Cultural versus Reproductive Success: Why does economic development bring new tradeoffs?

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Abstract:
Achievements which attract social rewards in developed countries, such as educational qualifications, a prestigious career and the ability to acquire prestige goods, interfere with a woman's ability to achieve reproductive success. This tradeoff between cultural and reproductive success may have developed because economic development creates an evolutionarily novel social environment. In the social environment of developed countries, a far smaller proportion of social exchange is between kin than in the small-scale communities in which the human brain and behavior evolved. Evidence suggests that social interaction between non-kin is less likely to encourage behavior that enhances inclusive fitness. A model of the cultural change that is likely to result from this change in social influence suggests that beliefs and values will become increasingly less consistent with the pursuit of fitness (Newson et al., 2007). Responses to the World Value Survey, which has been carried out in over 70 countries, confirm a number of the predictions of this model. In countries where fertility began to decline more recently people appear to perceive the costs of having children to be lower relative to the cost of childlessness and the benefits of being a parent.

Introduction:
Like all animals, humans have evolved mechanisms which calculate the costs and benefits of different behavioral options. Humans are unique, however, in the extent to which these calculations involve information acquired from conspecifics. Norms, values and beliefs inform an individual's interpretation of the environment and also the costs and benefits associated with different choices and outcomes. In the past, many scholars viewed these “cultural” components of human decision-making as separate from the biology of human behavior but this is changing with the increasing recognition that culture must be considered part of human biology (e.g., Boyd & Richerson, 1985; Richerson & Boyd, 2005; Tomasello, 1999).

Human fertility is subject to hormonal regulation and the production of these hormones is influenced by environmental conditions (Ellison, 1990). But human reproduction also appears to be socially regulated. Cultural norms are associated with all aspects of reproduction, from the choice of mates to the choice of heirs. This is true in every human population. Human reproductive behavior is highly variable but there is more variation between populations than within them. This has led many scholars to conclude that an individual's reproductive decisions are sensitive to influence from other members of the population.

But because reproductive decisions are vital to individual fitness, some scholars who consider human behavior from a Darwinian perspective have minimized the importance of this influence. They argue that individuals who are sensitive to influence from conspecifics would be vulnerable to manipulation by biological competitors and the more resistant individuals would have greater reproductive success (Krebs & Dawkins, 1984). Theorists such as Lumsden and Wilson (1981) and Tooby and Cosmides (1992) have suggested that humans, like other animals, have innate psychological mechanisms which incline individuals to make fitness-maximizing decisions in response to environmental cues and thus the influence of culture is kept “on a leash”. The similarity of behavior observed in members of the same population can be explained, they argue, by the fact that they are exposed to similar environmental cues. Studies by human behavioral ecologists of a number of small-scale societies are often cited as evidence for the existence of innate psychological
mechanisms that monitor environmental cues and promote fitness-maximizing decisions. These studies show that individuals adhering to the norms of these societies do tend to make decisions that maximize their fitness given their individual circumstances (e.g., Borgerhoff-Mulder, 1988; Cronk, 1989, 1991; Hill & Hurtado, 1996; e.g., Irons, 1979; B. S. Low, 1999, 2000; R. S. Low & Heinen, 1993; Mace, 1996; Voland, 1998; Wang, Lee, & Campbell, 1995).

Research reported more recently, however, suggests that when humans monitor “environmental cues” to calculate the costs and benefits of different choices they are not only considering their physical environment. Cues from their social environment might be as important or more important. The fitness-maximizing reproductive behavior seen in small-scale societies may be more the result of social processes within the group than cognitive processes within the brains of its members (Newson, Postmes, Lea, & Webley, 2005; Newson et al., 2007).

One line of evidence suggesting that human reproductive decisions are subject to social influence emerges from the increasing understanding of the cooperative nature of human reproduction. Human mothers rely on other members of their social group to help them care for, provision and teach their offspring (Hawkes, O’Connell, & Blurton Jones, 1995, 1997; Hawkes, O’Connell, & Jones, 1989; Hill, 1993; Hrdy, 1999, 2007; Mace, 2000; Mace & Sear, 2005; Sear, 2002; Sear & Mace, 2008; Sear, Mace, & McGregor, 2000, 2003). Because this help is available to them, human mothers can breed more prolifically than other apes. The interbirth intervals of human females (typically 2.5 to 3.5 years) are considerably shorter than those of chimpanzees (four to five years) and orangutans (over nine years) (Furuichi et al., 1998; Kaplan, Hill, Lancaster, & Hurtado, 2000; Mace, 2000; Wich et al., 2004). This rapid reproduction rate is achieved even though human babies are more helpless at birth than other great apes, slower to mature and require more high quality nutrition.

