishan, Taiwan at a period of peak fertility, and China in 1952, retrospective data from the 1982 1 per 1,000 fertility survey—bracket the range of marital fertility observed in pre-transition China. Notably, the Indian and Indonesian fertility fall between the Chinese observations. Only by taking Europe as the standard can we say that Chinese fertility is anything but reasonably typical of pre-transition agrarian societies. Europe, not China, is the exception.

[Figure 2 here]

High marital fertility in Europe probably emerged hand-in-hand with rising marriage ages (Hajnal 1965) and a broad family revolution that began in the late middle ages (Stone 1977). Marital fertility plausibly rose due to profound changes in both sexual behavior and breastfeeding. Until the 18th century, European breastfeeding customs had much in common with traditional Chinese practices. Although upper class women utilized wet nurses, the majority practiced prolonged breastfeeding, fed on demand, often slept with their infant, and supplemented at 7 to 9 months (McLaren 1985: 24-27; Fildes 1986: 100, 245). But these practices underwent early change. In Britain, wet nursing spread to women of lower station, and "by the early 18th century women whose husbands had a relatively modest income (such as shopkeepers) were not feeding their own children" (Fildes 1986:100). Between 1500 and 1800, the age of weaning declined, as reflected in the recommendations of European medical authors, from a mean of 27 months in the 16th century to 12 in the 18th century (Fildes 1986: 353 and Statistical Appendix Table 15.1). In the mid-18th century there was also a shift of medical opinion about the frequency of feeding: wetnurses were supposed to feed on demand, but when mothers began to suckle they were advised to control the number of feeds and timing (Fildes 1986: 119). The timing of supplementation changed in the late seventeenth century towards earlier introduction of additional food. Most writers in the 17th and 18th centuries favored two to five months, although the actual time food was given was probably earlier than the time recommended by physicians and midwives (Fildes 1986:254-255). In many regions of pre-

industrial Europe infants were rarely or never breastfed, but were raised from birth by artificial means (Fildes 1986: 264).[16]

While Chinese breastfeeding customs were uniformly conducive to lengthy periods of post-partum sterility, European customs were far more varied. Wet nursing and artificial feeding promoted an early return to a fecund state, as did the abbreviated feeding durations, timed feeding, and early supplementation that emerged in the 18th century. In most agrarian societies, including China, shorter breastfeeding durations and artificial feeding did not make major inroads until the late 20th century.

The case for rising coital frequency is inherently more speculative. While it cannot be known when higher frequencies emerged, there is no reason to believe that the rise was of recent origin. There is, indeed, considerable evidence of an early revolution in mate selection and marriage which laid the groundwork for the emergence, in the late seventeenth century, of marriage that "encouraged the more open admission of sexual passion into the marital relationship" (Stone 1977:543) and ushered in "the growing demand for affection and sexual attraction as the basis for marriage."

The evolution of marital sexuality in Europe is a complex subject, involving class and regional differences overlaid by temporal swings of Puritan sexual repression and permissiveness. Yet these complexities must not blind us to the transcendent differences in the sexual cultures of late imperial China and early modern Europe. By Chinese standards Europe was a highly eroticized society. Sixteenth and seventeenth century art depicts voluptuous nudes, ribald mythology, and scenes of peasant men and women publicly mingling, dancing, kissing, and embracing.[17] Late marriage and the institution of domestic service offered opportunities for the unmarried to interact in blatantly sexual situations, in particular, in the courtship ritual known as bundling. As Stone describes it:

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[16] These places include Southern Bavaria, Wurttemberg, Baden and Saxony; Bohemia; parts of Russia, Austria and Northern Italy, particularly the Tyrol; and in some regions of Scandinavia, especially in Sweden, Finland, and Iceland (Fildes 1986: 264).

[17] A telling example is the painting *The Wedding Dance* (about 1566) by Pieter Bruegel the Elder (Netherlandish,1525/30–1569), in which the male wedding celebrants are depicted with erections. See the Detroit Institute of Art website, http://www.dia.org/collections/EuropeanPaintings/30.374.html.

> An all-night conversation allowed both parties to explore each others' minds and temperaments in some depth, while the physical propinquity provided a socially approved means of providing sexual satisfaction in the decade between maturity and marriage, and of experimenting in sexual compatibility with a series of potential spouses without running the risk of pregnancy and without commitment to marriage (1977: 607).

The courtship customs of eighteenth century northern Europe were not only antithetical to those of Qing China, they were more sexually permissive than those of contemporary rural China, where premarital intimacy is sanctioned only by engagement (Yan 2003). These superficial observations at least strongly suggest that the high coital frequencies of contemporary Europe societies are not the product of a twentieth century sexual revolution, but emerged centuries earlier.

