

Household Separation and Child Well-Being*

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1. Introduction

The purpose of this Chapter is to help design a research agenda on risk and child well-being that is suitable for the Young Lives project.

A large literature exists that documents the effect of various shocks on the material welfare of children. This literature has documented the negative effects that bad rainfall and other low income shocks has on child schooling (e.g. Jacoby and Skoufias 1997, Sawada 1997, Case, Fertig and Paxson 2005), health (e.g. Banerjee, Duflo, Postel-Vinay and Watts 2007, Maccini and Yang 2009), and nutrition (e.g. Glewwe, Jacoby and King 2001, Hoddinott and Kinsey 2001, Alderman, Hoddinott and Kinsey 2006, Leight 2008, Porter 2008). The death of parents often leads children to be placed in the foster care of relatives. While child fostering often increases the child's material welfare relative to no fostering, orphans and abandoned children often fare less well than the biological children of the foster family (e.g. Evans 2004, Akresh 2004a). If blood relatives take better care of foster children, having a large family is a form of insurance against orphanhood (e.g. Akresh 2004b, Ksoll 2007). The literature has also delved into the

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issue of sibling rivalry, particularly between boys and girls. Rose (1999), for instance, shows that negative shocks to the household affect girl mortality more than that of boys.

What the economic literature in developing countries has failed to do till now is investigate the effect of the dissolution of the household on the material and psychological welfare of children. I suspect the main reason for this is the lack of suitable data. The Young Lives project can help fill this lacuna because it proposes to follow a panel of children over a long period of time. This stands in contrast with conventional panel datasets which follow households instead. When the composition of a household changes, a conventional panel survey typically looks for a household that occupies the same farm or dwelling and has members in common with the original household. For farming households, this often means following the farm – and hence following whoever is entitled to continue farming the land upon the dissolution – or recomposition – of the original household. Given that this person is nearly always an adult – often male – conventional panel surveys are not appropriate to investigate how the well-being of children is affected by shocks that force them to leave the household – such as the separation of the parents.¹

How successful Young Lives (hereafter YL) can be in fulfilling this research objective depends on how well it keeps track of children over time. One particularly vulnerable group, runaway children, are notoriously difficult to follow so I expect YL not to be particularly successful at locating children who run away from home. This is of course unfortunate because this group is probably the most vulnerable, even if running away from home may be preferable to enduring abuse at home.² We can hope that YL will find it easier to follow children who leave the original household/dwelling as the result of the separation or death of their parents.

Separation is of particular interest given the paucity of available data. It has long been

¹Datasets from developed countries typically distinguish between marriage and cohabitation (Browning, Chiappori and Weiss 2009). In contrast, household data from developing countries nearly never seek to make the distinction, a wise choice given the prevalence of common law marriages in many rural areas (Fafchamps and Quisumbing 2002). For this reason, in this paper I will use the terms ‘separation’ and ‘divorce’ interchangeably.

²Reference on street children being happier than at home.

documented that female-headed households have lower per capital consumption than male-headed households (e.g. Handa 1996, De Graff and Bilsborrow 1993.). From this evidence one may worry that children raised in female-headed households may be worse off. The truth of the matter is, however, that female and male headed households are not directly comparable: while the majority of single-parent households headed by females are the result of separation from – or death of – a spouse, many male-headed households with children have both parents living together.

It is well known that living together generates important material gains (e.g. Fafchamps and Quisumbing 2007, Browning et al. 2009). Using data from a developed country, Browning, Chiappori, Lewbel and Lewbel (2003) compare the material welfare that a couple can achieve on the same income by living together or separately. They show that, compared to living together, living separately generates a loss of material welfare equivalent to a 41% fall in income. Browning et al. (2009) argue this is probably a lower bound estimate. Given this, it is not surprising that female-headed households have lower material welfare. But to the extent that child custody often befalls to the mother, these observations also suggest that the material welfare of children is likely to deteriorate when their parents separate. Whether this is indeed the case remains to be shown rigorously. This is what I propose for the Young Lives project to do.

This Chapter is organized as follows. In Section 2 I briefly summarize the literature on household formation, discussing the various material gains generated by cohabitation. This gives a idea of the magnitude of the potential losses resulting from separation, and it illustrates how these losses vary depending on the economic context. Next I introduced marriage market considerations as they provide a framework within which marriage and its converse, separation, can be modeled and analyzed. In particular, this framework makes testable predictions regarding which unions are most likely to be formed and which are most likely to fail.

In Section 4 I examine the reasons why human beings elicit to have children, drawing from economics and evolutionary psychology. Combining these two stands of literature into a single framework generates testable predictions regarding which children are most likely to be neglected or abandoned. Section 5 discusses the possible fate of children when their parents separate and the role of legal and social norms aimed directly or indirectly at protecting children. Section 6 offers a brief discussion of the difficulty of empirically identifying the causal effect of separation on child welfare.

