2.0 LITERATURE REVIEW - ECONOMIC MODELS OF THE FAMILY

Household production, decision-making and the division of labour problem have drawn the interest of economists from as early as the 1950's. Work in this area has expanded to become what is now known as the new household economics, the theoretical foundations of which can be traced to economic models of marriage which study family production, household consumption and household decision-making.

The study of the household as an economic unit comprising two or more members involves the application of multiple-agent models which, according to Lundberg and Pollak (1996), raises two concerns: who in the household are the **consumers**, and who are the **decision-makers**?

They explain that the presence of household public goods (such as children) raises the issue of **joint consumption**, while the existence of love and duty (altruism?) among family members suggest interdependent preferences. These two elements thus suggest that there can be no assumption of a single-consumer household.

With regards to **decision-making**, analysis where models have multiple decision-makers are facilitated by two approaches: the common preference approach and the game theoretic approach.

2.1 Common Preference Models

Traditional models of marriage employ common preference ordering, in which family members act to maximize a single utility function. In such models, income is pooled, and then allocated to maximize this one utility function. As such, family expenditures are independent of who in the family unit are income-receivers, and who are resource-controllers. With this income pooling assumption, family demand behavior will depend on **total** family income (and not the income of individual family members).

Such unitary models are thought to be the product of the inherent characteristics of household income and consumption data. Bergstrom (1997) explains that with the aggregate nature of cross-sectional data on household consumption, individual incomes and expenditures cannot be distinguished. The result: **empirical studies** based on the premise that the family acts to maximise a **family utility function**.

This notion of the family as a single unit is echoed by Coleman (1990:580), who describes the family unit as a "purposive actor" in some instances. Family honour and familial goals are concepts which suggest that the family unit may, in fact, act as a single unit or a single actor.

Two models stand out when considering the theoretical underpinnings of common preference models: Samuelson's (1956) Consensus Model and Becker's (1974, 1981) Altruist Model.

2.1.1 The Consensus Model

Samuelson (1956) considers a two-member family comprising the husband (h) and the wife (w), who each have individual utility functions $u^i(x_1^i,....,x_m^i),$, $i = h, w$ dependent on their respective private consumption of m goods.

Both members (h and w) agree to maximize a social welfare function of their individual utilities $W\lfloor U^h, U^w \rfloor$ subject to the joint budget constraint that pools their income.

With this consensus notion, each **family** is taken to be a single agent, maximizing a utility function $U(x_1,...,x_m)$ where $(x_j = x_j^h + x_j^w)$ subject to the joint budget constraint $\sum_{j=1}^{m} p_j x_j = I = I^h + I^w$.

This optimization problem can then be used to generate family demands which depend only on prices and total family income: $x_j = f^j(p_j,...,p_m,I)$

Samuelson extends this type of analysis beyond families in which consensus is reached. He raises the notion of a household headed by a benevolent dictator who decides how family income should be distributed.

In such a model, the distribution of family income is once again non-arbitrary, the product of optimizing choice. The resultant aggregate household demand is similar to that of a single maximiser.

Suppose $U_i(x_i, y)$ is the quasi-concave utility function of each family member, and $W(U_1(x_1, y),...,u_n(x_n, y))$ is the utility function of the dictator. The dictator would then solve for the allocation of private and public goods $(x_1*,...,x_n*, y*)$ that maximizes his utility $W(U_1(x_1, y),...,u_n(x_n, y))$ subject to $p_x \sum_i \varepsilon_H x_i + p_y y \leq W$. He then provides the family with a vector y^* of public goods and endows each family member with an income px^{i*} with which i purchases x^{i*}. If $V(x, y)$ is the maximum of $W(U_1(x_1, y),...,u_n(x_n, y))$ subject to $\sum x_i = x$, then aggregate family demand will be chosen to maximize $V(x, y)$ subject to the family budget constraint.