Discussion and Conclusions

The finding of low coital frequency and low marital libido in contemporary Chinese marriage is, in one sense, not surprising. It appears to be a natural continuity with the repressed sexual culture of late imperial China, and is consistent with contemporary ethnographies that suggest a low sexual interest in Chinese marriage (Honig and Hershatter 1988:182; Jankowiak 1993:233).

Yet, the relatively low frequencies stand in particular contradiction to the several demographic studies that interpret shorter intervals between marriage and first birth as heralding a revolution in spousal relations. If a sexual revolution early in marriage was underway in Taiwan in the 1970s and in the mainland in the 1980s, why was this seemingly not reflected in coital frequency? Moreover, the finding that coital frequency declines with urbanization in mainland China (although not Taiwan) poses an additional challenge to the theory that freer mate selection has led to greater spousal intimacy or that western influence has promoted sexual hedonism in marriage. The fact that coital frequency remains low in Taiwan, where urban and western influences were earlier and more pervasive, raises the same kinds of questions.

On this issue, I propose that the declining first birth interval observed by Rindfuss and Morgan was due mainly to a timing effect rather than to a fundamental change in marital relations. Parents of an unmarried daughter are anxiously aware that her reproductive potential is a depreciating asset; parents of an unmarried son wish him to produce a grandson as soon as possible. Rising marriage ages and lengthening engagements increase the risk of marriage plans falling through and the birth of a grandchild delayed. For both sides, the rational response is to legitimize sexual relations in the engagement period. The daughter's parents see sexual relations as cementing the engagement, obligating the male partner and his family, and securing the marriage for their daughter. The son's parents see pre-marital sexual relations as a way to ascertain that the fiancée is fertile. A lengthy engagement without pregnancy offers the son's family a chance to back out. The advent of pregnancy signals that the time is ripe for a legal marriage. Thus, for both sets of parents, pregnancy leads to, and indeed expedites, what all hope for, marriage and a grandchild.

As marriage ages rise, parents are increasingly likely to view sexual relations for engaged couples as legitimate. This occurred in Taiwan in the 1970s and in the mainland in the 1980s (Yan 2000: 66-70).[18] The norm extends to all engaged couples, which explains why Wang and Yang (1996) found no correlation between the birth interval and age at marriage at the individual level but observed strong cohort effects. If sexual relations commence with engagement, and a pregnancy triggers marriage arrangements, it has the effect of shortening the interval between legal marriage and first birth. This could occur in the absence of any revolution in spousal intimacy or any increase in coital frequency as a function of time since the onset of sexual relations. This would explain why such spectacular changes in the first birth interval could occur with only minor changes in coital frequency.

We will never have precise estimates of coital frequency or breastfeeding durations for late imperial China or for early modern Europe, but this does not condemn us to total ignorance about them. The dispute over marital fertility arises from the fact that inter-birth intervals in late imperial China were roughly 36 months, while inter-birth intervals in Europe were roughly 24

[18]In Taiwan, it is common for sexual "marriage" to begin with engagement and for legal "marriage" to be signaled by pregnancy. In the Taiwan KAP VI survey of 1986, of 1,697 women married in the decade prior to the survey, 663 or 39 percent reported having sexual relations with their future husband prior to marriage. Of the same marriage cohort, 535 or 31 percent reported being pregnant within one month of marriage.

months.[19] Such a difference is explicable by the operation of proximate determinants that are well within the bounds of the plausible. Elementary biometric models imply that a 36-month birth interval could be produced by a combination of 24 months of breastfeeding and a coital frequency of between four and five times per month, while a 24 month interval could be produced by a combination of 12 months of breastfeeding and a coital frequency of six times per month.[20] This is not a defense of specific numbers or biometric models; it is statement about their general plausibility. One need not assume anything extraordinary about Chinese or European behaviors to deduce the historical fertility regimes; one has only to assume the range of behaviors that are presently observed or implied by the historical record.

Thus, to explain China's marital fertility, it is unnecessary to invoke special circumstances such as undercount of births, malnutrition, or deliberate fertility control. China's level of marital fertility is explained by customary behaviors that arise quite naturally from the family system and sexual culture. This is not to say that Chinese fertility was never affected by undercount or famine, or that Chinese never consciously altered their behavior to shape their family composition. We see evidence, for example, that under certain circumstances coital frequency was increased to hasten a pregnancy. This is an obvious example of "deliberate" control of marital fertility, but not control in the sense of fertility reduction. Evidence of deliberate control is interesting, but unless this control substantially shapes the fertility regime, it is hard to see it as "the most distinctive feature of Chinese marital fertility" (Campbell, Wang, and Lee 2002:741).

