

MARRIAGE PARADOXES

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ABSTRACT

Empirical research reveals that marriage decisions systematically deviate from the predictions based upon the conventional neo-classical approach in four respects: (1) people search surprisingly little for available marriage partners; (2) the characteristics of a potential partner are evaluated in a strongly biased way; (3) individuals take little advice for their marriage decision; and (4) the likelihood of one's own marriage ending in a divorce is strongly underestimated. These marriage paradoxes can be integrated into the rational-choice approach: individuals are aware of the possibility of falling prey to such paradoxes, and therefore take precautions at individual and institutional levels.

I. The Neo-classical Theory of Marriage and Beyond

The economic theory of the family has given us many valuable and novel insights about how individuals act within a family (e.g. about the division of labor), and also how they choose to form a family. This constitutes a great step forward compared with the previous notion in economic theory that households are a 'black box' and act as if they were individuals.

This economic theory of the family (championed by Becker, see, e.g., 1960, 1988, 1991) assumes that individuals act rationally and maximize their utility (but not necessarily their selfish interests as altruism among family members is explicitly allowed for). As decisions are made under uncertainty, following the von Neumann and Morgenstern (1947) axioms, each person's maximand is subjective expected utility. Uncertainty itself is reduced by searching for information until the marginal benefit exceeds the marginal cost. Individuals are thus taken to act according to the same principles within the family as in any other area. This unified theory is one of the main attractions of the economic approach (see Becker 1976; Frey 1992), especially in comparison with other social sciences, in particular psychology, where explanations tend to rely on a set of isolated theories. It may well be argued that there are particularly good reasons for applying the economic model of behavior to the family because the incentives to act rationally are particularly

strong. For most individuals family decisions are of central importance and the cost of wrong decisions may be extremely high (e.g. having a child instead of remaining childless binds the time and financial resources of the parents for about 20 years, perhaps even for the rest of their lives).

Becker's ground-breaking work has induced many economists to enter the field.¹ However, much of this work has been highly theoretical and more concerned with demonstrating the applicability of formal economic analysis to a new, unusual subject than with providing new insights into how individuals act in the specific context of a family. Most importantly, empirical studies have been sadly neglected in favor of abstract formalisms.² Among the many examples is Mortensen (1988) who applies the theory of matching the supply for, and demand of, jobs to the marriage choice. While the analogy is well taken (though not much more than common sense, see, in general, Blaug 1980, Ch. 14) Mortensen makes no effort to inquire into the differences between the job and the marriage 'markets'; rather, his interest is to prove under what (abstract) conditions an equilibrium exists. Another pertinent example is Cigno (1991), who develops a theoretically rigorous text on the economics of the family, thereby advancing a considerable number of theorems, lemmas and proofs. But neither of the two authors (unlike Becker) show much interest in looking at real-world issues of the family, in relating their theories to empirical facts, or in subjecting them to an econometric analysis; nor do they look at the vast literature on the family produced in the other social sciences.³

This literature suggests that systematic and significant aspects have been disregarded in the economics of the family. We concentrate on four empirical observations with respect to marriage which seem to contradict the economic theory of marriage. In this sense, they appear to be paradoxical:

- (1) people search surprisingly little for suitable marriage partners;
- (2) the characteristics of potential partners are evaluated in a strongly biased way;
- (3) individuals take astonishingly little advice in their marriage decision; and
- (4) the likelihood of one's own marriage ending in a divorce is strongly underestimated, and therefore too few precautions for the case of a break-up are taken.

Our point of reference is the type of strict and orthodox neo-classical theory just mentioned. 'Surprisingly' in this context means that the four

observations would not have been predicted *ex ante*⁴ by neo-classical theory. We submit that the new developments in decision theory based on the work of both cognitive psychologists and economists (see, e.g. Kahneman and Tversky 1979; Thaler 1980; Kahneman, Slovic and Tversky 1982; Schoemaker 1982; Machina 1987; Sugden 1986; Shapira 1986; Frey and Eichenberger 1989a, 1989b; Eichenberger 1992) help to explain such paradoxical observations. It seems to be fruitful to integrate these new findings falling between economics and psychology. However, we do not give up the rational-choice view of human behavior. We believe that individuals to some extent fall prey to psychological anomalies in their marriage choice (and to that extent act 'irrationally'), but they are rational enough to try to overcome these paradoxes. This view also provides us with an explanation of the emergence and functioning of several marriage institutions, which would otherwise have to be treated as exogenous.

