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Explaining the Level of Bridewealth [1]

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Explaining the level of bridewealth in a given society is not the anthropologist's usual preoccupation. It is usually sufficient to note the existence of bridewealth, its form, characteristics, and the social processes associated with it and hope to have gotten the facts straight. There are, however, occasions on which differences in the amount of bridewealth paid (Gluckman 1950, Schneider 1964, Borgerhoff Mulder 1988) or a shift from bridewealth to dowry (Sharma 1980, Epstein 1973) lead to speculation on the factors that affect the level of bride-wealth.

There is general agreement that women provide a net benefit to the groups that receive them in marriage and that this net benefit justifies or explains the existence of bridewealth. This point seems almost obvious, given that women are valuable and that the transfer of goods to acquire women implies a preference for women relative to those goods. The logic of everyday economic rationality offers no alternative to the consideration of

bridewealth as an advance payment for services or as a *lease* of the service provider whereby wife takers experience benefits that exceed costs. For economists such as Becker (1981), Rao (1989), and Rajaraman (1983) it is self-evident that women constitute a capital asset whose anticipated future productivity is expected to have greater value than the bridewealth goods. Many anthropologists concur, at least in general terms, with these judgments (Schneider 1962, Spiro 1975, Goody 1972, Sharma 1980).

Almost universally, it is simply presumed that a wife provides a net benefit to the wife taker relative to her cost. There is no effort to compute the value of a wife and directly compare that value with bridewealth expenditures. This paper will present such a calculation. We shall see that in a hypothetical well-managed system in which cattle constitute bridewealth goods, the benefits of wifely services will be insufficient to cover the cost of their acquisition. In other words, by a benefit-cost criterion, wives are not worth the cattle expended on them. However, we also find that wives are more abundant and more useful to those who acquire them when their acquisition is less profitable, the usefulness of wives being inversely related to an economistic measure of benefit. These observations, when applied to a well-managed dynamic process, demonstrate the inapplicability of the benefit-cost perspective to the analysis of bridewealth.

The appropriate perspective for understanding bride-wealth under premodem conditions rests on a *demo-graphic growth* criterion that has no counterpart in contemporary capitalist economics. Bridewealth cattle operate as an instrument for the achievement of control over women. However, variations in the level of bride- wealth affect the extent to which ownership of cattle is advantageous relative to the possession of daughters, thereby affecting the power of those groups that are wealthy in cattle relative to those that are not.

One can certainly presuppose that when a person or group freely exercises its right to alienate one set of resources in exchange for another it does so with the expectation of becoming better-off. This is an elementary fact about voluntary exchange processes, viewed narrowly at the level of specific exchanges, and certainly it is true of the process of wife acquisition. Wives are essential to the growth of the corporate groups [2] that receive their services, producing the male children who constitute the inheritors of the wealth and "blood" of the group and producing daughters whose value will be realized in an indirect exchange for wives. Furthermore, the domestic productivity of wives becomes relevant as a complement of their reproductivity, because their domestic services, including various forms of food production, facilitate the growth and survival of children, increase the number of children that survive to adulthood, and, hence, increase *effective fertility.*

The acquisition of a wife by a corporate group is not at all the same as a contemporary dyadic bond of husband-wife. For the corporate group that acquires her a wife is part of a steadily increasing foundation for maintaining and augmenting the group. Wives produce wives by the exchange of daughters who are the products of wives. This demographic growth process is, of course, paralleled by the growth of the agnatic group for which it is instrumental. Although wives may be the source of a wide range of additional benefits, in general those satisfactions do not have social valuations measurable in bridewealth goods such as cattle. Only the production of marriageable daughters is subject to direct valuation in terms of bridewealth goods, making possible the direct comparison of the benefit of a wife's production with the cost of those services.