2. Household formation

Household formation serves a mutual insurance role between spouses, a point exemplified by the ‘in sickness and in health’ phrase often used in marriage ceremonies. Dercon and Krishnan (2000), for instance, documents the extent to which couples imperfectly share risk in the Ethiopian countryside. The household also plays a fundamental role in the protection of children, as one of its purposes is to create a safe environment in which to raise children. One recent manifestation of this is the common practice for cohabitating couples to marry when they have children (Browning et al. 2009). If the formation of a household – and the additional cement provided by marriage – is often motivated by a parental project, this implies *a contrario* that household failure puts the welfare of children is at risk.

Household failure can take many forms. The breakup of the household is one obvious possibility, with members leaving the household (e.g., runaway children) or being expelled (e.g., spouse repudiation). Divorce takes place when legally married individuals wish to formalize their separation, perhaps with the hope of finding another partner. The breakup of the household is often preceded by a period of dysfunctionality, exemplified by insufficient provision of household public goods and deficient care for weaker members of the household, such as children

and the elderly. Deficient care can in turn translate into excess mortality and morbidity.

Domestic violence is a common manifestation of a dysfunctional household and seems to be exacerbated by difficult economic conditions and alcohol or substance abuse (e.g. Sabia 2004, Markowitz and Grossman 1999, Pollak 2004). Failed expectations may be associated with a higher risk of domestic violence and separation. A wife's inability to bear (male) children, for instance, is considered ground for divorce in many traditional societies. Failure to pay the dowry in full has been linked to violence against women (e.g., wife burning) and to divorce/repudiation (e.g. Bloch and Rao 2002, Srinivasan and Bedi 2007). Economic difficulties can also lead to separation, such as job loss (Burdett and Coles 1999), famine (Sen 1981), and other disasters (e.g., war). According to Fafchamps and Quisumbing (2002), the husband's inability to provide for his wife is recognized ground for divorce in rural Ethiopia.

As these examples suggest, there are many reasons for household failure. To understand them, we must understand why households are formed in the first place. Providing a nurturing environment to have children is clearly one of them, but it is not the only one. There are many reasons why individuals join up to form a household. These are discussed in detail in Fafchamps and Quisumbing (2007) and Browning et al. (2009). They include immaterial benefits such as company and moral support, but also a number of material benefits commonly described as 'returns to household size'. The idea is that by living together, individuals share the consumption of a number of household public goods. What characterizes these public goods is that their consumption is non-rival: your enjoyment of the good does not subtract from my own enjoyment of the same good. Examples include housing – and all the costs associated with housing (e.g., utilities, heating, maintenance) – and many household durables.

The concept of household public good can be generalized to include goods that are only partly non-rival. This can be represented as follows. Let q_j denote the quantity of good j

purchased by the household and let the consumption of good j by household members a and b be denoted q_j^a and q_j^b . If the good is rival, then we must have $q_j^a + q_j^b = q_j$: consumption by a leaves less of j available for consumption by b . If the good is non-rival, then $q_j^a = q_j = q_j^b$: both members consume the same quantity of j . Partially non-rival goods can be represented by introducing a parameter η_j such that $q_j^a + q_j^b = \eta_j q_j$. A rival good corresponds to $\eta_j = 1$; a non-rival good corresponds to $\eta_j = 2$. Values of η_j between 1 and 2 describe partially rival goods. Browning et al. (2009), Chapter 2, use simple assumptions to derive bounds for η_j for goods consumed in developed economies. This yields values of η_j between 1.3 and 1.7 for non-durable consumption as a whole, with similar estimates for different income categories. Using Canadian data Browning et al. (2003) obtain a more precise estimate of $\eta_j = 1.41$ for non-durable consumption. Higher values of η_j are expected for durables since most are strongly non-rival, at least at the scale of the average household.

To the best of my knowledge, similar information is not available for developing countries, but there are good reasons to suspect η_j to be even higher. For instance, Fafchamps, Kebede and Quisumbing (2008) point out that, in very poor areas, even food becomes non-rival because sufficient nutrition is necessary for members to contribute to household chores. More research is needed to assess the size of η_j at different levels of economic and market development.

Returns to household size also arise from increasing returns to scale in production. Because animal traction introduces an indivisibility in factors of production – e.g., an ox or bullock team – it creates increasing returns to farm size and fosters the concentration of management responsibilities and the pooling of labor resources. Many household public goods are self-produced by the household and they often benefit from increasing returns to scale at the level of the household, e.g., cooking for two does not takes twice as long as cooking for one. Households in developing countries are typically engaged in a multiplicity of activities. This generates oppor-

tunities for specialization, an issue investigated in detail by Fafchamps and Quisumbing (2003). Returns to specialization arise whenever learning is important, or when specialization facilitates decentralization of management, thereby reducing coordination costs. This is particularly true for farming households where the complexity and number of tasks that need to be fulfilled often results in larger households.