When making reproductive decisions, cooperative breeders must be sensitive to social cues as well as environmental cues because their group is a resource which they need to draw upon if their offspring are to survive. A female who becomes pregnant when her child is unlikely to be welcomed by potential helpers is at high risk of wasting parenting effort. A woman who is able to more accurately judge when her pregnancy and baby will be supported by her group is likely to achieve greater reproductive success. And maximum inclusive fitness would be achieved by members of kin-based groups that regulate production of infants to match resource availability and the amount of help available for the care and provisioning of young. Kaplan and Gurven (2005) suggest that such regulation could be achieved through discussion among group members leading to a consensus.

This implies a conscious and explicit discussion of options but research in social psychology suggests that much of the “consensus formation” that occurs in human groups might not be the result of conscious processes. Humans unconsciously infer and internalize norms, beliefs and values from the social information they receive (Festinger, Schachter, & Back, 1950; Postmes, Haslam, & Swaab, 2005; Sherif & Murphy, 1936; Turner, 1991). Recent research in linguistics, cognitive science and communications shows how readily people unconsciously copy the behavior of others and draw normative inferences from casual conversations and exchanges (Chartrand & Bargh, 1999; Garrod & Doherty, 1994; Postmes, Spears, & Lea, 2000). Humans are highly motivated to form and maintain interpersonal attachments (Baumeister & Leary, 1995) and this encourages people to behave in ways likely to gain approval from those they interact with. Thus, social cues about reproduction that individuals exchange are likely to cause them to infer reproductive norms and conform to them.
Participants in these social exchanges may not be consciously aware that “discussion”, “consensus formation” or “conformity” are going on, however.

A second line of evidence supporting the suggestion that social influence is important in human reproductive decision-making is provided by observations of reproductive change and social change in populations that are undergoing economic development. Economic development brings a widening of social networks, increased social and spatial mobility and exposure to information from the mass media. This change is associated with the adoption of the belief that it is beneficial to limit family size (e.g., Bongaarts & Watkins, 1996; Kohler, 2001; Watkins, 1990; Zelinsky, 1971).

When the belief that a smaller family is better becomes widespread in a population, the fertility of the population declines and the population is said to have gone through what has become known as “The Demographic Transition”. The Demographic Transition has puzzled many scholars who take an evolutionary approach to explaining human reproductive decisions because the decision to have fewer children is made when economic development is bring a rise in the availability of resources (Borgerhoff Mulder, 1998). If human reproductive decision-making is the result of evolved psychological mechanisms monitoring the availability of physical resources, then family size should increase with economic development. But if individuals monitor their social environment to determine the consensus on when a new baby will be welcome, the link between economic development and family limitation is less of a puzzle.

The communities that form after economic development begins are evolutionarily novel. For most of human evolutionary history social groupings were smaller, more stable and much more kin-based than those which exist in developed and developing societies (Foley, 1996). Members of wider and more open communities are likely to reach a different consensus about the desirability of high fertility because in these communities there is less social interaction between kin, who have an interest in encouraging each other to make fitness-maximizing decisions (Newson et al., 2005).

There is evidence to support the suggestion that humans are influenced by inclusive fitness interests when they communicate about reproduction (Newson et al., 2007). Culturally modern women who had been primed by playing the role of a mother advising a daughter were more likely to prefer reproductive choices consistent with reproductive success than women who had been primed by playing the role of a friend. The bias was not large; choices of all the women reflected their shared adherence to modern beliefs and values regarding reproduction. A theoretical model suggests, however, that even a small bias towards encouraging fitness maximizing behavior in kin, can operate to maintain norms that encourage the maximization of fitness in a community that is dense with kin. But, when interaction between kin makes up only a small proportion of the social exchange, the model predicts that the pressure to maintain fitness-maximizing norms will relax, allowing the cultural changes seen in societies that begin to undergo economic development.