The social value of a wife's product must omit sons from consideration. First of all, the role of men in the reproduction process, while essential, is of little positive marginal valuation; the subtraction of one male from the group is unlikely to reduce the total fertility of its females. Sons are often essential as herders of cattle and may become a scarce resource in the maintenance of the herd that is a source of bridewealth and augments the growth rate of the group. However, in our simulations of demographic growth in cattle-holding agricultural groups (1990) herding capacity has not proved a constraint on the system. Although one could construct a configuration of assumptions under which herding constraints became binding and the number of sons became a factor in demographic growth, this possibility does not appear to be a matter of general significance.

The suggestion that the exchange value of sons is zero while that of daughters is positive may come as a surprise, but the greater social value attributed to sons by almost every culture is not germane to the determination of exchange value. Exchange values are realized only in a context in which people intentionally alienate rights to resources in exchange for rights in other re- sources and a number of persons compete for advantageous positions (see Bell 1991). Hence, even if males had positive marginal valuations (measurable in cattle), those valuations would not be embedded in exchange relations and would be completely unknowable. It is the peculiar property of capitalist systems that access to occupations is constrained so as to link market valuations (i.e., wages and salaries) with gender, ethnic, and other social hierarchies. It is a serious mistake to impose this special property upon other social formations.

The greater amount of blood wealth commonly required for the killing of a man compared with that for a woman cited by Schneider (1964) does not arise from a process of voluntary exchange; it is not an exchange-based valuation. The higher social value of males is an entirely ideological proposition, arising within male-dominated societies as a cultural construction of person categories of which "gender" is one of many manifestations. Schneider clearly understands this, but he is will-

2. We shall use the term "corporate group" to refer to the set of one or more persons who have rights to share in the use of, or "ownership" of, some set of scarce resources, for example, bride- wealth goods. These shares commonly differ among "person categories" that are defined by age, gender, and/or parentage. As we use the term, the "corporate group" appears to be little different from the "capital corporation" of Schneider (1964).

ing to conflate ideological imputations with market derivations. It is noteworthy, then, that he attributes the greater social valuation of men evidenced by higher levels of blood wealth to the fact that men are the managers of land. In those African societies no effort is made to construct management as a scarce resource, and there is a very high ratio of managers to workers. It is unlikely that the death of one of them would have a negative effect on the size of agricultural output. The same cannot be said of women, who commonly act as the "direct producers" in those systems.

The benefit of a wife is defined by her production of daughters, each of whom bears a social valuation measured in bridewealth, and additionally by the daughters of the wives obtained with that bridewealth. However, the expenditure of bridewealth reduces herd growth. Had those cattle remained in the herd and been allowed to grow at their maximal rate, they could have been used instead of the daughters produced by the wife to obtain future wives. It is the loss of additional future cattle that constitutes the opportunity cost of taking a wife. The benefit of a wife, measured by her production of additional wives in the future, and the opportunity cost, measured by the sacrifice in herd growth, must each be discounted to the present by reference to the relevant discount rate (defined below), and if the benefit-cost perspective is correct, in a well-managed process benefits should exceed costs.

In order to make this evaluation, we consider a dynamic demographic growth process of a wife-taking corporate group featuring a stylized precolonial African patrilineage. Our herd reproduction process is specified by reference to the Dahl and Hjort (1976) "normal" case, in which the herd would grow at an annual rate of 3.4% in the absence of bridewealth reductions. It is assumed further that the cattle associated with bridewealth are not subject to regular exchange processes except within the marriage market. This assumption is consistent with the characteristics of most cattle-holding groups in Africa. Although there may be a number of exchanges of other types, the systematic and regular social exchange of animals is presumed to be for "prestige" goods, especially women.

A particularly valuable characteristic of cattle is that under normal conditions their rate of growth exceeds that of wives, making it possible to give cattle to others in exchange for wives and still retain a herd that grows as fast as the human group. By giving out cattle one reduces the growth of the herd and by taking in wives one increases the growth of the group. Therefore, by proper management one can obtain a "steady-state" growth process in which the rates of growth of the herd and of the corporate group are identical and each generation of group members enjoys the same access to wives and cattle as its predecessors, implying a stable social structure. This steady-state growth rate defines a *natural rate of interest* that we use as the rate of discount to be applied to future streams of benefits and costs.

