Social Structure and Fertility: An Analytic Framework

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Economic Development and Cultural Change, Vol. 4, No. 3 (Apr., 1956), 211-235.

Stable URL:
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Economic Development and Cultural Change is currently published by The University of Chicago Press.

SOCIAL STRUCTURE AND FERTILITY: AN ANALYTIC FRAMEWORK

A striking feature of underdeveloped areas is that virtually all of them exhibit a much higher fertility than do urban-industrial societies. This well-documented but insufficiently analyzed fact is known to be connected with profound differences in social organization as between the two types of society, and is therefore significant for the comparative sociology of reproduction. The clarity and importance of the contrast, however, should not be allowed to obscure the equally important fact that underdeveloped areas themselves differ markedly in social organization, and that these differences appear to bring about variations in fertility. Though the demographic statistics of backward regions have generally been so poor as to place in doubt the validity of reported differences, there are cases in which the evidence is reliable (e. g., as between Puerto Rico and Jamaica, or Arab Palestine and Ceylon). Of equal interest are the cases in which societies with differing social organization have the same level of fertility, for they may reach this common result by quite different institutional mechanisms. All told, ample opportunity exists for the comparative analysis of social structure as it affects fertility. In view of the bearing of future population trends on economic development, the pursuit of such analysis has a practical as well as a theoretical significance.

The present paper represents an attempt to set forth and utilize an analytical framework for the comparative sociology of fertility. It first presents a classification of the intermediate variables through which any social factors influencing the level of fertility must operate. It next tries to show, in broad outline, how some types and elements of social organization, acting through these variables, appear to enhance or depress societal fertility. Our hope is that as more sociological and demographic information becomes available, the theories advanced can be refined further and tested empirically.

The Intermediate Variables

The process of reproduction involves three necessary steps sufficiently obvious to be generally recognized in human culture: (1) intercourse, (2) conception, and (3) gestation and parturition.[1] In analyzing cultural influences on fertility, one may well start with the factors directly connected with these three steps. Such factors would be those through which, and only through which, cultural conditions can affect fertility. For this reason, by way of convenience, they can be called the "intermediate variables" and can be presented schematically as follows:

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(1) Although the physiologist sees more steps in the process, these can all be subsumed under the three headings given here. We are concerned only with the steps in reproduction as they may be socially recognized and utilized.

I. Factors Affecting Exposure to Intercourse ("Intercourse Variables").

A. Those governing the formation and dissolution of unions in the reproductive period.[2]

1. Age of entry into sexual unions.

2. Permanent celibacy: proportion of women never entering sexual unions.

3. Amount of reproductive period spent after or between unions.

a. When unions are broken by divorce, separation, or desertion.

b. When unions are broken by death of husband.

B. Those governing the exposure to intercourse within unions.

4. Voluntary abstinence.

5. Involuntary abstinence (from impotence, illness, unavoidable but temporary separations).

6. Coital frequency (excluding periods of abstinence).

II. Factors Affecting Exposure to Conception ("Conception Variables").

7. Fecundity or infecundity, as affected by involuntary causes.

8. Use or non-use of contraception.

a. By mechanical and chemical means.

b. By other means.[3]

9. Fecundity or infecundity, as affected by voluntary causes (sterilization, subincision, medical treatment, etc.).

III. Factors Affecting Gestation and Successful Parturition ("Gestation Variables").

10. Foetal mortality from involuntary causes.

11. Foetal mortality from voluntary causes.

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(2) Since sexual intercourse is not confined to wedlock, the term "sexual union" seems preferable to "marriage". A union is here defined as any heterosexual relationship in which either actual intercourse occurs or orgasm is produced for at least the male partner. Every society has a type of union (marriage) in which reproduction is expected, approved, and even enjoined. At the same time every society runs the risk of unions in which reproduction is condemned, either because they lack the legal form of marriage or because they violate one or more institutional taboos (adultery, incest, caste, or class endogamy, etc.--see K. Davis, "The Forms of Illegitimacy", Social Forces, Vol. 18, October 1939, pp. 77-89). Between the fully approved and the strongly proscribed unions, there may be other types which have a lesser grade than marriage but in which reproduction normally occurs. Such unions may be frequent, in some cases representing the majority of reproductive unions. Any satisfactory sociological analysis of reproduction must keep straight the different types of unions.

(3) Means of contraception other than mechanical and chemical include the "rhythm" method (which can also be classed as voluntary abstinence), withdrawal, simulated intercourse without penetration, various "perversions", etc.

It is clear that any cultural factor that affects fertility must do so in some way classifiable under one or another of our eleven intermediate variables.[4] Hence the latter provide a framework in terms of which the relevance of cultural factors to fertility can be judged. In fact, attempts to explain causal relationships between institutions and fertility without such a framework have led to inconclusive and confused writing on the subject.[5] The cultural factors, or "conditioning variables", are presumably many, and no effort is made here to classify them; but the "intermediate variables" offer a means of approach to selecting and analyzing these factors.

It is also clear that each of the eleven variables may have a negative (minus) or a positive (plus) effect on fertility. If by examining all societies we could find the range of influence of a given variable, any effect more negative than the midpoint of this range would be on the minus side, and any influence more positive would be on the plus side. If, for example, a society uses contraception successfully, it has a minus value with respect to variable number 8; if it uses no contraception, it has a plus value on this variable. The value of each variable refers to how it affects fertility in each case; so a positive use of something (e. g., contraception, abortion, abstinence) may mean that it has a "minus" fertility-value.

One cannot say, as is frequently implied in the literature, that some of these variables are affecting fertility in one society but not in another. All of the variables are present in every society. This is because, as mentioned before, each one is a variable--it can operate either to reduce or to enhance fertility. If abortion is not practiced, the fertility-value of variable number 11 is "plus". In other words, the absence of a specific practice does not imply "no influence" on fertility, because this very absence is a form of influence. It follows that the position of any society, if stated at all, must be stated on all eleven variables.

Societies differing in their social organization do not necessarily have different fertility-values with respect to all the variables. On some of the variables they may exhibit quite similar values. A nomadic tribe may have the same age at marriage as a settled agrarian village; a primitive group may practice the same rate of abortion as an industrial society. Two contrasting societies are not likely, however, to manifest similar values for all the variables; they are not likely to do this even when their general fertility level is practically the same. The actual birth rate depends on the net balance of the values of all the variables. Though societies which generate a high fertility tend to be predominantly on the plus side, no society has the highest plus value on all eleven variables; and societies with low fertility turn out to be amazingly positive on a number of them.

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(4) The reader will note that our list of variables does not include infanticide or child care. The reason for this omission is that our analysis is focused on factors affecting fertility strictly defined. Infanticide does, of course, affect family size and natural increase and may serve as an alternative to factors affecting fertility. It is therefore discussed briefly at a later point.

(5) For instance, Frank Lorimer, Culture and Human Fertility, Paris, 1954, by failing to make clear the ways in which fertility can be affected, gives in some ways a confused picture of how it is affected. The reader may wish to compare our framework with a half-page outline of direct and indirect factors affecting fertility given by Raymond Pearl at the end of an article on "Biological Factors in Fertility", Annals of the American Academy of Political and Social Science, Vol. 188, November 1936, p. 24.

It should, of course, be mentioned that cultural influences affecting our eleven variables do not necessarily represent rational attempts to govern fertility. Many fertility consequences stemming from socio-cultural conditions (especially in underdeveloped regions) are by-products, being unanticipated and unrealized by members of the society. Surely by now social scientists know that they cannot confine their attention only to rational actions or treat non-rational actions as somehow defying systematic analysis. The requirements of a given society can be met just as well, and just as ill, by an unintentional level of fertility as by an intentional one.

Institutional Patterns and the Intermediate Variables: A Preliminary Analysis

From the standpoint of comparative sociology, an important question is how the fertility-values of our intermediate variables distribute themselves in different kinds of societies. A preliminary generalization is that underdeveloped societies tend to have high fertility-values for numbers 1, 2, 8, and 9 on the list; they may have high values for 3a, 3b, and 10; and they often have low values for 4 and 11. As for the remaining variables--5, 6, and 7--it is hard to prove that there are any consistent differences between pre-industrial and industrial societies. If this generalization is roughly accurate, then it becomes meaningful to re-group the eleven variables as follows:

The Intermediate Variables According to Their Values in Pre-Industrial Societies

Usually High Values	Usually Low Values
1. Age of entry into unions.	4. Voluntary abstinence.
2. Permanent celibacy.	10. Foetal mortality--involuntary
8. Contraception.	
9. Sterilization, etc.	

High or Low Values	Indeterminate
3a. Time between unstable unions.	5. Involuntary abstinence.
3b. Post-widowhood celibacy.	6. Frequency of coitus.
11. Foetal mortality--voluntary.	7. Involuntary sterility.

