

Original Article

Evolutionary Explanations for Societal Differences in Single Parenthood

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Abstract: The new research strategy presented in this paper, Evolutionary Social Science, is designed to bridge the gap between evolutionary psychology that operates from the evolutionary past and social science that is bounded by recent history. Its core assumptions are (1) that modern societies owe their character to an interaction of hunter-gatherer adaptations with the modern environment; (2) that changes in societies may reflect change in individuals; (3) that historical changes and cross-societal differences are due to the same adaptational mechanisms, and (4) that different social contexts (e.g., social status) modify psychological development through adaptive mechanisms. Preliminary research is reviewed concerning historical, societal, and cross-national variation in single parenthood as an illustration of the potential usefulness of this new approach. Its success at synthesizing the evidence demonstrates that the time frames of evolutionary explanation and recent history can be bridged.

Keywords: Evolutionary Social Science; Evolutionary Psychology; Single Parenthood; Societal Differences; Historical Change; Adaptive Development; Sexual Development; Poverty; Values; Cultural Relativism; Sweden; England.

Introduction

Evolutionary psychology (EP) focuses on human adaptations to the hunter-gatherer way of life that is believed to have shaped human psychology over approximately two million years (Barkow, Cosmides, and Tooby, 1992; Buss, 1999; Cosmides, and Tooby, 1987; Durrant and Ellis, 2003). This approach generally identifies evolutionary influences on modern behavior in terms of cross-cultural universals such as proposed universal sex differences in sexual jealousy and mate selection criteria (Geary, 1998) but recognizes that universal human characteristics, such as emotions, may find different expression in different societies (Fessler, 2004). It sees social sciences as falling within the natural sciences. By contrast, “standard” social science focuses on the present and attempts to account for behavioral variation in terms of contemporary influences without reference to the evolutionary past

(Lopreato, and Crippen, 1999).

Although the strategy of identifying universals at the level of information processing mechanisms of the brain was an important point of departure in the emergence of evolutionary psychology, this approach requires elaboration if it is to account for variation in modern behavior. Just as the social sciences are stuck in the present, so to speak, evolutionary psychology is focused on the evolutionary past. Admittedly many evolutionary psychologists have wrestled with the problem of how one gets from evolved psychology to modern behavior using constructs that include cognitive modules, Darwinian algorithms, memes, and so forth (Barkow, Cosmides, and Tooby, 1992). The new research strategy of evolutionary social science (ESS, Barber, 2005) strives to overcome the temporal problem (i.e., bridging the evolutionary past and the present) by using concepts of evolutionary adaptation to account for variation in modern behavior whether between siblings, between families, or between societies. This paper employs the new research strategy to organize data concerning single parenthood in a way that can stimulate new research.

Before analyzing societal variation in single parenthood, it must be acknowledged that this new approach makes many controversial assumptions. It would be helpful to make these assumptions explicit and to explain briefly why they are necessary. The paper then shows how these assumptions help to organize data concerning single parenthood in different societies and at various points in history.

The Assumptions of ESS

ESS confronts evolutionary novelties in human social behavior produced by modern environments and thus aims to unite the evolutionary frame of explanation used by evolutionary psychologists and others with the historical time frame of many social sciences. To this end, it is necessary to make assumptions that have not been made previously, or at least not in an explicit and systematic way, with the aim of uniting the time frames of evolution and recent history. Some of these assumptions are sufficiently complex, problematic, and even counter intuitive, that they require some elaboration.

Assumption 1: That modern societies owe their character to an interaction of hunter-gatherer adaptations with modern ecologies and environments. This assumption is fairly uncontroversial. However, as previously noted, existing social sciences generally do not connect modern life with evolutionary adaptations and are quite resistant to doing so.

Assumption 2: Changes in societies may be caused by changes within individuals and they can affect individuals via bottom-up phenomena rather than via top-down transmission of values or behaviors. This form of reduction is actively resisted in some social sciences but it is worth emphasizing that scientific explanations almost always proceed by accounting for complex events in terms of more elementary constituents. Thus, the “behavior” of a molecule is always reducible to the characteristics of the constituent atoms.

A particularly interesting example of individual change mediating societal differences is the way that sexual liberation of women in a particular society is related to an adverse marriage market that means women's individual chances of contracting a favorable marriage is bleak, so that they must assert themselves in the monetary economy through paid employment or operation of businesses (Barber, 2002 a, 2004 a; Guttentag, and Secord, 1983). This phenomenon is by no means recent, cropping up in 14th-century England, and classical Sparta, for example. To say that social change in such cases is caused by forces acting at the individual level might seem like a semantic exercise given that the marriage market difficulties of females is distributed throughout the society but ESS opts to use individual-level explanations of social arrangements because these are theoretically relevant, viable, and scientifically plausible.

Assumption 3: that historical changes and cross-societal differences are due to similar adaptational mechanisms. This assumption contradicts the argument of cultural relativism. This is not to deny that all societies have some unique features, such as the peculiarities of their language communication system, their forms of dress, body ornamentation, basketry, pottery design, and so forth. Rather, the argument is made that to the extent the phenomena are truly unique, they defy scientific explanation and are thus of minimal interest to scientists, as opposed to artists, for example. One practical ramification of Assumption 3 is that historical mechanisms can be studied indirectly through cross-societal comparisons of contemporary peoples. To take a simple example, the high fertility of women in Africa today is due to the same agricultural mode of production that supported the majority of American women a century ago, and was associated with high fertility for them also.

Assumption 4: that different social contexts (e.g., social status) modify psychological development through adaptive mechanisms. This can be considered a general theory of psychological development that not only accounts for the adaptive match between individual behavior and the social environment, but also helps to explain historical, and cross-national societal differences. This assumption can be rephrased as an expectation that certain social inputs during development shall produce specific behavioral/psychological outcomes. For example, corporal punishment increases interpersonal aggression, helping to explain why parents in warlike societies are more likely to use harsh disciplinary tactics on their sons (Ember and Ember, 1994). Similarly, there is evidence that reproductive behavior, including single parenthood, is affected by childhood stressors.

Childhood Stress, Divorce, and the Development of Reproductive Behavior

Psychological stress in childhood influences adult sexual psychology and behavior in part because it alters brain development. Poverty is one example of a complex stressor in modern societies and researchers recently discovered that childhood stress alters brain structures and thus potentially modifies the sexual

psychology of males and females (Teicher, Anderson, Polcari, Anderson, and Navalta, 2002). Brain biology is far from being the complete picture, of course, and marriage is greatly affected by the availability of suitable partners, for example. Whatever the underlying mechanisms, men raised in poverty are less likely to provide, and women are less likely to require, the emotional commitment and economic support for children that are characteristic of the marriage contract around the world, so that single parenthood is correlated with low income within a country.

Poverty is not the only source of childhood stress, of course. If psychological stress affects sexual development and reproductive behavior in predictable ways, then other sources of childhood stress would be expected to have similar consequences for adult sexual behavior. Parental divorce is an interesting type of childhood stressor in this context because it is more of a middle-class experience in the U.S., for example, not because poor people enjoy stable marriage, but because they are considerably less likely to wed in the first place (Abrahamson, 1998). Although children of divorced parents experience a modest decline in living standards, they remain much better off, on average, than children raised from the beginning by single mothers (Waite and Gallagher, 2000). This means that divorce offers a useful window into the effects of psychological stress, unalloyed with extreme economic deprivation, on the development of sexual behavior.

Wallerstein and Blakeslee (1996) concluded that most American children who experience a bitterly-fought parental divorce suffer lifelong problems in forming committed sexual relationships. Their conclusion is supported by the following data on children of divorced parents (Wallerstein, 1998):

- Females are approximately 50% more likely to give birth as teens.
- They are approximately 48% more likely to divorce themselves (60% for white women and 35% for white men).
- Their marriages may be either highly impulsive (particularly for females), or delayed due to lack of self-confidence and trust (particularly for males). About a quarter of children of divorced parents (24%) never marry compared to one in six (16%) for the general population, suggesting a lack of trust in intimate relationships.
- They suffer from emotional problems (e.g., depression, behavioral disorders, learning disabilities) at a rate that is two-and-a-half times that of the general population.