In order to examine the appropriateness of the benefit-cost criterion, it is essential that the system of wife acquisition be evaluated under conditions of effective management—where demographic growth and the growth rate of cattle are balanced and in a sustainable steady state. Otherwise, the failure of benefits to cover costs could be attributed to poor management. In order to test this presumption, we combine Dahl and Hjort's herd-growth scenario with our own previous analysis of steady-state growth processes (1990) and calculate the ratio of discounted benefits to discounted costs. As in our earlier work, we attempt to approximate precolonial African age-specific survival rates for children and adults, with the result that daughters reach the assumed marriage age of 18 with the probability of 0.68. Hence, if total fertility is 6, then *effective fertility* is only 4.08. The results indicate that the discounted effective reproductivity of wives will not exceed that of the bridewealth cattle unless wives have a total fertility of more than 10 children (of which 5 are daughters). Although increases in the level of bridewealth can be important in raising the effectiveness of wives relative to cattle, those increases are not sufficient to overwhelm the effect of total fertility.

When the level of effective fertility is held constant, increases in the level of bridewealth lead to improvements in the benefit of wives relative to their opportunity cost (see appendix and fig. i). This is not an obvious result. It is not surprising that the benefit of wives increases with bridewealth; this occurs because the products (daughters) of wives have the same exchange value as wives. Nor is it unexpected that the cost of wives increases with bridewealth not only in terms of the immediate loss of cattle but also in terms of the lost productivity of those cattle. Nevertheless, an increase in the level of bridewealth from 5 cows to 50, holding total fertility constant, has a greater effect on the benefit of wives than on their cost. It might seem likely, given that the benefit-cost ratio rises with increasing levels of bridewealth, that its ratio would rise above 1.0, making wives a "good investment," at some lower level of fertility, but this proves not to be the case. Only at unrealisti-

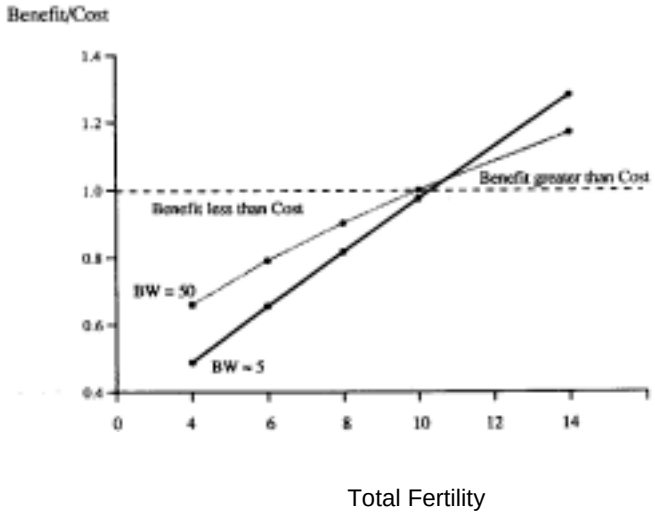

FIG. 1. *The benefit-cost ratio as a function of total fertility and level of bridewealth.*

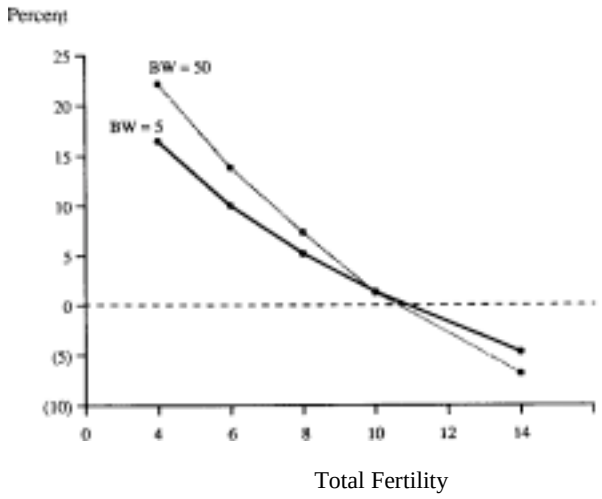

FIG. 2. *Percentage of foui-yeai-old cattle used for bridewealth as a function of total fertility and level of bridewealth.*

cally high rates of fertility do wives become a good investment, regardless of the level of bridewealth. At the same time, we know from our earlier work (1990) that wife takers are better-off when bridewealth is lower, other things being equal, both in terms of the rate of growth of the wife-taking corporate group and in terms of the number of wives per man. How, then, can we say that the benefit of wives increases while the receivers of wives are worse-off? This is a true anomaly in terms of the benefit-cost criterion.

