Characteristics of Bridewealth Under Restricted Exchange

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ABSTRACT: This paper extends the implications of an earlier simulation of demographic growth of an African patrilineage (Bell and Song 1990), where cattle are used as bridewealth and where the system adopts a balanced growth mode that preserves the number of cattle and wives per man over time. This demographic simulation builds upon a cattle growth simulation by Dahl and Hjort (1976) and integrates that simulation into a demographic growth process.

In the context of this model of demographic growth there are factors leading to the equalization of cattle holdings that differ from those suggested by Goody (1973). The model also allows us to examine the effect of variations in the size of herds on the level of bridewealth. Finally, by calculating the value of wives (measured in cattle) relative to the cost of wives (bridewealth), it is shown that the economic process is fundamentally inconsistent with neoclassical concepts of "optimal investment" and that the marxian concept of exploitation cannot be applied to women when cattle are subject to restricted exchange. The paper demonstrates the effectiveness of a formal analysis of exchange processes, while pointing out the inappropriateness of imposing marxian or neoclassical economic models upon noncapitalist formations.

KEY WORDS: Bridewealth, Africa, demographic growth, simulation

I. INTRODUCTION

The study of African societies has led to a number of important generalizations regarding the nature of descent groups, marital alliances and marriage payments. Goody and Tambiah (1973) present a number of these generalizations as they relate to bridewealth, its function, use, variability and so forth. Some of these generalizations have been challenged by reference to apparently contradictory ethnographic findings for African and other societies (see Comaroff 1980). In this paper we shall reconsider several of Goody's arguments from a purely formal perspective in order to reveal the underlying analytical meaning of those arguments and in order to demonstrate more fully their analytical complexity.

A first point raised by Goody is that in societies that practice polygyny, bridewealth tends to mitigate economic inequalities. However, this argument implies a strong preference for wives relative to the accumulation of cattle among decision-making elders. It implies that they will exploit the

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herd in order to accumulate wives for themselves and sacrifice the future development of the lineage. While some groups may do this, doing so is not inherent in the use of cattle for bridewealth. We shall consider other processes that may have the effect of equalizing per capita cattle holdings.

Secondly, Goody (1973) claims that "standard [bridewealth] payments seem to fluctuate in relation to the cattle population, so that an increase in the herds does not lead to cheap marriages" (p. 12). However, the meaning of this statement depends on the nature of the market for cattle. If it is "restricted" in the sense that cattle are exchanged only for wives,' then it can be argued that the value of cattle is defined by the level of bridewealth and, hence, cannot be "cheap" in the contemporary sense of the term simply because cattle are abundant. Since Goody did not make any specific assumptions about the market for cattle, there is no reason to claim that he is in error. Rather, we argue that the meaning of his statement is conditional on such assumptions. By considering the effect of fluctuations in the size of herds in the context of a model of lineage production and reproduction where the market for cattle is restricted, we can demonstrate the nonapplicability of conventional neoclassical notions of supply and demand to this problem.

Our final point is related to the second: If the size of the herd is assumed to be given, we would like to know how changes in the level of bridewealth affect the net value of a wife (net of her cost in cattle). This is quite a different matter from the cheapness of a marriage, but not entirely unrelated, as we shall see. By "net value of a wife" in a society in which cattle are exchanged only as bridewealth one must mean her net value measured in cattle to the lineage that has expended cattle to obtain her services. The presumption that she should be "worth" more than she costs is shown to be false.

It is our expectation that this paper will be perceived to be a constructive elaboration on issues raised on pages 12 and 13 of Goody (1973), the section entitled "Variability."

II. SIMULATING THE MARRIAGE PROCESS

In a recent paper (Bell and Song 1990) we have presented a series of computer simulations of the demographic growth process of an hypothetical polygynous African patrilineage. This patrilineage is cattle-raising, but primarily agricultural, where agriculture is "female dominated." Cattle are assumed to have the characteristics of the Dahl and Hjort (1976) baseline herd, growing at 3.4 percent per annum in accordance with their "normal case" scenario. Only four-year-old cattle are deemed eligible for bride-wealth and some percentage of those cattle are annually extracted from this herd in exchange for wives.