Correcting the divorce rates by the marriage rates, it can be estimated that children of divorced parents have only about a one-in-five probability of being stably married, compared to a two-in-five chance for the general population (assuming a non-divorce rate of .50 multiplied by a marriage rate of .84). Compelling as such numerical differences are, they nevertheless minimize the relationship correlates of parental divorce because they leave out the emotional pain, anxiety, conflict, and self-doubt, that Wallerstein's informants described during lengthy interviews in the

context of protracted longitudinal research.

Even those who contributed to stable marriage statistics were often far from happy in their union. According to Wallerstein and Blakeslee (1996), the facade of marital permanence frequently concealed much discontent. Low expectations, combined with a sense of helplessness, often kept children of divorced parents in wrenchingly discordant marriages that more confident individuals might have changed, or exited.

Evidently, conflict and unhappiness in the parental marriage creates an expectation in children that their own marriages may be discordant, or fail. Males and females often respond differently to parental conflict (Barber, 1998 a, b; Wallerstein and Blakeslee, 1996). Young women may react to parental friction and separation with precocious sexuality. They initiate sexual activity sooner, and may even reach sexual maturity earlier, compared to young women raised in intact marriages (Ellis, 2004; Ellis, Bates, Dodge, Fergus, Horwood, Petit, et al., 2003). These phenomena help to explain the higher rate of teen pregnancy and childbearing among children of divorced parents. Marriages are often early, and impetuous, as well.

In the absence of a reasonable period of courtship in which the couple get to know each other, and conduct a protracted evaluation process, marriages are liable to be incompatible, and unstable. Early marriages are also more likely to end in divorce. While the young women may enter marriage recklessly, Wallerstein and Blakeslee (1996) describe a rather different type of commitment problem as characteristic of male children of divorced parents. These may experience lifelong difficulties in expressing, or even acknowledging, their emotions, which impedes sexual relationships and militates against happiness in a marriage. Many fear intimacy and postpone committed relationships (Barber, 1998a, b).

Some children may feel so traumatized by parental divorce that they are inclined to postpone marital commitment (Wallerstein and Blakeslee, 1996) preferring to cohabit before marriage (Whitehead and Popenoe, 2002). For individuals who fear marital commitment, this might seem a sensible way of progressing to a more committed, more permanent relationship. Informal unions are highly unstable, however, (Smock, 2000) possibly because of the lack of commitment with which they begin (Waite and Gallagher, 2000).

Wallerstein and Blakeslee (1996) serve rather like a Greek chorus in emphasizing the tribulations inflicted on children by parental divorce. By contrast Hetherington and Kelly (2002), serve as cheerleaders for children's powers of recovery following parental divorce. Hetherington collected data on some 1,400 families and their 2,500 children spanning three decades, focusing on objective facts rather than the more subjective interview techniques employed by Wallerstein on smaller samples. Hetherington found that the majority of children are resilient and bounce back from the distress of parental divorce in a few years without experiencing major behavioral or emotional problems.

Hetherington's optimistic conclusions are summarized in a *Time* magazine

interview (Corliss, 2002): “A lot of the current work makes it sound as if you’ve given your kids a terminal disease when they go through a divorce. I am not pro-divorce. I think people should work harder on their marriages: support each other and weather the rough spots. And divorce is a painful experience. I’ve never seen a victimless divorce - where the mother, father, or child, didn’t suffer extreme distress when the family broke up. But 75% to 80% do recover.” p 40

By “recovery” Hetherington means the absence of serious psychological, social, or emotional problems that would warrant professional attention. Given that 75% of children “recover” by this definition, 25% experience serious emotional problems, compared to 10% of children from intact two-parent families. In other words, their risk of serious emotional problems is more than doubled. In addition to those individuals with diagnosable psychological problems in the years immediately following parental divorce, many others could have serious lifelong problems in forming happy and committed reproductive relationships. These problems are at least partly attributed to the stress of parental divorce, although other environmental factors, such as social learning and inadequate opportunities to acquire social skills cannot be ruled out.

Genetic influences may also matter. This point is most clearly established in research finding an association of the androgen receptor gene with aggression, impulsivity, and number of sexual partners, and parental divorce for both sexes as well as female age of menarche (Comings, Muhleman, Johnson, and MacMurray, 2002), although the effect sizes were modest. Yet, the problems of children of divorced parents are not just a product of inheriting “hostile” or “emotionally troubled” genes from parents. This conclusion emerges from behavior genetics research comparing outcomes for adopted children with those of biological children subsequent to parental divorce. Adoptees suffer more from emotional problems following parental divorce even though they share no genes with the divorcing parents (O’Connor, Caspi, DeFries, and Plomin, 2000). Quinlan’s (2003) analysis of data from the National Survey of Family Growth also found that parental separation before the age of five years predicted early menarche, age of first pregnancy, and shorter duration of first marriage. Parental separation during adolescence was more strongly predictive of number of sex partners, however, suggesting that changes in care-taking arrangements have complex age-dependent effects on the development of sexual and reproductive behavior. If the stress of parental divorce and/or separation can have substantial effects on marital commitment in the second generation, it is not hard to imagine that the multiple stresses of poverty could have comparable effects on sexual behavior and marriage (see below).

In summary, a stressful early childhood increases the probability of single parenthood because of the resulting difficulty in forming committed reproductive relationships. This is true of parental conflict surrounding divorce, but it may also be linked to childhood poverty, or other causes, thus implicating developmental changes in the brain. On the other hand, single parenthood may occur at high levels in societies where children are exceptionally well off, and do not have highly stressful

childhoods, as is true of Sweden, for example, pointing to multiple causation.

Nonmarital reproduction is a complex phenomenon that reflects the reproductive strategies, and sexual behavior, of both sexes. These are affected in interesting and complex ways by economic influences and marriage markets, as illustrated by research on the history of single parenthood.

Poverty and the History of Single Parenthood

Poverty can affect reproductive behavior in two different ways each suggesting adaptive design: through the effects of stressors on brain development; and through its effects on marital opportunity. There is abundant historical evidence that poverty was an important influence on single parenthood because of its limiting effects on marital opportunity due to scarcity of men who were economically qualified for marriage. Even today, depressed economic conditions around the world, and high male unemployment, occur in nations that have high ratios of nonmarital births (Barber, 2003 c). Historical evidence indicates that the reproductive practices of young people in respect to nonmarital childbearing were affected by economic circumstances (Abrahamson, 2000).

Economic determinism is not the only possible explanation for historically changing single parenthood ratios, of course. Many social historians, believe that changes in single parenthood ratios are due to changing degrees of sexual liberation. Thus, the steady rise in single parenthood ratios for many European countries throughout much of the 19th century is attributed to increasing sexual liberation associated with industrialization of the economy and urbanization of the population. There is little doubt that changes in single parenthood ratios of this period were genuinely connected to the ongoing Industrial Revolution but appealing to sexual liberation as the cause falls short as a scientific explanation, particularly failing to explain historical changes in sexual attitudes, as explained in more detail below.

The increase in single parenthood during the 19th-century period of industrialization may be illustrated by the case of France where single parenthood ratios rose from about 5% of all births at the beginning of the century to about 10% at its end (Shorter, 1975). The largest increase in single parenthood occurred in cities, such as Paris and Bordeaux, where illegitimacy ratios surged above 30%, comparable to the level seen in many modern cities. Other European cities manifested a similar rise in single parenthood, partly reflecting an increase in the number of young single women who migrated to cities and towns in response to job opportunities associated with urban development following the Industrial Revolution.

There are many reasons why urbanization may increase single parenthood. Thus, living in an unfamiliar social environment, young women may have experienced difficulty in finding husbands. This problem was exacerbated by an excess of single women to single men (because young males were more likely to remain at home to work on family farms). The same phenomenon is still in evidence in modern cities where the feminine population generally exceeds the masculine one

(Guttentag and Secord, 1983). Thus, for U.S. metropolitan areas, there are just 93 males over the age of 16 years per 100 females when people living in prisons, and other institutions, are excluded (Barber, 2002d).