In attempting to analyze in a preliminary way how different institutional patterns affect the variables, we shall find it convenient to follow the order just given.

Number 1. Age of Entry into Unions

In beginning with age of entry into unions, we are dealing with one of the variables governing exposure to intercourse. It should be noted that these particular variables, however favorable they may be to fertility in themselves, may be counteracted in practice by other factors governing conception and gestation. For example, even though sexual unions begin early, pregnancy or childbirth may be prevented. This is often the case when the sexual union is not a marriage. Many societies, even though they permit premarital intercourse, strongly forbid illegitimate pregnancy.[6] With respect to marital

(6) Among the 250 societies for which he had information, Murdock found that, apart from incest taboos, "premarital relations are fully permitted in 65 instances, and are conditionally approved in 43 and only mildly disapproved in 6, whereas they are forbidden in only 44. In other words,

unions, however, reproduction is specifically sanctioned, indeed expected. As already mentioned, there may be, in addition, non-marital unions in which reproduction also normally occurs. Consequently, in dealing with age of entry into unions, we shall separate those unions in which offspring normally appear (including both marital and non-marital types) from those in which reproduction is so strongly condemned that it is infrequent. We shall now deal with the first general class (paying attention mostly to marriage itself), leaving until later the discussion of non-reproductive sexual unions.

Since in pre-industrial societies the age of entry into reproductive unions is generally young, the question must be raised as to why the fertility-value of this variable is usually positive when on certain other variables it is often negative. From a broad functional standpoint, the explanation stems from high mortality. Not only does a high death rate normally prevail in underdeveloped societies from year to year, but there is always the danger of a sudden catastrophic rise in mortality. Early marriage therefore represents the maximum possible hedge against the threat of failure in population replacement. Entering a union at a young age does not commit one irretrievably to a large family, because all other means of reducing fertility come after this point. If a particular union is resulting in progeny that are too numerous under current circumstances, this eventuality can be obviated by abstinence, contraception, abortion, or infanticide. These means, precisely because they come later, can be utilized at a time closer to the actual impingement of new individuals on the resources of those responsible. If, on the other hand, the age of entry into unions is late, the potential fertility that is lost can never be recovered. The threat of mortality, from a societal standpoint, has reference not only to the potential offspring but also to the parents themselves. Early formation of unions helps to guarantee that the young adults will achieve at least some reproduction before they die.

This broad functional explanation does not, however, enlighten us concerning the specific institutional mechanisms by which early marriage is insured. These can best be understood in terms of family and kinship organization (involving rules of residence and rules of descent) and the control of property. Such mechanisms apply most clearly to formal marriage, although they may apply as well, though in lesser degree, to informal reproductive unions.

From the standpoint of kinship organization, an essential distinction is that between a joint household and/or clan system, on the one hand, and an independent nuclear family organization on the other. When the clan is the unit controlling the property (whether the latter consists in herds or land), the question of inheritance does not normally arise, because the clan is immortal. When the joint family is the controlling unit, the question arises only when the joint family divides; the joint family, however, does not divide when the offspring marry, but rather, at the earliest, when the father dies. Thus, in societies having a joint household (and a fortiori in those having a strong clan organization), marriage is in no way made contingent on the possession of separate property by the newly married pair.

Furthermore, with strong clan or joint-household control (or both), marriages are usually arranged by the elders, who are often motivated to make the arrangements early in the lifetime of the prospective mates, i. e., before

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premarital license prevails in 70 per cent of our cases. In the rest, the taboo falls primarily upon females and appears to be largely a precaution against childbearing out of wedlock rather than a moral requirement." George P. Murdock, Social Structure, New York, 1949, p. 265. On p. 5 the author gives slightly different figures, but the majority of his societies still permit premarital sexual relations.

puberty. Religious prescription may require this result, and the economic exchanges involved in betrothal may be structured in such a way as to yield an advantage to the parents who marry their daughter early. If the system is one of patrilocal residence, for example, a grown daughter remaining in her parental home is an anomaly. Not only does her presence run counter to the normal division of labor by sex, which assumes the complementarity of husband and wife, but she must adjust to the wives of her brothers coming into the household. Add to this fact that the daughter, as a prospective spouse, is most in demand by other families when she is young, first because she then has a greater potential fertility ahead of her, and, second, because she is more attractive sexually and fits more easily into a subordinate status in her husband's parental home. If, then, there is a substantial brideprice or groomprice at marriage, the girl's kin stand a better chance of a favorable bargain if they marry her off early. This may help them in procuring wives for their sons.

In societies having neither a strong clan nor a joint family, the forces leading to early marriage may be overbalanced by others. The Irish family, for instance, has long been organized in terms of neolocal residence and hence marital rather than filial solidarity. This being true, land had to be obtainable or marriage postponed. During the greater part of the eighteenth century land was scarce and could not be subdivided because the economy was predominantly pastoral. Consequently, an obstacle to early marriage "was the difficulty of acquiring a settlement upon which a new family might depend."[7] Later, during the sixty years before the Famine, when the potato became the staple food and the economy shifted from pastoralism to cultivation, couples could get property at marriage by subdivision of the land, thus removing temporarily the main obstacle to early marriage. But with the crisis of the Famine, the futility of progressive subdivision led to the Land Purchase Acts stipulating that the loans which transformed tenants into owners were granted only on condition that no subdivision would take place. Since the annuities ran for 35 years, this represented some restraint on subdivision.[8] A more powerful restraint was the fact that, once the tenants became owners, they grew unwilling to subdivide in behalf of their sons. The tendency was to retain only one son on the paternal land, the remainder of the children being dispersed, partly through migration abroad. The independent nuclear family was maintained, but the son who remained at home could not establish such a family until the father was willing to resign both authority and property. As a result the average age at marriage in Ireland became extremely advanced, reaching 29.1 for women by 1926.[9]

Lest our characterization of Irish family organization as neolocal appear surprising, it should be noted that although the Irish have been interpreted as having a joint household and patrilocal residence,[10] the opposite seems to be true. Even if one or two sons remain at home, the resulting menage is not what is ordinarily called a joint household; because in Ireland marriage implies the independence of the son. When the son brings a bride into what was

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(7) K. H. Connell, The Population of Ireland, 1750-1845, Oxford, 1950, p. 89 [underscoring ours].

(8) See Elizabeth R. Hooker, Readjustments of Agricultural Tenure in Ireland, Chapel Hill, 1938, esp. pp. 55-57, 106, 151, 208.

(9) A. M. Carr-Saunders, World Population, Oxford, 1936, p. 91. Cf. James Meenan, "Some Causes and Consequences of the Low Irish Marriage Rate", Journal of the Statistical and Social Inquiry Society of Ireland, 86th session, 1932-33, pp. 19-27.

(10) E. g., Conrad M. Arensberg and Solon T. Kimball, Family and Community in Ireland, Cambridge, 1938, p. 80.

the paternal homestead, he brings her into a home that has been redefined as his, no longer his father's. The father has relinquished both ownership of the farm and authority over the son. As long as the father continues to own the land, the son who remains at home cannot marry because the land is necessary for the "match".[11] If marriage occurs, therefore, the fact that the parents are still in the home is merely adventitious--they have entered "the age grade of the dying".[12] Significantly, if irreconcilable conflict develops in the shared household, it is the parents, not the son and his wife, who must leave. "The bond between them [husband and wife] is stronger than that between son and parent."[13] Thus in Ireland the fact of sharing a house with the parents is not a reflection of the joint family ideal but of the force of circumstances. The fact of a common menage is socially defined in such a way as to comply with the ideal of a neolocal and independent nuclear family.

This independent nuclear family organization is neither unique to Ireland nor modern in development. In Northwestern Europe the custom of impartible inheritance (e. g., by promigeniture or ultimogeniture) was found in many areas during the Middle Ages. In some sections it was apparently customary for the old people to give their land to the heir before they died. Surrendering their authority, they expected only their keep off the land. The heir's marriage was contingent on the land being turned over to him; if his sisters and brothers stayed on, they could claim their keep but not the privilege of marriage.[14] The principle of no holding, no marriage,[15] operated to advance the average age beyond what it otherwise would have been. Furthermore, the notion of the independence of the nuclear family also manifested itself in the master-apprentice relationship within the medieval guilds; for marriage often did not occur until an adequate guild status had been acquired by inheritance, purchase, or dower.[16] There is thus evidence that European society has long emphasized the marital rather than the filial bond as the basis of family organization, with a consequent tendency to delay marriage.[17]

The emphasis on marital rather than filial solidarity, on neolocal rather than patrilocal residence, which appears to have delayed marriage in Ireland and Northwestern Europe contrasts sharply with the forces operating to precipitate marriage in an extended family system. In a truly joint household the authority of the elders continues after marriage; the marital bond is therefore subordinate to the filial bond and does not require economic independence on the part of those getting married. Such a family pattern is well known as the

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(11) Arensberg and Kimball, op. cit., pp. 107-122.