The concept of the benevolent dictator is not unlike conservative Asian notions of heads of households. However, as we shall see later, increased participation of women in the work force, evolving roles of females in families and an increased preference for fairness among men and women alike may suggest the need for a less autocratic-type model of the family.

2.1.2 The Altruist Model

One of the shortcomings of Samuelson's consensus model, as raised by Lundberg and Pollak (1996) is that it fails to explain how the family reaches and maintains consensus of the joint welfare function. Becker (1974, 1981) sidesteps these questions with his Altruist Model, by raising another possibility by which the family acts as if directed by a single utility-maximising decision-maker.

In Becker's model, the family comprises one altruistic parent (whose utility function also reflects concern for the well-being of other family members) and purely selfish but rational ("rotten") kids.

He shows that the altruistic parent, by making positive transfers to family members, induces selfish kids to act in seemingly unselfish ways. In essence the altruist adjusts transfers to each rotten kid such that each child serves his own interest best by choosing actions that maximize family income. The resulting distribution maximizes the altruist's utility function subject to the family's resource constraints. The family demand function then coincides with that of the consensus model.

Let $U(x_0,....,x_n)$ be the utility function of the altruistic parent, specifying that his utility depends on his consumption (x_0) as well as that of his children (x_i) where $i = 2,...,n$. His children are selfish in that they care only for their own consumption.

Each child i has an income (m_i) of his or her own, but the parent's income (m_0) is much larger than that of his kids. The parent chooses to make gifts to each child, resulting in a post-gift distribution of consumption $(x_0*,....,x_n*)$ that maximizes the parent's utility $U(x_0,....,x_n)$ subject to $\sum_{i=0}^{n} x_i = \sum_{i=0}^{n} m_i$. Note that Becker specifies only one consumption good and no public goods in this model[1], and that each child's consumption must be an increasing function of family income if it enters the parent's utility function as a normal good.

As long as each family member chooses an action a_i that influences the income of other members (but does not directly affect their utility), then all will seek to maximize total family income.

Is the altruist, with his control over family resources simply a glorified dictator? Becker (1974) refutes this, noting that although the altruist is able to control consumption distributions, he cannot dictate actions a_i that determine individual

[1] Bergstrom (1997) notes that while Becker (1981) does not explicitly address public goods, his household technology model could be used to describe production of such goods as well as private goods.

incomes. However, given his income-distributing power, all members end up agreeing on the same objective function to pursue in their chosen a_i, i.e. maximizing total family income.

2.2 Empirical Tests of Common Preference Models

Unitary models are based on the premise that income is pooled. However, Lundberg and Pollak (1996) cite empirical evidence that rejects this assumption, suggesting the need for marriage models that do not pool family income. This view is echoed by Bergstrom (1997), who highlights McElroy's observation that unitary models may be tested, at least in principle:-

"If, holding prices and incomes constant, the distribution of income within the household has significant effects on demand, then one would reject the unitary hypothesis" (Bergstrom, 1997:39)

Lundberg and Pollak (1996) explain that if family members do indeed pool their income and then seek to maximize a family objective function as assumed in unitary models, then only total income should affect demand; the proportion of income (earned and unearned) controlled by individual members would not. However, empirical tests of pooling using data from several countries show that income controlled independently by the husband and the wife have significant effects on family behaviour.

As mentioned earlier, it would be desirable if one could determine from the onset in such tests which household member is the consumer. While this may seem problematic, economists have made creative use of available data on time allocation (specifically, the amount of leisure consumed) by each household member. Shultz (1990) for example, showed that in Thailand, a rise in women's unearned income from outside the household has a larger negative effect on the probability of labour force participation than does an equal increase in her husband's unearned outside income.

Bergstrom credits studies which test the income pooling assumption using the nature of goods to suggest the gender of the ultimate consumer. Browning et al. (1992) for example, find that in Canada, the fraction of total family income devoted to men's clothing and to women's clothing are positively related to the proportion of individual incomes of men and women in the family unit. Similarly, Haddad and Hoddinot (1994) and Hoddinot and Haddad (1995) find that in Cote d'Ivoire, a rise in the fraction of cash income of women significantly increases the budget allocated to food and reduces that allocated to alcohol and cigarettes.