European single parenthood ratios increased during the 19th century, until about 1880, when a decline began that lasted for over two decades (Shorter, 1975). This decline was accompanied by a decrease in marital fertility, and both phenomena evidently reflect use of condoms, or other contraceptive devices, that became widespread about this time (Langford, 1991).

The sharp and widespread increase in single parenthood following the industrial revolution is apparently without historical precedent and thus a challenge for historians as well as ESS. Many historians see increased single parenthood as a product of sexual liberation (or moral degeneration, depending on their perspective).

According to the sexual liberation argument, urbanization brought large numbers of lustful young men and women together in an environment where the watchful eyes of relatives, and other traditional constraints on sexual behavior no longer mattered. They converted newfound sexual opportunity into sexual expression outside marriage thereby boosting illegitimate births.

The sexual liberation interpretation may well describe changing patterns of sexual behavior but it is far from satisfying when judged by the criteria of a scientific explanation for those changes. One problem is circularity. Sexual liberation is defined by an increased probability of sex outside marriage. For much of the 19th century, prior to widespread use of contraceptives, increased extramarital sexuality produced an inevitable rise in single parenthood. (It is true that premarital conceptions could be, and often were, legitimized, by marriage, however). If such complications are set aside, attributing increased ratios of single parenthood to sexual liberation is largely an exercise in circular reasoning. If we did not have data on single parenthood, we might not know that sexual behavior was “liberated.” Other clues of such trends may be uncovered by historians, of course, including explicit depictions of sexual behavior in the arts and literature, or an increase in tax revenues from prostitution, but such measures of sexual liberation often lack the consistency and validity of the illegitimacy ratio itself.

Strictly speaking, scientific explanation requires that the explanatory variable be measured independently of what is being explained, a criterion that is often lacking in social research. Yet, it is disputable whether sexual liberation can be reliably measured in historical research without referring to the illegitimacy ratio. If sexual liberation cannot be separated from single parenthood, then one phenomenon cannot be used as a scientific explanation of the other: they are not independent. Explaining one in terms of the other is thus an exercise in circular reasoning.

Even if sexual liberation could be measured independently of premarital sexuality, there is still a problem about direction of causation between attitudes and behavior. Do sexually liberated attitudes cause sexually liberated behavior, or do attitudes conform to behavior? A large technical literature on the connection between sexual attitudes and behavior suggests that both directions of causation might apply

(Moors, 2000). Young women who cohabit become more sexually liberated in their attitudes following this experience, for example. Such evidence once again highlights the difficulty of establishing scientific independence between attitudes of sexual liberation and sexually liberated behavior.

The sexual liberation hypothesis of increasing single parenthood with urbanization is not a genuine explanation: it does not provide a causal explanation for this historical change. Even if one admits that female residents of Paris produced 30% of their offspring outside wedlock in 1880 due to sexual liberation, this does not solve the fundamental problem of why Parisiennes were so much less liberated a century earlier when nonmarital birth ratios were below 5%.

Sexual liberation interpretations may deflect attention away from the real drivers of historical change, of which economic factors seem particularly important. The influence of economic constraints on family formation is well illustrated by English historical research dealing with local increases in nonmarital birth ratios (Abrahamson, 2000).

Historical “Outbreaks” of Single Parenthood in English Communities

Single parenthood is rarely even mentioned by anthropologists, suggesting that it would have been difficult for women in the evolutionary past to raise children alone. Similarly, throughout the era of written history, single parenthood was not a practical alternative and was chosen only as a last resort by women who failed to marry. In addition to the economic difficulties of single parenthood, illegitimate children were at a real social disadvantage in England. They were stigmatized, or ostracized, and suffered real legal disadvantages in the sense of not being able to inherit property, for example. The great majority of English women, typically in excess of 95%, were married when they gave birth, suggesting that the minority of single mothers were victims of ill fortune due to unintended pregnancy combined with an inability to demand marriage from the father (Shorter, 1975).

In such a social environment, women raised children alone only for lack of a better alternative. Marriage prospects were severely curtailed by economic problems. This phenomenon is illustrated in English history, where crop failures forced couples to delay marriage because they lacked the economic resources to set up an independent household. If they were sexually active before marriage, this meant they were at greater risk of producing out-of-wedlock births.

When Abrahamson (2000) examined historical surges in local out-of-wedlock birth ratios in England between 1590 and 1985, he found that all eleven cases of high nonmarital birth ratios followed an economic downturn. This phenomenon may be illustrated by the case of Terling, a small agricultural community 30 miles northeast of London. Between 1560 and 1590, nonmarital births were low, even by historical standards, constituting between 1% and 2% of total births. The illegitimacy ratio rose between 1590 and 1605, when it reached 10%. Abrahamson attributes this increase to an economic phenomenon that is familiar from more recent periods, namely price

inflation.

Terling's economic problems began in the 1580s and can be traced to population growth. With more mouths to feed, and an increased demand for food, prices soared. Price inflation eroded the purchasing power of wages, making it difficult for the landless poor, to make ends meet. This bad food scarcity was aggravated by a series of crop failures during the 1590s. The worsening economic situation made it economically impossible for many young couples to marry, and set up households, even if the woman was pregnant.

Being an unmarried mother invited legal sanctions and pregnant women could be punished, for immorality, or "fornication." At the peak of the illegitimacy "outbreak," legal enforcement was comparatively lax. Only a third of unmarried pregnant women were prosecuted, compared to three-quarters of them in more normal times. Many women were excused prosecution on the understanding that they would marry when their fortunes improved. This comparative leniency evidently reflected some understanding that marriage was constrained by difficult economic circumstances. When the economy improved, fornication laws were enforced more rigidly again. A similar change occurred in respect to enforcement of prostitution laws. In the difficult period after 1590, when few young men were marrying, and the services of prostitutes were in high demand, enforcement of vice laws was also relaxed, providing further evidence of the plasticity of moral, and legal, codes in the face of changing economic conditions (Abrahamson, 2000).

The constraints faced by young women in 16th-century England are obviously very different from the situation of modern women. The use of effective birth control, for example, means that single women are quite unlikely to become pregnant as a result of delayed marriage today. Even so, economic conditions affect the marriage market and single parenthood ratios of the 20th century in complex ways. This phenomenon has often been highlighted in connection with the marriage difficulties of African American women, for example.

African American scholars, including Wilson (1997), emphasize the impact of declining job prospects for African American men on single parenthood. He points to the decline in well-paid blue-collar manufacturing jobs in the U.S. after about 1950. Many African American men were subsequently forced into poorly-paid dead-end service jobs that provided little chance of supporting a family. According to Wilson, this meant that a large proportion of African American men were economically disqualified from marriage. The scarcity of men who were economically qualified for marriage was exacerbated by a host of other factors, reducing the availability of men for marriage. They included: low sex ratios at birth, higher mortality of young men, marriage of more black males than females outside their ethnic group, and high rates of incarceration in prisons. In 1950, for example, there were approximately 70 employed men aged 20-24 years per 100 same-aged women (Staples, 1985). Thirty years later, in 1980, there were only, 50 marriageable men per 100 women in this age category.

Other research supports the hypothesis that reduced marriage opportunities of

African American women play an important role in accounting for their high single parenthood ratios. Thus, African Americans living in metropolitan areas where there is a scarcity of marriageable men have higher ratios of single parenthood (Fossett, and Kiecolt, 1991). Based on state-level data, South and Lloyd (1992) found that ratios of nonmarital births decline with increases in availability of marriageable men (as indexed by the sex ratio). South (1996) found, however, that although young women were more likely to marry as the availability of males increased, increases in the proportion of males in high schools increased the chances of single parenthood, a puzzling result that is inconsistent with the rest of the literature. Births to African American teens (the great majority of which are to single mothers) were also predictable from reduced mate availability according to research comparing U.S. metropolitan areas (Barber, 2002b) and states (Barber, 2002c) in analyses that controlled for poverty and unemployment.

The same economic principles thus help explain why single parenthood was common among 20th-century African Americans as well as 16th century farmers in England. A similar logic applies to poor 20th-century European Americans also. In some economically depressed White neighborhoods, including the lower end of South Boston the majority of children are born outside marriage (73% in 1990, Whitman, 1996). Where there is a severe scarcity of marriageable men, (which is more likely in poor communities), women must choose between raising their children outside marriage or forgoing reproduction altogether.