(12) Ibid., p. 123.

(13) Ibid., p. 128.

(14) George C. Homans, English Villagers of the Thirteenth Century, Cambridge, 1942, Chs. 9-10.

(15) Josiah C. Russell, "Demographic Values in the Middle Ages", Studies in Population, George F. Mair, ed., Princeton, 1949, p. 104.

(16) Josiah C. Russell, British Medieval Population, Albuquerque, 1948, pp. 163-164.

(17) Of course, not every society with neolocal residence shows a retarded age at marriage. In a primitive economy with high mortality, where no formal training or other obstacles to adult status must be hurdled, and where scarcity of persons rather than scarcity of land is the felt need, independent nuclear families may be formed by early marriage, e. g., the Netsilik Eskimos, Fox Indians, Andaman Islanders, Ruthenians.

ideal one in traditional China, India, Bantu Africa, and many other peasant or primitive cultures. In the Chinese case, the father maintains his tutelage over the married son and his control over the familial property until death. He consequently need not fear the marriage of his son as a threat to his authority, and therefore, unlike the Irish father, has no motive (at least in this regard) for postponing such marriage. On the contrary, to the extent that his son brings a wife into the house and has children, the old man's authority is extended. Indeed, it is only by the marriage of his son that the patriarch can fulfill his filial obligation to his father.[18]

Number 2. Extent of Permanent Celibacy

If late marriage can have a minus effect on fertility, so can permanent non-marriage. In both cases, if this effect is to be produced, there must be either continence outside of marriage, or the use of means to prevent intercourse from resulting in childbirth. In practice, non-marriage usually does produce a low rate of reproduction among the unmarried, because, as mentioned already, marriage in all societies is the preferred institutional arrangement for having children. It seems wise, therefore, to discuss "celibacy" primarily in terms of non-marriage, and to consider sexual continence only in so far as it illuminates that factor.

Although permanent non-marriage is obviously a more potent factor than mere postponement of marriage, it actually occurs less frequently and hence has less negative influence on fertility. Only rarely can a population be found where more than 20 per cent of the women complete the reproductive period without ever having married. Ireland is an extreme case, with 26.3% of its women aged 45-49 in 1946 still single.[19] If we assume that these women, had they married, would have had the same completed fertility as those who did, then their proportion represents an estimate of the loss of fertility due to non-marriage (excluding illegitimate births).[20] Thus the loss due to permanent non-marriage seems, even in the extreme case, scarcely to exceed one-fourth. Such a loss in fertility is greatly exceeded by that due to late age at marriage. For example, in Switzerland (where the data are readily available), if all women in 1941 who had ever married by ages 40-44, had married at ages 15-19 and had subsequently manifested the same age-specific fertility as those who had actually married then or did marry at some point prior to age 40, the reproduction would have been 75% greater than it actually was![21] In other words,

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(18) Marion J. Levy, Jr., The Family Revolution in Modern China, Cambridge, 1949, pp. 168-170. When the family head dies there is the problem of one of the sons assuming authority over the others. It is precisely at this point that the joint household often dissolves; but if it survives this crisis, as it may, it does so because of the past institutionalization of relative age as a factor in authority.

(19) Other cases of high proportions never married are Sweden (1945) 20.9%, Switzerland (1941) 20.1%, England and Wales (1931) 16.8%, Belgium (1930) 13.3%.

(20) Differences in mortality and possible fecundity as between married and unmarried women may introduce a small but probably not serious error into this estimate.

(21) This calculation excludes non-marriage as a factor, because the women who had never married by age 40-44 were subtracted from the women under consideration in each age group. In other words, 21.4% of Swiss women at ages 40-44 had never married. But the remaining 78.6% had married at

the gain in fertility if late marriage had been eliminated would have been approximately three times the gain (25%) if permanent non-marriage had been eliminated.

It is mainly in urban-industrial societies that the proportion of women never marrying by the end of the reproductive span exceeds 10%. In India in 1931 it was only 0.8%; in Ceylon in 1946, 3.4%; and in Malaya in 1947, 3.3%. Thus the underdeveloped areas generally show a very high plus value for fertility with respect both to variable number 1 (age at marriage) and variable number 2 (proportion ever married), whereas industrial societies often show rather low fertility-values on these.

We thus have to answer two questions: Why do all societies generally make less use of non-marriage than of late marriage in depressing fertility? Why do underdeveloped peoples make less use of both of these mechanisms than do industrial societies? Let us attempt to answer these two questions in order.

Given the low fecundity of the human species, no society can hope to replace itself unless either a majority of its women participate in reproduction or its mortality is rigorously controlled. Since most of man's history has occurred under conditions of heavy mortality--conditions which still prevail for many of the world's peoples--all viable societies have evolved social mechanisms that lead the majority of women to participate in reproduction. Their participation is organized through the institution of marriage, which links sex and reproduction to the care and socialization of children. This institution is in turn supported by its articulation with the rest of the social order. The marital relation thus becomes a general norm in terms of which the hopes and expectations of virtually all individuals are channelized. If for some reason the pressure of mortality is relaxed, the norm still continues in effect. Not only do normative systems change slowly, but there still remains the necessity for a family organization in terms of which reproduction and child-rearing are provided for. Thus individuals continue to anticipate marriage as a normal and important part of life, an event more easily postponed than foregone altogether.

In any case, an increase in non-marriage would not reduce fertility unless either coitus outside of wedlock were successfully banned or contraception and abortion were freely used. If the latter were readily available, they could be used within marriage, and the consequent reduction in marital fertility would obviate the necessity of denying marriage to a substantial portion of the population. If contraception and abortion were not readily available, non-marriage would be an effective brake on fertility only at the price of permanent sexual celibacy. Everything we know about human society indicates that this price is so high that no population is willing to pay it.

Since no society has ever attempted to incorporate permanent celibacy as a widespread custom, we have no conclusive evidence as to what it would do to a social system. We can, however, obtain some clues by examining countries in which permanent celibacy has appeared to an unusual extent and by examining organizations which have enjoined it as a rule. We can also say something on purely theoretical grounds concerning what it might do if utilized as the chief means of reducing fertility to a modern level. Limitations of space prevent

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various ages. If this 78.6% had all married at ages 15-19 and had from that age experienced the same age-specific fertility as those ever married at each age, their total fertility would have been 76% greater. Stated in terms of the potential fertility lost by late marriage, the figure is approximately 64%. The calculation is rough, because the data refer to 1941 and thus do not represent a true cohort analysis; but a refined calculation on a cohort basis should yield rather similar results.

our giving a complete treatment along these lines, but something can be said about each of them.

Because Ireland has an unusually late age at marriage and a high proportion who never marry, together with a strong prejudice against coitus outside of marriage, it provides the main example of a rather extensive practice of celibacy.[22] Has this adjustment exacted a price? To answer such a question is difficult. A puritanical attitude toward sex cannot be listed as a consequence, because this is part of the celibacy itself. That the Irish avoid reproduction outside of marriage is shown by their low illegitimacy rate--2.8% of all live births in 1921-1930 and 3.3% in 1931-1940.[23] However, such descriptions as we have suggest that a great amount of attention, community effort, and personality conflict go into controlling sexual expression. Having a social system that emphasized the marital bond and the nuclear family, the Irish cannot completely segregate unmarried females, as is done in Moslem countries. The young people must have some chance to participate in courtship and mate selection. But, given this system, the Irish seem to make an unusually strong effort to control sexual behavior. For a country not living under a dictatorship, the official censorship of literature and ideas is exceptionally rigid, and has as its main purpose the suppression of material pertaining to sex and reproduction.[24] Furthermore, the data on mental illness, which show a high rate for Ireland, indicate a possible consequence of such repression.[25]

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(22) David Glass, Introduction to Malthus, New York, 1953, pp. 27-54, shrewdly notes that Ireland is the only country which has come close to following Malthus' rules of conduct--"moral restraint" and no birth control. In other countries of Northwestern Europe, such as Sweden and Norway, a late age at marriage does not imply sexual abstinence, not only because illegitimacy is more tolerated but also because contraception is more freely practiced.

(23) Ibid., p. 37.