Closed kin-based communities, therefore, are likely to maintain a definition of “success” which is consistent with achieving reproductive success. Adherence to the cultural norms of these communities ensures behavior likely to maximize fitness and members do not face a tradeoff between cultural and reproductive success. Evidence of a link between community structure and reproductive behavior is provided by observations of religious groups such as the Amish and Hutterite sects in North America. These groups have maintained pre-demographic transition reproductive behavior and fertility even though they are integrated into the North American
economy and enjoy the prosperity and health benefits of a developed society. Their religious beliefs oblige them to keep themselves socially separate from the wider population, however. They live in small kin-based communities and limit contact with the media and modern education system.

If the social exchanges that typically occur in contemporary developed and developing societies do not maintain social norms that encourage fitness maximizing behavior, then members of these societies (the majority of contemporary humans), face new reproductive tradeoffs. Investing time and resources to achieve outcomes consistent with cultural success might often reduce the amount of effort that can be invested in achieving reproductive success. The tradeoffs will be particularly sharp for women because they make a greater direct investment in the production of their offspring. In traditional societies, where reproductive success is valued highly, a woman gains social rewards if her efforts result in healthy offspring and grand-offspring. She is therefore unlikely to be tempted to invest effort in activities that interfere with her achieving maximum fitness. In modern societies, where reproductive success is not valued as highly, social norms encourage women to divert effort from reproduction in order to pursue achievements that do attract social rewards such as educational qualifications and a prestigious career.

The existence of new culturally generated tradeoffs can potentially explain why most contemporary women have fewer children than women in pre-modern societies even though they are, by objective measurements, much more prosperous and secure. It may also help to explain many other behavioral changes that have occurred and continue to occur in developing and developed societies. The model presented by Newson et al (2007) shows that a reduction in the proportion of social influence that comes from kin will not simply trigger a single change “event”, such as the adoption of family limitation. The model predicts that cultural evolutionary adjustments are likely to play out over many generations. Since traditional societies have many beliefs, values and norms that promote fitness-enhancing behavior, the relaxation of the social pressure to maintain these norms will result in a continuing process of cultural change. As these norms diminish and new norms emerge, it becomes increasingly difficult for individuals to achieve reproductive success without sacrificing cultural success.

Western societies have experienced progressive culture change consistent with the idea that “family values are eroding”, a phrase often used in the Western media to describe observed changes. The Newson et al (2007) model suggests a reason for this perception, if it is assumed that “family values” are values that promote inclusive fitness by encouraging people to give a high priority to raising children and helping kin. If the Newson et al model is correct, the progressive cultural change should not be limited to Western cultures; all developed and developing countries should experience cultural change proceeding along similar trajectories. As mentioned above, an early and universal cultural change associated with economic development is the adoption of the belief that it is beneficial to limit family size. The model predicts that other changes in reproductive norms and behavior will also be universal, or at least similar, in all countries that have begun to develop economically. So the cultural differences that exist between the populations of different countries but may be substantially explained by how far along the cultural evolutionary trajectory each country has progressed.

Newson and Richerson (in press) show that a number of cross-national measures and indices that reflect behaviors and attitudes in the country are strongly correlated with the year fertility began to
The year of the onset of the fertility decline (YFBD) in that country. They argue that declining fertility is the first easily detected sign that pressure to maintain fitness-maximizing norms has relaxed in a population and suggest that the year of the onset of the fertility decline (YFBD) can be used to position countries on a cultural continuum. In statistical terms, YFBD can explain well over 50 percent of cross-national variation in some measures. This is consistent with the prediction of the Newson et al (2007) model because it shows that the more time that has passed since the population began to abandon fitness-maximizing behavior, the more their cultural norms have diverged from those of traditional societies. The more recently fertility began to decline in a country, the more likely its people are to maintain beliefs and values that promote behavior consistent with enhancing fitness.

Once members of a population begin to adopt family limitation, fertility usually drops fairly rapidly. Plotting the total fertility rate (TFR) of a country against the year fertility began in that country shows how similar the change in fertility behavior is in all countries that have begun to develop economically (Figure 1). Within a generation or two, developing countries have a TFR that is similar to the TFRs of developed countries.