Lundberg and Pollak (1996) make similar observations, citing among others, Phipps and Burton's (1992) findings that a rise in the wife's income relative to that of her spouse appears to be associated with larger expenditure on restaurant meals, child care and women's clothing, and with reduced expenditure on alcohol and tobacco. However, Lundberg and Pollak acknowledge the problems associated with interpretation of such studies.

The bargaining interpretation of Phipps and Burton's work for instance, is that as the wife's income rises relative to her spouse's, she gains more control over the household spending patterns. Increased expenditure on restaurant meals thus reflects her preferences.

Proponents of common preference literature, on the other hand, see this result simply as a price effect: the wife's income is a significant component of the cost of home-prepared meals – a substitute of restaurant meals. Hence, as her income rises, so too would her expenditure on restaurant meals.

Ambiguity in the interpretation of studies such as that of Phipps and Burton suggest the need for research that allows one to separate price effects from income effects. Lundberg, Pollak and Wales (1995) for example, examine the effects of a 1970's UK policy change that transferred a substantial child allowance from husbands to wives. They find that such a policy resulted in a shift towards relatively greater expenditure on women's and children's goods. Explaining that such changes cannot be attributed to price effects, they interpret this as reasonable proof of rejection of the pooling hypothesis, and called for models which relax the pooling assumption.

While the common preference framework provides a clean, powerful mechanism for generating family demand functions (and establishing their comparative statics), the income pooling assumption appears to severely limit the scope of analysis of household issues, since the individual utilities of husband and wife cannot be recovered. The framework is thus inappropriate for examining decisions of marriage and divorce for example, since the pooling assumption does not allow for the comparison of agents' expected utilities inside and outside the marriage.

As Lundberg and Pollak (1996) point out, this shortcoming has important policy implications, particularly in that of transfer programs targeted at specific individuals such as women and children. Common preference models, which predict that the equilibrium intrahousehold allocation is independent of how income is distributed among individual family members, would view such policies as ineffective. On the other hand, bargaining models (as we shall see later) predict that the government can affect distribution within the marriage, for example by changing the income of divorced partners, via welfare payments and property division laws, or by transferring control over resources within the marriage from husband to wife.

Furthermore, links have been established between fertility rates and the educational and earnings opportunities of women, via the value of women's time and the time price of children (Lundberg and Pollak, 1996). It has also been a widely-accepted argument that women's education and income have an important effect on their decision-making authority within the household. Common preference models, which cannot fully address intrafamily distribution issues, would thus be of little use to development and population agencies.

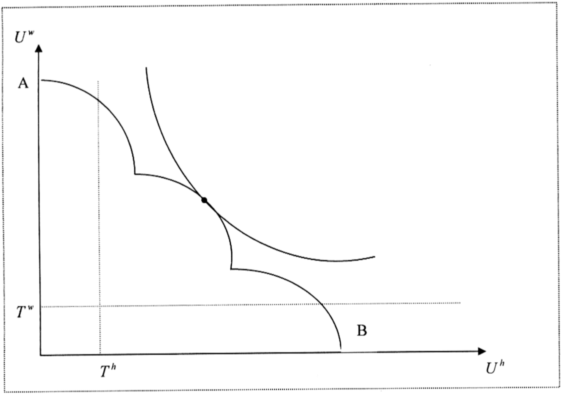
2.3 Bargaining Models

Bargaining models were developed to reduce the apparent restrictions that common preference models have on observed family behaviour. Lundberg & Pollak (1996) explain that these models present a workable alternative to traditional unitary models. Bargaining models relax the pooling assumption and recognize the involvement of multiple agents with distinct preferences in determining family consumption - a more contemporary approach to analyzing household behaviour.