In our "standard case" women marry at age eighteen and have a total fertility of 6 by the time that they reach the age of 40. In comparison cases, their fertility is 4, 5, 7 and 8; and their marriage age is 16 or 20. Finally, bridewealth is 20 cattle for the standard case, corresponding to the middle level of bridewealth for African partrilineages, according to Schneider (1964), with comparison cases of 10,15, and 30.

It is not claimed that any of these many sets of assumptions are descriptive of any society. Our objective is to examine the consequences for the system as a whole of systematically changing one variable at a time, a form of controlled experiment. Furthermore, ethnographic observation is always short-term relative to the 10 generations, 250 years, for which these simulations apply. The real world of colonial and world system intrusion makes it is difficult to examine African systems under stable environmental conditions, even for short periods. Hence, this paper considers issues that properly cannot be addressed except in the abstract world of simulation.

The Dahl and Hjort models of herd growth address problems ot stock management among pastoralists, whereas our primary interest is in agri-curalists who also herd cattle. Moreover, the agriculturalists that we initially had in mind were West African, whose cultures differ fundamentally from those of the east African pastoralists. Hence, the use of Dahl and Hjort herd-growth scenarios can be said to be inappropriate. However we proceed with those models because they are presenled as simulation models that we can replicate exactly without introducing arbitrary assumptions of our own. In any case we are interested in characteristics of social exchange processes for which the specific properties of herd management are not relevant.

Nevertheless, we have reason to believe that our model could apply to some east African societies. Hakansson's (1989) discussion of family structure and bridewealth in eastern Africa considered three types of family structure: centralized, intermediary and decentralized; three types of environments that differ in terms of the productivity of agriculture and various levels of bridewealth. Relative to those categories, our model requires that obligations among agnates for the delivery of bridewealth cattle are fairly dispersed, that agriculture is productive and that bridewealth is high. These requirements seem to imply societies that feature centralized or intermediary levels of family structure, together with good agriculture In Hakansson's sample of 17 societies in east Alrica only two societies appear to fit this description, the Luo and the Vugusu. However, both of these societies have high per capita holdings of livestock, relative to our "standard case."

Our model is intended to capture the behavior of demographically strong kin-groups or societies, not just any groups chosen arbitrarily. In particular if we have a simple world, lacking in war, drought or plague, then it is reasonable to assume that the social norms governing the use of bridewealth within demographically strong groups would assure that the number of wives and cattle per man will be unchanged (if not improved) from one generation to the next. Each generation does for the next as it would have its forefathers do for it—a "Golden Rule" policy. This is not so unrealistic an assumption as first appears. If a group is "demographically strong," it must have a set of culturally embedded rules such that it does not manage its herd and the wife-acquisition process in a way that leads to a loss of per capita wealth over time. Furthermore, it can be shown that a group cannot greatly deviate from this "Golden Rule" policy without encountering, in one direction, an unmanageable surplus of cattle, or, in the other direction, encountering a lower rate of demographic growth that makes it vulnerable to domination by other groups. Hence, when we observe groups that have maintained their presence within an environment where demographically strong groups systematically absorb others, it can be inferred that their management of bridewealth (on the whole) did not deviate greatly from the Golden Rule.