In their series of studies of the Chinese demographic regime, Lee, Wang, and Campbell acknowledge that breastfeeding and coital frequency exerted a moderating influence on martial fertility, but they insist on the importance of deliberate control (Campbell, Wang, and Lee 2002: 741).[21] Their logic connecting deliberate control of coital frequency with fertility must be read

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[19] These estimates are based on Flinn 1981, Table 6.7, and Coale, Li and Han 1988, Table 1.

[20] These estimates are based on the models proposed by Bongaarts and Potter 1983, pages 25 and 33-34.

[21] They write: "While couples were couples were capable of deliberately adjusting their fertility to their circumstances, they also engaged for other reasons in other behaviors that lower fertility, such as low coital frequency and very prolonged breastfeeding. Thus, while we have emphasized deliberate fertility control because its presence is the most distinctive feature of Chinese marital fertility…, we also recognize the contribution of these other factors to China's low pretransitional marital fertility" (Campbell, Wang, and Lee 2002: 741).

carefully. They argue that control of coital frequency was deliberate ("Chinese couples were able to control the 'passion between the sexes'" Lee and Wang 1999: 105), but they do not argue that this control was for the purpose of birth control; rather, it was for health reasons. Elsewhere they note that the family structure was a discouragement to passion (Lee and Wang 1999: 90-91). Thus, they do not argue that low coital frequency was a deliberate strategy to control fertility. Unfortunately, their term "marital restraint," when used as a synonym for low coital frequency, could imply to the unwary reader that couples limited intercourse in order to limit fertility.[22]

Far from being a deliberate strategy, low coital frequency was a structural feature of the Chinese family system and sexual culture, just as long breast feeding was a persistent and time honored custom. These behaviors were "Chinese" in their specific cultural elaborations but generic in their demographic parameters. In the context of other Asian agrarian societies, Chinese marital fertility was not distinctively low, breastfeeding was not especially long, nor was marriage notably lacking in passion. Only in isolated contrast with early modern Europe does Chinese behavior appear distinctive. Thus the problem of low Chinese marital fertility is a Eurocentric fallacy.

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[22] The potential for misunderstanding is illustrated in their statement that "the low fertility and long birth intervals of late imperial parents were, at least in part, the result of their ability and even willingness to regulate coital frequency" (Wang, Lee and Campbell 1995: 399-400). Note that this does not say that this ability and willingness had the objective of fertility control. This argument is thus apparently orthogonal to their thesis of deliberate fertility control. Elsewhere, Lee and Campbell write: "…in Daoyi many young couples started childbearing late, delaying their first birth until well after their marriage" (1997: 92). The verb "delay" implies intentional control of fertility in the first birth interval, yet the following paragraph merely cites the Rindfuss and Morgan theory that long first intervals are related to arranged marriage. Again, the language of intentionality gives way to more conventional theorizing about unconscious and non-deliberate constraints on fertility.

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Table 1. Mean Monthly Coital Frequency of Currently Married Women of Reproductive Age in Various Surveys: Urban and Rural China

Year of Survey	Mean Monthly Frequency *(N)* Urban	Rural	Source
1985-87	4.0 *(15,426)*	4.7 *(22,522)*	IDFS
1986	4.4 (1,955)	4.1 (2,076)	Taiwan KAP VI
1989-90	4.5 *(3,309)*	5.7 *(979)*	Liu 1992
1990	4.4 *(1,789)*	--	Zhou 1993
1997	4.3 *(2,498)*	4.8 *(8,478)*	NPRHS
1999-2000	4.6 *(742)*	5.1 *(775)*	CHFLS

Notes:

IDFS. In-Depth Fertility Surveys. Conducted by the Chinese State Statistical Bureau (SSB). Phase I (1985) surveyed Hebei, Shaanxi, and Shanghai. Phase II (1987) surveyed Guangdong, Liaoning, Shandong, and Beijing. The surveys were based on Demographic and Health Survey (DHS) protocols. The surveys are representative samples of married women of reproductive age in the surveyed provinces. The seven surveys have been combined into one data set. The urban category includes the population of cities and towns. The survey asked the frequency of intercourse in the two weeks prior to the survey. Post-partum women are excluded. The mean of the two-week frequency was multiplied by 2.166 to derive the monthly frequency.

Taiwan KAP VI (1986). A stratified, multistage probability sample of married women 20-49 in non-aboriginal townships of Taiwan. The survey contains a self-administered question on frequency of intercourse with husband in the past month. The questionnaire provides for closed-ended responses, 0, 1-2, 3-4, 5-6, etc. The high number of the response interval is coded, such that 1 to 2 is coded as 2. Responses are thus biased upwards. Frequencies refer to currently married women 20-49 in first marriages.