(24) For attitudes toward sexual behavior see Arensberg and Kimball, op. cit., Ch. 11; and also such literary and popular sources as Frank O'Connor, "Ireland", Holiday, Vol. 6, December 1949, p. 40; Seán O'Faoláin, "Love Among the Irish", Life Magazine, Vol. 34, March 16, 1953, pp. 140-157. Regarding censorship, the following passage from O'Faoláin is pertinent: "...Our censorship of books and publications, instigated by the clergy and submitted to, willy-nilly, by everybody, is a symbol of this fear of sex...In the 150 close-packed pages of the official register of books and periodicals banned by the Irish Censorship Board we find the names of almost every single Irish writer of note, some for one book, some for several. The banning is done in secret. There is no appeal to the courts of law..." See also an article, "Irish Challenge Censors' Methods", The New York Times, August 14, 1955, where it is pointed out that the Irish Censorship Board "has banned books by the most reputable Irish authors, including Sean O'Casey, Liam O'Flaherty, Sean O'Faolain, and Ireland's most brilliant short story writer, Frank O'Connor. Nobel prize winners have even come under the interdict...many works of worth are condemned on a few isolated marked passages, while the general tenor of the book is ignored...Even the works of Roman Catholic authors approved by the church authorities in Britain have not escaped the five Irish Roman Catholic Censors."

(25) In 1949 the proportion of hospital beds devoted to mental cases was 57% in Ireland, whereas it was only 49% in the United States. The rate of mental patients per 100,000 population in 1948 was 603 in Ireland as contrasted to 382 in the United States. Adventitious circumstances seem not

There appear to be few features in Irish life that compensate for whatever is lost through celibacy. Ireland has, for example, the lowest level of living of any nation in Northwestern Europe. All told, there is some ground for the hypothesis that Ireland is paying a price for its unusual degree of celibacy.

Celibacy as an organizational rule has been almost solely applied to religious personnel. Among those few religions which have adopted such a rule for their clergy, our evidence is most readily available for the Roman Catholic priesthood. As is well known, the application of the rule in this case encountered great difficulties. It required nearly nine centuries before the edict of non-marriage itself could be enforced with relative success. Priests were first commanded to separate from their wives and remain continent in 385 A. D. After that date there were periods when the ban against marriage could be safely ignored by priests, followed by periods when the Church was militantly purging its married clergy. Pope Gregory (Hildebrand) encountered such obstacles in enforcing the rule of non-marriage that he ordered the laity to withdraw their obedience from all members of the clergy who disregarded the papal canons on simony and incontinence. By so doing, he undermined a basic principle of the Church--clerical immunity--and thus as early as 1074 directly laid one of the foundations of the Reformation. Only by placing the sacrament of marriage in a lower position than that of the religious vow (Lateran Council of 1123) did the Church finally settle the issue of clerical marriage, although in practice such marriages occurred with some frequency after that--as late as the nineteenth century in some parts of Latin America, for example. In periods when the ban against marriage was being enforced, the Church still had to deal with sexual incontinence among its priests and nuns. "Solicitation" (the seduction of female penitents), concubinage, and other violations were so common as to cause chronic public scandal. In some areas priestly concubinage became, for long periods, a customary practice, and the sons of priests received preferment.[26] We can thus see that the enforcement of celibacy even for that small fraction of the population represented by the clergy was anything but easy.

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to account for this result. Though Ireland has a larger percentage of persons in the advanced ages than does the United States (24.7% at ages 50 and over as against 22.4% at these ages in the United States), she has a higher proportion under age 30. The fact that Irish medical services are less developed than in this country suggests that the comparison understates the difference in mental illness. In 1949 Ireland had only one hospital bed per 1,000 inhabitants, whereas the United States has 9.6, so that a higher proportion of mental cases in Ireland may never appear in the statistics.

(26) For the history of clerical celibacy in Europe, see Henry C. Lea, History of Sacerdotal Celibacy in the Christian Church, London, 1932, and A History of the Inquisition of the Middle Ages, Vol. 1, New York, 1888, pp. 31-32; Alexander C. Flick, The Decline of the Medieval Church, New York, 1930, Vols. 1-2, passim.; J. R. Tanner et al. (eds.), Contest of Empire and Papacy, Vol. 5 of Cambridge Medieval History, New York, 1926, esp. pp. 11-14, 40, 61-62, 73, 695; Eileen Power, Medieval English Nunneries, Cambridge, 1922, Ch. 11; Geoffrey Baskerville, English Monks and the Suppression of the Monasteries, New Haven, 1937, pp. 261-266; Joseph McSorley, An Outline History of the Church by Centuries, St. Louis, 1944, pp. 83, 154, 206-207, 237; H. J. Schroeder, Disciplinary Decrees of the General Councils, St. Louis, 1937, p. 193. For Latin America, see J. Lloyd Mecham, Church and State in Latin America, Chapel Hill, 1934, p. 48; Mary Watters, A History of the Church in Venezuela, 1810-1930, Chapel Hill, 1933, p. 211; Gilberto Freyre, The Masters and the Slaves, New York, 1946, pp. 446-452.

If we imagine a society in which celibacy is institutionalized and becomes a norm rivaling marriage, we can see that the result would be paradoxical and impossible. Should the celibate class be large enough to reduce the birth rate to a modern level without other means, it would have to contain at least half the population. For individuals on such a scale to be induced to make the sacrifice of celibacy, they would not only have to be firmly controlled (perhaps segregated from the rest of the community and thus divorced from the temptations of everyday life), but would also have to be ideologically indoctrinated, and, above all, socially rewarded. If the rewards were great enough to recruit people for the numerous celibate portion of the population, this class would inevitably occupy the top of the social ladder. But the celibate class would be too big to be an elite. Furthermore, the sheer fact of celibacy would not represent in itself a contribution to the productive capacity of the society. If the celibate population were given useful tasks to perform, the variety of functions would necessarily be great; and if all these received an indiscriminately high reward, some celibates would be receiving this return not because of their productive contribution but because of their celibacy. In this way, seeking to give half or more of its population advantages that at best only a few can be given (and doing so regardless of productive merit), the society would suffer an intolerable economic and social burden.[27]

After this analysis of the relatively minor role of permanent celibacy in fertility limitation, we are now ready for our second question: Why are late marriage and non-marriage more frequent in industrial than in pre-industrial societies?

Perhaps non-marriage occurs more often in industrial societies because these societies depend less upon kinship and the family as bases of social organization. The fact of being or not being married affects less the individual's economic chances. In pre-industrial societies, where the family is a productive unit, marriage has a high value for the individual. Also, where the partners to marriage are self-selected by a competitive process of courtship, as in modern countries, there tends to be a substantial proportion who are not successful in attracting a suitable mate.

The greater postponement of marriage in urban-industrial nations can be similarly explained. The necessity of lengthy training for skilled positions in an industrial economy, the often lengthy trial-and-error process of courtship, the necessity of economic self-sufficiency on the part of the newly married couple--all are conducive to marital postponement.

But in neither type of society is non-marriage likely to be as important a depressant of fertility as late marriage, because marriage remains the institutional norm in both cases. Wedlock may be postponed with some equanimity, but individuals who actually never marry have, in most cases, hoped that this would not be their fate. In Ireland, for example, clerical celibacy is certainly valued, but not permanent celibacy among laymen.[28]

Once again let us note that neither the postponement nor the total abjuration of marriage necessarily implies sexual celibacy. Hence no industrial

(27) Of course, a society could be imagined in which half or more of the women were forced to be celibate, the rest of the people living in polyandrous marriage. But such a speculation would evoke more paradoxes than that already sketched. A society capable of such deliberate organization could scarcely be expected to use celibacy alone as its means of controlling fertility. With other less drastic means available, the end would hardly justify the means.

(28) Arensberg and Kimball, op. cit., p. 69.

society today is required to use either method as a dominant means of controlling fertility, because other less drastic, less sacrificial, methods are available. It is clear that marital postponement, non-marriage, and abstinence within marriage, if they are effective in limiting fertility, all have a common feature--sexual denial; and all share the difficulties that this entails.

Number 8. Use or Non-Use of Contraception

Whereas the "intercourse variables" have a negative effect on fertility only through abstinence, neither the conception nor the gestation variables require this drastic behavior by the individual or the institutionalization necessary to insure such behavior. With the "conception variables" (of which the use or non-use of contraception is one), the pleasure of intercourse is not foregone. The individual, thus released from paying a heavy appetitive penalty for the decision not to have children, is much freer to decide this issue in terms of his economic and social interests alone.

With reference to contraception in particular, its apparent efficiency might lead one to expect a widespread use of it as a depressant of fertility. Yet we have already stated that this is one of the three variables which almost universally have a strong plus fertility-value in pre-industrial societies. Why, then, do these societies so widely exhibit the non-use of contraception? To answer this question, we must consider separately the two types of contraception.

