

The Economics of Marriage

Shoshana Grossbard
San Diego State University

March 2007

- Lecture 1: An overview of major theories of marriage
- Lecture 2: Marriage markets, quasi-wages for household production, and female labor supply
- Lecture 3: Selected topics in the law and economics of marriage

Lecture 1: Theories of Marriage

- Economic analysis has been applied to marriage since Gary Becker's seminal articles in 1973.
- Basic principle: Marriages are like firms.
 - They are mostly non-commercial.
 - They nevertheless produce valuable goods
- Marriage here is used in a broad sense and includes partnerships similar to marriage.

Topics that can be studied in light of the economic analysis of marriage:

- Determinants of couple formation and dissolution
- Decision-making by couples (cooperative or separate). Examples of decisions:
 - What to consume?
 - Who works and how many hours?
 - How many children?
- Comparisons between behaviors of married and unmarried people (marital differentials)

Gary Becker's Theories of Marriage

- Theories that mostly deal with marriage (couple) formation and dissolution
- Two very different theories of marriage in Becker's writings on marriage:
 - Demand and Supply models and
 - sorting models of marriage.
- Three major publications of Becker on marriage formation and dissolution:
 - pioneering article was published in the *Journal of Political Economy (JPE)* in 1973 + follow-up article in 1974/ mostly on marriage formation
 - economic analysis of divorce that Becker co-authored with Robert T. Michael and Elizabeth Landes, JPE1977.
 - book *Treatise on the Family*, 1981

Becker on decision-making in marriage

- Early work on household allocation of time by Becker (1965, on allocation of time; earlier paper on fertility) assumes that a household (married or not) has ONE utility function and ONE budget constraint (often called **UNITARY** model)
 - Note that **Jacob Mincer** (1963) has a similar model of allocation of time, but less formal and less well-known. Mincer and Becker were colleagues at Columbia and their cooperation is an essential aspect of the opus of each one of them independently. See chapter by Becker in volume on Mincer that I edited (Springer 2005)
 - Becker and Mincer started the New Home Economics in the 1960s at Columbia
- Some of Becker's writings on determinants of couple formation and dissolution also lead to implications regarding decision-making in marriage.

JPE vs Treatise

- Within the period 1973-1981 Becker made substantial changes to the presentation of his theory of marriage.
- Most people who studied Becker on marriage have read the **Treatise** and not the 1973 article
 - Becker's *Treatise* is by far the most influential item ever published in the field of theoretical models of marriage. By September 2006, according to Google Scholar, the *Treatise* in its various editions (including a Spanish edition) was cited more than 3000 times
 - Becker's most cited item.
 - Mentioned by Nobel committee

What D&S models and optimal sorting models have in common

- Economic models are meant to resolve all or part of the three basic economic problems: allocation of factors of production, production, and distribution.
- Both types of model (1) deal with production;
 - (2) deal with the allocation of resources, the problem of allocation of resources being the dual of the problem of production;
 - (3) consider individuals as rational optimizers; and
 - (4) recognize the role of markets.

(this also holds for other models of marriage, including models by Apps and Rees, Chiappori, Lundberg and Pollak, etc)

Differences between Becker's two theories

I. in analyzing **allocation** of men and women into couples:

- Optimal sorting models more interested in sorting results and consider various sorting processes
- Only one sorting process in D&S models: a market mechanism that utilizes prices.

II. In analyzing **distribution** in marriage:

Distribution addressed by D&S models but not by optimal sorting models (note that the focus of two-person models of marriage is distribution)

D&S MODEL ONLY ONE THAT SIMULTANEOUSLY DEALS WITH PRODN, ALLOCATION, AND DISTRIBUTN

BUT D&S MODEL NEEDS STRONGER ASSUMPTION SUCH AS COMPETITION, AND EXISTENCE OF PRICE MECHANISM.

IN TURN, MORE ASSUMPTIONS NEEDED TO HAVE COMPETITION, INCLUDING HOMOGENEITY

PRICES IN BECKER'S THEORY OF MARRIAGE ARE MOSTLY IMPLICIT PRICES, especially in the case of distribution of gains of marriage (marriage surplus) between 2 partners

More on assumptions for D&S model

D&S MODEL NEEDS STRONGER ASSUMPTION SUCH AS COMPETITION, AND EXISTENCE OF PRICE MECHANISM.