Liu Dalin. 1992. *Sexual Behavior in Modern China. Shanghai—A report of the nation-wide "sex civilization" survey on 20,000 subjects in China*. Shanghai: Sanlian Bookstore. The survey (described in pp. 256-260) was not a probability sample. The urban survey was done in 10 cities, heavily weighted to Shanghai (41%) and Tianjin (16%). Approximately half of the rural respondents were surveyed in Suzhou and peri-urban Shanghai, and half in two Shanxi counties. Survey respondents are described as "healthy and normal" married women with mainly middle school education. 74.2 percent of rural respondents had a middle school education (Table 4-2, p. 259). Mean monthly frequency for currently married women under age 46 were derived from Tables 4-108 and 4-110 (pp. 337-338).

Zhou Mei-rong. 1993. A survey of sexual states of married, healthy, reproductive age women. *Journal of Psychology & Human Sexuality* 6, 2: 15-28. This article reports on a survey of 1,800 married, healthy, reproductive age women in urban Shanghai (Luwan District) in 1990. It contains (Table 2, p.19) a percent distribution of women by frequency of coitus. These data were transformed into mean monthly frequency assuming a month of 30.4 days. A residual frequency category ("irregular") containing 1.2 percent of women were allocated to the once per month category.

NPRHS. *1997 National Population and Reproductive Health Survey*. Data from Liu Yunrong and Chang Yongjie. 2000. Sexual frequency, satisfaction, and related factors. Pp. 299-308 in State Family Planning Commission (SFPC) and China Population Information and Research Center (eds.), *Theses Collection of 1997 National Population and Reproductive Health Survey* (Beijing: China Population Publishing House). Frequency in the month prior to the survey provided in Table 2, p. 301. This survey, based on the DHS, employed a multi-stage clustered probability sample within 31 provincial strata, for a total of 1,041 sample points in 337 counties. A first stage survey established a sample frame. A second stage survey selected approximately 50 reproductive age women in each sample county (see Wang and Wang 2000).

CHFLS. Chinese Health and Family Life Survey. University of Chicago/NORC, Renmin University, Beijing Union Medical College, University of North Carolina. http://www.src.uchicago.edu/prc/chfls.php A nationally representative sample of the adult population of China aged 20 to 64 years (excluding Tibet and Hong Kong) conducted in 1999-2000. Efforts were made to provide privacy for interviews. Interviews took place away from the respondent's home. Part of the questionnaire was administered on a computer controlled by the respondent. This survey was a serious investigation of sexual behavior; however, the questions on frequency of intercourse were apparently not designed for comparisons across populations. The relevant questions are AX01 and AX02. AX01 asks: "How long ago was the last (the most recent) time you and your current partner had sex?" Closed ended responses are (1) with a week; (2) within two weeks; (3) with one month; (4) more than a month ago but within a year; (5) a year ago or more. AX02 asks: "During the past 12 months, how often did you and your current partner have sex?"

Closed ended responses are: (1) once a day or more; (2) 3 to 6 times a week; (3) 1 to 2 times a week; (4) 2 to 3 times a month; (5) once a month or less. The problem with AX01 is that the responses categories are too broad. To make a precise reckoning of frequency of intercourse in the past month, one would want to know the length of time of the last intercourse to the day, not the week. The problem with AX02 is that the reference period is too long. Most surveys of frequency ask about sexual activity in the previous two weeks or the previous month, not a 12 month period, which requires a major feat of memory. The problem with the two measures comes clear when one tabulates this 12 month recall with the more immediate question of "last time." We find that among 42 respondents who declare that they had sex every day (or more) over the past year, 15 have not had sex during the past week, and among those, 6 have not had sex in the past month. It appears that the 12 month recollection is an abstraction that overlooks present reality, and is incomparable to surveys that ask about sex in the past month or past two weeks. Although the two measures are imprecise when taken individually, their information can be combined to produce a better measure. Frequency in the past year is taken as the base variable that is corrected to accord with "last time had sex". We always downcode because (for example) one could not have had sex every day in the past year if one had not had sex in the past week; however, it is possible that one could have had sex in the past week although the annual frequency is just once per year.