As emphasized earlier, the household also plays an important risk sharing role. It enables households to diversify activities; by pooling incomes sources with different risk and seasonal pattern, the household can ensure a more reliable aggregate income. The household also offers essential protection against many kinds of shocks, particularly health shocks; care for the sick and elderly is typically provided within the household. The literature has demonstrated that children are particularly vulnerable to shocks affect the household, and that these shocks often have long-term, irreversible effects on their development. Poor nutrition at a young age can result in permanently shorter individuals (e.g. Alderman et al. 2006, Banerjee et al. 2007, Porter 2008). Jacoby and Skoufias (1997) and Sawada (1997) have shown that income shocks lead some parents to withdraw their children from school. It follows that, *ceteris paribus*, single parent households are probably less capable of dealing with emergencies and therefore that children raised in single parent households may suffer more from shocks.

From the above, we expect the benefits from household be larger for poor households, especially those living in rural areas. Not only do these households self-provide many of the goods the consume (e.g., food, firewood, water, shelter), they also have access to fewer market substitutes such as restaurants, child care, or health insurance. This tends to keep households together in spite of tension and adversity. But some household failure is still to be anticipated, in which case the consequences on child well-being can be severe. Put differently, the more benefits household formation generates, the stronger the incentives to remain together, but also the harsher the

consequences of household failure. This leads us to wonder why households may fail if the cost of doing so can be large.

One possibility is that household members figure they can do better on their own. How pertinent this may be depends on the magnitude of the benefits provided by living in a household compared to what the individual could accomplish on his own. The larger these benefits are, the lower the likelihood of leaving the household. If household size is any indication of the magnitude of household benefits, we therefore expect household members to be less likely to leave (and couples less likely to separate) in areas where households are large – typically, poor rural areas. We also expect those who leave the household to be those who can survive better on their own. At first glance, this may seem advantage men in any setting where the specialization of tasks within households reserve subordinate or non-market, house-based activities for women. But this specialization also implies that it is difficult for lone men to secure these services unless a market develop for them, e.g., in cities. It follows that we expect men living alone to concentrate in cities and other areas (e.g., mining districts) in which a market has developed for goods normally provided within the household, like food preparation.

Another possibility is for members of a household to leave in the hope of forming another household, therefore enjoying the same benefits but with somebody else. Understanding how this process may unfold takes us to the literature on marriage markets which offers some useful predictions.

3. Marriage market and search for a mate

Since the seminal work of Becker (1981), an economic literature has developed that regards the matching of spouses as a process akin to a market – hence the phrase ‘marriage market’. This term is partly misleading, however, because it suggests that a price is paid for a good. The

modern understanding of marriage market issues emphasizes instead that the matching process by which a bride and a groom select each other is not altogether dissimilar from that by which an employer is matched with an employee or a consumer with a service provider: there are gains from contracting, and for both parties the gains vary across potential partners. In this context, an equilibrium is a situation in which all contracts are voluntary and there exist no pair of agents who would rather contract with each other than with their current partner.

In the context of marriage, there are potentially many attributes that can affect the value of a match to each partners. Skills, assets, and experience determine an individual's income generation potential and hence can guarantee a certain future standard of living – especially given that spouses will share household public goods (e.g., house, consumer durables). Complementarity in skills is valuable, particularly in farming where spouses often specialize in different tasks (Jacoby 1995). Similarity of background (e.g., caste, ethnicity, religion) makes shared experiences easier. Common life interests and objectives make it easier to get along and similarity in preferences economize on consumer spending and reduce tension. Spouses probably also seek a partner who is attractive and sexually receptive, as well as capable of having children and willing to provide for them.

The relative weight of these attributes varies with the kind of life spouse envisage for themselves. When the household is primarily a consumption unit, as is the case in many developed economies today, common interests and preferences matter most. When the household is primarily a production unit, as is still the case in much of the rural developing world, assets and skills matter more. In this case, marriage becomes a patrimonial issue, the coming together of two lineages to create a new production unit and endow it with sufficient land and capital.

Given the difficulty of collecting accurate information about the attributes of all potential mates (and that truth-telling is not incentive compatible), search for the optimal mate is difficult.

In some cases, institutions emerge that seek to circulate information about potential matches in a more efficient way – e.g., arranged marriages, matchmakers, ads in Kolkata newspapers (Banerjee, Duflo, Ghatak and Lafortune 2008). The better informed about each other spouses are before marriage, the less likely they are to uncover that the match is suboptimal.