8a. Contraception by chemical or mechanical means. In many primitive and peasant cultures the idea of chemical and mechanical contraception is known and attempts are made to apply it. Yet, even in situations motivating the individual to limit his fertility, this is not usually the means adopted, simply because the technology of underdeveloped societies cannot supply effective methods. In the absence of a knowledge of reproductive physiology, people in these societies have little sense of even the kind of instrumentalities to look for. Similarly, there is not enough knowledge of chemistry to give command over materials. The methods, therefore, tend to be hit or miss, with magic rather than science playing a prominant role. Lack of experimental technique leads one method to be valued as highly as another.[29] Even the methods that would actually accomplish the purpose of contraception are apt to be clumsy, sexually unsatisfactory, and unhealthful, e. g., insertion of an okra-like seed pod in the vagina (Bush Negroes of British Guiana); insertion of rags or finely chopped grass (Bapindas and Bambundas in Central Africa); insertion of dung (Egypt and other societies).[30] Furthermore, granted that a really satisfactory method is hit upon, such as possibly the use of a douche containing lemon juice or a decoction of the husks of mahogany nut (Martinique or Guiana),[31] the materials are likely to be available only in one locale or in certain seasons of the year. Thus the technology and economy of pre-industrial societies have not been equal to the task of providing a chemico-mechanical contraceptive that would be at once cheap, satisfactory, effective, and readily available.

8b. Contraception without chemical or mechanical means. Clearly such methods as withdrawal, intercourse without penetration, and various heterosexual

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(29) Norman E. Himes, Medical History of Contraception, Baltimore, 1936, pp. 53-54, 99. See also Clellan S. Ford, A Comparative Study of Human Reproduction, New Haven, 1945, pp. 40-42.

(30) Himes, op. cit., pp. 10, 18-19, 63.

(31) Ibid., p. 17. Also see M. Soors, "La denatalité chez les Mongo", Zaïre, Vol. 4, May 1950, pp. 525-532.

"perversions" do not depend on scientific and technological progress. They are known and practiced in one form or another in nearly all societies.[32] Yet they seem to be insufficiently employed to represent a major control over fertility. They may be so employed in a few primitive societies, but apparently not in the civilizations such as that of China, India, and the Near East where huge population aggregates are found. For the most part, it seems, they are employed in extra-marital relations or in those cases where premarital intercourse is permitted but premarital pregnancy forbidden. But it is doubtful that such practices represent an important contribution to fertility control in whole societies. Numerous societies--some with a good share of the world's people--either do not permit the ordinary female to engage in premarital intercourse, or have such a young age at marriage that such intercourse would play a small role in any case. As for extra-marital relations, those societies which permit them under certain circumstances are not particularly concerned about the woman's becoming pregnant, because biological paternity is not stressed. Only those societies branding adulterous children as illegitimate would condemn the married woman's pregnancy by another man than the husband, and these would be societies which restrict extra-marital intercourse. For these reasons, to have an independent and significant effect on fertility, non-mechanical contraceptive methods would have to be used within marriage. We are therefore forced to ask why such methods are not more widely used within wedlock in pre-industrial societies.

The reader should recall that any society with a high mortality must in general motivate its members to view legitimate reproduction favorably. Under this pressure the cultures in question, as already pointed out, are so organized as to maximize fertility values in the early stages of the reproductive process --e. g., by early marriage. Although intercourse is one step later, it is still so early as to involve a risk of inadequate fertility. If conditions subsequently make children undesirable, measures can still be taken after conception.

An additional consideration is that the physical burden and danger of childbearing, and the responsibility for nourishing and rearing the child, fall

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(32) Himes, speaking of Europe, says that "coitus interruptus is doubtless the most popular, widely diffused method of contraception...and has been for centuries...[It] is probably nearly as old as the group life of man." Op. cit., pp. 183-184. He also cites numerous primitive tribes in which coitus interruptus is practiced. I. Schapera, writing of the Kgatla of Bechuanaland, says: "The commonest method of contraception locally practiced is coitus interruptus...It is widely employed not only by married people, but also by unmarried lovers." Sometimes the woman, by moving her hips so as to extrude the penis just before ejaculation, accomplishes coitus interruptus without the male's cooperation. Married Life in an African Tribe, New York, 1941, pp. 222-223. Coitus inter femora is practiced in many societies, particularly by the Bantus in Africa. Girls may wear special girdles designed to avoid penetration. C. Daryll Forde, Marriage and the Family among the Yakö of South-Eastern Nigeria, London, 1941, p. 14. Bantu tribes, permitting sexual relations but not pregnancy before marriage, teach (or did teach) their young people how to have intercourse without penetration, the unbroken hymen in some tribes being regarded as an important index of virginity, insisted on at marriage.

Alfred C. Kinsey et al. found "petting to climax" to have been practiced by 24% of the male sample (blown up to represent the U. S. male population) by age 21, and by 50% of college-educated males. The cumulative incidence among females was less but still substantial, being 24% for the college-educated at age 20. Sexual Behavior in the Human Male, Philadelphia, 1948, pp. 531-542, and ...in the Human Female, 1953, p. 270.

mainly on the mother. If therefore there is a wish to avoid childbirth, this wish is apt to be hers rather than her husband's. It happens, however, that the non-chemico-mechanical methods of contraception are the ones requiring the co-operation and partial frustration of the male. Since he is not under the pressures that affect his wife in this matter, he may be reluctant to aid her in avoiding pregnancy.

The social insulation of the two sexes is often carried so far that communication between them is difficult. This insulation is particularly observable in regard to sexual behavior, which tends to be surrounded by taboos and rituals. As between husband and wife, sexual intercourse, by virtue of being the special bond and therefore the focus of anxiety and conflict between them, may be the topic they discuss with least freedom. Thus the cooperation necessary for contraception is made difficult.

In such terms we can understand why the available methods of contraception receive scant use in underdeveloped societies. Which of the considerations mentioned plays the greatest role is hard to say, but the fact should be emphasized that not all the reasons for limiting births are predictable at the time of intercourse--particularly in simple societies that live close to the environment and are threatened by quick catastrophe. The individual couple may, therefore, as we shall see later, limit fertility after rather than at the time of intercourse.

Number 9. Voluntary Control over Fecundity

Like chemical and mechanical contraception, satisfactory control of fecundity is beyond the technical capacity of pre-industrial societies. Neither the reduction nor the enhancement of fecundity by harmless medical measures appears possible in such cultures. Operations on the male external genitalia can be performed, such as subincision and castration, but these are either too drastic to be harmless or have little effect on fecundity.[33]

We may conclude, then, that pre-industrial societies are plus on variable number 9. But so are industrial societies. The latter may have even more of a plus fertility-value on this variable than simple societies because they can, and usually do, forbid sterilization and, at the same time, foster medical treatment for sterility, thus enhancing the fecundity of partially sterile couples.

Although modern science makes harmless sterilization possible, it has not yet been used, except in Puerto Rico, as a popular method of avoiding children.[34]

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(33) Castration is so drastic that it is apparently never used with enough frequency to affect group fertility. Subincision, the splitting of the penis in such a way that the semen is expelled from the lower part rather than through the glans, seemingly has little effect on fecundity, depending in part on the position assumed during intercourse. Also the practice has a very limited distribution even in primitive society and seems unknown in more advanced pre-industrial societies. Among the Australian aborigines, where it is found, opinion differs as to its effects. German theorists, according to Himes, have generally held that the operation lowers fertility and is so intended. Modern anthropologists, on the other hand, have denied both these contentions. Himes himself believes it may have some negative effect of this kind. Op. cit., pp. 41-51.

(34) See J. M. Stycos, "Female Sterilization in Puerto Rico", Eugenics Quarterly, Vol. 1, June 1954, pp. 3-9.

The Puerto Rican case suggests, however, that sterilization may in the future become more widely diffused in underdeveloped areas. If the operational technique were improved to the point where it could be easily reversed--so that it could be used for the spacing, as well as for limiting the total number, of children--it might become the principal means of reducing fertility in backward areas.

Number 3a. Time Between Unstable Unions.

Any negative effect on fertility from variable 3a is a function of both the rate of dissolution of unions and the time lost between them. If unions are stable, or if they are unstable but no time is lost between them, fertility will not be affected adversely.

With reference to marital unions, pre-industrial societies seem generally to have a low rate of dissolution. True, there are certain exceptions to this rule. Some of the Islamic peoples show a tendency toward marital instability, and in some primitive societies the clan or joint household takes such precedence over the nuclear family that the latter tends to be somewhat unstable.[35] On the whole, however, the institutional structure of pre-industrial groups buttresses marriage in such ways as to give it considerable stability.