We had anticipated correctly that, given the assumptions of the model, the Golden Rule policy would have a very simple form that could plausibly be encoded into the culture of a group: Each year a fixed percentage of four-year-old cattle should be exchanged for wives. The collectivity over which these observations are relevant may be large, so that marriage payments occur with some frequency and regularity. However, in the absence of such regularity, it is presumed that the group seeks to maintain some culturally defined acceptable ratio of men to cattle. Doing so implies specific average rates of bridewealth depletion. The appropriate percentage of cattle to be used for bridewealth depends on the size of the herd, the age of marriage for women and their fertility, and the number of cattle exchanged for each wife. For our standard case the lineage should use 1 3.01 percent of four-year-old cattle during each year.[2]

How does the model work? Suppose that the growth rate of the herd would he 3.4 percent per annum, if cattle were not used for bridewealth; and let "alpha" be the percentage of four-year-old cattle expended each year. Then, when alpha is small the herd grows rapidly and the number of four-year-old cattle eventually becomes quite large, enabling the lineage to obtain many wives each year in spite of the small alpha, so that eventually the lineage also grows more rapidly. The problem is that the herd grows more rapidly than does the population, leading to an unmanageably large herd Finding a feasible Golden Rule path means finding precisely the alpha, such that the rate of growth of the herd equals the rate of growth of the lineage.

111. BRIDEWEALTH AND THE MITIGATION OF INEQUALITY

By judicious use of a growing herd the lineage will be able to obtain more wives than it gives in daughters. In the standard case scenario, where the initial cattle to population ratio is one to one, bridewealth is 20 cattle, women's age at marriage is 18 and their total fertility is 6, the lineage enjoys a 9 percent increase in wives relative to the case of pure daughter exchange. However, this means that there must be some groups that take fewer wives than they give as daughters.

Note that a lineage that is rich in daughters but poor in cattle could rationally adopt a temporary policy of taking fewer wives and allowing the cattle-compensated departure of daughters to increase the size of the herd. Eventually, this lineage will be richer in cattle than in population and by switching over to a Golden Rule value of alpha it could enter the marriage market with increasing force, becoming a net wife-taker. This is certainly one of the ways that the use of bridewealth by a dominant group and the strategic acceptance of subordination by another group could lead to the eventual dissipation of the dominance-subordinate relation. However, this "dissipation" is not the result of any reduction in the cattle-per-man ratio in the "dominant" group, as Goody (1973, 14) assumes, but from the increased cattle per man in the other group.

If it is true that there is special social value to the accumulation of cattle, we may present at least two reasons for per capita cattle ownership to become similar among groups (lineages or societies). First, those who have few cattle have an incentive to make special sacrifices in the short run to build up their herds, since doing so is useful to the process of wife-acquisition over the long run (thereby increasing the demographic strength of the group) and because of the pride of ownership that large herds provide, as discussed above.

On the other hand, it is possible that all groups, including those with relatively large herds, seek to increase the size of their herd for reasons of power and prestige. If so, each would tend to reach a herd size that corresponds to the maximally manageable herd. This herd could be fairly small in certain agricultural societies where ecological or manpower constraints argue against large herds and much larger in other societies. However, within a given cultural and ecological domain, one would expect that groups would have similar cattle-per-man ratios. Bridewealth payments would affect this process only by slowing the rate at which herds could reach such maximal sizes.

Cronk (1989) describes the Mukogodo, a pastoralist group in Kenya, which appears to be in a transition from an insufficiency of cattle. This group has only recently shifted from hunting and bee-keeping to pas- toralism; and because of their recent past history as cave dwellers and their continued bee-keeping, as well as their currently low cattle-per- person ratio, they have low status within the surrounding marriage market.

And because of this lower status they must pay a higher bridewealth than is paid to them for their daughters. However, they follow a two-factor strategy for improving the relative holdings in cattle. Not only do they require their sons to obtain wives on the basis of wage earnings (thereby hoarding their cattle), (hey also manage to produce an imbalanced sex ratio in favor of girls who can then be exchanged for cattle. In this circumstance all of their daughters marry while some of their sons do not.