This still leaves much room for miscalculation and misjudgment. Some attributes are only revealed ex post – e.g., infertility. Shocks also affect the (value of) skills and assets in ways that could not have been anticipated – e.g., unemployment and business failure, illness and disability. All these processes can affect the stability of already established matches as one – or both – spouses thinks of finding a better mate. As Browning et al. (2009) have demonstrated, the larger the pool of currently unmatched (e.g., ‘divorced’) individuals, the easier it is to find another mate. We therefore expect marriages to be less resilient to shocks and information revelation in areas characterized by a large proportion of unmarried individuals. An epidemic, like HIV/AIDS for instance, generates many widowed individuals and this may have an effect on marriage stability.

A final observation is that the type of benefits people derive from marriage determines the kind of shocks to which their union is most vulnerable. If patrimonial considerations are paramount, asset loss is more likely to trigger separation. In contrast, if shared leisure activities is the dominant concern, the loss of leisure opportunities (for instance because of loss of mobility, or loss of provision) may trigger separation.

4. Having children

Having children is one of the objectives spouses pursue by marrying. In most cases, children are part of a reproductive plan of parents. Children may become neglected if this plan changes. Hence to understand child well-being we need to understand this reproductive plan. If a house-

hold was created at least in part to support a reproductive plan, then the dissolution of the household implies either that the other reasons for forming a household have changed – as we have discussed in the preceding sub-section – or that this reproductive plan has changed at least for one parent.

This leads us to ponder on the reasons why parents have children and care for them. At the risk of overgeneralizing, two kinds of explanations have been proposed: self-interest and altruism. Parental self-interest covers consideration such as a desire for companionship (e.g. as a substitute for a spouse), a concern for elderly care, or the immediate benefits derived from child labour.

Having a child in the hope that he or she will subsequently provide elderly care requires that the child be both economically successful (so that he or she can provide) but not so successful that his or her time is too precious to care for an aging parent. The parent may also need to retain some form of bequest as a lure or reward for elderly care (Zeitlin 2008). These observations imply certain patterns of investment in children. For instance parents may incite children to reside nearby by providing them with land and skills but not investing so much in their education that they leave for the city (Quisumbing 1994).

Children can assist parents in many small ways, e.g., undertaking household chores or looking after younger siblings. The great majority of children probably assist their parents in this way to some extent. Children may also make more substantive labour contributions, for instance by assisting on the family farm or business. While these activities may in many cases divert the child from school, they also provide skills that can be useful once the child grows up (e.g. Emerson and Souza 2002, Fafchamps and Wahba 2006). Finally the child can engage in wage work, either together with his or her parents (as when employers hire the whole family as a team) or under the supervision of a non-household member. It is in the latter case that we have

most reasons to fear for the child's well-being because, in general, parents care more about their children than non-relatives. To this we now turn.

It has long been recognized that parents feel empathy towards their progeny. Parents enjoy not only having children but also having successful children and grand-children. Parents seem to enjoy the idea of passing not only their genes but also their name, property, and family traditions to their descendants. While these broad generalities are hardly contentious, by themselves they do not generate hard predictions regarding parental behaviour – beyond the obvious implications that parents will on average take better care of their own progeny than random strangers.

What we need is a conceptual framework that makes predictions about parental altruism. Such framework is offered by the newly emerged field of evolutionary psychology, which offers an internally consistent theoretical tool that predicts regularities in human and animal behaviour (Cartwright 2000). The key idea is to apply natural selection to genes/inheritable traits. Seen in this light, parental altruism towards their children is a form of genetic self-interest (Dawkins 1989). To see why, assume that parents were initially uncaring towards their progeny.³ Further assume that a mutant gene appears that predisposes parents to care for their children.⁴ Because of caring parents, carriers of the mutant gene on average do better than children of parents without the mutant gene. Evolution can thus be expected to select genes that foster caring for one's progeny.⁵

An immediate implication of this prediction is that the risk of child rejection and neglect is highest for chronically ill and physically or mentally disabled children. They are less likely to

³It is highly unlikely that this predisposition developed only in humans, given that it is apparent among most mammals and birds. But it is not seen among species such as invertebrates, frogs, etc.

⁴An illustration of what such a gene may be is given by the following rat experiment described by Kinsley and Lambert (2006). Female rats were hooked on cocaine, which they consumed in the form of pellets. These rats were then offered the choice between cocaine pellets or baby rats. Normal female rats chose cocaine but mothers which just had a litter chose baby rats, suggesting that suckling generates endorphins that predispose mothers towards caring for their progeny.

⁵The other possible genetic equilibrium is to have a very abundant progeny.

have a progeny – this goes against the selfish gene – and they are less likely to provide material services to their parents – this goes against selfish parents. For these particularly vulnerable children, both theories predicts a high likelihood of deficient care – and hence the need for public intervention.