The remainder of this paper is organized as follows. Section II is devoted to the four above-mentioned paradoxical observations concerning marriage. Possible standard neo-classical explanations are discussed and rejected, and solutions are offered using elements of cognitive psychology. Section III identifies why, and in what respect, marriage decisions differ from other decisions in life. The institutional reactions to the marriage paradoxes observed are the subject of section IV. Section V offers concluding remarks.

II. What is Paradoxical about Marriage?

1. Little Search for Marriage Partners

Following the strict neo-classical economic model, one would expect to find that individuals undertake an extensive search before they commit themselves to marriage, as the costs of choosing an unsuitable partner are normally high. Circumstantial evidence suggests, however, that surprisingly little time and few resources are devoted to finding the 'right' partner. Most importantly, a considerable number of men and women marry their first reasonably serious partner.

Table I shows the percentage share of first unions that became formal marriages (in contrast to cohabitation) for the USA. For 84 percent of the male, and 93 percent of the female Americans of age 50 to 60, marriage is identical with the first union (for more evidence see also Cate and Lloyd 1992). While this percentage dropped for both sexes, the general observation still holds for more than one third of Americans of

age 20–30. Studies for Europe reveal the same pattern (Michael et al. 1994, 101).

Table 1. Percentage of first unions that were formal marriages by birth cohort and gender

Birth dates	Men	Women
1933–1942	84	93
1943–1952	70	78
1953–1962	47	58
1963–1974	34	36

Source: Lauman et al. (1994, 207).

Certainly, there is a 'marriage market' (social psychologists take this to be a matter of course), but the term is somewhat misleading if it is understood to mean that access is open, and that the participants have a large choice of partners to marry. Rather, market entry is characterized by considerable barriers, and the choice is strongly dominated by social and traditional factors. The marriage market is thus highly segmented and characterized not by vast choice possibilities but by high transaction costs shaping behavior. The authoritative study on 'Sex in America' (Michael et al. 1994) aptly remarks

The vast popularity of school and work as marketing places is part of the social game, whereby the firm hand of society inevitably guides us toward people that we and our stakeholders would view as acceptable sex [and marriage] partners. One reason why so many people meet their partners at school or work is that most people spend so much time there, going to school for years, then working for decades. The total time spent in school and at work far overshadows the time spent in such places as a bar or on vacation or in a health club. (p. 74)

For similar reasons, marriages between persons living in the same neighborhood are frequent (Kerckhoff 1974). As a consequence, the marriage market is strongly *segmented* and many participants have a very restricted choice, only:

The myth is that each person has the whole world to choose from. The reality is that when we finish excluding everyone that we consider unsuitable or unobtainable and when we finish dividing the market into sex for recreation or sex for possible marriage, there are very few people left for each of us to seriously consider. (Michael et al. 1994, 64)

This does not mean that no marriage market exists. We want to emphasize that the empirically interesting aspects of forming marriages

are not captured by an abstract analysis of the matching problem in analogy to any other market (à la Mortensen 1988) but the *particular* characteristics and forces that shape the marriage process. To know that it is a 'market' (though delightful for an economist to hear) explains little; what helps us to gain insights is a serious analysis of the *restrictions* (or transaction cost) typical for this market.