The marriage market, and the economic variables affecting it thus provides a good understanding of historical changes in single parenthood. This conclusion is also supported in time series analysis of single parenthood in England, Scotland, and the U.S. (Barber, 2004 a). A similar pattern emerges from cross-national studies, as well as comparisons among U.S. states and metropolitan areas (Barber, 2000 a, 2000 b, 2001, 2002 a) that controlled for numerous variables such as female literacy, contraception use, poverty, unemployment, incarceration rates, and so forth. Whatever unit of analysis, or time period, is studied, the data are consistent in showing that young women who face a scarcity of marriageable men are more likely to begin their reproductive careers early in life and to raise their children with minimal paternal investment, consistent with the anthropological conclusion that if men cannot be relied upon to provide long term parental investment women gravitate to earlier reproduction (Draper and Harpending, 1982).

The data on single parenthood are thus consistent with assumption 3, stating that historical changes and societal differences are due to the same mechanisms. Of course, these data do not guarantee such uniformity for other areas of study but they do at suggest that ESS is a workable research strategy.

Environmental influences on reproductive strategies do not end with the marriage market, of course. Within a society, or community, particular individuals are more or less likely to form long-term, committed, romantic relationships depending, in part, on their childhood experiences, including the stresses of poverty (or parental divorce). This phenomenon thus provides a concrete example of

Assumption 4 -- that different social contexts modify psychological development adaptively.

Poverty and the Emotional Basis of Single Parenthood

There is no doubt that economic disadvantage impaired marriage formation over many centuries of European history. A crucial question to ask in this connection is whether individuals make adaptive emotional adjustments that allow them to fit in with an environment of reduced marital opportunity for either sex. Perhaps surprisingly, there is fairly good evidence that the emotional development of the individual is modified in ways that help her, or him, to fit in with economic, and romantic, limitations of the local environment.

To begin with, one finds that the emotional tone of low-income households is very different from that of more affluent ones. Poverty is accompanied by greater emotional negativity in the home as revealed by research on content analysis of speech, problem-solving by children, child abuse, antisocial behavior, mental illness, and so on (Barber, 2002 a; Hart and Risley, 1995]. Exposure to negative emotionality in early life evidently reduces trust, and commitment, in future relationships, particularly intimate ones, like close friendships and marriage (Belsky, Steinberg, and Draper, 1991). If poor children experience more emotional negativity in early life, does this mean that they have greater difficulty in establishing the trust required for stable reproductive relationships? Is poverty within a society a useful predictor of individual differences in emotional commitment problems?

One way of assessing this question is to investigate the effects of parental income on single parenthood ratios in cross-sectional research. If women are raised in poverty are they more likely to reproduce as single mothers, all else being equal?

Based on the theoretical perspective of Belsky, et al., (1991) and assuming that poverty is psychologically stressful (Lupien, King, Meaney, and McEwen, 2001), one would predict that poverty should evoke emotional negativity during childhood, thereby increasing subsequent emotional commitment problems, so that people raised in poverty would be more likely to be single parents.

Poverty can be measured indirectly in terms of low educational attainment given that education affects a person's earning potential in our society. Low education level is a powerful predictor of single parenthood. Using education level as a proxy measure, it turns out that poor women are considerably more likely to have out-of wedlock births. According to U.S. data for 1994, 46% of the children born to female high school dropouts were outside wedlock, as opposed to just 6% of children born to women with a bachelor's degree. (Respective proportions for high school graduates and women with some college were 30% and 17% respectively Abrahamson, 1998). Similar patterns apply to single fathers. These results suggest a remarkable bifurcation in American society whereby affluent, well-educated, women maintain single parenthood ratios that are not appreciably different from historical norms whereas poor women demonstrate a huge increase in single parenthood,

consistent with the emotional development thesis. Of course, poor women are also more likely to raise children alone because they encounter fewer men in their social circles who are economically qualified as marriage partners.

Although historical research on single parenthood emphasizes the economic characteristics of males, the greater participation of modern women in paid labor means that their own economic opportunities are an increasingly important influence on family structure. Broadly speaking, there are two distinct subtypes of feminine economic independence. Close to the top of the economic hierarchy, women have the option of raising children independently, although this option is less desirable in some countries than others for various economic and political reasons, such as government contributions to child support. “Murphy Browns” are thin on the ground in the U.S., for example but evidently much more common in social democratic countries like Sweden. Closer to the bottom of the economic hierarchy, poor women may be independent of paternal support of children by necessity, i.e., there is a scarcity of economically qualified men.

As these notions imply, wealthy women are more likely to begin their careers as single mothers comparatively late in life, after they have established themselves in careers, (which typically takes some ten years of effort; Goldin, 1995; Kaplan, Lancaster, Tucker, and Anderson, 2002), whereas poor women are more likely to begin their reproductive careers as single mothers earlier in life.

Interestingly, a young woman’s career prospects can have a major influence on when she begins her family. One of the best measures of career potential is academic success in high school and academic failure greatly increases the probability of single teen childbearing. Data from the National longitudinal Study of Youth indicate that women aged 15-19 yr at the bottom fifth of their high school class in math and reading skills are five times more likely to bear children compared to those in the top fifth (15% compared to 3% per year, Pittman and Govan, 1986). Although most teen pregnancies are unplanned, career motivation affects deliberate reproductive choices in predictable ways. Thus, when teens having high career aspirations find themselves pregnant, they are more likely to have an abortion. Young women with low career aspirations are more strongly motivated to invest their time and energy in raising a child (Barber, 2000 a, Pittman and Govan, 1986).

Despite efforts in many social democratic countries of Europe to ease conflicts between work and family, there is often a clash between raising children and developing a career. This conflict may be deduced from the fact that career women postpone reproduction for approximately a decade compared to those without careers (defined as earnings above the lowest 25%, Goldin, 1995).

The conflict between careers and early reproduction is thus fairly straightforward and can be thought of as partly a product of conflicting time demands between career and family. The connection between educational failure and early reproduction of single women is rather more complex.

To begin with, sub par educational performance predisposes young women, particularly poor ones, to early sexuality for a variety of reasons. Early single

parenthood is facilitated not just because of bad career prospects but also by diminished opportunities for marriage.

The role of poverty in diminished marriage prospects may be illustrated by comparing various U.S. ethnic groups that differ in average earnings. One measure of marriage difficulty is the proportion of women who reach the end of their reproductive lives without marrying. By the age of 40-44 years, 22% of African American women have never married, compared to just 7% of whites and 10% of Hispanics (Abrahamson, 1998). The poorer groups, (African Americans and Hispanics), thus have substantially higher rates of non marriage compared to Whites. These data constitute a very conservative measure of marriage problems among poor women, however. Thus, although the great majority of Black women eventually marry, they are likely to be unmarried when their first child is born and spend much of their peak reproductive years as single mothers due to delayed marriage and to marital instability.

Data on first births before marriage provide a clearer picture of the marriage market difficulties of poorer U.S. ethnic groups. Between 1990 and 1994, three quarters of African American first births were before marriage compared to two-fifths for Hispanics, and a quarter for whites (Abrahamson, 1998). Women from poorer ethnic groups are thus considerably less likely to marry before giving birth for the first time. Note that African American women are considerably more likely to be single at the time of their first birth compared to Hispanics although there are minimal differences in income, that actually favored African Americans at this period. These differences probably reflect the scarcity of young males in African American communities due to early deaths, illnesses, accidents, and incarceration, among other factors (Barber, 2002a).

In addition to the adaptive pattern of relationships between single parenthood and economic factors (including the marriage market) children raised in poverty generally experience a psychologically harsher early life that militates against the trust, commitment, and empathy, that form the basis of successful marriages (see below). Alternatively stated, in an environment where marriage is less viable as a reproductive strategy, children mature with less interest in, or potential for, stable romantic relationships. This suggests that children are raised to fit in with the practical realities of adult life in their particular community. In other words, it suggests adaptive flexibility in the development of human sexual behavior. Further evidence for this interpretation is provided by research on the development of sexual behavior as a function of parental income.