A similar albeit more convoluted evolutionary reasoning further predicts that a gene may arise that predisposes individuals to care about their blood relatives, even if they are not their direct descendants. The reasoning builds on the idea that if such a gene – the so-called ‘selfish gene’ – were to appear, it would get reinforced through evolutionary selection. Taking this reasoning to its logical conclusion has yielded what is known as the Hamilton hypothesis, a theoretical prediction that the level of altruism between individuals is inversely proportional to their likelihood of sharing common genes. This prediction, together with other predictions generated by evolutionary theory applied to genes, is testable and falsifiable, even if its evolutionary underpinning are harder to prove. As it turns out, some evidence has been found to support the Hamilton hypothesis – altruism is stronger between blood relatives and it is stronger between closer relatives, who on average share more genes. But there seems to be more altruism between individuals than predicted by the hypothesis, a finding that has led to the speculation that perhaps human societies, having been inbred for much of their evolutionary development, have developed more diffuse forms of altruism (Brembs 2001).

The usefulness of this simple conceptual framework is that it makes testable predictions about human preferences with respect to reproductive behaviour – choice of mate and attitude towards children. For instance, it predicts that altruism is stronger towards close kin. This implies that step-parents are expected to take less good care of non-biological children in their care. This is immediately a source of concern when couples separate because, if they remarry, children will be cared for partly by non-biological parents. There is some evidence that non-

biological parents on average take less good care of children placed in their custody (e.g. Daly and Wilson 1988b, Daly and Wilson 1988a), but the difference between biological and non-biological children is much smaller than would be suggested by the Hamilton hypothesis.

Evolutionary psychology also predicts that grand-mothers care more about grand-children than grand-fathers – if only because a biological link is easier to establish. For a similar reason, maternal grand-mothers are expected to care more than paternal grand-mothers (Cox and Fafchamps 2007). Some evidence in that direction is provided, for instance, by Duflo (2003) in her study of grand-mothers in South Africa. This may be a useful consideration when deciding foster care for orphans (e.g. Ksoll 2007, Evans 2004).

Evolutionary psychology makes a number of predictions regarding the differentiated reproductive strategies of males of females. For instance, it predicts that the attractiveness of a potential mate is correlated with predictors of their reproductive success.⁶ According to this body of theoretical work, among mammals males favour spreading their reproductive potential among different mates but females favour continuity of care. It follows that, for men, income and wealth are indicators of the capacity to provide for unborn children.

All these predictions are about preferences not behaviour. Consequently the best way to test them is probably by assessing preferences in an experimental setting, as done for instance in Fisman, Iyengar, Kamenica and Simonson (2006) analysis of speed dating data. Observational data, such as collected by the Young Lives project, makes it more difficult to provide a rigorous test of predictions about human preferences. This is because, outside an experimental setting, human behaviour mediated through norms which often seek to compensate for unwanted effects of human tendencies. Consequently, it is possible that certain preferences are present but

⁶Examples of predictors that have been proposed in the literature include: reproductive age (e.g., external features associated with menopause, such a wrinkles or facial hair); fat deposits (in breasts and buttocks); body and facial symmetry and height as indicator of health.

do not manifest themselves because they are repressed by norms – either moral norms (typically internalized during childhood), social norms (punished by ostracism or ridicule), and legal norms (punished by law). Similarly, it is also conceivable that certain systematic behaviours are observed even though they do not correspond to systematic differences in preferences.

While these issues go well beyond what can be accomplished with the Young Lives data, they nevertheless should be kept in mind when drawing inference. For instance, it would be useful to collect information on what parents perceive to be the sanctions – moral, social, or legal – for certain types of behaviours affecting children. For instance, what are their views regarding the sanctions surrounding dropping out of school, early marriage, and various forms of child labour. If we observe that parents behave in ways that foster the long-term welfare of their biological children even in the absence of norms to that effect, this can be taken as circumstantial evidence that such behaviour is driven by universal preferences. On the other hand, if we seen different patterns of behaviour in countries or regions reporting different norms, then we can conclude that behaviour is at least partly affected by norms. As policy makers, this is of course what we wish to find since changing norms – especially legal norms (e.g., laws about child labour, alimony and child support, bequest) – is a potentially powerful tool to protect children.

Another potential vantage point into the respective roles of preferences and norms is when norms break down. As the social fabric loosens and legal norms are harder to enforce, respect for norms is weakened by war or natural disasters. In such unusual times people have been noted to engage in behaviours they would never consider in other circumstances. If variation in respect for norms can be found over time in the data, this may again be taken as *a contrario* evidence that norms can affect the well-being of children. This suggests collecting data on exogenous shocks affecting surveyed households.

Respect for norms can also be affected by poverty and substance/alcohol abuse. As in-

dividuals become more desperate or more despondent, they are more inclined to depart from internalized moral norms – and are less responsive to the threat of social and legal norms. If norms serve to protect the well-being of children, then a weakening of these norms put children at risk. This can be investigated using panel data on children.