A main characteristic of marriage decisions is that more intensive search does not necessarily improve marriage *quality*. Considerable empirical evidence reveals that more information, gained for example by cohabitation before marriage, does not raise the subjective quality of marriage. Having lived with the same partner before marriage is according to many studies negatively correlated with the self-evaluated *quality* of marriage (e.g. Watson 1983, De Maris and Leslie 1984); the same is true for experience acquired by having lived with previous partners (Newcomb and Bentler 1980) and also for romantic involvements prior to commitment (Kelly and Conley 1987). More recent studies indicate that these effects cannot fully be attributed to selection effects according to which those who cohabit prior to marriage may be less committed or may be poorer marriage prospects (e.g. Thomson and Colella 1992).

These observations are consistent with an economic explanation of our claim that potential marriage partners engage in much less search than formal neo-classics would have predicted. What needs to be considered is that there is little or no search because the marginal benefits of information are low, and/or the cost is high. Such an 'explanation' is, however, purely ex post and tends to become tautological if no reasons are adduced why marginal benefits are low and cost is high.

The benefits of search are reduced by asymmetric information leading to the undesired 'lemons' outcome (Akerlof 1970). Individuals who 'offer' themselves in the 'marriage market' may be interpreted by others to be 'lemons', i.e. people with hidden 'defects' obviously not liked by others. In other markets, suppliers faced with such asymmetric information may overcome the problem by building up a good reputation—a measure not available at least in the case of first marriage.

Satisficing theory (Simon 1957) may also explain the limited amount of search undertaken before marrying. The weighty decision of choosing a partner 'for life' cannot be solved by explicit maximization because it transcends the cognitive restrictions of human problem-solving. The marriage decision opens up new aspects not normally considered in standard neo-classical theory. In particular, one's prefer-

ences about the type of partner and marriage may strongly and unpredictably change during one's lifetime, for example, love may fade away, or in contrast, may increase during marriage. Moreover, the quality of the chosen partner itself may unpredictably change during the course of marriage. Because of such uncertainties (which always exist to some extent but which are much more important in the case of marriage) the information gathered during the search is of limited value, so that individuals cut the process short, thus conforming to the model of bounded rationality.

Additional, non-conventional reasons for the short duration of the search can be deduced from experimentally based decision theory:

(i) *The search process itself creates special psychic cost.* Informing oneself on the marriage market before making a choice is problematic. The use of the market may, under identifiable conditions, undermine the intrinsic motivation needed for a successful partnership (Deci and Ryan 1985; Lane 1991; Frey 1994), because the use of a mechanism which works with extrinsic inducements (i.e. exploiting the opportunities presented by the marriage market) tends to crowd out the internal values of trust and love on which modern marriages are based (see Clark and Mills 1979; and Mills and Clark 1982). Explicit exchange in a relationship may thus destroy the bonds on which marriage is built. Openly, or even furtively, evaluating the pros and cons of a prospective spouse in comparison to the alternatives available on the marriage market is strongly condemned in a romantic relationship. The same holds for any attempt to openly offer material compensation in order to find an optimal match.

This result, of course, is compatible with neo-classics—increasing search cost leads to a reduction of the intensity and time spent in search—but the point made here is that orthodox neo-classics does not take into consideration that search tends to undermine the intrinsic motivation required for a successful partnership, and thus increase the cost of search.

(ii) *Endowment and sunk cost effects.* Once one has chosen a partner, one tends to get attached to him or her. In other words, a pronounced endowment effect (Thaler 1980) emerges: once a partner has been chosen, he or she is valued more highly relative to other possible partners simply because the relationship exists. A wealth of empirical evidence shows that partnership leads to an endowment effect (see, e.g.,