But the anomaly does not end there. Figure 2 displays for each level of total fertility and level of bridewealth the percentage of four-year-old cattle that must be exported annually in bridewealth in a well-managed steady state. We see that requiring benefits to exceed costs has rather absurd consequences. If total fertility is 14, the growth of the herd would have to be supplemented by imports of cattle, *financed by the export of brides to the holders of cattle.* In other words, when wives are a good investment the maintenance of a steady state requires that they be used to accumulate cattle. It is only when wives are a poor investment that cattle become a positive factor in the accumulation of wives. Hence, the condition under which wives are capable of repaying their opportunity cost in cattle is a condition that is inconsistent with the existence of cattle as a form of bride wealth.

Since there is an enormous ideological commitment in economics and economic anthropology to benefit-cost notions, a demonstration of their inappropriateness is significant in itself. However, it is possible to go further and consider, at least for the case in which bridewealth is extracted from a growing herd, the factors that determine the level of bridewealth.

Within a given marriage market, women may differ in anticipated effective fertility. A strongly built, healthy-looking woman may convey greater capability and induce an offer of more cattle (Borgerhoff Mulder 1988), or, equivalently, one group of wife givers may show greater willingness to yield rights over its daughters than others in the same market [such as limiting the right of the daughters to divorce or allowing them to be inherited by agnates of their husbands), thereby increasing the daughter's (expected) effective reproductivity for her husband's lineage.[3] Given some case of this sort and fairly accurate estimates of the effective fertility of the many potential wives within a marriage market, is it possible for these differences in fertility to be reflected by differences in bridewealth? The answer is yes. Those groups that manage to obtain the more reproductive wives will experience more rapid demographic growth unless they are forced to sacrifice more cattle to obtain those wives. In recognition of the advantage of these women, their bridewealth costs will be bid up in such a way that the loss of cattle in obtaining them (reducing the rate of growth of the herd) exactly exhausts the advantage (the increased rate of production of marriageable daughters). Clearly, there is some greater cost for more productive wives that *exactly* eliminates the advantage of having them. In the simple case in which her future productivity is predictable, a woman who is expected to produce only two girls will receive two-thirds of the bridewealth received for the woman from whom three girls are expected. The consequence of this is that any corporate group should be completely indifferent to differences in expected reproductivity; differences in the level of bridewealth would fully compensate for differences among women. In the more difficult case, women differ not only in their average levels of reproductivity but also in the certainty with which that fertility will be delivered, as in the case in which one woman is more likely to seek divorce or is relatively less willing to supplement a deficiency in fertility with adoption. Here the differences in bridewealth that make wife takers indifferent to variation in reproductivity among women become complicated by differences among wife takers in the desire to avoid risk. Those who are willing and able to accept greater risk should experience more rapid growth in the long run. But the basic principle remains: The level of bridewealth will respond to differences in the expected fertility of women. A fortiori, if the kin of the bride retain all of the benefits of her fertility, as in the case of matrilocal-matrilineal marriage, no payment of bridewealth can be justified.