Poverty and Adaptive Flexibility in Sexual Development

One way in which poverty affects single parenthood is clearly through the limitations it places on marriage formation, as illustrated both by historical and contemporary research using various methodologies. Sexologists have long been aware of differences in sexual behavior as a function of socioeconomic status and it

seems reasonable to classify such differences as manifestations of a more general phenomenon of adaptive flexibility in sexual development. Generally speaking, being raised in poverty predisposes men to short-term relationships, or the low-investing “cad” strategy described by evolutionary psychologists (as opposed to the high-investing “dad” strategy, (Cashdan, 1993; Draper and Harpending, 1982). Men would not succeed in their career as cads if this were not tolerated, or even encouraged, by women having a similarly short-term perspective on sexual relationships, however.

This argument is clearly supported by anthropologist Elizabeth Cashdan’s (1993) research on sexual strategies of college students. She found that women’s and men’s sexual behavior varies considerably as a function of their expectations about masculine commitment in sexual relationships. Cashdan concluded that the less emotional commitment women expected from men in their dating pool, the more short-term their own perspective was. Women who believed that their dating environment was full of cads, dressed provocatively, and had many sexual partners. On the other hand, if they encountered many potential dads, i.e., caring and nurturing men, they behaved more sedately, emphasizing their own propensities for sexual fidelity and chastity. Cashdan reported that cads attracted women by drawing attention to their physical appearance, and sexuality, whereas dads “advertised” their economic assets, or capacity for economic success, as well as their desire for a permanent relationship. While some readers might see such findings as confirming outmoded stereotypes of sex differences in sexual behavior, it is important to recognize that college students, as a group, are arguably more immune from preconceived notions about sexual behavior than other segments of the population and are thus expressing evolved psychological propensities within this particular environment (see Townsend, 1998, for a similar argument concerning medical students).

While young college students adapt their dating behavior to the immediate social environment, it is quite clear that some of the variation in sexual behavior is also affected by the developmental environment (as well as genetically inherited variation, Simpson and Gangestad, 1992). Thus, a more stressful early environment predisposes people to short-term, or unstable, sexual relationships, as manifested by the data on children of divorced parents, for example. Other complex childhood stressors, specifically poverty, may have similar effects.

Most theories of the influence of stressful home environments on the development of sexual behavior emphasize the pathological aspects, as reflected in social problems like school failure, delinquency, and so forth. Evolutionists are more willing to accept that there is a range of adaptive variation, and that children’s responses to stressful rearing experiences may constitute normal function in an adverse environment rather than the breakdown of normal developmental mechanisms.

To this end, Belsky, et al. (1991), proposed that children who experience insensitive parenting, which is more characteristic of low-income homes, are better

prepared to prosper in a harshly competitive adult social environment. Belsky et al.'s evolutionary theory of socialization pivots on the principle that unresponsive parenting elicits exploitative interpersonal attitudes and antisocial behavior in the second generation. It also produces a short-term perspective towards sexuality.

Given that poverty is associated with increased psychological stress among children, it would be predicted to have all of the above effects. The most compelling evidence of emotional negativity in parent-child relationships in poor homes comes from analysis of actual speech content addressed to children in economically disadvantaged homes. Parents provide far less verbal stimulation to children in poor homes, which has important implications for cognitive development in general, and for the development of vocabulary size in particular. Poor parents say much less to their children and what they do say is much likely to have a hostile, emotionally negative, or disparaging, tone, to involve scolding rather than praise (Hart, and Risley, 1995). The implied relative lack of emotional warmth between parents and children has rather obvious implications for future sexual relationships.

Thus, poor single teenage mothers often complain about a lack of warmth in relations with mothers according to Musick (1993). Research on the home backgrounds of single teen mothers finds that they experience many psychological stresses, and sources of negative emotionality, when compared to non mothers (Corona, and Tidwell, 1999). Family problems included: the absence of a father figure to provide emotional and economic support; arguments between parents; exposure to drug addiction or alcoholism in the home; parental divorce; physical, sexual, or emotional abuse; and unsatisfactory or unstable relationships with foster homes.

Separation from fathers (which occurs more commonly in low-income homes) may engender a sense of emotional deprivation for which early sexual relationships seem to provide an answer. The likelihood of young women being sexually active at an early age, and becoming pregnant in teenage years, is increased by a perceived lack of emotional closeness to their mothers. Many teen mothers describe the relationship with their own mothers as both difficult and distant in interview studies. Some of the mothers are emotionally rejecting and others emotionally dependent on their daughters (Corona, and Tidwell, 1999}. Psychologists find that father absence does not have the same consequences where it is due to bereavement, suggesting a complex interaction of factors in the family environment on emotional development (Barber, 2000 a; Popenoe, 1996).

Unsatisfying emotional relationships with parents may produce complex effects on sexual psychology. Many young single mothers have conflicting attitudes to men. Perhaps, consistent with what they may have witnessed around their own homes, they view most men as unreliable, alcoholic, and potentially violent. Conversely, they may entertain unrealistically favorable expectations of their own partners, hoping that once they become pregnant, their boyfriend will fall in love with them and propose marriage. Anderson (1990) paints a vivid picture of the short-term sexual relationships conducted by young African American mothers inhabiting

economically depressed inner cities where marriage prospects are diminished by unfavorable economic conditions as well as the scarcity of men. Anderson describes dating in this environment as an odd mixture of calculation and vulnerability wherein young women use their sexuality to manipulate men and often end up pregnant and abandoned. His “streetwise” young men are portrayed as befriending women purely to obtain sexual gratification that they refer to as “hit and run” or “booty.” To accomplish their short-term sexual goals, men cater to female fantasies by offering extravagant, if insincere, promises of affection, love, and even marriage. After a young woman finds herself pregnant, she is likely to be abandoned, with contempt. The relationship ends and the cycle begins anew with a different partner. Playing their role as cads to perfection, the “streetwise” man refuses to support the children he has fathered. Where women perceive their world to be full of cads, they also employ short-term reproductive tactics, emphasizing their physical attractiveness and using their sexuality as a bargaining chip to obtain the attention and fleeting affections of men (Cashdan, 1993).

Short-term reproductive strategies are clearly not peculiar to America’s inner city but can be seen as an adaptive response to difficult economic circumstances in any country. Sex researchers working in the U.S., and Britain, found that working class people, or low-income people, were generally more unrestrained in their sexual attitudes and behavior compared to the rest of the population. During the 1960’s, middle class youth tended to catch up with their working class counterparts in terms of premarital sexuality, and other measures of sexuality, however. English research conducted in the 1960s and 1970s nonetheless found that income-group differences persisted in the sense that working class youth were sexually active from an earlier age. (Argyle, 1994)

Eysenck (1976), reported that working class Britons were more likely to approve of marital infidelity and to agree that physical gratification is the most important aspect of marriage. He concluded that working class respondents to surveys are more earthy whereas middle class respondents are more moral in their sexual attitudes. Eysenck believed that working class people had more libido. American research conducted at the end of the 1980s reached similar conclusions, finding that college-educated people to be more restrained than others in a wide variety of sexual behaviors. Ironically, poorer people are less satisfied with marital sexuality, (even though they report having sex somewhat more often). They are more likely to have extramarital relationships (at least for men, Argyle, 1994).

Recent research suggests that the more short-term sexual orientation of poor people might be attributable to the effects of stress on the developing brain. Among victims of child abuse (psychological as well as physical), for example, early stress alters brain anatomy and function thereby producing a pattern of high sex drive and low sexual satisfaction (Teicher, et al., 2002). Considered as a complex stressor, poverty could have the same type of effect especially considering that stress is a psychological phenomenon that may be produced in emotionally negative homes where no threshold of criminal abuse is passed (Teicher, et al. 2002).

Short-term physical relationships are not restricted to the poor, of course. They are conducted by affluent young people on American college campuses, as depicted, for example, in Townsend's (1998) study of sexual relationships among medical school students. His female informants described dozens of sexual relationships, many undertaken for the most trivial of motives. Some women slept with physically attractive men primarily to demonstrate their own sexual desirability. Jilted women occasionally made love with their former lover's best friend motivated solely by spite. Shallow, or even malicious, sexual relationships are clearly not restricted to poor men.