A corollary to the above observations is that shocks to the household may affect children well-being not only directly, but also through a reduction in norms that direct parents to take suitable care of their progeny beyond what is dictated by their own – or genetic – self-interest. There already exists a large literature documenting the effect of exogenous shocks on children height and education attainment.

5. Sibling rivalry

In the previous section we considered the different reasons why parents have children and what these imply for children well-being. In that discussion we ignored the fact that parents often have several children. Parental and genetic self-interest is not necessarily best served by equal treatment of siblings (e.g. Garg and Morduch 1998, Behrman 1988).

This is best illustrated with a stylized model. Consider a parent with two children a and b . The parent has a scarce resource y – e.g., time, money – to invest in the future well-being u of the two children. Let y_a denote what is invested in child a ; the rest $y_b = y - y_a$ is invested in child b . We assume that $u(y_i)$ for $i = \{a, b\}$ with $u' > 0$: each child benefits from what is invested in their well-being. The utility of the parent is $W = u(y_a) + u(y_b)$. The optimal allocation of y to the two siblings is found by maximizing W with respect to y_a , which yields the following first order condition for an interior solution:

$$u'(y_a) = u'(y_b) \tag{5.1}$$

Given the symmetry of the model, this yields equal treatment, i.e., $y_a = y_b$. Equation (5.1), however, describes an optimum only for interior solutions. There is, however, another possibility, namely that all y is allocated to a single child. This arises whenever there are increasing returns to investment in children. To see this, consider the second order condition:

$$u''(y_a) + u''(y_b) \leq 0$$

which is only satisfied in the case of decreasing (or constant) returns to scale in child investment. In contrast, if $u'' > 0$ for all y , then the second order condition cannot be satisfied and the only solution is complete specialization of investment in one child. Given the symmetry of the above example, the choice of child is arbitrary. But it is easy to generalize the model to allow for innate ability, in which case the return to investment may be higher for one child than the other.

What this model illustrates is an extreme form of sibling rivalry: one child gets sacrificed so that the other can prosper. Perhaps the most prominent example of such extreme rivalry is primogeniture, an inheritance system of medieval Europe that gave the nobility title and all the land to the first born male (Platteau and Baland 2001). More recent examples mentioned in the news include cases of children sold into bondage or prostitution to finance the education of their siblings (Edmonds and Sharma 2004). Milder cases include calling on first-borns to care – and de facto bear part of the investment cost – for their younger siblings. Birth order effects in nutrition and education have been noted in part of the literature (e.g. Lindert 1977, Horton 1988).

The different treatment of male and female children has received a lot of attention in the literature, so we mention it in passing. Differences have been found in terms of nutrition, education, and mortality (e.g. Klasen 1996, Svedberg 1990, Bedi and Srinivasan 2008) – see for instance Anderson, Ray, Age and Disease (2008) for a recent examination of sex ratio imbalance in India and China. Differences in treatment vary across countries and regions, however. A

particularly sharp education gap between boys and girls has been noted in Pakistan (e.g. Sawada 1997, Mansuri 2006) and South Asia more generally. One explanation often proposed is the dowry system which imposes large costs on parents. In contrast, Quisumbing (1994) finds that, in rural Philippines, girls receive more education while boys are groomed to take over the family farm. Quisumbing interprets her results as consistent with old-age support strategies pursued by parents. The relative education imparted to boys and girls also depends on future prospects in marriage market. For instance, if women are expected to work on the farm or to stay at home, there may be little point in educating them, especially if parents are in charge of identifying a suitable mate. If children select a mate themselves, then girls may want to receive education as it provides opportunities to meet a broader and higher quality pool of potential mates. In that case, there may be little difference in education attainment between boys and girls, but girls may opt for degrees that are less academically demanding.

6. The effect of separation on child well-being

The ultimate objective of this paper is a conceptual framework with which to analyze how household separation affects the well-being of children. Having constructed this framework, we now revisit the issue of household failure.

The first set of reasons why a household may break-up – or at least shed members – is when the benefits from forming a household are no longer strong enough. In this respect we noted that the benefits of household formation are strongest in an agrarian setting where returns to household size are strongest. In contrast, returns to household size are smaller in an urban setting, as evidenced by smaller households on average. There has been a systemic decline in household size in developed economies, and we can expect a similar decline to spread throughout the developing world, especially in urban areas. Smaller returns to household size also imply a

lower penalty for leaving the household.

An immediate corollary is that the likelihood of separation is likely to increase with urbanization. Based on the framework presented earlier, we have many reasons to suspect that separation from one of the biological parents is not only potentially traumatic for children but it also likely to negatively affect their material welfare. One reason is that a single parent has fewer resources to devote to present and future child well-being. Household shrinkage still entails losses of benefits and the duplication of tasks and household public goods.