IN TURN, MORE ASSUMPTIONS NEEDED TO HAVE COMPETITION, INCLUDING HOMOGENEITY

PRICES IN BECKER'S THEORY OF MARRIAGE ARE MOSTLY IMPLICIT PRICES, especially in the case of distribution of gains of marriage (marriage surplus) between 2 partners

- Advantage of using this model: parallels with other D&S models
- Strong assumption needed by optimal sorting models: complete heterogeneity: all people can be ranked according to a given quality

Basic competitive model of marriage in Becker

- This model appears in both 1973 and 1981
- Assume that
 - identical men and identical women are in the market for one another.
 - as a couple, a man and a woman can produce a composite good Z_{mf}
- This marital good exceeds the sum of the Z_f a woman could produce alone and the Z_m that a man could produce alone.
- The market then may determine how the total gain from marriage $Z_{mf} - Z_m - Z_f$ is subdivided between husband and wife.
- [graph]
 - if the number of men exceeds the number of women, i.e. the sex ratio exceeds one, the entire gain from marriage goes to women.
 - If the number of women exceeds the number of men, the entire gain from marriage goes to men.
 - If the number of men and women are the same, ?? Need for (collective or private?) bargaining

Examples of insights from Becker's simple D&S model of marriage

- The higher women's productivity in marriage, the more men are willing to pay
- One can infer that when men have more income they will demand more wives
- More advantageous marriage market conditions for women when number of men exceeds number of women, and vice versa

Second D&S model only found in Becker 1973

- choice between mates of different types: market for men of type i and women of type j
- supply and demand takes account of possible substitution between mates belonging to a continuum of different types.
- in these circumstances the equilibrium division of output in marriage can fall anywhere between the best division from a male point of view and the best division from a female point of view
- While Becker drops this model in the Treatise, he adds two more simple models w homogeneous partners, applying them to the analysis of polygamy
- Treatise also contains more optimal sorting models

Why second model only in 1973?

- In a 2004 email I asked Becker that question
In his emailed response, he explained:

“My *Treatise* was considered by me to be a complement to my previous work, not a substitute. So I did not go over everything in the earlier papers that I considered to be valid and sometimes even important.”

“I never abandoned my view that imputations to men and women are determined by a competitive marriage market - what you call the supply demand framework.”

Search models of marriage

- Pioneer search model of marriage: Michael Keeley's Phd dissertation (1974). He was a student of Becker
- dominate the economic analysis of divorce that Becker co-authored with Robert T. Michael and Elizabeth Landes (JPE 1977). Becker et al. test a number of predictions derived from BTM and search theory, such as the prediction that individuals with rare characteristics may be less attractive relative to people with more generally desired characteristics
- To the extent that a price mechanism lies at the basis of search models of marriage, search models complement D&S models. Analogy with search models in the labor market: workers look for highest possible wage; employers look for workers willing to work at lowest possible wage

Models of investment in human capital related to productivity in marriage.

- Same article presents concept of marriage-specific investments
- bridges between Becker's economics of marriage and his theoretical work on human capital (see Becker 1964
- Earlier work by economists considered part of the New Home Economics had also analyzed wives' investments in their husband's human capital, and vice-versa (Lee Benham 1974 and Michael Grossman 1976).

-

Beyond Becker

- Other D&S models in the tradition of Becker's D&S model
 - Grossbard (1976), about polygamy
 - Grossbard-Shechtman (1984) about value of time as a function of marriage market conditions (see also Grossbard-Shechtman and Neuman (JPE, 1988))
 - Chu and Siow (JPE, 2006) about marriage rates and age at marriage
- Two-person models including
 - Bargaining models such as McElroy and Horney (1981)
 - Pareto optimal models such as Apps and Rees (1988) and Chiappori (1988)
 - Separate sphere bargaining model by Lundberg and Pollak (1993)

Basic home production function in Becker

- $Z=f(t,x)$
- f : the production function
- t : time in production
- x : Commercial goods and services
- z : non-commercial “product” or “commodity” (Gary Becker)