Simpson 1987). In particular, it has been observed that a separation generally leads to an intense feeling of loss. Moreover, even when the perceived quality of the relationship was low both partners are subject to a *sunk cost effect*. There is a pronounced tendency to maintain a relationship even when its continuation is considered costly by both partners, because they do not want to give up the past investments in the relationship (Rusbult 1983; and Rusbult, Johnson and Morrow 1986). Hill, Rubin and Peplau (1976) even go so far as to consider 'an unwillingness to disengage oneself from a relationship in which one has invested heavily' to be a 'general human tendency'. According to H. Becker (1960), investment of time and energy as well as forgoing an alternative relationship commits one to remain in a relationship, even if it turns out to be a painful one. It is important to note that the endowment and sunk cost effects represent distortion factors, above and beyond the changed objective circumstances, i.e. the accumulation of relationship-specific investments (Becker et al. 1977; Becker 1991). Both effects are specific to the persons involved, and are difficult if not impossible to understand for outsiders. Often, when friends observe the cost imposed on each other in a relationship they advise a separation, suggesting that the search for a suitable partner in the marriage market should be continued. In most cases, the persons affected feel offended because they are subject to the endowment and sunk cost effects, and are therefore unwilling to separate (Hill, Rubin and Peplau 1976, 148). Such behavior clearly violates the standard neo-classical optimizing view that past cost should be irrelevant to current decisions relevant for the future.

The endowment effect produced by knowing each other results in breaking off the search earlier than if no such effect existed. The endowment effect is further strengthened by the fact that the cost of searching for an alternative partner is typically high in close relationships. As a consequence, the probability of breaking off an unmarried relationship decreases, and for a married couple the probability of divorce is reduced. Consequently, the number of marriages is higher than if there was no endowment effect, and, most importantly, their average (independently evaluated) quality is lower because more marriages are entered and fewer marriages dissolved than psychologically uncommitted outsiders would optimally advise. The endowment effect may thus be able to simultaneously explain both the negative correlation between cohabitation and quality and the positive correlation between cohabitation and stability of marriage, a phenomenon that has so far not yet been satisfactorily explained (White 1987).

2. Partial Evaluation of Marriage Partners

In today's western industrial countries the great majority of young couples considers romantic love⁵ to be an absolute prerequisite for marriage. Someone who marries a person explicitly for material or even 'practical' reasons (such as a particular adeptness at certain household chores) risks being chided by others. However, a partnership based on romantic love leads to a systematic overemphasis of a partner's characteristics related to love (e.g. tenderness and generosity in financial matters), while other characteristics important for marriage are underemphasized, or sometimes even completely ignored (see the survey by Rubin 1973). Thus, few lovers are much concerned whether his or her partner is well integrated in a family, ambitious with respect to a life career, and able to run a joint household.

This systematic bias in decision-making for marriage based on romantic love or autonomous marriage⁶ is best visible when it is compared with arranged marriages. Lee and Stone (1980) provide an extensive account of the difference between autonomous and arranged marriages, based on cross-section observations in many different cultures. Predictably, love is more important, the more autonomous the marriage decision is, the more nuclear the family structure is, and the more freely the marriage partners can choose where they want to live. In arranged marriages, on the other hand, love is of less importance as a precondition for a successful and lasting relationship.

One rather sad fact found by empirical research on marriage is that, in general, love tends to fade over time (Cimbalo, Faling and Mousaw 1976; Driscoll, Davis and Lipetz 1972). It is therefore interesting to ask why romantic love nevertheless plays such a dominant role in marriage decisions today. One hypothesis is that it serves as a reliable signal for other characteristics which are more relevant for the quality and stability of marriage. One would then be inclined to attribute a related importance to love in arranged marriages. However, parents and other persons arranging marriages obviously pay much less attention to love than the prospective partners themselves. Again, another hypothesis is based on the endowment effect. The 'paradox' of the great role love plays for (autonomous) marriage is explained when love is considered a good yielding high utility in the first phases of a partnership. Over time the partner is included in one's endowment; indeed, according to empirical evidence, 'commitment to and satisfaction in adult romantic relationships increase as outcome levels increase' (Clark and Reis 1988, 645; also Rusbult, Johnson and Morrow 1986; Simpson 1987). The choice of

a marriage partner based on romantic aspects results in non-optimal outcomes. Such biasing effects of autonomous marriage choice are supported by empirical observations (Howard, Blumstein and Schwartz 1987). *Complementary* traits (e.g. similar interests and viewpoints) are more important in the earlier phases of a relationship than *substitutive* traits (such as the capacity to perform certain chores of which the partner is not capable).⁷ Increased preferences for traits which are more important at an earlier phase such as physical attractiveness are negatively correlated with the subjective satisfaction from a partnership (marriage) in the long run. In arranged marriages, on the other hand, the complementary traits are not overweighted because the parents, relatives or professionals arranging the marriage are not subject to the endowment effect and are able to take all aspects into consideration which they deem relevant respective to marriage. Considerations such as these are not part of the standard neo-classical model of marriage.