The loss of resources and the need for the single parent to work in order to support the new household puts a strain on his or her time. As a result, children may be asked to participate more to household chores and to look after younger siblings. This may also translate into lower nutrition, health, and education outcomes. If the single parent remarries, another worry is that a step-mother or step-father is likely to care less about the welfare of their non-biological offspring. Finally, the new couple may have children of their own, creating a ‘Cinderella effect’, that is, competition for resources and attention between co-residing siblings from different biological parents (e.g. Daly and Wilson 1988a, Case, Lin and McLanahan 1999). How relevant these issues are in practice deserves to be studied.

A second reason why a couple may break up is because one spouse hopes to match with a better mate. In this case, the leaving spouse may expect to enjoy the benefits of household size with another mate. But the spouse left behind is likely to be worse off as a result. At first glance, it may appear contradictory that parents leave children behind knowing their welfare will deteriorate – this does not tally with the ‘selfish gene’ hypothesis. It is nevertheless conceivable that the leaving spouse neglects (or even abandons) existing children in order to focus better on unborn ones with a new partner. If this is the case, we would expect men to leave their current partner for a younger, more attractive woman, while women are predicted to leave for a

wealthier husband who can better provide for her progeny.⁷ If these theoretical predictions are correct, it follows that unborn children may in fact benefit from the reshuffle, a possibility that introduces complex interpersonal welfare comparisons.

Normally, equilibrium in the marriage market should ensure stability. Unfortunately many of the relevant attributes of spouses are not easy to ascertain, or are only revealed over time. Furthermore, some observable attributes change over time in unexpected fashion. These features generate instability as disappointed spouses figure they can do better with someone else. As emphasized by Browning et al. (2009), Chapter 11, the larger the number of currently unattached individuals enhances the chance of finding a suitable match, further weakening existing unions. We expect this phenomenon to be particularly relevant in towns and cities, less so in rural areas where the size of the marriage market is small and search difficult.

We suspect that the institutional arrangements by which the marriage market clears have an effect on the stability of marriage. Because arranged marriages can harness the help of social networks to access relevant information about spouse attributes, they are less likely to result in unpleasant surprises – at least for those attributes that can be observed beforehand. Of course, if attributes have been misrepresented – for instance by promising a dowry the parents cannot afford – the stability of the union may not be guaranteed. But if commonality of interest and preferences is central to the stability of the couple, then future spouses must become more involved in the search process. As a result we expect search by the spouses themselves to be less exhaustive – it loses in breadth – but more detailed information to be gathered about a chosen mate – search gains in depth. These observations make us suspect that marriages may be differently vulnerable, depending on the way search for a spouse is conducted.

Human societies have developed a large number of moral, social, and legal norms that seek

⁷In the context of evolutionary psychology, sexual attraction is a signal of reproductive potential.

to avoid or mitigate some of the unwanted effects of household separation. The simplest of them is simply to prohibit separation altogether. This prohibition is often justified on the grounds that it protects children against the pitfalls of separation. Many developed countries prohibited divorce until recently, and the Catholic Church continues to condemn it. In practice, these prohibitions cannot prevent spouses from living separate lives, but it makes it very difficult for them to start a new life with someone else. Since this reduces the incentive to leave the current household, this prohibition to remarry is an effective disincentive to separate.

Another approach is to make independent living very onerous if not impossible, thereby making very difficult for a disaffected spouse to leave the household. Many developing countries *de facto* or *de jure* restrict the income generating options open to women. For instance, it is common for women to have no access to land other than through their husband. This makes it difficult for them to leave. When they nevertheless do separate – e.g., because they are abandoned by their husband – we expect a negative effect on their welfare and that of accompanying children.

Norms have evolved that seek to address this situation. These norms seek to protect the wife's financial interest in case of separation. Alimony and child support laws are examples of such provisions. But these laws are very imperfectly enforced because it is often easy for husbands to elude them – see Browning et al. (2009), Chapter 1 and the references therein. Furthermore, ex-husbands are typically reluctant to provide financial transfers after their ex-wife has found a new partner – possibly because they fear that part of the money will not benefit his biological children directly (Browning et al. 2009). Combined with the 'Cinderella effect', this process tends to erode the effectiveness of child support provisions.

An other solution that seeks to address these shortcomings is to organize a patrimonial transfer at the time of divorce. This entitlement approach is the solution typically adopted by

agrarian societies. This is not difficult to understand. Farming households typically have land, livestock, and equipment. By sharing this productive capital between the spouses, their future income can be ensured. Of course, splitting productive capital can result in a suboptimal farm size. But entitling both spouses to a share of the household's assets provides sufficient bargaining power for the wife to exchange her claim on assets for a stream of income.

Another yet more radical solution is to let children chose the spouse with whom they wish to live. This is the solution apparently adopted in rural Ethiopia, as documented in Fafchamps and Quisumbing (2002). Letting the child choose should in principle ensure that the child gets the least bad outcome.