Two widely-cited models which use game theory to examine distribution outcomes in two-agent interaction are the Divorce-Threat Bargaining Model (McElroy, 1990) and the Separate Spheres Bargaining Model (Lundberg and Pollak, 1996). Both acknowledge the involvement of two agents (husband and wife) with distinct preferences in household activity and decision-making. But where McElroy takes divorce as the threat point of marriage, Lundberg and Pollak specify a non-cooperative marriage as the threat point.

2.3.1 The Divorce-threat Bargaining Model

Drawing on cooperative game theory, we can view the two-member family as a pair of agents in a game. The husband (h) and the wife (w) both have individual utilities U^h and U^w which depend on his or her consumption of private goods. If agreement is not reached, the payoff received is represented by the threat point (T^h, T^w). Lundberg and Pollak (1996) explain that the Nash bargaining solution (N) would be the allocation that maximises the product of gains to cooperation $[N = (U^h - T^h)(U^w - T^w)]$ subject to the family's joint income constraint $px = I^h + I^w$. They illustrate this with the following utility possibility frontier diagram.



Nash's (1950) set of axioms, one of which is pareto optimality, ensures that this solution (N) lies on the utility possibility frontier AB, and is thus uniquely characterized.

It is clear then that in this solution, the utility received by both spouses depends on the threat point. A higher utility at threat point would mean higher utility at the Nash solution. Hence, family demands depend on prices and total family income (as predicted by common preference models), and **also** on the determinants of the threat point.

In the divorce-threat model, this threat point is the maximum level of utility that is obtained outside the marriage. Interestingly, McElroy explains that if divorcees maintain ownership of income received separately within the marriage, then demand from marital bargaining would depend on income received by **individual** spouses, and not total family income, as predicted by unitary models.

Besides individual income, the divorce threat point would also depend on what McElroy terms extrahousehold environmental parameters (EEPs) such as conditions in the remarriage market and incomes available to divorced men and women. These parameters are considered external to the marriage as they affect the divorce threat point without affecting **marital** utility.

Therefore, the divorce threat model predicts that family demands depend on individual incomes received in the marriage (if spouses maintain control over these resources in the event of divorce) as well as factors that affect utility of the spouses when the marriage is dissolved (but which do not affect marital utility).

McElroy notes that his model can easily be tested against the common preference models by examining household distribution during periods when family law altered the incomes available to divorced partners. A change in welfare payments to divorced mothers for example, would alter utility outside the marriage without affecting marital utility. So too would a change in laws defining marital property or regulating its division upon divorce. These EEPs would therefore alter the threat point. A change in intrahousehold distribution within the marriage would thus be indicative that families do indeed behave as the divorce threat model predicts.

2.3.2 The Separate Spheres Bargaining Model

Lundberg and Pollak (1993) acknowledge that while divorce may well be the ultimate threat in marital disagreement, a more probable outcome would be a non-cooperative marriage, in which spouses still receive some benefits due to joint consumption within the marriage. They thus specify the threat point as an inefficient non-cooperative equilibrium within the marriage. The unhappy partners continue to voluntarily provide household public goods, but choose actions that maximize utility given the actions of their spouse.

Possibly the most important implication of such a threat point, as opposed to divorce, is that family demands would then depend on who controls resources within the marriage, rather than how income is distributed upon divorce.

In the event of non-cooperation, the husband provides public good q_1 out of his resources and the wife provides public good q_2 out of her resources. Lundberg and Pollak assume an allocation of marital responsibilities based on socially-sanctioned gender roles rather than preferences or productivity differences between the spouses. The husband would treat the level of q_2 provided by the wife as fixed, and would then choose the quantity of private goods that he consumes and the level of q_1 that he provides so as to maximize his utility subject to his budget constraint. The wife makes her consumption and public good provision decision similarly.

The result is a pair of reaction functions that determine a Cournot-Nash equilibrium where public good contributions are inefficiently low.