The association between poverty and the development of relatively unrestricted sexual behavior of both men and women helps to explain why single parenthood is more common in poor neighborhoods. This implies adaptations of sexual psychology to varied landscapes of economic opportunity. In some cases, these phenomena are quite well understood in terms of psychological development and recent research has begun to pinpoint possible underlying brain mechanisms (Teicher, et al., 2002).

Short-term reproductive strategies of men are quite easily accommodated within an evolutionary perspective because they confer increased reproductive success on cads, thus ensuring that a willingness for uncommitted sexual relationships would be promoted by natural selection (Symons, 1979). Why are single mothers willing to accept reduced paternal investment in their offspring?

Why Women Accept Reduced Paternal Investment

A comprehensive analysis of historical and evolutionary factors affecting single parenthood is not possible without some understanding of the dynamics of marriage markets and their influence on sexual behavior. This sort of analysis was pioneered by Guttentag and Secord (1983). Their cross-cultural and historical comparisons demonstrated that a scarcity of men in the population is generally correlated with "liberated" sexual behavior as women compete for a diminished pool of young men by emphasizing their sexual availability. The scarcity of men in ancient Sparta, due partly to the practice of male infanticide, and to warfare, was used to explain the sexual liberation of women there, for example, whereas the excess of males in contemporary Athens accounted for the extreme preoccupation with feminine chastity in that city.

Similarly, Guttentag and Secord's (1983) historical analysis of sexual behavior in the U.S. concluded that a more difficult marriage market faced by young women in the 1960s compared to the 1950s liberated women's sexual behavior, as more women began having intercourse before marriage, and dressed provocatively suggesting sexual availability. Changing sexual behavior can thus be accounted for in terms of changing marriage market dynamics.

A scarcity of men, means that some women will inevitably fail to marry and are therefore liable to become sexually active outside marriage. The presence of a

pool of sexually active single women essentially sets up an “arms race” whereby women who are interested in marriage must offer pre-marital sexual activity to compete for masculine attention and affection. This is in marked contrast to the coy strategy prevailing in societies where women’s marriage prospects are very good and where they advertise chastity as a means of ensuring paternity confidence that is universally desirable for prospective husbands (Barber, 2002a, Symons, 1979). In sexually liberated societies, women thus play a very delicate game of implying that they are ready for sexual intercourse with their boyfriend, while simultaneously denying that are the sort of woman who enjoys many sex partners and is thus undesirable as a wife who provides low confidence of paternity in relation to children of the marriage (Symons, 1979). Such marriage market dynamics are particularly influential in the lives of poor women. For them, the supply of marriageable males is particularly bleak, as already discussed. There is thus a large pool of sexually active single women in low-income neighborhoods, which favors a cad strategy that seems to be particularly common in that environment. The prevalence of short-term reproductive strategies means that both males and females are likely to be sexually active from an early age. (Indeed a women’s sexual maturation can be accelerated by a few months by a stressful early environment such as that characteristic of poverty and father absence, Ellis, et al. 2003). A plentiful supply of sexually active single young women favors an opportunistic strategy by young men who can achieve sexual gratification without providing any long term emotional commitment, or paternal investment (in the event of pregnancy).

If poverty makes it difficult for men to support their children, their reproductive success is favored by pursuing a cad strategy (i.e., seeking sexual gratification in short-term relationships) and emphasizing mating effort rather than paternal investment. This might be considered the default strategy of male mammals, most of which invest little in offspring and compete aggressively with other males for mating opportunities and reproductive success (Geary and Flinn, 2001; Hewlett, 1992). (The word “strategy” is used here in the technical sense of an evolutionary mechanism, has no connotation of intentionality, and does not imply that people want to have children - only that they behave in ways that are liable to increase their reproductive success).

If poor men are less able to provide economic support for their children, then devoting themselves to mating effort rather than paternal investment is adaptive, i.e., generally promotes reproductive success. The cad strategy may work for economically-disadvantaged men. The real question is why young women should forgo most paternal investment by opting to raise children alone.

The reasons are complex but the following points should be borne in mind:

- Poor women who do poorly at school, have less to lose, socially or economically, from early childbearing. In fact, bearing a child gives them a sense of importance and accomplishment that they did not get from their academic efforts (Barber, 2000a; Musick, 1993).

- Young mothers may anticipate a long-term relationship when they become sexually active.
- Fathers of children borne by teenage women are characteristically more than three years older than the mothers (Landry, and Forrest, 1995). The father's relative maturity can be flattering to younger women and means that he tends to be more attractive as well as more controlling.
- In addition to gravitating to older men, poor young women evidently prefer to associate with socially dominant men as well. Thus, gang leaders are much more sexually active than other gang members and have more sexual partners (Palmer, and Tilley, 1995). This implies that women living in poor urban neighborhoods select men on the basis of qualities associated with social success there, i.e., on the basis of attributes such as social dominance, ruthlessness, and aggression, that generally have negative connotations for women in more affluent neighborhoods. This suggests adaptive design because they are acquiring for their male offspring qualities associated with reproductive success in the local environment (Barber, 1995).
- The majority of poor single teen mothers have a history of some kind of childhood sexual abuse (Barber, 2000a; Boyer and Pine, 1992; Musick, 1993). This has the effect both of advancing the age of voluntary sexual activity and works against the development of social skills that would facilitate equity in their sexual relationships.

Looking at the world from a very different perspective, social workers are inclined to see teenage child-bearing as both self-defeating and pathological, which it might be in more affluent circumstances. Yet, a good case can be made that early single parenthood is essentially an adaptive response to an environment in which there is limited economic opportunities for women and where they cannot expect much paternal investment in their children.

In a low-investment environment, there is increased emphasis on physical attractiveness in the selection of a sexual partner (Buss, 1994). When competing amongst each other for the attentions of a low-investing partner, women emphasize their own sexuality and also use sexual favors to manipulate men (Cashdan, 1993; Townsend, 1998). Thus, if she wishes to leave an undesirable home environment, a young woman may initiate a cohabiting relationship to obtain free accommodation (Musick, 1993). Male partners are likely to be physically strong and socially dominant (Palmer and Tilley, 1995).

From the perspective of a social worker, it is difficult to see displays of aggressive masculinity, or promotion in a criminal organization, as measures of social success but poor women are attracted to socially dominant men for the same reason that middle-class women are likely to be attracted to mild-mannered professional men with high earning ability — these are different measures of social success in very different social environments. By being attracted to dominant men, women in poor

neighborhoods acquire at least temporary access to resources (Buss, 1999; Cashdan, 1993). They also acquire the genetic basis of social success that contributes a competitive advantage to their children. These adaptive considerations are relevant to any comprehensive account of reproductive choices underlying single teen parenthood but they are unlikely to enter the lexicon of social workers.

One of the most interesting aspects of sexual behavior in an economically depressed environment — one having an unusually difficult marriage market for women — is that many young women view motherhood in a very positive light and rarely as a mistake. Many look forward to becoming pregnant as a way of obtaining someone to love. Birth of a first baby may also constitute a rite of passage that provides entry to the world of adults and the society of other young mothers (Musick, 1993). Their optimism in the face of formidable difficulties may be one of the most remarkable examples of adaptive modulation of psychological development to a niche of low paternal investment.

Willingness to assume the burden of rearing children alone may stem from such optimism. Alternatively, it might reflect unsuitability of biological fathers for the social role of being a parent. Although a nurturant father may contribute a great deal to the happiness, health, and social prospects, of offspring, this argument cuts both ways and antisocial fathers can have the opposite effect. Indeed, criminologists have recently found evidence that living with a criminal father makes children more likely to commit serious crimes (Jaffee, Moffitt, Caspi, and Taylor, 2003). Women living in economically depressed neighborhoods might sometimes prefer to raise their children alone if the presence of an antisocial father increased the likelihood of their children getting involved in criminal enterprises at considerable risk to their lives and liberty.