In the analyses reported in this paper, we compare attitudes relevant to reproductive tradeoffs measured in different countries to test a prediction of the Newson et al (2007) model. The model predicts that the more time that has passed since the reproductive norms of a population began to diverge from the fitness-maximizing norms of traditional societies, the sharper the reproductive tradeoffs people will experience; achieving cultural success becomes less and less consistent with achieving reproductive success.

Between 1981 and 2003, a series of surveys known as “The World Values Surveys” were carried out with the purpose of making cross-national comparisons of beliefs and values and monitoring change over time. Data from these surveys can be downloaded from: http://www.worldvaluessurvey.org/. Over a quarter of a million people took part in the surveys, representative samples from 83 countries or regions within countries. The questions varied from survey to survey and country to country but 13 questions relating to reproductive values were asked in over 64 countries.

Among the questions asked in the World Value Survey was one about family size, “What do you think is the ideal size of the family – how many children if any?” This is not a question about fertility intentions. The sample includes adults of all ages, including post-reproductive women. Also, asking people about fertility intentions is problematic. It has often been observed that people in pre-demographic transition countries do not perceive family size to be within the realm of conscious choice (e.g., Lesthaeghe, 1983; Pollak & Watkins, 1993). However, the response to the question about ideal family size is likely to reflect information that reproductive age women received about family size at the time the question was asked. A woman might not interpret this as an instruction about how many children to have but she might see this as the size of family that “normal” people in her country would be happy with.

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1 The total fertility rate or TFR of a country is a measure of mean family size that corrects for the fact that women born in different years may produce different numbers of offspring. It is the average number of children that would be born to a woman over her lifetime if she were to experience current age-specific fertility rates throughout her lifetime, and she were to survive from birth to the end of her reproductive life. TFRs were obtained from the Population Division of the Department of Economic and Social Affairs of the United Nations (2006).
The correlation between the TFR of a country and the country mean for what respondents say they think is an ideal family size is weak (Figure 1). In countries where fertility began to decline more recently or has not yet begun to decline, mean ideal family size tends to be higher and the actual mean family size is larger than ideal. In countries were fertility began to decline earlier, mean ideal family size is lower and women are not achieving the ideal. The failure of many couples to produce enough children to have even the small family considered ideal in post-demographic transition populations suggests that other cultural factors drive fertility down further.

The 12 other questions in the World Value Surveys that relate to reproductive values provide a measurement of the cultural factors likely to influence a person’s perceptions of the tradeoffs he or she will makes when one chooses to have a child or to avoid having a child. The Newson et al (2007) model predicts that the year fertility began to decline in a country (YFBD) will be a strong predictor of responses to these questions. The responses of members of populations where fertility began to decline more recently will reflect beliefs and values that set the benefits of having children higher and the costs lower than in populations where fertility began to decline earlier.
Figure 1. The year fertility began to decline (YFBD) in a country is proposed as a way of positioning countries on a cultural change continuum (Newson & Richerson, in press). In countries at an early stage in the process of cultural change, the Total Fertility Rate (TFR) in 2000-05 exceeds what the mean response to the question of what respondents believe to the ideal number of children in surveys conducted between 1997 and 2003. Countries that are outliers on mean “ideal” family size are labeled and the year the survey was performed and the TFR are given.
Method:

To test the Newson et al (2007) model, I looked at the size and direction of correlations between YFBD and the mean response in a country to the 12 questions that reflect reproductive norms and values. The questions are:

1. Regardless of what the quality and faults of one's parents are one must always love and respect them. (Percent saying they agreed with this rather than: One does not have the duty to respect and love parents who have not earned it by their behavior and attitudes.)
2. Parents' duty is to do their best for their children even at the expense of their own well-being. (Percent saying this statement describes their views rather than: Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children.)
3. What is important for children to learn at home? (Percent choosing “obedience”)
4. Do you think that a woman has to have children in order to be fulfilled or is this not necessary? (Percent saying it is necessary)
5. One of my main goals in life has been to make my parents proud. (Extent of agreement)
6. When jobs are scarce, men should have more right to a job than women. (Extent of agreement)
7. Being a housewife is just as fulfilling as working for pay. (Extent of agreement)
8. A working mother can establish just as warm and secure a relationship with her children as a mother who does not work. (Extent of agreement)
9. If a woman wants to have a child as a single parent but she doesn’t want to have a stable relationship with a man, do you approve or disapprove? (Proportion approving)
10. Marriage is an out-dated institution. (Percent agreeing)
11. Divorce (Extent Justified from “never” to “always”)
12. Prostitution (Extent Justified from “never” to “always”)