Table 2. Mean Monthly Coital Rate of Married Women
of Reproductive Age for Various Non-Chinese Populations

Population	Mean	N
Thailand 1987	3.4	6,775
Thailand 1969	6.5	795
Sri Lanka 1987	4.0	5,200
Indonesia	3.5	10,359
Burundi	6.3	2,211
Kenya	3.8	2,666
Uganda	4.9	3,560
Sudan	6.5	1,513
Japan 1975	8.3	617
Belgium 1975	10.3	3,987
United States 1965	6.9	3,512
ISSP 1994	7.1	1,369

Sources: Thailand 1987: Knodel and Chayovan 1991 (non-pregnant, non-abstinent, cohabiting, currenly married women); Thailand 1969: Wood 1994: Table 7.4: Sri Lanka: DHS 1987 (currently married, husband present); Indonesia: DHS (currently married 15-49); African populations (Burundi, Kenya, Uganda, and Sudan): DHS1, for currently married women in monogamous marriages with husband present; ISSP 1994: Combined sample from Australia, U.S., Ireland, Poland, Belgium, and Spain. Currently married women aged 20-49; Japan, Belgium, U.S.: Wood 1994: Table 7.4

Table 3. Percent of Married Women of Reproductive Age who Respond that are Unable or Find it Difficult to Initiate Sex with Husband, by Rural, Urban, and Total: China 1997

Respondent's Education	Rural		Urban		Total	
	N	%	N	%	N	%
Illiterate/semi-literate	2,931	57.3	123	48.0	3,054	57.9
Primary	3,677	52.3	297	45.8	3,974	51.8
Lower middle	2,549	44.1	1,027	35.4	3,576	41.6
Upper middle	405	41.7	634	32.2	1,039	35.9
College or technical	48	27.1	614	28.5	662	28.4
Total	9,610	51.1	2,695	34.8	12,305	47.5

Source: 1997 National Population and Reproductive Health Survey (Jiang 2000: Table 3-39)

Table 4. Percent of Married Women of Reproductive Age who Respond that are Unable or Find it Difficult to Refuse Sex with Husband, by Respondent's Education and Rural, Urban, and Total: China 1997

Respondent's Education	Rural		Urban		Total	
	N	%	N	%	N	%
Illiterate/semi-literate	2,931	39.8	123	26.0	3,054	39.3
Primary	3,677	35.3	297	25.9	3,974	34.6
Lower middle	2,549	29.5	1,027	23.2	3,576	27.7
Upper middle	405	27.7	634	21.5	1,039	23.9
College or technical	48	10.4	614	13.5	662	13.3
Total	9,610	34.7	2,695	21.0	12,305	31.7

Source: 1997 National Population and Reproductive Health Survey (Jiang 2000: Table 3-40)

Table 5. Variable Means, Standard Deviations, and Ranges, non-Pregnant Currently Married Women in First Marriages with Husband Present in the China In-Depth Fertility Surveys, 1985-87 (N=32,255)

Variable	Mean	SD	Low	High
Monthly coital frequency	4.76	3.98	0	50
Province				
Hebei	.142	.349	0	1
Shaanxi	.110	.313	0	1
Beijing	.211	.408	0	1
Liaoning	.186	.389	0	1
Shandong	.172	.378	0	1
Guangdong	.178	.383	0	1
Residence type (urban=1)	.391	.488	0	1
Community female literacy				
0 – 34%	.205	.403	0	1
35-60%	.235	.424	0	1
60-84%	.261	.439	0	1
85-100%	.299	.456	0	1
Respondent's age (years)	34.13	7.47	16	49
Husband's age (years)	36.44	8.52	16	74
Duration of marriage (years)	12.18	8.49	0	38
Respondent's nationality				
Han	.953	.210	0	1
Manchu	.029	.169	0	1

Other nationality	.017	.130	0	1
Respondent's educational level				
Illiterate	.245	.430	0	1
Primary	.347	.479	0	1
Lower middle	.255	.436	0	1
Upper middle	.123	.328	0	1
College or above	.017	.131	0	1
Reside with respondent's parents	.020	.140	0	1
Reside with husband's parents	.208	.406	0	1
Persons per room	1.73	1.02	.111	10
Children age 0-4 in household	.502	.703	0	6
Want more children	.258	.437	0	1
Have no son	.259	.438	0	1
Have no daughter	.345	.475	0	1
Contraceptive status				
No method	.043	.475	0	1
Passive method	.327	.473	0	1
Active method	.131	.337	0	1
Sterilized	.401	.490	0	1
Infecund	.087	.282	0	1

Table 6. Unstandardized OLS Coefficients from Regression of Monthly Coital Frequency on Selected Independent Variables, for non-Pregnant Currently Married Women in First Marriages with Husband Present: China In-Depth Fertility Surveys, 1985-87

Independent Variable	Coefficient	t
Province		
Hebei (omitted)		
Shaanxi	-.789*	-2.03
Beijing	-.486	-1.52
Liaoning	.727*	2.23
Shandong	-.068	-0.21
Guangdong	-1.276***	-4.17
Urban residence	-.521***	-3.69
Community female literacy		
0 – 34% (omitted)		
35-60%	-.501*	-2.34
60-84%	-.812***	-3.88
85-100%	-1.28***	-5.61
Respondent's age (years)	-.093***	-7.04
Husband's age (years)	-.046**	-5.59
Duration of marriage (years)	-.021	-1.75
Respondent's nationality		
Han (omitted)		
Manchu	.513	1.61