3. Little Advice Sought

In marriage decisions based on romantic love the (potential) partners seek little or no advice from professionals who are experts on the determinants of successful marriage, nor do they seriously consult parents or other relatives who are experienced in marriage. Behavior thus differs markedly from that regarding the choice of education and career, where one seeks advice on the suitability of a particular line of study or profession. It is even less comparable with the advice sought when buying durable goods such as a car or a house or when investing in the financial markets. In a romantic marriage, the two individuals involved reject the advice by others because they believe that they are a special case which cannot be judged by outsiders: what they consider 'average' experience is of no relevance to them.

Another reason why outside advice is seldom sought is that it is incompatible with the notion of romantic love as a basic requirement for modern marriages. To seek advice from professionals or even from parents is interpreted as an obvious sign of mistrust towards the partner, and is therefore shunned. Standard neo-classical analysis, on the other hand, following the principle of the division of labor would predict that the advice and help of professionals or at least of relatives is sought before making one of the most important decisions in life.

In reality, the direction of influence (advice) does not go so much from parents to offspring as in the reverse direction (for empirical evidence see Leslie, Huston and Johnson 1986). Young people planning

to get married actively try to make their chosen partner attractive to their parents. The more agreeable the parents find the chosen partner, the more the new couple can hope to be materially supported by them. Owing to the filtered information the parents receive from their offspring, they do not and cannot serve as objective advisers. The situation is different when the parents receive independent information from other sources, in particular within close-knit religious or social groups: the children then reduce their effort to filter information because such effort is meaningless. Parents are given the chance of advising, and marriage decisions are more arranged than autonomous. Conversely, in autonomous marriages based on romantic love the individuals who experience an endowment effect towards their partner tend to disregard, or outrightly reject, the advice proffered by their parents who are unaffected by the endowment effect. The advice of the parents only stands a chance of being accepted if it has been given *before* a partner has been chosen. This is the case for arranged marriages.

4. Underestimation of the Likelihood of One's Own Divorce

Empirical research testifies that a blatant discrepancy exists between the ipsative and the objective view of the expected success of marriage (Weinstein 1980): individuals strongly underrate the probability of *their own* marriage failing, even if they are fully aware of the high average divorce risk. Individuals tend to systematically underestimate their ipsative probability (i.e. the probability considered relevant for *themselves*) compared to the objective one (see Frey 1989) by placing themselves in a special category to which the average high divorce rate is taken not to apply. When a white upper-class woman, for example, decides to marry a black, working-class man, and it is pointed out to her that such marriages have a very high divorce risk (for evidence, see, e.g., Norton and Glick 1979; for other differences in traits, Becker, Landes and Michael 1977, 1167) she will reply that this may well be true in general or on average, but not in her special case. She feels that the gloomy prediction does not apply to her as she is marrying a particular man who is outside the base on which the prediction is founded. Such a view cannot be faulted because a happy marriage between any type of partners is indeed a logical possibility.

Another reason why the objective chance of divorce is rejected in the case of one's own marriage is that one falls prey to the 'illusion of control' (Langer 1975). People tend to think that they can influence the outcome of their marriage more strongly than is the case in actual fact.