7. Conclusions and future research

There is a large economic literature on child well-being in developing countries. This literature has documented the effect of various shocks to existing households on various indicators of material welfare such as nutrition, health, and educational attainment. A special emphasis has been put on the differentiated effect these shocks have on boys and girls.

We have learned a lot from this literature. But, strangely, little attention has been devoted to household recomposition and its effect on child

well-being. The main exception is the study of child fostering, which can help children be taken care of when one or both parents die. The literature has also documented that female-headed households – which often are single parent households – are often less prosperous than male-headed households, the majority of which include both parents. But this phenomenon has not been studied as a possible outcome of household separation.

The conceptual framework presented here makes us suspect that divorce is bad for children. This is what the evidence collected in developed countries seem to suggest. We do not have

comparable evidence from developing countries.

It is difficult to draw causal inference of household separation on child well-being. Observing a negative statistical correlation between child subjective and material welfare after the separation of their parents does not, by itself, imply a causal relationship. One possibility is that bad parents are more likely to separate, perhaps because they are less sociable. If this were true, then the welfare of children of divorcing parents should on average be worse off even before separation. This is in principle testable with the Young Lives panel data, provided we follow children across households.

Another possibility is that the same factor that caused the separation – e.g., loss of income – also caused a deterioration of child welfare. Here the welfare of the children changes over time, but the cause is not separation, it is the loss of income. With enough panel observations, it should be possible to observe shocks and their magnitude for non-separating households and for single-parent households, and infer what the effect of these shocks are on child welfare. Comparing the welfare deterioration following a similar shock with and without separation should identify the additional effect due to separation.

It is also possible that the subjective and material well-being of children evolve in different ways before, during, and after the separation of their parents. In many cases, separation is preceded by a period of protracted animosity between the spouses, which is bound to affect the subjective welfare of children. While separation itself may be traumatic, the psychological well-being of children may in fact improve after separation, even if their material welfare deteriorates. These are issues that can also be studied using the kind of data collected in the Young Lives project.

The next research agenda is to assess the extent to which unfavorable outcomes for children can be corrected by policy. We briefly discussed how different types of norms can seek to redress

– or reinforce – natural human inclinations and equilibrium outcomes. In all likelihood many of these norms have been introduced at least in part to protect the interests of children. But norms that are useful one day may no longer achieve their objective tomorrow – or achieve it at a cost that is deemed too high for parents. Consequently we need evidence on the likely effect of various types of norms on attitudes and behaviour, and ultimately on the welfare of children. The difficulty is drawing causal inference in the absence of experimental data. One possibility worth exploring within the framework of the Young Lives data is to keep an eye on policy changes ongoing in the studied countries. With some assumptions, it may be possible to study how these changes affected different households differently, depending on their initial situation.

Some see parental attitudes towards children – or each other – as primarily if not exclusively driven by ‘culture’, that is, by upbringing and the social context in which parents operate. This view contrasts with the genetic predisposition idea put forth in this paper. In these pages we favored the evolutionary psychology approach not because we believe it is true – in fact we noted that the evidence sometimes contradict it – but because it makes predictions that are potentially testable and are uniform across countries. This is a strong advantage when comparing data from four different countries. Culture, in contrast, is likely to differ in arbitrary ways across human societies. Consequently, an approach purely based on culture would not lead to easily testable predictions when trying to compare child welfare across different countries.

We do, however, acknowledge that norms – including moral norms internalized during upbringing – are likely influences on how human predispositions and drives translate in actual behaviour. What are the respective weights of upbringing and genetics in shaping human preferences and behaviour is a broad unresolved question that goes way beyond the purview of the Young Lives research. Given its limitations, it is unlikely that the YL data will enable

researchers to disentangle the respective roles of culture and genetics in human behaviour and child well-being. But this is obviously an important question, especially for policy makers. If genetic influences on preferences are unimportant and if human behaviour is driven primarily by culture, that is, by upbringing and norms, then it should be easier to change human behaviour simply by changing the culture. If genetic influences are underlying forces to be reckoned with, then changing behaviour may be more difficult. It is therefore important to keep an open mind to the possibility that systematic elements that are common across human societies are indicative of genetic predisposition.⁸ Failing to do so may lead us to be too optimistic regarding our capacity to change behaviour and outcomes simply by changing culture.

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⁸If preferences are entirely shaped by culture, we would normally expect a wide variation in household institutions across human societies, that is, the same amount of variation that we observe in, say, religion, art, cuisine, and dress code. In practice, human societies are much more alike when it comes to the actual organization of the household. This constitutes circumstantial evidence in favor of systematic similarities in preferences across societies, and hence in favor of genetic influences. This evidence, however, is not fully conclusive because we cannot rule out the possibility that similar material conditions – such as the different reproductive functions of men and women – have had similar cultural consequences in different societies.

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