When we shift from differences in expected fertility within a marriage market to differences among entirely separate societies, the above discussion remains potentially relevant. Members of a society generally converge with the passage of time upon a particular configuration of rights in women, and the level of bridewealth that is associated with this modal practice will tend to be *not less than* the bridewealth required during the earlier period. Hence, a repetition of this experience in different societies would lead to higher bridewealth in societies

3. It is useful to define the term "effective fertility" as the offspring that accrue to the payer of bridewealth, separately from the total fertility of the woman. Hence, if a woman's children no longer belong to the lineage of a particular husband, her effective fertility

in which wives have higher effective fertility, as asserted by Schneider (1964). However, this expectation is greatly weakened by the many factors that would blur any simple pattern. First of all, we have shown (1990) that steady-state demographic growth paths are unchanged if size of herd and level of bridewealth are changed by the same multiple. This means that if societies are culturally unrelated, the level of bridewealth should be a function of size of herd and unrelated to the quantum of rights yielded to wife takers. [3] Cross-cultural analysis is complicated, however, by the fact of cultural interpenetration among societies. The most obvious cases are those of sociocultural domination of one society by another, as in the case of the Dinka relative to the Nuer and of a number of groups relative to the Maasai.

Secondly, social dominance affects the level of bride-wealth in another way: By effective use of bridewealth the lineage (or society) that holds wealth in cattle will be able to take more wives than it gives to others and gain demographic dominance over those others. For this to happen, however, there must be some other group that is so lacking in cattle, relative to some internal criterion, that it will sacrifice daughters and its own short-term demographic growth in order to accumulate them (see Cronk 1989, Bell and Song 1993), or cattle holders must have sufficient military force to induce this trade in lieu of capture. Such relations of clientage are the common consequences of warfare.

However, the relative demographic growth rates of wife-taking and wife-giving groups will depend on the effective fertility of wives relative to that of cattle and on the level of bridewealth. So, while it is true that a corporate group may seek more productive wives, it is also true that when wives are more productive daughters become more valuable assets for their fathers in ex-changes for cattle. Hence, there emerges a political struggle to determine the set of rights to be transferred with marriage and the level of bridewealth, a struggle that pits those who have daughters against those who have relatively greater wealth in cattle. Bridewealth is *an instrument for the articulation of dominance relations* between men who are rich in cattle and those who are not.

For example, the cheapness of Maasai wives and the dearness of Nuer wives in no way reflect differential effective fertility. Among the Nuer wives may leave their husbands after giving birth to two children, but any future children belong to the payer of bridewealth. Among the Maasai there is not only discouragement of divorce but also the levirate. In either case the payer of bridewealth can expect to gain the benefits of a woman's completed fertility. But with bridewealth at 50 head of cattle, the bilateral corporate groups that offer Nuer brides assume a more powerful position—being capable of "impoverishing" the kin of the groom. The Maasai, in contrast, with bridewealth at only 5 cows, gain power as wife takers relative to their neighbors who are poor in cattle.

The effect of herd size and of the politics of social relations will interfere with the tendency for bride-wealth to be correlated with the effective fertility of wives across societies. However, we have been assuming that these societies are culturally isolated. For African societies this assumption is treacherous. Given the centrality of bridewealth in social relations, it is likely that the practices of various groups have traveled along the routes of intertribal trade.

From a purely technical perspective, the acquisition of wives by cattle is equivalent to the acquisition of cattle with daughters. This is so even if the only reason for accumulating cattle is to increase one's effectiveness in the marriage market. That wives are a poor investment means simply that cattle are more effective in providing access to wives than are wives in gaining access to cattle, this being so for any reasonable level of effective fertility among women and for any reasonable level of bridewealth. The advantage of accumulation resides with those with cattle who seek to the accumulate brides and never other way.

Cross-cultural differences in the amount of cattle in bridewealth are not explainable by reference to the effective reproductivity of wives, as reflected in total fertility or in the rights of wife takers relative to women. On the contrary, if wife takers (those who are relatively rich in cattle) seek to exploit their herds within matrimonial circuits they are better-off to the degree that the benefit of wives is less than their cost in cattle. This is because all groups have daughters equivalently, but those who are well endowed with cattle are advantaged by the greater relative effectiveness of cattle.

Increases in the effectiveness of women improve the position of their fathers' groups relative to those of husbands. For this reason fathers have an interest in offering wife takers increased rights. The extent to which fathers are successful in extracting higher bridewealth on the basis of this strategy depends on the relative political strength of the relevant forces, given the constraints on level of bridewealth imposed by size of herd.