The concept of ipsative probabilities for guiding one's choice in marriage creates a major problem for the standard neo-classical theory of marriage and divorce based on the von Neumann and Morgenstern (1947) axioms, and therewith on expected utility theory. According to that approach, individuals evaluate their future marriage outcome by using subjective probabilities⁸ of success and failure.⁹ As the ipsative probabilities of divorce tend to be systematically lower than the subjective and objective ones, too many marriages are concluded, and too few precautions are taken against failure than would be 'rational' in the von Neumann and Morgenstern (1947) sense. Despite the substantial commitment to one another (promised for a lifetime), usually no marriage contract is made specifying the duties and rights of each partner,¹⁰ which makes a dissolution costly (Cohen 1987, 272). Major reasons for not using marriage contracts are not only the systematic discounting of the riskiness of one's own marriage but also that such a formal agreement is taken to be a sign of mistrust (one speaks about divorce even before the marriage is closed). Moreover, a formal contract which constitutes an external intervention is likely to crowd-out intrinsic motivation. In particular, trust may be undermined. Owing to the many uncertainties inherent in such a complex relationship which cannot be fully regulated by formal contract, trust is, however, indispensable.

The ipsative view of the world does not necessarily approach the objective facts. Learning is severely limited or absent, and in some cases may even be perverse. In the context of marriage, this may be called the 'Elizabeth Taylor Effect'. Whenever this actress has got married (and this has happened many times)¹¹ she has solemnly declared that this time it was for life, only to get divorced some months or years later—an outcome easily predicted by even casual observers not burdened with her ipsative view. That learning with respect to issues of marriage and divorce is generally difficult, or does not happen at all, is supported, for example, by Monahan's (1958) analysis of divorce records in the state of Iowa for 1953–5, where the probability of divorce increases sharply for persons previously divorced.¹² Quite generally, despite the failure of past marriages, over 75 percent (United States) of divorced people remarry at least once (Cohen 1987, 278). Moreover, there is evidence that the probability of remarriage is higher for those who have been divorced than for widowed persons (Becker, Landes and Michael 1977, 1175). Empirical observation that children from a divorced marriage tend to be more favorably inclined to courtship relations (Booth, Brinkerhoff and White 1984), and that their age at marriage is lower (Keith and Finlay 1988) can be interpreted as a case of perverse learning. The same interpretation may

be applied (with some caution) to the observation that search time before a second marriage is shorter than for a first marriage (O'Flaherty and Ells 1988).

III. Why is Marriage Different?

The previous part of this paper discussed four specific aspects of marriage choice where the decision-making process and outcome *systematically* deviate from what is predicted by the standard (neoclassical) economic theory of the family, and in this sense are paradoxical. The reasons why the marriage decision is different from other decisions can be summarized in four points.

(a) For many individuals marriage is probably the *single most important decision* in their lives. At the same time it is far more *complex* than most other decisions, because the consequences extend over an unknown period of time; one's own preferences with respect to the type of marriage as well as the type of partner may shift, and the character and behavior of the partner as well as the relevant social conditions may change in unpredictable ways. Moreover, some kinds of behavior which would be rational, such as an extensive search for a marriage partner, material or pecuniary compensation for differences in the value of the partners (see Cohen 1987), or marriage contracts with a finite period of validity, are not chosen by the marriage partners because the love and trust in the relationship would thereby be undermined.

(b) The marriage decision is, for the vast majority of people, designed to be *unique*. Learning is therefore difficult or impossible as one cannot look back on one's own, but only at other people's experiences, which is quite a different thing. The necessary requirements for successful individual learning are absent (see Einhorn and Hogarth 1981; or Payne 1982, 347). Even in the case of second and third etc. marriages it is difficult to learn from one's own experience, as has already been pointed out. Moreover, no competitive processes exist which would force individuals to act rationally, at least not in the sense of a well-established economic market in which irrational behavior leads to bankruptcy and enforced exit from the market.

(c) The decision process is accompanied by a strong involvement of the participants (the prospective marriage partners) which causes *preference changes* in the form of endowment and sunk cost effects, as well as illusions of control.

(d) Elements of *strategic interaction* exist between the marriage

partners themselves and between the marriage partners and the outside world, most importantly the parents. The reactions of the prospective marriage partners as well as those of the parents are of a special nature and are less known (or even unknown) than the ones in other areas of decision-making. Thus, available information is deliberately distorted and thus often (rationally) disregarded.