Note that in the non-cooperative equilibrium, the husband's utility depends on resources controlled by his wife (via his consumption of q_2), and the wife's utility depends on the resources controlled by her husband (via her consumption of q_1). Since demand functions depend on the threat point, therefore these demand functions must be independently affected by the husband's income and the wife's income.

In a cooperative equilibrium, both spouses' utilities would depend on incomes controlled separately by husband and wife, and **not** on total family income as predicted by the unitary models.

The main distinctions between unitary models and bargaining models is then whether income is assumed to be pooled, whether outcomes depend on threat points, and whether spousal control over resources will affect family behaviour. With bargaining models, since control over resources affects distribution, public policy regarding taxes and transfers can affect intrahousehold distribution. How such distribution is affected however, depends on how the threat point is specified.

In the divorce threat model, policies that improve the status of divorced women will shift resources within the marriage to the wife. With the separate spheres model, resource-control would play a more important role in intrahousehold distribution, since such distribution would be altered with a change in income allocation within the marriage even if the well-being of divorcees remain unchanged. In contrast, the divorce threat model predicts that policies that affect resource control within the marriage would not affect intrahousehold distribution if incomes of divorcees are not affected.

The newer game-theoretic models thus raise new questions: how resource-control affects children, how norms affect bargaining, and how distribution is related to the remarriage market. Lundberg and Pollak acknowledge that while a cohesive model of marital behaviour is still needed, the current divorce threat and separate spheres models have done much to recognize the independent agency of men and women in marriage.

2.3.3 The Appropriate Threat Point

In a static, 2-person bargaining game, the Nash cooperative solution is the outcome that maximizes the product of the two players' utility gains over the threat point in the absence of agreement. As evidenced by the Divorce Threat and Separate Spheres models, the choice of threat point greatly affects predicted outcomes. Bergstrom (1997:42) draws on literature on the non-cooperative foundations of bargaining theory to shed some light on which threat point is more appropriate: divorce or a non-cooperative marriage. Rubinstein's 2-person, multiperiod bargaining game and Binmore's Outside Options extension of this model provide such insight.

Rubinstein (1982) examined an extensive form multiperiod bargaining game between two persons, who bargain over how a cake should be divided between them. The players take turns to propose a ratio, with one time period elapsing between each offer and both players are assumed to be impatient, discounting future income by the factor ∂_i. Utility to player 1 from receiving w units of cake in period t is therefore $w\partial_i$.

Rubinstein proved that as time between proposals became small, there is a unique sub-game perfect equilibrium: the cake would be divided in period 1 with i's share being $\alpha_i = \frac{\partial_i}{\partial_1 + \partial_2}$. Each player would receive utility from w_i units of cake in period t (written $u_i(w_i)\partial_i^t$ in which u_i is a concave function) and the only perfect equilibrium is the allocation which maximizes the Nash product $u_1^{\alpha_1} u_2^{\alpha_2}$ on the utility possibility set $\{u_1(w), u_2(1-w) | 0 \le w \le 1\}$.

Should both players share the same discount rate ∂_i, the outcome would be equal to the symmetric Nash equilibrium corresponding to the threat point (0,0).

In Rubinstein's model, players continue bargaining until agreement is reached: the cake is divided upon agreement, and players cannot abandon the game midway. With impatient players, the game ends in period 1. However, what would happen if an option to quit the game is introduced? Binmore introduces such an option.

Binmore (1985) extends Rubinstein's model, allowing each agent to quit negotiations at any time. The player who exercises this option receives m_i units of cake, leaving his or her bargaining partner with none.

Does such an outside option move the threat point to (m_1, m_2)? Binmore finds that the only perfect equilibrium in a game with outside options is agreement in period 1 that maximizes the Nash product $u_1^{\alpha_1} u_2^{\alpha_2}$ on the utility possibility set $\{u_1(w), u_2(1-w) | 0 \le w \le 1\}$ subject to the constraint that $u_i \ge m_i$ for each player i. He explains that this is not equivalent to the outcome of shifting the threat point to (m_1, m_2) in which case players would be maximizing $(u_1 - m_1)^{\alpha_1}(u_2 - m_2)^{\alpha_2}$ on the utility possibility set.