Since 46% of Mukogodo women marry non-Mukogodo men, it is peculiar that Cronk explains this phenomenon as a strategy of favoring the sex that has the greater reproductive potential. Much of the demographic benefit of that reproduction accrues to other societies. From the perspective of our model, the issue is more directly one of cattle accumulation with a "temporary" sacrifice in the group's own demographic growth. It can be presumed that the Mukogodo seek to achieve a cattle-per-person ratio similar to that of the Maasai or the Samburu, whose social and economic characteristics are esteemed in the region, even if doing so requires a short-term loss in population growth.[3]

III. THE AVOIDANCE OF CHEAP MARRIAGES

The common contemporary understanding of the idea of "cheap marriages" is based on the relative supply and demand for commodities. For example, if the herd suddenly increases in size, we would expect that the monetary value of cattle (the price of "beef") would fall. Hence, if cattle were used as bridewealth, such a reduction in the price of beef would imply a reduction in the monetary value of brides, unless the number of cattle required in bridewealth were increased. In this way varying the bridewealth payment would avoid "cheap marriages." However, if there is no general market for cattle and cattle are socially exchanged only for wives, this familiar neoclassical supply-demand story does not apply. In this case the exchange value of the herd can be defined only by reference to the number of wives that can be obtained by its use as bridewealth. And, if the level of bridewealth is unchanged, marriages cannot be "cheapened" simply because there are more cattle available. On the contrary, one can imagine a fierce battle among kin-groups, pushing cattle into the kralls of their neighbors as they seek in vain to acquire the available brides. Goody's observation that the level of bridewealth may vary inversely with the size of the herd is not in question. If we abstract from the possibility of warfare, and other forms of involuntary transfer of women among groups (White and Burton 1988), then an increase in cattle-based demands for wives should be expected to affect the level of bridewealth. Our problem is to understand the relationships that apply in this form of economy.

In our standard case, we found that the lineage seeks a 9 percent increase in wives relative to their own supply of daughters. However, if most kin-groups have the same objective and seek to be net wife-takers, it is by no means clear that this objective can be accommodated by voluntary exchange. There is likely to be a shortage of wife-givers and/or groups that will accept, temporarily, the net wife-giver position, so that if bridewealth is allowed to vary, those who have daughters can be more demanding of those who want them by insisting (among other things) on additional cattle.

Although the neoclassical story does not hold, one can specify precisely within our model of demographic growth the effect of fluctuations in the size of herds upon the level of bridewealth:

Assume that there was a prior state of the world in which the availability of wives was roughly equal to demand. And suppose that this stable world was disturbed by a calamitous reduction in the size of all herds, say, by 50 percent (perhaps due to disease). Then, it can be shown that in order for the effective demand for wives to remain unchanged from before (and hence equal to an unchanged level of supply), the level of bridewealth must be reduced by exactly 50 percent. Such an adjustment gives us a new Golden Rule path in which the wives/man ratio is unchanged.[4]

However, this new solution leads to a Golden Rule in which the cattle-per-man ratio is permanently reduced by 50 percent. In order to regain the earlier relative herd size, a kin-group must reduce its current demand for wives in order to generate additional herd growth (in the manner of the Mukogodo) and only later adopt a larger Golden Rule value of alpha. In this case, there is a temporary reduction (below the Golden Rule level) in the number of cattle offered for wives and consequently a greater than 50 percent reduction in the cost of wives, so that the smaller amount of cattle that is offered in bridewealth will still be sufficient to absorb the available brides. Once herds have been restored, the higher initial level of bridewealth could be reestablished along a Golden Rule path.

We see, then, that the level of bridewealth increases when herds are large because there is simply a given number of brides available to be rationed among groups, not because marriages are cheap in the conventional sense of the word. Goody's remarks would apply properly to those many cases where cattle are commonly exchanged for susbsistance goods.

V. **THE VALUE OF A WIFE**

In order for a patrilineage to gain rights to the productivity and reproductivity of a wife it must expend bridewealth cattle. These cattle are normally in the beginning stages of their fertile period, so that exchanging them for a wife implies a loss of cattle and a loss of the reproductivity of those cattle. Our herd reproduction process is specified by reference to the Dahl and Hjort (1976) "normal" case, where the herd would grow at an annual rate of 3.4 percent in the absence of bridewealth reductions. Lower rates of growth would apply to herds from which bridewealth is extracted. In any case, these rates of herd growth (considered along Golden Rule paths) can be considered to be the natural rates of interest for a lineage "economy."