Interview research on poor single mothers in the U.S. finds that many consider teenage childbearing both acceptable and normal (Musick, 1993). They deny the claims of social scientists that they are damaging their own futures, or doing a disservice to their communities by raising children who are at higher risk of criminality, drug addiction, poverty, and so forth. Motherhood provides many of these young women with a sense of optimism, purpose and meaning in their lives and allows them to hope for a better future. One of Judith Musick's (1993) informants articulated these sentiments clearly in a diary entry:

“I Like it when people notice I’m having a baby. It gives me a good feeling inside and makes me feel important.” “Baby will be here any day now and I will be a proud Teen Mom with my head held high.” pp. 110-111

While single parenthood increases, almost inevitably, with declining marriage prospects for women this is not the complete picture. The modern environment evidently creates situations in which single parenthood may actually be the desirable, or preferred option, even though such a scenario was rare, or nonexistent, throughout

the two-million-year-plus history of our species. Before taking up that theme in relation to changes in family structure in Sweden, it is desirable to say something about “values” explanations of sexual behavior that remain influential among scholars.

Values and the Single Mother

Values interpretations of human sexual behavior rest on the notion of free will, i.e., that there are good and bad options that are voluntarily chosen by freely-acting agents. The concept of free choice of family structure, although widely accepted is problematic for scientists: if each individual was really autonomous, social scientists would be irrelevant in the sense that they could not predict human behavior.

Even if belief in free will is largely inconsistent with scientific inquiry, social scientists are forced to come to terms with arguments that human behavior is determined by “values” that are either propagated passively into individuals by their social environment, or chosen voluntarily from an array of alternatives. They do so in at least three distinct ways. The first is to interpret free will as a popular illusion irrelevant to scientific analysis. The second is to write free will off as a source of noise, or unexplained error in the data. The third is to use it as an independent variable, or predictor. This can be done in various ways, including experiments that either encourage, or frustrate a person’s sense of autonomy. In one well-known experiment (Lepper and Greene, 1975) children who were paid for drawing with felt-tipped pens lost their enthusiasm for this activity when payments were stopped, thereby providing evidence that they are governed by intrinsic motivation for some behavior that can be affected by providing external rewards.

In social research, the third of these alternatives is frequently employed when choices are studied in the form of attitudes measured at an earlier point in time to see whether they are helpful in predicting subsequent behavior. As intimated above, this enterprise has produced mixed results. Evidence suggests that, sexual behavior affects sexual attitudes just as much as sexual attitudes affect behavior (Moors, 2000). If attitudes and behavior are not clearly separable, they do not satisfy the criterion of independence between causes and effects that is a fundamental, assumption of scientific explanation. If behavioral attitudes, or self-reported choices, are to avoid tautology, (i.e., circularity), and provide useful scientific explanations of behavior, they must be truly independent of the behavior they are used to predict.

Even if sexual attitudes could be separated from behavior, there are many reasons why individual behavior might not conform to attitudes, or preferences, illustrating a further weakness in values as a scientific construct. A person who is addicted to cigarettes may hate their addiction, for example, but feel powerless to stop smoking. The social environment often frustrates individual choices, as well, and this is clearly true in the case of single parenthood that may be a product of limited marital opportunities for young women. Thus, research on the attitudes to marriage

of young African American women found that they strongly endorsed the value of marriage at a time when few Black women could hope to marry before having their first child. Moreover, exactly the same proportion of African American women as the rest of the population believed that it was desirable to marry before raising a family, although they were more than twice as likely to do the opposite, i.e., raise their first child outside marriage (South, 1993).

The mismatch between family aspirations and actual reproductive behavior is not peculiar to African Americans, of course. Thus, the majority of Americans believe strongly in the permanence of marriage, even though there has been a sharp rise in divorce rates, and in numbers of cohabiting couples, who substitute an informal, often temporary, union for a more permanent, more binding one (Smock, 1999). Despite these inconsistencies, the married family remains the statistical norm in the sense that nine Americans out of 10 still marry and that the majority of children spend most of their childhood in married households (including step parents, Wellner, 2002).

In many European countries, including France, where more women aged 20-24 yr now live with their boyfriends than live with husbands, matters are very different (Ekert-Jaffee, and Solaz, 2001). Approximately 85% of French marriages begin as cohabiting arrangements. Sweden is an interesting country in the sense that single parenthood is currently the norm there. This might be a misleading conclusion, however, because unmarried Swedish women are quite likely to be living with the father of their children.

Single Parenthood in Sweden

Sweden is sometimes seen as the exemplar of declining marriage and consequently of increasing levels of single parenthood. Thus, Swedish marriage rates declined 40% between 1966 and 1974 alone and are currently at a historic low as well as being one of the world's lowest (Popenoe, 1988). The decline in marriage rates is attributable to a concurrent rise in cohabitation rates. If couples may live in the same home and enjoy all the benefits of marriage without a permanent commitment, why should they marry?

Widespread failure to marry is not the only sign of weakness in Swedish marriages. Despite unusually low marriage rates, that would be expected to screen out many potentially incompatible marriages, Swedish marriages are highly unstable compared to other countries at a similar level of economic development. At the end of the twentieth century, Sweden's divorce rate, calculated as a proportion of all marriages, stood at 64%, second only to that of Russia where 65% of marriages ended in divorce (Moffett, 2002).

By 1990, about 50% of Swedish men aged 25-29 were cohabiting. As a result, half of births were outside marriage (Chesnais, 1996). Traditional marriages are little more than a historical curiosity and there has been a rapid increase in the number of single young Swedes living alone. Thus, in downtown Stockholm just

37% of households contain married people. With 85% of young women with children under seven in the workforce, the young home maker has receded into history (Sweden's Splashy Women, 1996).

Although most births are to single mothers in a technical sense, as a practical matter the great majority of young children live with both parents. It might thus appear that the transition in Swedish families is more a question of appearance than reality. Yet, this is not true because cohabiting unions dissolve much more rapidly than marriages, even in a country like Sweden that has an exceptionally high divorce rate (Popenoe, 1988). In one study of U.S. women born between 1936 and 1960, for example, the dissolution rate for cohabiting couples with one child was triple that of comparable married couples (Smock, 2000) and a similar pattern is seen in Sweden (Popenoe, 1988).

Although the data on single parenthood in Sweden may thus exaggerate the lack of commitment of fathers to their children, high ratios of births to single women are nevertheless correlated with a relative lack of commitment of parents to a permanent relationship that reduces the amount of time that fathers will spend living in the same home as their children. Why do so many Swedish couples, compared to the U.S. and other developed countries, avoid marrying before reproducing? The conventional answer to this question may be summed up in two words "welfare state." The Swedish state is so generous in its support of mothers and children that women raising children outside marriage are not exposed to the economic risks encountered by single mothers in the U.S., for example.

A comprehensive discussion of the historical roots of the Swedish welfare state is outside the scope of this paper but a few points bear emphasis. The Swedish welfare state grew out of perceived problems of declining population but many of its current characteristics were designed to solve the conflict between careers and family faced by women in most developed countries (Carlson, 1990) so that more married women could work, thereby boosting the Swedish economy. The Swedish solution to this conflict was to nationalize many of the economic functions of the traditional family so that it was easier for Swedish women to raise children without economic cooperation from husbands.

Tax reforms of the 1970s also increased the financial incentive for women to work, and reduced their economic dependence on husbands. Thus, high tax rates for jointly-filing married couples were eliminated and married people were taxed separately (Carlson, 1990). Married women's earnings were no longer vulnerable to the high tax rates that had seriously undermined the benefits of a second household income to the extent of discouraging married women from going to work at all.

Such changes in the tax code, as well as providing daycare entitlements for mothers, were successful at increasing female labor participation. By 1995, 85% of Swedish women worked outside the home, the highest participation seen in any industrialized country and twice the labor force participation of Italian women, for instance. Many (40%) worked part-time, however, thus limiting potential conflicts between career and family (Home Sweet Home, 1995).

Despite working part time, Swedish women do not lose occupational prestige as a consequence. Gender equality is vigorously promoted and women enjoy equal status with men in most occupations (Sweden's Splashy Women, 1996). This is certainly true of politics. After the 1994 election, women held 41% of the seats in the Riksdag, the highest proportion of female political representation in any country, and considerably higher than the 14% of women in the U.S. House of Representatives and in the Senate (as of 2003). Half of the cabinet members (11 of 22) were also women. (Academic life evidently lags other fields in regard to gender equality. Thus, Swedish females must publish twice as much as Swedish males to earn a fellowship in medicine, for example, Wenneras and Wold, 1997).