When a society has a significant proportion of informal unions which it regards as inferior to legal marriage but in which reproduction is nevertheless expected (e. g., "consensual unions" in Latin America and "common law" unions in the British West Indies), one of the features of such unions is that they tend to be unstable. In such cases the woman may wait some time before entering a new union, and the fertility lost may be substantial. For a small sample of women in Jamaica (where around 70% of the births are illegitimate) the reduction in fertility due to the instability of unions was approximately 37%.[36] The informal type of union arises as an institutional form from various historical causes. In societies that have been disorganized by Western contact, they may appear abundantly, and legal marriage itself may become unstable.[37] In other instances where the social order has grown largely out of a former slave class,

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(35) See Ralph Linton, Study of Man, New York, 1936, Ch. 10. Murdock, op. cit., p. 3, criticizes Linton for holding that in some societies organized on a "consanguine" basis the nuclear family plays an insignificant role, but the fact is that in such cultures marital instability may have little disorganizing effect. See K. Davis, "Children of Divorced Parents", Law and Contemporary Problems, Vol. 10, Summer 1944, pp. 700-710.

(36) Judith Blake, "Family Instability and Reproductive Behavior in Jamaica", Current Research in Human Fertility, Milbank Memorial Fund, New York, 1955, pp. 26-30.

(37) Margaret Mead, Changing Culture of an Indian Tribe, New York, 1932, pp. 14-15, Ch. 10. Schapera, op. cit., Ch. 10; Migrant Labour and Tribal Life, London, 1947, pp. 183-189; and "Cultural Changes in Family Life", The Bantu-Speaking Tribes of South Africa, London, 1937, pp. 380-385. The literature covering the impact of Western culture on native peoples is so enormous that one could document indefinitely the tendency of such contact to produce illicit sexual unions and instability in such unions and in marriage.

informal unions may be both more numerous and more unstable than legal marriages.[38]

With reference to premarital unions, there is every evidence that in the many societies where these are permitted they are, as a rule, highly unstable, amounting in many cases to adolescent promiscuity. However, there is ordinarily little time lost between such liaisons; few societies permit reproduction in them; and, given a young age at marriage, most such unions occur at an age when adolescent sterility seemingly reduces the number of conceptions.

It follows that pre-industrial societies generally have a plus fertility-value with respect to variable number 3a, but the exceptions are more numerous than was the case with the other variables so far considered.

Number 3b. Post-Widowhood Celibacy

What effect the high rate of widowhood found in pre-industrial societies has on fertility depends on the institutional position of the widow. In many such societies she loses little time from exposure to intercourse, because she soon marries again. In other pre-industrial cultures, however, the widow either must wait for a protracted period or is subject to a distinct prejudice against remarrying at all. An important problem in analyzing the institutional impingements on fertility is the discovery of why some societies take one course in this regard and others take the opposite course.

If we study those societies in which remarriage occurs universally and soon, we find that they are the ones requiring the widow to marry a kinsman of the deceased husband (levirate). Such societies are usually primitive, practicing a shifting cultivation, hunting, or pastoral pursuits, and are characterized by strong clan or lineage organization. Marriage involves substantial economic exchanges and, if the system is patrilineal and patrilocal, these are weighted in favor of the bride's lineage (brideprice). The woman brought into the clan or lineage as a wife is conceived as belonging to this clan, which has paid the brideprice; her children, who are automatically members of the husband's lineage, represent her contribution in return for the cost of procuring her. When the woman is widowed, the lineage retains control over her, not only because a price has been paid for her but also because her children must remain with the lineage. If she still is fecund, the lineage feels it would be losing potential children if she did not remarry. But remarriage to an outsider would be unsatisfactory, because the children of that union would belong to another lineage. Hence the remarriage must be within the clan. Since in the exchanges cementing the first marriage, the husband's nearest relatives bore the main cost, it is natural that his close kin (notably his brothers) should have first claim on the widow. If the deceased husband has no actual brothers, one of his "classificatory brothers" can be substituted. In anticipation of her possibly entering a leviratic union, a woman's relation with her husband's actual and classificatory brothers is often one of privileged familiarity. The term for "husband's brother" may be the same as that for "husband". The social structure clearly demonstrates that the clan is thinking of the widow in terms of her potential production of children. Among the Nuer, for instance, even if the widow should take as a lover a person outside the clan (she cannot legally marry outside),

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(38) T. S. Simey, Welfare and Planning in the West Indies, Oxford, 1946, passim. F. M. Henriques, Family and Colour in Jamaica, London, 1953, passim. G. W. Roberts, "Some Aspects of Mating and Fertility in the West Indies", Population Studies, Vol. 8, March 1955, pp. 199-227. R. T. Smith, "Family Organization in British Guiana", Social and Economic Studies, Vol. I, February 1953, pp. 87-111.

the children are viewed as the descendants of the dead husband and therefore as members of his, not the lover's, clan.[39]

In many societies, on the other hand, the widow is forbidden to marry a close relative of the deceased husband. These seem to be cases in which the clan, however important it may once have been, has receded in economic and political significance, seemingly as a result of technological advance and greater class stratification. The economy is that of a more stable agriculture in which the same land is intensively cultivated year in and year out. Under such circumstances the joint household acquires more independence and more significance as an economic unit than it seems to have in most primitive societies. The distinction between relatives in different households thus takes precedence over their solidarity as members of the same lineage or clan. To be sure, the woman marrying into the joint household may do so in terms of some form of economic exchange, but this exchange is between individual households rather than clans. The widow and her children accordingly belong to the deceased husband's household. Remarriage to one of her dead mate's brothers or other close male relatives, however, would be structurally inappropriate, because the joint household is always subject to dissolution and must be so organized as to minimize the complications of such dissolution. Unlike the clan or lineage, which is immortal and indefinitely expandable, the household is a residential economic unit which can easily grow too large for its immediate resources. With stable agriculture, the household must be near the land it works. If its memberships increases, it must ultimately break up because the land required for sustenance will be too distant. When the household does break up, usually at the death of the male head, it does so by the separation of its nuclear families.[40] Accordingly, even when the nuclear family forms part of a joint household, it is visualized not only as a separate unit but also as one that may in the future have its own independent residence. A widow's remarriage to one of her husband's relatives within the household would conflict with this idea of potential independence. It would inextricably merge two nuclear families. It would require polygyny and would emphasize the solidarity of the sibling relationship rather than the father-son relation so central to the independent joint household.

Stable agrarian societies not only forbid the widow to marry within the circle of her husband's kin but also often frown on her marrying anyone at all. This additional prejudice seems likewise to be explicable in structural terms. For the widow to marry outside would require that some agency make a match for her, because marriages in traditional agrarian societies are arranged by persons other than the parties to the union. However, her family of orientation is no longer responsible for her. The family of her deceased husband is restrained from taking the responsibility for several reasons. It would, in seeking a mate for the widow, have to treat her as a daughter, which might interfere with the rights of the actual daughters. Furthermore, since she is a widow and is older, she has become less valuable than upon her first marriage, so that it is difficult to get her married at a social level reflecting favorable on the family's prestige. If the widow has children, her marriage outside the immediate kin would require her separation from them. It is thus understandable why traditional agrarian societies, especially where the joint household is normally preferred, should exhibit a prejudice against widow remarriage. Such unions certainly do occur, particularly in the lower classes which cannot carry out the joint family ideal, but the prejudice may be strong enough to prevent a high

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(39) E. E. Evans-Pritchard, Kinship and Marriage among the Nuer, Oxford, 1951, pp. 112-123.

(40) For mention of the joint household's vulnerability to change and its consequent fissive tendency, see Murdock, op. cit., p. 36.

proportion of widows in the upper classes from remarrying.[41] In India the caste controls reinforce those of the joint household in preventing widow remarriage. Since such unions are thought to lower the caste's prestige, and since marriage is endogamous within the caste, both parties to a remarriage are condemned. For this reason the reduction of fertility due to widow agamy is probably greater in India than in any other country, especially because of the early age at marriage and the high mortality there.

Number 11. Voluntary Control over Foetal Mortality

Underdeveloped societies have few means for lessening foetal mortality, but they do have readily available means, through abortion, for increasing such mortality. In fact, abortion is widely practiced in pre-industrial societies, being the individual's principal means of limiting fertility.[42] Since medical measures to avoid foetal mortality do not, at least as yet, have as much influence on fertility as voluntary abortion can and does, we can say that whether a society has a plus or minus fertility-value with respect to variable 11 depends primarily on the extent to which it practices abortion. Accordingly, some pre-industrial societies are on the "plus" side (forbidding abortion and practicing it little) but many others are on the "minus" side (practicing abortion to a considerable extent). If we grant that interference with conception is less hazardous to health than interference with pregnancy, an important question for us is why abortion is so much more frequently used in underdeveloped societies than contraception.