- Examples of 'z' produced in households:
 1. Food production
 2. Health maintenance
 3. Love
 4. Children

model of allocation of time in labor and marriage (Grossbard 1984)

1. Utility Function

- (1) $U_i (l_i, h_i, s_i, h_j, x_i)$ where U: Utility

x: Commercial goods and services

s: Time for self, often called leisure.

l: Labor (If you go to work)

h: Household labor

i: maximizes utility function

2. Three uses of time

- (2) $T_i = S_i + L_i + h_i$ (explained on next slide)

Utility maximization:

individual i maximizes utility function (1) subject to time constraint (2) and Budget constraint

Time constraint: $T = s_i + l_i + h_i$

- T : time
- s_i : time for self, i.e. activity that only benefits the self and not the spouse
- l_i : labor (time at work)
- h_i : Household labor

More on utility function Utility Function

$$U_i (l_i, h_i, s_i, h_j, x_i,)$$

- h_i and h_j contribute to individual i 's utility.
- h is household labor. It is labor in the sense that (1) it is an activity that people have to put up with even though it is not their favorite activity (i.e. there is an opportunity cost) and (2) the activity benefits another person/organization who is willing and able to compensate the worker.

if i is husband and j is wife: $U_i (..h_j..)$ means that husband benefits from wife's household labor. Ex: wife Doing her husband's laundry. Gender symmetric: husbands may work for wives

s_i : Time for self (Leisure time)

h_j : potential or actual spouse

Difference between hh labor and leisure can be thin

- Example: a mother and father take their son to baseball practice, and both enjoy the activity: leisure or hh labor? It can be considered hh labor if spouse is willing to compensate individual to do it
- Ex: father likes soccer and mother does not . Mother takes daughter to soccer practice. Leisure or hh labor? Definitely hh labor
- Hh labor is when spouse performs an activity that benefits the other.

Public goods

A public good, is a good that is consumed, and is enjoyed by both partners.

- Household labor may include time that is used at producing 'Public Goods' and are also enjoyed by the partner.
- This production of a public good results in the activity of 'Z'

Budget constraint

$$\mathbf{I} + \mathbf{w}i\mathbf{l} + \mathbf{y}i\mathbf{h} = \mathbf{P}i\mathbf{x} + \mathbf{y}j\mathbf{h}j$$

- **LHS: income**
- **I**: non-work income (EX: rental income)
- **w**: wage
- **l**: labor
- **y_{ih}** :Earnings from household labor
- **y_i**: “quasi-wage” for household labor (It may not be monetary or material , could consist of psychic, spiritual, emotional benefits)
- **h**: hours of household labor
- **RHS: expenditures**
- **P_i** :Is the price of commercial goods
- **y_{jhj}**: payment for spouse j’s household labor; it is assumed that j gets an hourly rate of **y_j**:

Definition of Quasi Wage

- Material compensation for work in household production that benefits partner

Note that prices are not the only factors that motivate production

- Personal satisfaction
- Instincts
- Love and emotions: All decisions regarding production distribution, in all kinds of firms, commercial or not, can be approached with various mixtures of rationality and emotionality
- Leadership

Different kinds of marriage

1. Traditional marriage : $y_{jhj} > y_i^* h_i$,
wife works more in hh than husband
(could be that both spouses are in
the labor force)
 2. Egalitarian marriage: this is where the
value of work of $y_i h_i$ and the value of
 y_{jhj} cancel each other out.
- i: male and j: female

Equilibrium condition

$$\frac{MU_s}{MU_x} = y + \frac{MU_{hi}}{MU_x} = w + \frac{MU_{li}}{MU_x}$$

- MU: marginal utility
- $y + \frac{MU_{hi}}{MU_x}$: Total compensation and benefits per hour of own hh labor
MU_x MU from x
- $w + \frac{MU_{li}}{MU_x}$: total compensation per hour of labor in labor market

Marriage markets and quasi-wages

y

- These quasi-wages are established in markets. Effect of Demand and Supply
- One basic inference: higher opportunity cost of LFP if higher y due to more relative demand in marriage (see lecture 2)
- Other basic inference: compensating differentials (see Grossbard-S and Neuman 1988)