Binmore et al (1989) cite a similar argument made by Sutton (1987), and report on laboratory tests of Rubinstein's bargaining game with outside options. Results of the laboratory tests were better predicted by the Binmore model than by one which employs the outside option as the threat point.

Bergstrom(1997:43) applies Binmore's findings to marriage, considering a married couple who expect to live forever in a stationary environment. If there is transferable utility in any period within the utility possibility frontier $\{(u_1, u_2) | u_1 + u_2 = 1\}$, each spouse would have an intertemporal utility function equal to the discounted sum of the period-by-period utility flows. Each spouse i would evaluate the time path $(u_1, u_2, ..., u_t, ...)$ of period utilities by the utility function $\sum_{t=1}^{\infty} u_t \partial_i^t$ where $\partial_i \langle 1$ is i's discount factor.

Should the couple remain married and not reach agreement in any period, spouse i receives utility b_i. Should they divorce, spouse i receives utility v_i in every subsequent period. Note that breaking off negotiations in marriage (the outside option) is synonymous with divorce. Assuming $b_1 + b_2 = b < 1$ and $m_1 + m_2 = m < 1$ implies potential gains for both in reaching an agreement on how to divide utility. As in Rubinstein's model, spouses take turns to offer feasible utility distributions, and as in Binmore's model, as time between offers becomes small, the only sub-game perfect equilibrium is the outcome in which spouses agree in period 1 to distribute utility in every period so as to maximize the Nash product $(u_1 - b_1)(u_2 - b_2)$ subject to $u_1 + u_2 = 1$ and $u_i > m_i$ for $i = 1,2$.

Binmore finds three possible solutions which depend on the relative values of the parameters m_i and b_i. The first possible solution, where $b_i + \frac{(1-b)}{2} \geq m_i$ is that solution in which utility in any period exceeds utility from breaking negotiations before agreement is met (i.e. neither option is binding). The outcome is

$$u_1 = b_1 + \frac{(1-b)}{2}$$

$$u_2 = b_2 + \frac{(1-b)}{2}$$

This corresponds with Lundberg & Pollak's cooperative solution, where the threat point is a non-cooperative marriage and not divorce.

The second solution sees spouse 1 exercising the outside option. The outcome is

$$u_1 = v_1$$

$$u_2 = 1 - v_1$$

This happens if utility to spouse 1 in any period falls short of utility from breaking negotiations before agreement is met: $b_1 + \frac{(1-b)}{2} < m_1$.

The third solution sees spouse 2 exercising the outside option, bringing the outcome to

$$u_2 = v_2$$

$$u_1 = 1 - v_2$$

which occurs if utility of spouse 2 from breaking negotiations before agreement is met exceeds the utility in any period: $b_2 + \frac{(1-b)}{2} < m_2$.

The second and third solutions suggest that while the divorce threat is relevant, the outcome is not that predicted by the Manser-Brown and McElroy-Horney models. Where divorce is relevant, the gain from being married is not split equally: one spouse enjoys all the surplus while the other is indifferent between being married and being divorced.

To what extent are the main results of Rubinstein's original model dependent on its assumptions? Binmore (1985) finds the results qualitatively similar when he allows for a randomization of length of time between offers and of whose turn it is to make the next offer.

Bergstrom warns however, that Rubinstein's result **is** dependent on the assumption of stationarity. Should children grow up and leave the family, or should the probability of death increase with age, this stationarity no longer applies.

Also, so far models which include a divorce option view the payoff of divorce as being determined exogenously. McElroy's model for example, sees the divorce threat point (the maximum utility obtained once marriage is dissolved) as dependent on extrahousehold environmental parameters (EEPs) such as conditions in the remarriage market and incomes available to divorcees. The

EEPs are considered to affect the divorce threat point without affecting marital utility, and thus should be viewed as external to the marriage.