In answering this question, one can point to the following considerations: (a) as compared to mechanical and chemical means of contraception, abortion is

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(41) Levy, op. cit., p. 46, points out that although the Chinese gentry have always frowned on widow remarriage, the peasants have usually practiced it. In fact, if a peasant widow was young and lacked grown sons, remarriage was inevitable. As the peasantry is said to comprise as much as 80% of the population (p. 44), widow celibacy is hardly characteristic of China as a whole, although gentry patterns set the ideals for the entire society. Olga Lang, without distinguishing between gentry and peasantry, says that remarriage is frowned on. Chinese Family and Society, New Haven, 1946, p. 53. She says (p. 126) that poor men often marry widows because they are easier to get than virgins. Any divorcee or widow can find a husband if she is willing to marry beneath her status. With regard to the absence of anything like the levirate in China, it is interesting to note that Miss Lang says (p. 21) that "early in the feudal period, under the Chou dynasty (ca. 1027-256 B. C.), the clan began to divide into economic families." Today, even in the South where clans are of some importance, they have no real authority in family matters. The strongest clans in Central and North China lack the essential of clan life, a fair amount of common property (pp. 177-178).

(42) Ford, op. cit., pp. 50-51, found that most of his tribes took cognizance of abortion. In eleven it was specifically stated to be forbidden, and in eight it could be inferred to be forbidden; in 21 it was permitted to the young girl who finds herself pregnant, and in 4 this could be inferred to be the case; and in 12 a married woman was allowed to practice abortion if she believed that she had become pregnant through an adulterous intrigue. Himes regards abortion as widespread in primitive societies (op. cit., p. 52). A recent study by George Devereaux, Abortion in Primitive Society, New York, 1955, pp. 25-26, cites cases of tribes where abortion is quite frequent.

technically simple;[43] (b) In contrast to such non-chemico-mechanical methods as coitus interruptus or coitus inter femora, abortion is not applied at the time of intercourse and does not require cooperation between man and woman. It is a woman's method and can be practiced without the man's knowledge. (c) Unlike contraception, it is completely effective. (d) Once an undesired pregnancy has occurred, the need for abortion is certain, whereas at the time of intercourse there is always the chance that pregnancy will not eventuate anyway. (e) Although a child may be desired at the time of intercourse, subsequent events may alter this attitude, at which time abortion rather than contraception is a remedy.

A note on infanticide. Although infanticide is not dealt with as an integral part of our analysis because it does not affect fertility, one should note that it is virtually a functional equivalent of abortion in controlling family size, and that it too is practiced widely in pre-industrial societies, much more so than contraception. The rationale for its use is much the same as that for abortion, but it does differ from the latter in at least three respects. First, infanticide allows the progeny to be selected by sex, as shown by the custom of female infanticide. The logic of this practice is exemplified by the Netsilik Eskimos:

> The most glaring consequence of the struggle for existence is manifested in the way in which they try to breed the greatest possible number of boys and the fewest possible girls...girls are killed at birth, if they have not already been promised to a family where there is a son who some day is to have a wife...They hold the view that if a woman is to suckle a girl child it will be two or three years before she may expect her next confinement...A hunter must take into consideration that he can only subject himself and his constitution for comparatively few years to all the strain that hunting demands...Now if he has sons, they will as a rule be able to step in and help just when his own physique is beginning to fail. Thus it is life's own inexorability that has taught them the necessity of having as many sons as possible. Only by that means may they be certain that they will not need to put the rope around their own neck too early; for it is the common custom that old people, who can no longer keep themselves, prefer to put an end to their life by hanging...[44]

Olga Lang discusses the persistence of the immemorial custom of female infanticide in China. The hospital records used for her study "contained matter-of-fact references to infanticide made by Chinese social and medical workers indicating that it was taken for granted. Much more often, however, infant daughters have not been killed outright. What happens is that the small amount of food available for the family is unequally distributed: the son gets the larger share and the daughters are practically starved. Hence the frequent epidemics have taken a heavier toll of girls than of boys."[45] Much the same could be said of India.

Second, infanticide also allows the offspring to be selected according to physical status, weeding out those with deformities, bad health, or unacceptable

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(43) Premature labor can be induced by killing the foetus. This can be done by beating, pressing, or massaging the abdomen; by drinking poisons or strong emetics or laxatives; by piercing the foetus or amniotic sac with sharp reeds or instruments; or by wearing a tight belt. See Ford, op. cit., p. 52; Devereaux, op. cit., pp. 27-42.

(44) Knud Rasmussen, The Netsilik Eskimos, Copenhagen, 1931, pp. 139-140.

(45) Lang, op. cit., p. 150.

physical or racial characteristics.[46] Third, it can be practiced when the circumstances of birth are considered to be abnormal and ritualistically taboo. Twins, children born with feet first or with teeth, infants whose mothers died at their birth,[47] and offspring born on unlucky days are typical victims.[48] Fourth, whereas abortion may injure the health of the mother, infanticide obviously does not.

A disadvantage of infanticide may seem to be that since a child has already been born, a living person is being killed. However, the newborn child is often not viewed as a member of society until he has passed through some sort of ceremony (amphidromia in ancient Greece, presentation of the child to the father in China) which defines him as such. The destruction of the child is therefore viewed psychologically in much the same light as abortion.

Number 4. Voluntary Abstinence within Unions

Abstinence within unions is practiced much more, on the average, in pre-industrial than in industrial societies. The effect of such abstinence on fertility, however, depends on the circumstances; for there are at least four types of restriction--post-partum, occasional, gestational, and menstrual. The first two types tend to limit fertility, while the last two, if they have any effect at all, tend to increase it.

Post-partum abstinence occurs in nearly all societies, including our own. The amount of time involved, however, varies greatly--all the way from one to two weeks in some societies to two to three years in others. Many pre-industrial societies insist upon abstinence for an arbitrary period of time after birth, usually for several weeks or months. In a few instances the duration of abstinence is fixed by some developmental stage of the child--e. g., when the baby first crawls, sits up, walks, or cuts its teeth. In many cases the taboo on coitus extends through the lactation period, which may last two to three years.[49] Not all of the time involved, of course, represents a loss of fertility, because ovulation is often delayed or occurs sporadically for a time after parturition. It is only when the period of abstinence extends to two months or more that a loss of fertility can be assumed, although even then it may not be quite commensurate with the amount of time covered. These longer periods, though found frequently in primitive and peasant societies,[50] are not customary in industrial countries.

Long post-partum taboos on intercourse obviously help to space out children, but this is not the reason usually given in communities that practice such taboos. Instead, a violation of the taboo is viewed as being magically dangerous to the child or the parents.[51] Such notions probably lead to the observance

(46) Hutton Webster, Taboo: A Sociological Study, Stanford, 1942, pp. 59-61.

(47) Ibid., pp. 59-65.

(48) Linton, Study of Man, op. cit., pp. 194-195, with reference to the Tanala of Madagascar. In a letter to W. Lloyd Warner quoted by Himes, op. cit., p. 8, Linton says: "I do not think that there was any idea of limiting population in it [infanticide], but the losses were severe. In at least one tribe all children born on three days in each week were killed."

(49) Clellan S. Ford and Frank A. Beach, Patterns of Sexual Behavior, New York, 1951, p. 219.

(50) Webster, op. cit., pp. 67-71.

(51) Ford and Beach, op. cit., p. 219.

of the abstinence rules. In addition, it should be noted that in many instances the male has access to another wife (if he is polygynous) or to a concubine or other available woman. The social structure may encourage observance of the taboo in another way. When, as in India, the wife customarily goes to her parents' home to bear each of her first two or three children and stays there for a few months after the confinement, the taboo is enforced with ease. Thus the fact that 80% of Indian villagers in one study reported post-partum abstinence of six months or more indicates a significant loss of fertility from this cause. cause.[52] Doubtless similar or greater losses occur in many other agrarian societies.

The "occasional" restrictions on sexual intercourse are those occurring in connection with regular holidays and special ceremonies, tabooed days of the week, and important communal tasks (war, economic undertakings, etc.).[53] The exact amount of time lost to reproduction in this way has seldom been calculated, but the Indian field study just cited found that the average number of days of avoidance for religious reasons was 24 per year in a rural village, while in a middle class housing project it was 19.[54] If these days occur sporadically, they hardly represent much loss of fertility, because they are practically comprised within the normal frequency of intercourse; but in many societies the abstentions extend over substantial periods. "The natives of the Mortlock Islands, a part of the Caroline group, proscribe any sexual intercourse in time of war; a man who violated the rule would die a sudden death. During the fishing season, which lasts for six to eight weeks, every Yap fisherman is subject to many restrictions...Women are very strictly tabooed to him..."[55]

In contrast to post-partum and "occasional" taboos on coitus, gestational abstinence obviously cannot diminish fertility. The only question is whether it may slightly increase fertility. Most societies proscribe intercourse during some part, but seldom during all or even the major portion, of the gestation period. Only seven of the primitive groups in Ford's sample extended the taboo to the greater part of the period.[56] Usually it is toward the end of the pregnancy that the prohibition applies. If intercourse during the later stages occasionally induces miscarriage or causes puerperal infection, as is sometimes claimed,[57] then the taboo may enhance fertility, but only slightly.