Other nationality		-.622**	-3.21
Respondent's educational level			
Illiterate (omitted)			
Primary		.078	1.05
Lower middle		.055	.58
Upper middle		.000	.01
College or above		.381*	2.28
Reside with respondent's parents		-.313	-1.95
Reside with husband's parents		.061	.78
Persons per room		-.064	-1.86
Children age 0-4 in household		-.456***	-10.17
Want more children		.219**	2.77
Have no son		.220***	4.16
Have no daughter		.214***	3.82
Contraceptive status			
No method (omitted)			
Passive method		.314	1.33
Active method		-.048	-.19
Sterilized		.249	1.03
Infecund		-.198	-.082
Constant		11.00	17.64
R^2	.150		
Number of cases	32,255		

*denotes p < .05

**denotes p < .01

***denotes p<.001

Table 7. Urban-rural Interactions in the Regression of Monthly Coital Frequency on Selected Variables for non-Pregnant Currently Married women in First Marriages with Husband Present: China 1985-87

Independent Variable	Coefficient	
	Urban	Rural
Other nationality	-.672***	-.492
College	.393*	.149
Persons per room	-.086*	.015
Want more children	.476***	-.098
R^2	.160	.140
Number of cases	12,619	19,636

Source: In-Depth Fertility Surveys

*** denotes p < .001
** denotes p < .01
* denotes p < .05

Note. These coefficients are extracted from two regression models containing the same set of variables as in Tables 5 and 6. Only interactions with type of residence (urban or rural) are shown.

Table 8. Frequency Distribution of Reasons for No Intercourse in the Past Two Weeks by Rural, Urban, and Total for non-Pregnant, Currently Married Women in First Marriages, China 1985-1987

Reason for no sex in past two weeks	Rural		Urban		Total	
	N	%	N	%	N	%
Husband absent	1,263	6.04	702	5.27	1,965	5.74
Illness	1,054	5.04	772	5.80	1,826	5.34
Recent pregnancy	374	1.79	189	1.42	563	1.65
Other reason	2,147	10.27	1,596	11.98	3,743	10.94
Had sex	16,061	76.85	10,062	75.53	26,123	76.34
Total	20,899	100.00	13,321	100.00	34,220	100.00

Source: IDFS

Table 9. Selected Odds Ratios from Logistic Regressions of Reasons for No Intercourse in Previous Two Weeks for Specified Reasons for No Intercourse, for Total, Rural, and Urban Samples: Non-Pregnant Currently Married Women in First Marriages, China, 1985-1987

Dependent Variable: Reason for No Intercourse in Past Two Weeks	Independent Variable		
	Reside with Respondent's Parents	Reside with Husband's Parents	Community Females 85-100% Literate
		Total, N=34,220	
All reasons	1.72***	1.02	1.43**
Husband absent	2.49***	1.02	0.68*
Illness	0.70	0.82**	1.50**
Recent pregnancy	1.50***	1.06	1.54**
Other reason	0.92	0.89	2.73***
		Rural, N=20,899	
All reasons	1.64***	1.01	1.28**
Husband absent	2.68***	1.13	0.71*
Illness	.43*	0.79*	1.56*
Recent pregnancy	1.39	1.04	1.28
Other reason	0.92	.76*	2.84***
		Urban, N=13,321	
All reasons	1.77***	1.01	2.03***
Husband absent	2.29***	0.78*	0.72
Illness	0.93	0.87	1.99**
Recent pregnancy	1.55**	1.08	2.21**
Other reason	0.90	1.25	4.18**

Note: These odds ratios are extracted from 15 separate maximum likelihood models (not shown), one for each line of the table. Each model contains all variables that appear in the frequency model in Table 6. The larger number of cases is due to the inclusion of respondents with absent husbands.

