A Theory of Marriage Part I

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Abstract

Two assumptions made. One is that each person tries to do as well as possible and the other is that the "marriage market" is in equilibrium. One significant implication is that the gain to a man and woman from marrying compared to remaining single is shown to depend positively on their incomes, human capital, and relative difference in wage rates. Another is that men differing in physical capital, education or intelligence, height, race etc will tend to marry women with like values of these traits, whereas the correlation between mates for wage rates or for traits of men and women that are close substitutes in household production will tend to be negative.

1 Introduction

Two principles. One is that, since marriage is always voluntary, the theory of preferences can be applied, and persons marrying can be assumed to expect to raise their utility level above what it would be were they to remain single. Two is that since many men and women compete, a market in marriages can be presumed to exist. Each person tries to find the best mate, subject to the restrictions imposed by market conditions.

2 The Gain from Marriage

We consider two persons, M and F. Marriage occurs iff both of them are made better off. Following household behavior theories, we assume that utility depends directly not on the goods purchased in the marketplace, but on the commodities produced by each household. And those commodities are transferable among members of the same household (among married couples). We denote commodities in an aggregate form, Z.

We have the same old household production model. I'll just write down the basic equations.

$$Z = f(x_1, \cdots, x_m; t_1, \cdots t_k; E)$$

$$s.t. \sum^{m} p_i x_i + \sum^{k} w_j t_j = \sum^{k} w_j T + v = S$$

The conditions will be

$$\frac{MP_{t_i} \equiv \frac{\partial Z}{\partial t_i}}{MP_{t_j} \equiv \frac{\partial Z}{\partial t_j}} = \frac{w_i}{w_j} \tag{1}$$

If the kth member did not work,

$$\frac{MP_{t_k}}{MP_{t_j}} = \frac{\mu_k}{w_j} \tag{2}$$

where $\mu_k (\geq w_k)$ is the shadow price of time of k. Also,

$$\frac{MP_{x_i}}{MP_{t_j}} = \frac{p_i}{w_j} \tag{3}$$

These three equations will determine the allocation of time between the market and non-market sectors, when M and F marry. More time will be allocated to the market sector b M than by F if $w_m > w_f$ and if $MP_{t_f} \geq MP_{t_m}$ when $t_f = t_m$. Since they have no mate, singles generally allocate their time differently, they only allocate their time to satisfy equation 3. Single F are more likely to work more than married F and single M less than married M, the greater the percentage excess of w_m over w_f.

If Z_{m0} and Z_{0f} represent the maximum outputs of single M and F, and m_{mf} and f_{mf} their incomes when married, a necessary condition for M and F to marry is that $m_{mf} \geq Z_{m0}$ and $f_{mf} \geq Z_{0f}$. Thus $m_{mf} + f_{mf} \equiv Z_{mf} \geq Z_{m0} + Z_{0f}$.

M and F gain from marriage because t_m and t_f are not perfect substitutes for each other or for goods supplied in the market firms or households. In other words, when substitution is not perfect, single persons cannot produce small scale equivalents of the optimal combination of inputs achieved by married couples (for example, you cannot have children or love your wife/husband if you are single. You have to be married and have a mate to enjoy such commodities.). Consequently, the shadow price of an hour to t_f to a single M (the price he would be willing to pay for t_f) would exceed w_f, and the shadow price of t_m to a single F would exceed w_m. Both will be better off since M can buy an hour of t_f at a price of w_f and F can buy an hour of t_m at w_m, lower prices than they were willing to pay.

How about marriage between several M and F? The importance of own children is sufficient to explain why marriages of several men to one or several women are uncommon, since it would be difficult to identify the father of a child, where the mother is always identified. But marriage of several women to one man does not suffer from this defect, so it is more common. However, if the sex ration is about unity, each household having several women and one man would have to be balanced by households with only men. If we make an assumption of diminishing returns, the total output from two single male households and one household with three women and one man should be smaller than the total output from three households each with one man and woman. Consequently, monogamous unions become more common.

There is always a cost in marriage. So the gain has to be larger than the cost for the two to get married. The gain is greater the more complementary are the inputs: the time of spouses and market goods. Since I wrote above that those inputs are complementary in good part because of the desire to raise own children, then gain would be positively related to the importance of children.

The gain also depends on other stuff. Exogenous increase in v_m and v_f ((ex) property income), it does not affect the cost of getting marries, but the incentive to marry would rise. Empirically, the probability of divorce is negatively related to income. But the effect of a rise in wage rates alone on incentive to marry is less clear cut. Rise in wage rates will also increase the cost (cost of production will rise, and cost of marriage will rise (cost of marriage includes search and other marital costs, and wage increase means time getting more expensive), so its effect on net gain from marriage depends on the relative importance of own time in marriage costs and in production.

A rise in w_f relative to w_m will decrease the incentive to marry. The gain from substituting M's time in the market for F's time is greater the lower w_f is relative to w_m. Since married women do work much less than single women and married men work more than single men, an increase in the wage rate of women relative to men would decrease the incentive.

3 The Marriage Market and Sorting of Mates

This section is long and complicated. So only the conclusions.

People also differ in traits. In this case, traits can be intelligence, race, religion, education, wage rate, height, aggressiveness, tendency to nurture, or age. Each person sorts out the potential mate along with those qualitative (usually in economics it was quantitative) traits, and find an optimum person, that maximizes total household commodity output.

Thus the gain of marriage also depends on traits. This section's analysis says that an increase in the value of traits that have a positive effect on non-market productivity, market productivity held constant, would generally increase the gain from marriage. This is why less attractive or less intelligent persons are less likely to marry than are more attractive or more intelligent person.

How about the correlation of traits? Is the popular belief of more beautiful charming and talented women tend to marry wealthier and more successful men true? It is shown that a positive sorting of non-market traits with nonhuman wealth always, and with earning power usually, maximizes commodity output over all marriages. The economic interpretation is basically that non-market productivity and money income tend to combine multiplicatively, so that higher values of a trait have larger absolute effects when combined with higher income.

4 The Division of Output Between Mates

This section considers how the total output if a household gets divided between the husband and wife. Not important in my opinion.