Although wives perform many useful functions, we shall be particularly concerned with their capacity to produce daughters who become exchangeable for cattle at marriage age. The purely uxorial functions of a wife accrue largely to the husband, whose attitude toward the disposition of lineage cattle need not govern their allocation. From the perspective of an agnatic group whose cattle are used in her acquisition the wife's value can be measured largely by reference to the number of cattle that her daughters bring at marriage age. (Her sons have no exchange value.) By saying this we do not suggest that the group seeks wives for the sake of increasing the herd. On the contrary, the herd would be much larger were it not reduced by bridewealth. It is more plausible to claim that the lineage wants sons.

However, wives are the source of sons, and cattle are the source of wives. So, we should like to know whether or not we would have more wives later (and hence more sons) if we take fewer wives now, allow the herd to grow, and use the larger herd for taking wives later, as opposed to taking wives now and having those wives produce daughters who generate cattle that are exchanged for wives. This appears to be a straightforward problem in "optimal investment." It can be solved by measuring the wife's reproduction of married daughters, a future prospect that must be discounted by the natural rate of interest. In conventional terms the wife is a good investment if the discounted value of her product (measured in cattle) is greater than the value of the bridewealth cattle expended for her. It is evident that much of the value of wives is neglected in this calculation. However, the same is true of cattle, whose supply of milk and meat (from male cattle) is also neglected. Fortunately, the issues to be demonstrated by this exercise do not depend on the relative importance of these omitted sources of value. The mechanics of our calculation of value are as follows: Since each wife-gives birth to three girls (and three boys) from age of marriage to age 40, then when marriage age is 18, the number of girls per year is 3/22 or 0.13A36 per year. However, of these only 52.15 percent will reach marriage age, given our assumed age-specific survival rates. Hence, a wife will produce 0.0711 marriageable girls for each of her 22 fertile years. This output must be "discounted" by the natural rate of interest that applies to the particular case (which is 1.53 percent per year in the standard case).

Remember that all calculations require that the group is on a Golden Rule path that preserves a particular wives and cattle per man ratio for each generation. Hence, if marriage age changes, then there is a change in the number of cattle extracted each year and hence a change in the natural rate of interest, as well as a change in the number of years that a wife is fertile. These calculations can be carried out for a number of alternative specifications regarding marriage age, the number of cattle required in bridewealth, the fertility rates of wives and the size of the herd. Characteristics of the calculation for defining "value of wife" are contained in the Appendix. The results are shown in Figure 1.

Figure 1 presents the discounted value of a wife's reproductivity relative to the bridewealth expended for her. When value equals "I," she is worth exactly that amount of cattle. The largest value indicated here is 1.0782 for the case where bridewealth is 20 cattle, the wife's total fertility is 8 and age at marriage is 16 (at the top of the figure). This means that the wife is worth the equivalent of 21.56 cattle, a surplus of 1.56 received by the kin-group of the husband. The smallest value shown is 0.9386, where bridewealth is 15 cattle and total fertility is only 4. In this case a wife is worth 0.9386 of her bridewealth, or 14.08 cattle, a loss of 0.92. However, the upper extreme point could be extended if marriage age were reduced below 16 or if bridewealth were increased above 20 cattle. Similarly, the lower limit would shift to the left if bridewealth were reduced below 15 or marriage age increased above 18 and so forth.

The vertical axis measures the rate of growth of the herd in the context of alternative Golden Rule paths; and the multiplicity of linear relations within the figure enable us to extrapolate or interpolate the effect of parameter values that were not calculated. Each line in the figure shows the effect of changing a single variable, holding two variables fixed. For example, from the point labelled "standard case" the line that moves upward and downward (labelled "Fertility") shows the effect of alternative levels of total fertility, holding bridewealth at 20 and marriage age at 1 8. The line that moves from right to left measures alternative levels of bridewealth, other things equal. There is also a more slanted line through the "standard case," labelled "WMA," that shows the effect of different women's marriage ages when bridewealth is 20 and fertility is 6, as well as lines that are parallel to it that show the effect of marriage age when the level of bridewealth is 15 or 30. Any of these lines could be extended to show the effect of additional values of specific parameters.