Source: IDFS

Table 10. Variable Definitions, Means, and Standard Deviations for Currently married Respondents Age 20-49: China 1999-2000 (N=2,502)

Variable	Mean	Std. Dev.
Monthly Coital Frequency[a]	5.89	5.48
Respondent age (21-49 years)	36.8	6.86
Spouse age (20-61)	36.9	7.23
Sex (female=1)	.514	.499
Residence at age 14 (urban=1)	.488	.499
Education (middle school or above=1)	.819	.385
Virilocal household (reside with husband's parents=1)	.169	.375
Uxorilocal household (reside with wife's parents =1)	.043	.202
Reside with partner past 12 months (always=1)	.841	.365
Share bed with partner (always=1)	.864	.343
Share bed with child past 12 months (often=1)	.272	.445
Living conditions affect sex life (a lot=1)	.065	.247
Lack interest in sex for 2 months or more (yes=1)	.505	.500
Excessive sex damages a man's health (agree=1)[b]	.815	.388

Source: China Health and Family Life Survey

Table 11. Unstandardized OLS Coefficients and t-values from the Regression of Monthly Coital Frequency on Selected Independent Variables, for Currently Married persons Age 20-49: China 1999-2000

Independent Variable	Coefficient	t
Respondent age (years)	-.15***	-3.68
Spouse age (years)	-.03	-.071
Sex (female=1)	-.77***	-2.89
Residence at age 14 (urban=1)	-.33	-1.44
Education (middle school or above=1)	.76**	2.54
Virilocal household (reside with husband's parents=1)	-.18	-0.61
Uxorilocal household (reside with wife's parents =1)	-1.35**	-2.56
Reside with partner past 12 months (always=1)	1.13***	3.85
Share bed with partner (always=1)	1.09**	3.52
Share bed with child past 12 months (often=1)	-.59**	-2.31
Living conditions affect sex life (a lot=1)	-1.40**	-2.25
Lack interest in sex for 2 months or more (yes=1)	-1.51**	-4.86
Excessive sex damages a man's health (agree=1)	-.68*	-2.51
Constant	12.01***	14.13
R^2	.095	
Number of cases	2,502	

Source: China Health and Family Life Survey

*** denotes p < .001
** denotes p < .01
* denotes p < .05

Table 12. Sex Interactions in the Regression of Monthly Coital Frequency for Currently Married persons Age 20-49: China 1999-2000

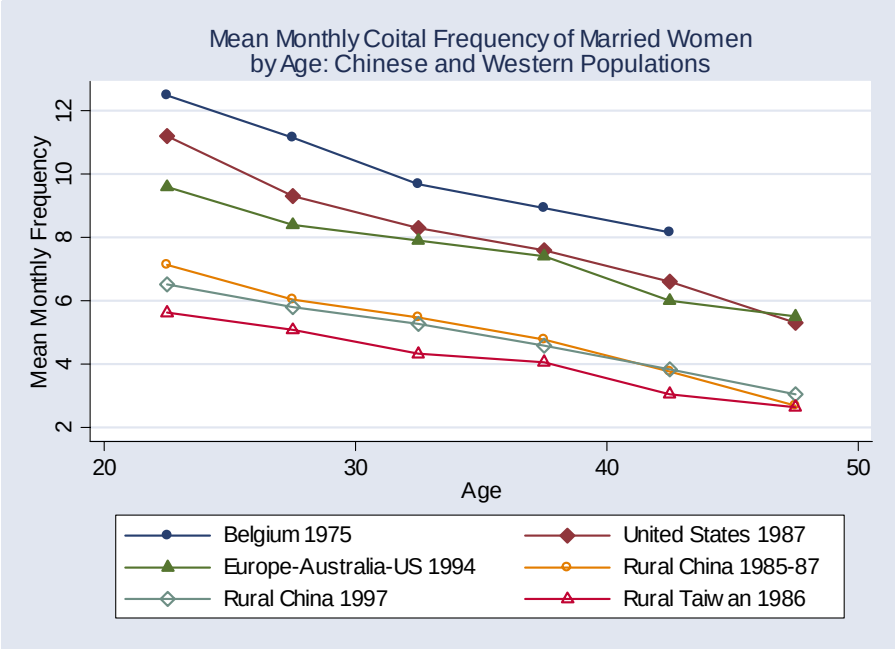
Independent Variable	Coefficient	
	Male	Female
Education (middle school or above=1)	.438	.969**
Uxorilocal household (reside with wife's parents=1)	-1.78	-1.16*
Share bed with child past 12 months (often=1)	-.563	-.648*
Excessive sex damages a man's health (agree=1)	-.980*	-.385
R^2	.068	.092
Number of cases	1,215	1,287

Source: China Health and Family Life Survey

*** denotes p < .001
** denotes p < .01
* denotes p < .05

Note. These coefficients are extracted from two regression models containing the same set of variables as in Tables 10 and 11. Only interactions with respondent sex are shown.

Figure 1



Notes and sources

Belgium 1975: Third Survey of Development 1975-76 (NEGO III). Data presented are for 3,987 currently married women age 20-44 with husband present, smoothed across ages (Udry, Deven and Coleman 1982: Table 1, p. 3).

United States 1987: 1987-88 National Survey of Families and Households. Data are for married women, smoothed over ages (N=1,930 women aged 16 and over). (Rao and DeMaris 1995: Table 2, p. 143).