Direct government support of Swedish children is generous. Free school meals, and clothing, and good childcare benefits, mean that no mother is dependent on her husband, or lover, for economic necessities for herself or her children. A man's decision to leave his children does not send the family on a downward spiral into hardship, or poverty, as it does in most other countries. Aggressive enforcement of child support laws also mean that a father's presence in the home is not necessary to ensure his financial contribution to children. As a result of these radical family policies, very few Swedish children live in poverty. In 1990, only 7% of children lived in households with an income under 50% of the national average. In other words, 93% of children lived in comparative affluence (Home Sweet Home, 1995).

Conservative scholars have criticized the Swedish welfare state for weakening married families by taking over many of the economic functions previously fulfilled by fathers (Popenoe, 1988). Expansion of the welfare state has indeed been accompanied by a rapid, and historically unprecedented, increase in births outside wedlock, from 11% in 1960 to 53% in 1995 (Home Sweet Home, 1995). Although 19 out of 20 babies begin life under the same roof as their fathers most will not reach maturity without experiencing parental separation.

Although Sweden has a very high ratio of children born to single mothers, this does not have the same implications for children as it would in many other countries. In addition to being materially provided for, most Swedish children also spend the formative early years of life in two-parent families. It is not too surprising that children of single parents in Sweden turn out very much as children of married couples do in other countries given that domestic arrangements are quite similar despite the lack of a formal marriage contract.

In particular, Sweden does not have the social problems associated with single parenthood among poor women in many other developed countries. Birth rates to teenage women are very low, for example at 1% annually compared to 6% in the U.S. (Population Reference Bureau, 1998). This is all the more remarkable given that women are sexually active from a comparatively early age (Carlson, 1990; Popenoe, 1988; Weinberg, Lottes, and Shaver, 1995). The main reason for avoiding unplanned pregnancies may be the widespread use of contraceptives that are easily available and promoted by many years of public education in responsible sexuality.

Other factors matter also. One important factor underlying low rates of single

teenage childbearing is the fact that Swedish women have unusually good career prospects. They are thus motivated to delay having a family until they are established in careers (see Goldin, 1995).

It is interesting that Sweden has low rates of serious crime despite its high rates of single parenthood and the presence of a substantial immigrant population. Other countries with high ratios of single parenthood often have high crime rates because so many children are born in high-risk groups, specifically to poor single mothers. In Sweden many of the births to nominally single parents are to mature affluent women, and few are to poor teenagers. Considering each of these factors, it is perhaps unsurprising that Sweden has much lower rates of serious crime than would be predicted by the ratio of births to single women. Compared to violent crime rates in the U.S., for example, Sweden has ten times fewer assaults, two-and-a-half times fewer rapes, and about 25% fewer murders. based on INTERPOL (1990) data.

The fact that the Swedish family system does not produce high rates of crime or other social problems, suggests that single parenthood may be less important than poverty in determining the social problems associated with high nonmarital birth ratios in other countries. This is a risky assumption for at least two reasons however. The first is that Swedish children generally do live with their fathers in the early years of life when the brain is particularly responsive both to stressors and environmental impoverishment. The second is that the increased stress in children's lives attributable to father absence, as measured in terms of stress hormones (Flinn, 1999), may be more pronounced in poor homes for various reasons. Thus, poverty is a complex stressor and any kind of social support, particularly that from co-residing fathers, could mitigate its effects on behavioral development. As well as experiencing less stress due to their social environment and living arrangements, children of affluent single mothers may benefit from have more extensive social support networks.

So far as the evolutionarily-relevant aspects of the early environment are concerned, being raised by a single mother in Sweden is evidently not very different from being raised by married parents in other countries. Having come to the end of this summary of data on single parenthood from an ESS perspective, it is time to ask what this perspective contributes to the problem that is new or worthwhile.

ESS: Of What Value for Research on Single Parenthood

The data on single parenthood suggest that ESS provides the kind of large framework into which many kinds of evidence can be assimilated. Thus, the response of single parenthood ratios to similar influences across time and from one society to another is consistent with ESS (assumption 3) but not with most other perspectives in the social sciences. Moreover, there is little convincing evidence in support of top-down values interpretations of societal variation and very good evidence that such differences are mediated directly through environmental influences on individuals (assumption 2). The most important of such influences include the marriage market,

and the economic prospects of single women as compared to the overall well-being of children in two-parent families.

Perhaps the most interesting aspect of the application of ESS to single parenthood is the fact that sexual psychology of young women and men varies predictably both as a function of the immediate social environment, and as a function of the developmental social environment (assumption 4). The most important aspect of such variation is arguably the potential for paternal investment in children, as well as the extent to which women are economically independent of such investment (a circumstance that prevails in Sweden due to the provisions of the welfare state) and in many economically developed countries due to expanded professional opportunities for women.

A diminished capacity for paternal investment is characteristic of poverty in modern societies, helping to account for variation in sexual behavior, and single parenthood ratios, as a function of income. Moreover, research on brain development points to psychological stress as a possible mediator in the ontogeny of differing patterns of sexual behavior as a function of parental income. Presumably, this example of evolved developmental plasticity would have tracked very different stressors in the evolutionary past, perhaps a scarcity of food rather than the modern stimulus of insufficient monetary resources.

Scientific theories perform two essential functions. They organize information and allow it to be stored in an orderly fashion, rather like the ordered arrangement of merchandise in a warehouse. Large scale theories, like ESS can be thought of as providing a great deal of space where new information can be deposited. In addition to the role of organizing information, they stimulate research. This is analogous to the owner of a warehouse finding that a bay of the warehouse is empty and sending out to the supplier for the missing item. (In this case, of course, the role of supplier is performed by researchers and scientific knowledge is steadily accumulated instead of ebbing and flowing as in a real warehouse).

This paper demonstrates that ESS can accommodate a great deal of information in an orderly fashion. As far as the function of stimulating research is concerned, it should be obvious that the data reviewed here merely scratches the surface of potential research projects in this field. Even so, ESS offers the prospect of revealing new phenomena or helping us to see established facts in a new light. Thus, the persistence of young single parenthood in economically distressed circumstances that is often dismissed as a pathological phenomenon should probably be seen as an adaptive response to a developmental environment characterized by reduced paternal investment. In any case, social workers who fail to make this connection are (as they currently accept) singularly unlikely to succeed in producing behavioral changes. The success of ESS in reconciling many different types of data offers hope that it may do the same for other content areas. One limitation on this conclusion is that most of the data come from economically developed countries where monogamy is the norm. If anthropologists were to apply this approach to subsistence societies, where marriage systems are different, there is no guarantee that they would draw similar

conclusions. On the other hand, the fact that this approach works for modern societies means that it passes a more severe test given that our behavior has diverged more from subsistence ancestors.

In summary, a few simple evolutionary concepts help to explain a great deal of the variation in single parenthood across time, countries, ethnic groups, and economic classes. This supports the view that the concept of adaptation can be applied to modern societies, even those that have passed through the demographic shift. Doing so not only provides a heuristically useful means of drawing together a great deal of information from many disciplines (including evolutionary biology, anthropology, history, health, sociology, psychology, and economics among others) but offers the prospect of a social science that transcends disciplinary boundaries and may provide universal explanations for social behavior that can be applied at any time, place, or historical context, thus satisfying the basic scientific criterion of universality of explanation and evading the pitfalls of cultural relativism.

A reviewer of this paper complained that the assumptions of ESS are not new and this is arguably true if they are taken piecemeal. The focus of the new research strategy is not on any individual assumption, however, but on what they can accomplish if applied simultaneously, something that has not been previously attempted. In particular, ESS aims to unite the time scales of evolutionary psychology and the social sciences. The data on single parenthood demonstrate that this new approach offers a credible method for uniting evolutionary psychology and the social sciences, a problem that has perplexed scholars in these fields for many years (Barkow, Cosmides, and Tooby, 1992).

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