Table 1 lists 78 countries that have participated in the World Values Survey and gives the year estimated for the beginning of the fertility decline in each country or (in the case of Uganda) is projected to decline. France was not included in the analysis because a decline in fertility occurred very early in some parts of France, during the French Revolution in the late 18th Century. Including France would introduce a considerable outlier into the analyses. For information on how these estimates were made see Newson and Richerson (under review).
<table>
<thead>
<tr>
<th>Country</th>
<th>Year fertility began to decline</th>
<th>Number in survey</th>
<th>Country</th>
<th>Year fertility began to decline</th>
<th>Number in survey</th>
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Table 1. Year fertility began to decline in 78 countries that participated in the World Value survey. The number of participants from each country is also given.
<table>
<thead>
<tr>
<th>World Value Survey Responses</th>
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<th>Correlation with year fertility began to decline</th>
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<td></td>
<td></td>
<td>Men and women</td>
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<tr>
<td>1. respect and love parents always (% agreeing)</td>
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<td>0.718 ***</td>
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<td>2. duty of parents do all for children (% agreeing)</td>
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<td>0.444 ***</td>
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<td>3. child obedience (% think important)</td>
<td>77</td>
<td>0.631 ***</td>
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<td>4. woman needs child for fulfillment (% agreeing)</td>
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<td>0.514 ***</td>
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<td>5. aim make parents proud (extent agreement)</td>
<td>65</td>
<td>0.669 ***</td>
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<td>6. jobs for men before women (% agreeing)</td>
<td>77</td>
<td>0.621 ***</td>
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<td>7. housewife as fulfilling as paid work (extent agreement)</td>
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<td>0.069</td>
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<td>8. working mum as good mother (extent agreement)</td>
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<td>9. single mum OK (% approving)</td>
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<td>-0.730 ***</td>
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<td>12. prostitution (when justified - never/always)</td>
<td>75</td>
<td>-0.695 ***</td>
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Table 2. Correlations (r) between mean responses to questions about family attitudes asked in between 77 and 63 countries and the year fertility began to decline in the country. The correlations were virtually identical whether the mean response from the entire population was used or the responses of the women only.
Results:

The year fertility began to decline in a country is a strong predictor of many of national differences in values and beliefs related to parenthood (Table 2). In some cases, it is clear that the pattern of responses confirms the prediction that people in countries where fertility began to decline more recently will perceive children to be less costly and more rewarding than people in countries where fertility began to decline earlier.

In the 12 countries surveyed where the fertility decline began more recently than 1974, over 89 percent of respondents believed that people have a duty to love and respect their parents regardless of what their parents do or fail to do. In a country where this is the norm, people are likely perceive parenthood as more rewarding and less costly than in countries where it is common for people to believe that parents must to earn the love and respect of their children. In the countries where fertility began to decline earlier than 1920 it is still common for respondents to say that parents deserve unconditional love and respect. In all but three countries, the Netherlands, Denmark and Norway, the majority of respondents agreed that children should love and respect their parents. However, the tendency is for people in countries with earlier fertility decline to be more likely to imply that children can withhold love and respect if their parents don't deserve it. It is also likely that parenthood will be perceived as less costly and more rewarding if children are expected to be obedient and if one of their main aims in life is to make their parents proud. Agreement with both of these is more common in countries were the decline in fertility is recent.

In countries where fertility began to decline more recently, people are more inclined to believe that a woman's life will not be fulfilled if she remains childless. Women in these countries are therefore likely to perceive the costs of childlessness to be higher.

In countries where fertility began to decline more recently people are more likely to agree that: “Parents' duty is to do their best for their children even at the expense of their own well-being” as opposed to “Parents have a life of their own and should not be asked to sacrifice their own well-being for the sake of their children.” This pattern of response could be interpreted as suggesting that members of populations that are developing later perceive the cost of parenthood to be extremely high, even infinite. Interpreted this way, the result would be opposite to the prediction of the model. A different interpretation is possible however. Higher agreement with the first statement could reflect a stronger belief in the importance of being a parent, a belief that once a person becomes a parent their obligation to their children should have a higher priority than their own welfare.