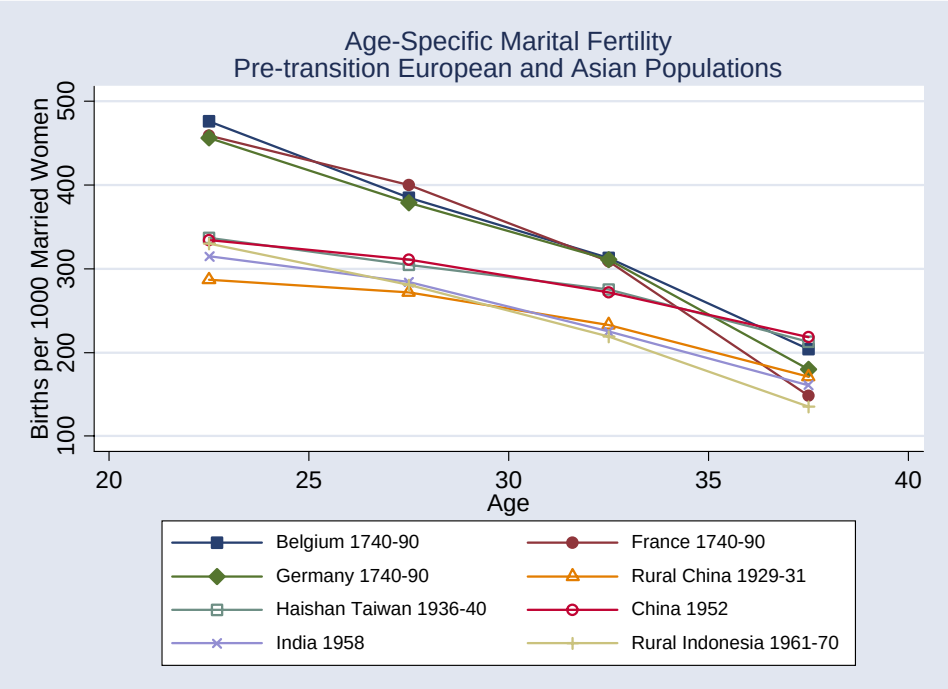
Europe-Australia-US 1994: International Social Survey Program. Data presented are combined from surveys in Australia (N of married women=1,310), US (1,048), Ireland (333), Poland (585), Bulgaria (554), and Spain (1,301). Mean monthly frequency was estimated from the midpoint of response categories on frequency of intercourse in the past year (ISSP 1994).

Rural China 1985-1987: In-Depth Fertility Survey, 22,522 rural married women 20-49 with husband present (IDFS).

Rural China 1997: National Population and Reproductive Health Survey 1997, 8,456 rural married women 20-49 (Liu and Chang 2000: Table 2, p. 301).

Rural Taiwan 1986: Taiwan KAP VI Survey. 2,076 rural married women 20-49 with husband present (Sun et al. 1986).

Figure 2



Sources:

Belgium, France, Germany: Flynn 1981, Table 6.5, p. 86.

Rural China 1929-31: Barclay et al. 1976, Table 5b, p. 614

Haishan Taiwan 1936-40: Wolf 1984, Table 7, p. 455

China 1952: Lavely 1986: Appendix table, p. 432.

India 1958: Karup 1975, Table 7, p. 10.

Rural Indonesia 1961-70: Cho et al. 1980, Table 8, p. 35 and Table 10, p. 40.

Appendix Table 1. Age Specific Marital Fertility Rates of Selected Pre-transition European, Chinese, and South and Southeast Asian Populations

Age	Belgium 1740-90	France 1740-90	Germany 1740-90	Rural China 1929-31	Haishan Taiwan 1936-40
15-19	494	496	474	174	353
20-24	476	459	456	287	337
25-29	385	400	379	272	305
30-34	313	309	311	233	275
35-39	204	148	180	171	213
40-44				86	105
45-49					
	China 1952	India 1958	Rural Indonesia 1961-70		
15-19	259	228	465		
20-24	334	315	330		
25-29	311	284	281		
30-34	272	225	219		
35-39	218	161	135		
40-44	133	95	61		
45-49			19		

Sources:

Belgium, France, Germany: Flynn 1981, Table 6.5, p. 86.

Rural China 1929-31: Barclay et al. 1976, Table 5b, p. 614

Haishan Taiwan 1936-40: Wolf 1984, Table 7, p. 455

China 1952: Lavely 1986: Appendix Table, p. 432.

India 1958: Karup 1975, Table 7, p. 10.

Rural Indonesia 1961-70: Cho et al. 1980, Table 8, p. 35 and Table 10, p. 40.