The decision-space displayed in Figure 1 is impressive in its formal structure; and it provides several surprises relative to the kinds of relationships that are common in capitalist processes. First, we had expected that these results would be useful as an introduction to a discussion of marxian exploitation of women by the lineage of the husband. The structural relationship between the wife and the kin-group of the husband appears to correspond to that of the worker in relation to the capitalist in the sense that the product (the sons and daughters) of the wife is expropriated entirely by the group and the group compensates her kin with a payment

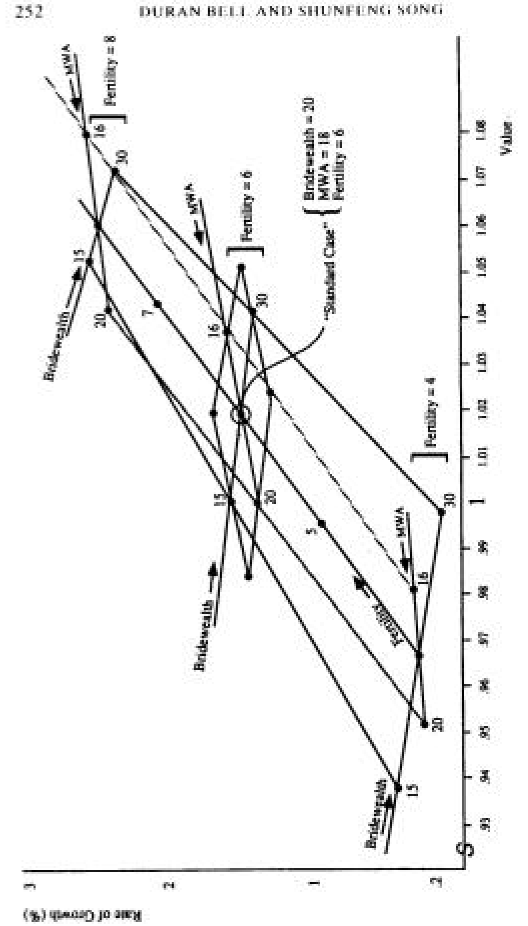

Fig. 1. The value of a wife as a function of alternative specifications.

that corresponds to a wage. From this reasoning exploitation would be demonstrated by showing that wives produced a surplus for the husband's group (measured in cattle) over and above the bridewealth required to secure her services. The results for the standard case support this expectation; that is, women appear to have a value that exceeds their cost. However, this apparent "surplus value" is greater when the cost of her services is greater. This is shown by the "Bridewealth" line that measures the effect of higher bridewealth levels as one moves to the right. From a marxian perspective this makes no sense. A woman must be more severely exploited when her wage is lower, other things equal. Hence, "value" in Figure 1 cannot be related to surplus value.

Furthermore, having a high net value for wives relative to cattle does not appear to be related to circumstances that are good for the husband's group. On the contrary, when bridewealth is reduced from the standard case to 10 cattle and the wife's value drops to 0.9698, the group experiences a higher rate of demographic growth and enjoys more wives and cattle per man than in those cases where the level of bridewealth is higher and wives are more valuable than bridewealth cattle.

All of the puzzle pieces fall into place, however, once we note again that there is no general market for cattle in this model. Cattle are exchanged only for wives. Hence, there is no particular reason for wives, as a form of capital, to be more or less valuable than another form of capital, except as a special case. This means that we do not have a problem in optimal investment of the neoclassical form. Such a problem has no meaning for this economy — much like the issue of "cheap marriages." Since cattle have no generalized value in exchange, the value of wives measured in cattle does not provide a generalized value of wives. We can say only that cattle cannot be maintained without wives who provide sons to herd cattle; and that wives cannot be obtained without the cattle to purchase them. The "value" of wives, or of cattle, in the contemporary capitalist sense of the term is irrelevant.