The pattern of responses to two of the three questions about work and women are in the direction predicted by the model. People in countries where fertility declined more recently are more inclined to believe that when jobs are scarce priority should be given to men. This suggests that they don't believe that waged work is as important for women as it is for men and they are less likely to see a high cost associated with women giving up a job to care for children. The weaker correlation between YFBD and opinion about “working mothers” reinforces this, suggesting that in countries where fertility began to decline more recently people are more inclined to believe that it would be ideal if women could stay at home with their children. On the other hand, there is no correlation between YFBD and beliefs about how fulfilling the work of a housewife is compared to working for
wages. If people in countries where fertility declined more recently were more likely to believe housework to be as fulfilling as paid work, the prediction of the model would be supported because it would suggest that people do not value highly the work of women outside the home. This question may not, however, be really gauging people’s beliefs about the value of women working outside the home. There is a great deal of individual-level variation on beliefs about how fulfilling housework is compared to other forms of work and there is less variation at the population level.

The responses to three of the four questions relating to marriage, parenthood, and fidelity confirmed the prediction of the model. If there is a belief in a population that single motherhood and divorce is acceptable, a woman is likely to perceive motherhood as more risky because there is a greater risk of her becoming separated from the father of her children and have to bare all or most of the parental costs herself. A low tolerance of prostitution also reduces the risk to women. It lowers the risk of infidelity and sexually transmitted disease. In countries where fertility began to decline more recently, single motherhood is considered less acceptable and tolerance for divorce and prostitution are substantially lower than in countries with earlier fertility declines. This suggests that the more time that has passed since fertility began to decline in a country the more likely it is that women in these countries will perceive marriage and children as risky and potentially costly. There was no correlation between YFBD and belief that marriage is an out-dated institution. Belief that marriage is out-dated was low in all countries, even in countries where divorce is highly tolerated.

A weakness of using the World Value Survey dataset to test this model is that the surveys were carried out over 23 years so there should be changes in values within countries during this time and we did find that, in the countries that had been surveyed more than once, changes in values did occur and for most responses in most countries the changes were in the direction predicted by the model. However, the change over the time that the surveys were taken is small compared to the change expected over the 131 years between the year fertility began to decline in Belgium (1881) and the year it is projected to begin to decline in Uganda (2012).

Discussion

As practitioners of contemporary science we are part of an overarching "global" culture shared by economically developed post-demographic transition populations. As members of this culture, we can’t help “believing in” things like: the need to prevent over-population, equal rights for women and ending child labor. Our values are informed by these beliefs and we perceive them to be not only rational, but somehow “natural”.

However, the theoretical underpinning of biology forces us to see these beliefs and values to be anything but “natural”. Over-population is the inevitable consequence of the conversion of resources into offspring and it is “solved” by competition and natural selection. The sexual division of labor allows groups to more efficiently convert resources into offspring, given that our mammalian biology obliges females to gestate and lactate. Child labor also increases reproductive efficiency of the household by providing a way for pre-reproductive individuals to contribute to their inclusive fitness by helping to support their siblings. Darwinian theory should not dictate our values but it can help us to view our own values and those of other cultures more objectively. The understanding likely to emerge from this approach should make human biologists better equipped than most scholars to provide useful advice on dealing with the cultural differences that divide populations.
The biological and cognitive mechanisms which influence human reproduction continue to operate after a population has begun to undergo economic development. However, in all human groups, these mechanisms operate within a context created by the information that individuals receive from others. From this information individuals infer the values of their group and decide what is "normal" for people like them. Without necessarily being aware of it, individuals calculate costs and benefits from a perspective created by their social environment. Social information received in an environment with schools, employers and media is very different from social information received in the smaller and more isolated communities that comprise human societies prior to economic development.

Westerners have been living in complex open communities for a number of generations and throughout this time Western values have increasingly deviated far from those of small kin-based communities. The kin influence hypothesis suggests that people who have been socialized in closed kin-based communities are unlikely to embrace Western values, particularly if they perceive that doing so will involve sacrificing fitness. But as economic development proceeds and communities widen and become more open, later generations acquire attitudes closer to those of Westerners. Over the last few decades family limitation has been adopted by more and more populations. The kin influence hypothesis predicts that these populations will gradually adopt many other Western values. But it also suggests that Western values will continue to change. The cross-national differences in beliefs and values measured by the World Values Surveys and reported supports this approach to explaining cultural differences.