However, if we consider the possibility that utility of the divorce option depends on utility of remarriage, then should utility of a second marriage be determined in the same theory which analyses distribution of utility within marriage? In other words, how does the marriage market itself affect household allocation within existing marriages? In particular, for agents contemplating divorce, how do divorce costs affect bargaining?

Bergstrom draws on Binmore's model and work by Rubinstein & Wolinsky (1985) to suggest how divorce costs enter the equation. Rubinstein and Wolinsky present a model of pairs of agents who enter bargaining games in random meetings. In this model, the agents are viewed as buyers and sellers, both groups of which are homogenous.

In the start of each period, matching occurs, in which each agent attempts to find a new partner. Any buyer-seller pair who meet (some agents do not find partners to bargain with) will begin a non-cooperative iterative bargaining process. If agreement is met, a transaction occurs and the pair leave the market. If agreement is not met, besides the cost of delayed agreement, each agent also faces two potential costs: the cost of losing a partner in the next round (if the partner meets another agent of the opposite type in the next round) as well as the risk of not meeting anyone else to bargain with should one lose one's bargaining partner.

When the number of buyers does not equal the number of sellers, it would take longer on average for the abundant type to find a new partner of the scarce type. Hence, agents of the abundant type would be more willing to concede a larger share of the gains from agreement. Agents of the scarce type, on the other hand, would be in a better bargaining position.

Applying this logic to Binmore's outside options model, Bergstrom considers a large population of identical males and identical females. As before, any male-female pair who marry and reach agreement can achieve any constant utility flow (u_m, u_f) such that $u_m + u_f = 1$. Bergstrom normalizes utility so that the utility flow during disagreement is zero for each.

At any stage of the bargaining process, a spouse can accept his or her partner's offer, reject it and make a counter offer, or exercise the outside option and ask for a divorce. If spouses have equal discount rates, Binmore's model predicts an outcome of utility allocation (u_m, u_f) that maximizes the Nash product $u_m u_f$ subject to the constraint $u_m + u_f = 1$. Each spouse would receive utility at least as high as that available when the outside option is exercised.

When a divorce cost is considered (c_m for the male and c_f for the female), then the utility of a male who asks for divorce is $\bar{u}_m - c_m < \bar{u}_m$. Similarly, utility to the female should she ask for divorce would be $\bar{u}_f - c_f < \bar{u}_f$. Hence, as long as divorce costs are positive for both spouses, the option of divorce does not influence the bargaining outcome.

Here, the distribution of utility within marriage does not depend on the relative supplies of males and females as suggested by the Rubinstein-Wolinsky model. In that model, an agent who meets another agent of the opposite type can abandon his or her partner without bearing any explicit transaction cost – it is the **abandoned** partner who faces the risk of not meeting a new partner. For the agent exercising the outside option, the only risk he or she faces is the risk of not reaching agreement with his or her new partner – a position not unlike his or her current one!

However in the Binmore model, the spouse who chooses to exercise the outside option not only faces the risk of not reaching agreement with his or her new partner (should remarriage occur), but both spouses would face divorce costs. In marriage, spouses would have invested in marriage-specific capital such as children, which lose value when the marriage is dissolved.

Divorce costs also include any social stigma associated with divorce, which can be significant in some societies. Of course, such stigma is self-perpetuating: where divorce is more uncommon, stigma associated with divorce would be greater, raising the cost of divorce and consequently further suppressing divorce rates. However, in communities where divorce rates are higher, such stigma is likely to be lower or even non-existent, resulting in lower divorce costs (and potentially contributing to higher divorce rates!).

Hence, when divorce costs are high, the Binmore model suggests only one possible distribution of utility in marriage: the outcome of the Nash cooperative solution with uncooperative marriage as the threat point.