IV. Reactions to Paradoxes

Individuals are often aware that they are subject to paradoxical behavior. They know that under certain circumstances their decisions concerning marriage deviate to a smaller or larger degree from what rational persons would choose. As this lapse from rationality imposes cost, individuals therefore make an effort to devise strategies to avoid such paradoxa, or at least to reduce their cost (for a general analysis see Frey and Eichenberger 1994). These strategies may take place on both the individual and the collective, or institutional, level.

1. Individual Level

Marriage paradoxes can be completely eliminated, or at least their cost can be reduced, by committing oneself in advance to appropriate types of behavior. One can, for example, prearrange a stay abroad in order to prevent the endowment effect from prevailing. One can also build up human capital in order to reduce the cost of a paradoxical marriage choice. Thus, overstressing complementary traits can partly be evaded by investing more in substitutive traits (men may, for instance, learn to cook so that choosing a wife who cannot does not affect the marriage quality to the same extent).

2. Institutional Level

At the collective level, a number of norms and laws may be interpreted as an effort by rational individuals to overcome the pervasive existence of paradoxical behavior with respect to marriage. Some important instances follow.

(a) *Arranged marriages.* In many societies, men and women of marriageable age subject themselves voluntarily and by custom to the will of parents or relatives whom they believe to be capable of selecting a suitable partner for them. The utility from an arranged marriage is

therefore expected to be satisfactory to both partners on average and in the long run. Parents indirectly arrange marriages when they steer their offspring's choice of a spouse (a form of indirectly arranging) by sending them to 'appropriate' schools and universities, or by getting them to join clubs (such as tennis clubs or riding schools), where, from the parents' point of view, they are likely to meet suitable partners. In most marriages, the wife's status, income and chances in life are far more dependent on her husband's than vice versa. Parents in almost all societies are thus observed to be more concerned with finding appropriate mates for their daughters than for their sons (Hill, Rubin and Peplau 1976, 163).

(b) *Alternatives to marriage.* Apart from marriage, other institutional forms of men and women living together have evolved which are more flexible, not necessarily designed to last a lifetime, and where the cost of separation is therefore reduced. It is no accident that the rise of romantic love is correlated with the search for new institutional forms of partnership, in particular cohabitation. Another institutional change is that the presumption of marriage being for life is effectively relinquished by allowing and facilitating divorce. Indeed, in most western industrial countries today, divorce by mutual consent is comparatively easy, and often sought.

(c) *Marriage contracts.* Romantic feelings and the endowment effect curb the opportunity of the (potential) partners to talk openly about the possibility of divorce prior to marriage, and, owing to this, many do not conclude a formal marriage contract. As a substitute, the law steps in and provides basic rules for separation. Some of the rights and obligations of the parties are defined by law and cannot be waived even by mutual consent (see, extensively, Cohen 1987). Among other things, marriage laws determine how the wealth brought into, and accumulated during marriage, as well as future income earned, is to be distributed upon divorce. Another institution which interferes in individual marriage decisions is the Catholic church. In many countries, it requires couples who intend to marry to attend a course before marriage in which the partners have to discuss their relationship and its prospects.

(d) *Minimum age.* As romantic love is, on average, strongest among the young, a minimum age limit for marriage may help to eliminate some of the paradoxes discussed. Empirical evidence (Becker, Landes and Michael 1977, 1159; Booth and Edwards 1985) indeed suggests that a

higher marrying age has a positive effect both on the quality and stability of marriage. In Switzerland, a related purpose is served by a law forbidding widows to remarry within 1 year after their husband's death.

V. Concluding Remarks

Neo-classical economics has greatly improved our insights into the decisions taken in the family and with respect to marriage. Nevertheless, the rational view of marriage is in important respects not obviously compatible, and in some cases even in outright conflict, with what is empirically observable. We have identified four aspects where today's real-life marriage decisions in western industrial countries systematically deviate from what is predicted by conventional neo-classical theory. Romantic love tends to lead to the following paradoxical aspects of marriage decisions:

- little search for marriage partners;
- biased evaluation of the characteristics of potential partners;
- little advice in marriage decision; and
- underestimation of the likelihood of one's own marriage ending in a divorce.