It is widely recognized that economic development initiates a process of economic change that brings ongoing changes to the costs and benefits associated with producing offspring (Becker, 1960, 1981) but the research stimulated by this view has almost exclusively focused on changing economic circumstances. Even though the effect of economic circumstances cannot be understood without taking into account what people value, little research has been devoted to testing hypotheses attempting to explain why cultural values have changed. For example, McDonald (2006) states that globalization and rising education have created “high economic aspirations” among young people but gives no explanation of why or how this creation occurs. He then advises governments to invest in reducing the economic costs of child-bearing to reverse the trend to very low fertility in some developed countries. He says: “While young people are aware that almost inevitably they will reduce their material well-being if they have children, most are willing to accept the loss as long as it is not overly detrimental to their aspirations” page 495.

A Darwinian approach to explaining human behavior demands an explanation for the change in reproductive behavior that accompanies economic development. The growth of “economic aspirations” at the expense of desire for children causes a sharp decline in the efficiency of conversion of resources to offspring. A Darwinian approach suggests a reason for the change. The mechanisms humans use to make reproductive decisions evolved in a social environment very different from the social environment that exists after economic development. Parents are likely to have few family members nearby to provide practical help and share the costs of childrearing (Turke, 1989). But if increased costs of childrearing were the only effect of the lack of proximity of kin, it is likely that increased prosperity would mitigate its effects.
The kin influence hypothesis suggests that the proximity of kin affects the cost and benefit of childbearing in another way. Since relatives have an interest in each other’s reproductive success information received from them is likely to portray children as more valued and less costly. Many people in developed countries receive more information from non-kin (including advertisers) than from their kin and the cultural context generated in this social environment is likely to encourage economic aspirations more strongly than childbearing. Effort invested in a career is seen to attract greater social rewards than effort invested in reproduction. Developing polices to adjust the economic costs of child-bearing as McDonald (2006) suggests may bring a small increase in fertility but a policy is likely to be more effective if it includes a program to increase the social rewards associated with parenthood.

The comparison of countries reported here suggests that the cultural changes that accompany economic development follow a similar path in all populations. Within a generation or two, most reproductive age couples are limiting the number of children they have. As time passes, marriage begins to be seen less as a reproductive partnership and more as the union of two people who find each other congenial and attractive (Burgess & Locke, 1945; Coontz, 2005). This leads to acceptance of the idea that parents can terminate the partnership if they aren’t happy, even if this puts the welfare of their children at risk. The well-being of a child is increasingly seen to depend on its being supplied with expensive consumer goods and interesting experiences. Older children are no longer expected to be obedient and contribute to the family and it becomes increasingly acceptable for them to be dependent on their parents long after they have reached sexual maturity. These changes in beliefs and values tend to load the same side of reproduction’s cost and benefit balance.

In may seem anomalous that the countries with the lowest fertility are in Eastern and Southern Europe and the Far East, where cultural traditions are considered to be more family-oriented than in populations where fertility began to decline earlier, such as those of northwest European countries (Castles, 2003). However, fertility may be lower in these populations because of their stronger “family values”. Young people feel more obliged to be married and financially secure before having children. It is less acceptable in these countries to have children outside wedlock and rely on state benefits to support their family. As the cultural evolutionary process proceeds, fertility may rise in these countries as young people cease to feel that they need to meet traditional criteria before having children.

The profound change in the structure of communities that occurred in Europe with industrialization was described and discussed by social theorists of the time and their ideas influence many contemporary scholars (e.g., Durkheim, 1984/1893; Tönnies, 1957/1887; Weber, 1994). It is therefore widely accepted that a change in the structure of communities causes cultural change. But this is now mostly seen as an event that occurred in Europe’s past. The observation that Western societies have continued to experience rapid cultural change and that non-European countries appear to undergo similar changes once the structure of their communities change suggests that a process of cultural change is initiated by economic development rather than a single change event. Since members of economically developed populations (in both Western and non-Western countries) continue to receive much more social information from non-kin than kin, there is likely to be a continuing cultural change so that norms become increasingly less consistent with the pursuit of fitness.
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