The economic logic that we learn from contemporary society does not apply to bridewealth regimes, and consequently the most commonly offered explanations of bridewealth are simplistic and misguided. The basis of any observed configuration of rights and bridewealth levels is rooted in a culture history about which we usually know little. We can only hope to understand the underlying social processes.

APPENDIX

A woman's total fertility is *B*, realized over a fertility period from marriage age, A to age 39. Half of these children are female. On the basis of a postulated set of age-specific death rates, we calculate a probability of

surviving to marriage age, S. Hence, the number of marriageable daughters born per year during the fertility period is $(0.5BS)/(40 - A_m) = N$, and the present value of a wife's reproduction of daughters is

$$V = \sum_{t=A_m}^{39} \frac{N}{R^t},$$

where R is the discount rate (the growth rate of the herd in a steady state).

After A_m years a woman's daughters begin to reproduce in exactly the manner that she does. Therefore, summing all future generations of offspring, we obtain

$$\Omega = V + V \sum_{t=0}^{39} \sum_{i=1}^{\infty} \frac{N^i}{R^{t(A_m+i)}},$$

where Ω is a measure of the wife's production of daughters, daughters of daughters, and so on.

Suppose that K cattle are retained at time $t = 0$ instead of being used for bridewealth. The calving period is from ages four to ten, with a frequency of 0.35 in the Dahl and Hjort (1976) "normal case." Hence, after four years, $t = 4$, the number of four-year-old cattle produced by the K cattle is $K(S_4) = K[0.35(1 - d_0)(1 - d_1)(1 - d_2)(1 - d_3)]$, where d_i indicates age-specific death probabilities. In year five, a new set of four-year-olds arrives that is the product of the K cattle that survived into year two: $(1 - d_4)K(S_4)$.

Then, if we define

$$L_j = \prod_{i=4}^{i=j} (1 - d_{i-1}), \quad j = 5, 6, \ldots, 10, \quad L_4 = 1$$

as the survival rate of a cow to age j, given that it has survived to age four, the present value of the first generation of cattle of age four, born to the original K cattle, is

$$C = \sum_{t=4}^{10} \frac{L_t K S_4}{R^t}.$$

The present value of the second generation is

$$\frac{CS_4}{R^4} + \frac{L_5 CS_4}{R^5} + \cdots + \frac{L_{10} CS_4}{R^{10}} = \frac{C}{K} K \sum_{t=4}^{10} \frac{L_t S_4}{R^t} = \frac{C^2}{K}.$$

For the jth generation of cattle stemming from the original K cattle we have

$$\frac{CS_4^{j-1}}{R^{(j-2)4+1}} + \frac{L_5 CS_4^{j-1}}{R^{(j-2)4+2}} + \cdots + \frac{L_{10} CS_4^{j-1}}{R^{(j-2)4+1}} = \frac{CS_4^{j-1}}{KR^{(j-2)4}} K \sum_{t=4}^{10} \frac{L_t S_4}{R^t} = \frac{C^2}{K} \left(\frac{S_4}{R^4}\right)^{j-1},$$

and this holds for an indefinitely long series of generations. The aggregate value of cattle summed over all $j = 1, 2, \ldots$ becomes $CC = C + C^2/K[1 + S_4/R^4 + (S_4/R^4)^2 + \cdots + (S_4/R^4)^j + \cdots] = C + C^2/K[1/(1 - S_4/R^4)]$. Since

$$C = K \sum_{t=4}^{10} \frac{S_4 L_t}{R^4},$$

so that

$$\frac{C^2}{K} = K \left(\sum_{t=4}^{10} \frac{S_4 L_t}{R^t} \right)^2,$$

the opportunity cost of bridewealth cattle is

$$CC = K \sum_{t=4}^{10} \frac{S_4 L_t}{R^t} \left[1 + \left(\sum_{t=4}^{10} \frac{S_4 L_t}{R^t} \right) (1/[1 - S_4/R^4]) \right],$$

and the ratio of discounted benefit *measured in cattle*, $K\Omega$, to the above measure of opportunity cost constitutes the benefit-cost ratio.

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