IV. REMARKS

This paper has emphasized the dangers of imposing marxian or neoclassical economic notions on the analysis of traditional African lineage exchange processes. We have accomplished this by presenting the cattle for wives exchange process from a perspective that is independent of those paradigms.

We have shown that the absence of a general market for cattle alters fundamentally the meaning of bridewealth in the African lineage economy. However, introducing a more general market for cattle into this economy is no simple matter. In Bell and Song (1990) we made a small step in this direction and noted the dramatic consequences for the social system of very marginal world system intrusions. However, in that paper we did not allow the world system to change the basic structure of action. Since the capitalist system centers on the accumulation of capital, not on the accumulation of endowed men (i.e., men who hold social wealth in the form of cattle and women), the integration of these two systems is problematic and remains unaccomplished. Moreover, it is clear that the solution, if it exists, constitutes more than a footnote to the discussion presented here.

We have shown that bridewealth may reduce inequalities in intergroup holdings of cattle and wives. Or it may not. In any case, the tendency for reduced inequality may be found in processes quite different from those presumed by Goody (1973). Further, we have shown that large herds can lead to a scarcity of brides and higher levels of bridewealth, but they cannot lead to "cheap marriages" in the contemporary sense of the term in the absence of a market for cattle. And, finally, the absence of a market for cattle also frustrates our effort to define the marxian exploitation of women by the kin-group of their husbands.

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NOTES

The emphasis here is on "exchange." It is not relevant to these considerations that cattle may he loaned, given as gifts, slaughtered ceremonially and so forth. Although these various uses of cattle may affect the exchange value of cattle relative to wives by reducing the size of herds relative to the supply of brides, their effect is not equivalent to allowing cattle to he exchanged systematically for subsistence, and other, goods.

1 This percentage differs from that in Bell and Song (1990), due to two changes in the computer program: (a) The specification of W(O.O) = 15 was changed to W(0,0) = 19 in order to obtain an initial female population of 500; and (b) DO 150J = 18.40 was changed to DO 150.1 = MWA, 40 so that the fertility period would vary with time of marriage. See Appendix to Bell and Song (1990).

3 It is not suggested here that Mukogodo population growth is negative; only that its rate of increase is being reduced.

4 There is nothing obvious about this result. However it has been demonstrated in our simulations of the system that a doubling of population and of cattle (preserving the number of cattle per man) has no effect on the number of wives per man or any other system variable and that a reduction in hridewealth by 50% and a corresponding reduction in the number of cattle has no effect on the effective demand for wives (the number of wives per man remains unchanged).

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APPENDIX

On the value of a wife:

Assume that a wife has a total fertility equal to B, measured over a fertility period that begins with date of marriage and ends at age 40. Since we are concerned only with the birth of daughters, the relevant parameter is 0.5B. The number of girls born each year during the fertility period is 0 5B/(40-MWA) where MWA is marriage age.

Denote by S the survival rate of females to marriage age, calculated by:

$$S = \prod_{I=0}^{MWA - I} (l\text{-}dd(i)),$$

where dd(i) is the death rate at age i. Let the steady-state growth rate of the herd be r. This rate is the "natural rate of interest" by which we compute the "present value" of an unborn girl evaluated at her marriage age.

The value of a wife can be computed as the sum of girls born over the fertility period, who survived to marriage age, evaluated at the time of their marriage and discounted to the present at the rate R = (1 + r). That

$$V = \sum_{I=MWA}^{39} \frac{0.5\,BS}{(40\text{-}\ MWA)R'}$$

If V is larger than one, the present value of a wife exceeds her cost. Although the level of bridewealth does not appear explicitly in this calculation, it is embedded in r, the Golden Rule rate of demographic growth.