Similarly, the almost universal prohibition of coitus during menstruation can have little or no negative effect on fertility. Such abstention, when fertilization is least likely, tends to concentrate sexual activity in the more fertile part of the menstrual cycle. In some pre-industrial cultures the taboo is extended for a few days after the menstrual flow has ceased (as among the ancient Hebrews), which has the effect of concentrating coital activity still more directly on the days when conception is most likely.

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(52) C. Chandrasekaran, "Cultural Patterns in Relation to Family Planning in India", Proceedings of the Third International Conference on Planned Parenthood, 1952, Bombay, p. 78.

(53) Ford, Comparative Study of Human Reproduction, op. cit., pp. 28-29. Webster, op. cit., pp. 132-139.

(54) Chandrasekaran, op. cit., p. 78.

(55) Webster, op. cit., p. 134.

(56) Ford, op. cit., p. 48.

(57) Ibid., p. 49.

On the whole, primitive and peasant societies appear to have a greater fertility loss through intra-marital abstinence (variable number 4) than do industrial societies. They have considerably more post-partum and "occasional" abstinence, and the effect of these in inhibiting reproduction is not fully counterbalanced by the fact that underdeveloped societies also occasionally have longer menstrual and gestational taboos (which may slightly enhance fertility).

The Other Intermediate Variables

There remain four variables--number 10 (which usually has a low fertility-value in non-industrial societies) and numbers 5, 6, and 7 (which seem indeterminate in their values). All four of these variables appear not to be clearly determined by institutional patterns in different cultures. If there is any difference in their fertility-values as between one type of society and another, the difference seems to be more a function of the general level of living than of the specific institutional structures. Perhaps one clue to this circumstance lies in the fact that three of the four variables (10, 5, and 7) are defined as involuntary in the sense of not being under control and hence not amenable to motivational determination. The other variable (number 6, frequency of coitus), though subject to individual control, is possibly too private and too linked up with organic capacity to be culturally controlled.

With respect to number 10--foetal mortality from involuntary causes--we have said that the fertility-value is generally low in pre-industrial societies; because the data available indicate that stillbirth rates are greater in such societies. However, the conclusion is tentative, because adequate comparative information does not exist for miscarriage rates.

Number 5--involuntary abstinence--presumably varies according to several disparate factors. In so far as health or sickness may be involved, the non-industrial peoples would probably exhibit a higher degree of such abstinence. The same inference might be drawn with regard to impotency, except that this condition is often caused by psychological determinants which may be more prevalent in industrial cultures. Another cause of involuntary abstinence, the separation of couples due to migration, would seem to vary according to the particular historical circumstances of the society. Except under conditions of European contact, indigenous groups apparently have little individual mobility. Clearly, these divergent influences affecting involuntary abstinence can run counter to each other. It is therefore difficult to claim, for this variable, any consistent overall differences between societies. We are also handicapped by an almost total lack of data, for no comparative information has been collected with this issue in mind.

Variable number 6--frequency of intercourse--possibly favors fertility more in underdeveloped than in industrial societies. But at best the evidence for this view is indirect, drawn solely from a few advanced societies where coital frequency appears greater among the manual than among the sedentary classes. Such direct evidence as we have supports no view at all. Average figures on "coital frequency" given in the literature, usually stated as so many times per week, are ambiguous, because it is unclear whether they mean every week or only those weeks when coitus is not impossible because of sickness, absence, menstrual, or other taboos, etc. Also, the comparative frequency figures cited in the literature are fantastic, showing variations from one society to another that are wholly inexplicable.[58] We have found no reliable

(58) Thus Ford and Beach report as an apparent fact that "the Aranda of Australia have intercourse as often as three or five times nightly, sleeping

evidence that the average frequency of intercourse for comparable age groups varies significantly as between one society and another, and certainly none which indicates that this is a significant factor in inter-societal variations in fertility.

With respect to variable number 7 (involuntary sterility) we again have little evidence. The hard conditions of life in pre-industrial societies may give rise to a considerable amount of low fecundity or absolute sterility--particularly in the latter part of the woman's reproductive span; and in given instances, after contact with highly civilized peoples, venereal disease may have a pronounced effect of this sort. On the other hand, the nervous tension and artificial modes of life in urban-industrial populations may possibly tend to lower fecundity to some extent.

Patently, the comparative fertility-values of the four intermediate variables just discussed are unknown. Not only is evidence lacking, but there is no sound line of reasoning by which the behavior of these variables can be linked up with specific institutional patterns. At most, there may be some connection in each case with the general level of living. The evidence for this is best with respect to number 10, but the other three must be left for the time being as indeterminate.

Conclusion: The General Pattern

Any analysis of institutional factors in fertility must first explain the well known fact that underdeveloped societies in general have a higher rate of reproduction than industrial societies. The explanation, in brief, is that the pre-industrial peoples, in the face of high mortality, have had to develop an institutional organization which would give them sufficient reproduction to survive. However, analysis at this level does not carry us very far. In order to study the effects of institutional factors, one needs to break down the reproductive process itself so as to distinguish clearly the various mechanisms through which, and only through which, any social factor *can* influence fertility. In trying to do this, we have found eleven "intermediate variables". When analysis is made along those lines, it can be seen that the generally high fertility of underdeveloped areas does not mean that these areas encourage high fertility in every respect. As we have seen, they do not have high plus values on *all* the intermediate variables. Why, then, do they have low values in some respects and not in others?

It is possible to discern a systematic difference between underdeveloped and developed societies with reference to the eleven variables. In general, the pre-industrial societies have high fertility-values for those variables farthest removed from the actual moment of parturition and which, therefore, imply an overall outlook favorable to fertility. To a much greater degree than industrial societies, they tend to encourage early exposure to intercourse --exhibiting a far younger age at marriage and a higher proportion married.

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between each sex act", and that for Chagga men "intercourse ten times in a single night is not unusual". Nothing is said about how these bizarre statistics are gathered, or about what age groups in the population are being considered. The authors say simply, "it is reported that", or "it is not unusual that", etc. Such reports are all the more questionable since societies apparently with a similar level of living are said to have extremely different figures--some at "once a week" or "once or twice a week"--without any explanation of why they should be so low and others fifteen or twenty times as high. *Op. cit.*, pp. 78-79.

They thus lose little potential fertility by delaying or avoiding the formation of unions. After unions have been formed, these societies tend to enjoin more abstinence than industrial societies do (and therefore have lower values on variable number 4), but such "sexual fasting" arises from religious and magical motives rather than as a deliberate fertility control measure, and it does not appear to be great enough to have a substantial negative effect on fertility.

Underdeveloped societies also have high fertility-values for the conception variables. They practice little contraception and virtually no sterilization. Consequently, the tendency is to postpone the issue of controlling pregnancy until a later point in the reproductive process, which means that when a couple wishes to avoid children, those methods nearest the point of parturition--abortion and infanticide--are employed. These have the advantage, in societies living close to privation, of being nearer to the actual moment when the child must be supported.

Industrial societies, on the other hand, exhibit low fertility-values for those variables involving the early stages of the reproductive process, especially age at marriage, proportion married, and contraception; and they manifest high fertility-values for the variables in the later stages, especially infanticide. It follows that for many of the variables the two types of society exhibit opposite values. This is true for age of entry into unions, permanent celibacy, voluntary abstinence, contraception, and (if included as a variable) infanticide. It is not necessarily true of the time spent between or after unions, of sterilization, or of abortion; and it, of course, is not true of those variables characterized as "indeterminate"--involuntary abstinence, frequency of coitus, or involuntary infecundity. But the general contrast is sufficiently clear to require explanation.

A key to the position of the industrial societies lies in the fact that, as compared to pre-industrial cultures, they have achieved their lower reproduction, not by acquiring low fertility-values for all the intermediate variables, but by singling out particular ones as the means to that result. They took those means of reducing fertility which involved the least institutional organization and re-organization and which involved the least human cost. In the secular decline of the birth rate they relied more heavily on the mere postponement of marriage than on non-marriage. They relied less on abstinence, which makes heavy demands on the individual, and more on contraception and abortion, which do not. They dropped infanticide altogether and, in the later stages, tended to reduce abortion. In other words, they have undertaken to lower fertility, not primarily by extending further the negative effect of the variables by which fertility was lowered in the pre-industrial stage, but by using readily available institutional mechanisms with respect to marriage and by employing the possibilities of their advanced technology for conception control. Marital postponement was easily extended in the early and middle stages of industrialization because the basis for it already existed in Western society and because contraception and relatively safe abortion freed those who married late from the necessity of premarital celibacy. Gradually, in the late stages of industrial development, contraception has gained such predominance that it has made low fertility-values on the other variables (including abortion and late marriage) unnecessary.

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