To accept that such paradoxes or underlying behavioral anomalies exist does not mean that the rational-choice approach is dropped; rather, individuals are considered to be rational enough to react to the possibility of succumbing to paradoxical behavior when making marriage decisions. Precautions may be taken at the individual level—mainly by precommitting oneself—or at the collective level. Various institutional devices existing in the context of marriage decisions can be interpreted as a response to the existence of marriage paradoxes. Our approach thus stays within rational choice, but is applied at a higher level, recognizing that romance alone is not the best basis for making a rational marriage choice.

In an ideal world, where the individual and collective level reactions were complete, one would no longer observe any marriage paradoxes. Information and transaction costs of such individual and institutional responses prohibit that the paradoxes are completely eliminated. We thus empirically observe the simultaneous existence of both marriage paradoxes and reactions to overcome them.

NOTES

We are grateful to Gary Becker, Iris Bohnet, Mary Brinton, Isabelle Busenhart, Lilian Ghandchi, Sandra Keller, Felix Oberholzer and Hannelore Weck-Hannemann for helpful comments, without implying that they share our analysis. Margaret Stroebe and Wolfgang Stroebe of the department of social psychology of the University of Utrecht guided us through the psychological literature.

1. A different route is taken by economists critical of neo-classics, see, e.g., Ferber and Birnbaum (1977), Hannan (1982).
2. This is not the place to go into the reasons for this tendency, which quite generally applies in present-day economics. The phenomenon has recently been documented and analyzed by Mayer (1993), and an explanation is attempted in Frey and Eichenberger (1993).
3. See, for example, innumerable recent articles in the *Journal of Marriage and the Family, Demography, the American Sociological Review* and the *American Journal of Sociology*, or the extensive treatments by England and Farkas (1986), or, somewhat more narrowly focused, Oppenheimer (1988).
4. Neo-classical theory is flexible enough to come up with an *ex post* explanation, but then it gives up its claim to be able to provide empirically testable propositions. One such partial explanation is that marriage partners actually expect their marriage to be of a limited time period and that they only make believe that they form a partnership for life. While this argument may be consistent with the first and the second observations, it does in no way account for observations three and four. Moreover, it is inconsistent with the fact that many marriages end in very expensive divorces in terms of both monetary and psychic cost.
5. For an extensive analysis of various kinds of love, among them romantic love, see, for example, the survey by Clark and Reis (1988, 638–45) or Hendrick, Hendrick and Adler (1988).
6. This notion has been expressed forcefully by De Rougemont (1949) who sees romantic love as a culprit, blinding lovers to all practical considerations.
7. It is generally considered to show a lack of love, and to be incompatible with a romantic based marriage if, for example, a woman states as the reason for marriage that her partner is good at doing repairs around the house, while she is good at cooking.
8. Subjective probabilities can be interpreted in this context as the actor's awareness of objective probabilities. In the case of marriage, this is the perceived likelihood of divorce under the given circumstances, for example, in a marriage between two people of different color and class. In econometric research, these subjective probabilities are often substituted by the respective objective probabilities, see, for example, Ehrlich (1973, 1975) for research on crime.
9. It follows that in an ideal world of frictionless certainty, as often modelled in the economic theory of marriage (in particular, Mortensen 1988), i.e. in the absence of transaction-cost and information problems, matches are stable and socially efficient. Divorce is a disequilibrium phenomenon that occurs as a result of mistakes made. This model is a far cry from today's reality in industrial cities where about half the marriages end in a divorce.
10. In the canton of Zurich, for example, in 1987 only 5 percent of all couples who married signed a formal marriage contract.

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11. This article was written when Elizabeth Taylor married for the 7th or 8th time (according to how you calculate), and proclaimed that this marriage would be for life. She then filed for divorce before we had even received the proofs.
12. In 100 first marriages, 17 were divorced; in 100 marriages in which both spouses had previously been divorced once, 35 were divorced; and in 100 marriages where both partners had previously been divorced twice, 79 were divorced again.

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