On the Social Control of Human Reproduction

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Most societies have generated arrangements through which the reproductive process is regulated. Moreover, mechanisms of social control of fertility and of population growth in general to some degree reflect basic institutional arrangements that pertain to the functioning of the social system as a whole. In this article we try to specify these arrangements, to establish their raison d'etre, and to document the ways in which the nature of the fertility transition is contingent upon changes in the normative code and the system of social control.

Drawing on the record for historical Western Europe and Sub-Saharan Africa, we consider first the linkages between appropriation of resources, patterns of social control, risk devolution, and demographic checks in pretransitional settings and then proceed to examine these variables in the context of demographic transition. Any article dealing with these subjects must of necessity be incomplete, and this one should therefore only be viewed as an example of how an institutional approach can shed light on demographic phenomena that may otherwise appear puzzling.

Demographic Homeostasis and Social Control

When social anthropologists first studied non-European societies, they were generally struck by the fact that the numerous institutions, norms and ta-

boos, beliefs and symbolic codes formed a well-integrated machinery, each element having an identifiable set of functions in the adaptation of the social system to its environment. Likewise, historians, and especially historical demographers, dealing with the European setting before the Industrial Revolution have drawn attention to the fact that there were mechanisms operating, sometimes with remarkable regularity over periods of several centuries, through which societies regulated their demographic parameters in accordance with resources and technology in such a way that deviations from a central pattern were checked. According to historical demographers, some sort of coordinating force, operating well beyond the level of individual choice, governed the demographic homeostasis.

A homeostatic, or self-regulatory, demographic regime consists not only of a particular combination of mortality, fertility, nuptiality, and migration parameters through which population size, density, and growth are brought in line with resources, but also of a set of mechanisms capable of restoring a balance when the system is upset by exogenous shocks. In the usage of Malthus, there are both "positive checks" to population growth—war, famine, any conditions that shorten the natural lifespan—and "preventive checks"—marriage postponement, continence, contraception, and other means available to populations to regulate their growth and to forestall the rise in positive checks that occurs when population and resources are not in balance. Viewed in terms of the overall social system, a variable Y affects a series of other variables, X_1 through X_n, which jointly have a corrective feedback relationship with Y, in such a way that, although short-term oscillations in the variables may be considerable, the long-term variation is kept under control.

The central factor in demographic homeostasis is the force of mortality. Populations build in a number of mechanisms—that is, preventive checks—through which the effects of positive mortality checks are dampened. The story of the "nuptiality valve" in Western Europe before 1850 is well known: a substantial portion of the population's reproductive capacity remained unused as a result of late and nonuniversal marriage for both sexes. The strength of the nuptiality check varied in accordance with economic circumstances: after a mortality check more "ecological niches" and opportunities to form an independent household became available, which led to an increase in nuptiality tempo and intensity. In the early stages the resulting acceleration in population growth "filled the gap" caused by excess mortality. Continued growth caused saturation and a decrease in real wages. This in turn led to nuptiality restraint and/or greater vulnerability to a new mortality shock. In addition to the "nuptiality valve," the level of marital fertility also changed in a periodic fashion. The causes of such marital fertility oscillations are, however, less clear.[1]

Other populations have built in different preventive checks. In most traditional Sub-Saharan African societies, for instance, the observance of a long postpartum taboo on sexual intercourse for a breastfeeding mother resulted in a marked pattern of child-spacing.[2] Such child-spacing not only

limits fertility levels but also ensures lower childhood mortality and better maternal health in environments where protein intake among children other than through breastmilk is low and health hazards are numerous. Hence, the preventive check through postpartum abstinence and long periods of lactation dampens the impact of the positive check operating via mortality.

Not all traditional societies go as far as the Irish or Flemish peasants did in delaying marriage or practice postpartum abstinence to the same extent as the Yorubas of Nigeria, but they definitely rely on prolonged breastfeeding to curb infant mortality and space births, on seasonal or longer term variations in coital frequency (which lowers overall fecundability), and on such other practices as a ban on widow remarriage or permanent abstinence associated with grand-maternal status. All these checks, operating through the starting pattern, the spacing pattern, and the stopping pattern of fertility, subtract a considerable number of woman-years of exposure from the overall reproductive potential.[3] The current interest of demographers in the proximate, or direct, determinants of fertility—proportion married, prevalence of deliberate fertility control, and biological determinants of fertility—is justified not only by the impact of these factors on fertility levels, trends, and differentials but also because they are the locus of the traditional preventive checks and the object of institutional arrangements.

The ingenious collective behavior through which traditional societies limit the use of the reproductive potential and thereby reduce the need for mortality checks to maintain a balance obviously warrants further attention. One set of theories that tries to account for demographic homeostasis in human and in animal populations draws on the Darwinian principles: the struggle for life and natural selection favor the most adapted individuals and the most adapted forms of social organization. A refinement of this is embedded in the Smithian "invisible hand" type of explanation, namely that there are mechanisms that operate beyond individual consciousness that lead to an optimal allocation of resources and optimal adaptation of the pattern of social organization to a given environment and mode of production.

Drawing on these mechanisms, Wrigley has stressed the element of "unconscious rationality" to account for demographic homeostasis:

> Ever since Darwin's days men have been intrigued by the presence of patterns of behaviour in animals which bring an apparent benefit to the species of which the individual members of the population are unaware. What is true for animals may be true equally of species of men (Wilkinson, 1973, Ch. 3). Trial and error may be presumed to have produced this by conferring advantages upon individuals or groups who lighted on good solutions, initially perhaps by chance. In much the same way the invisible hand working through competition in the market place is held to cause an optimal allocation of the community's resources in spite of the obtuseness of some or all the individuals concerned.[4]

In this sense, populations adopt strategies that maximize the individual's welfare in the long run (hence: rationality) without the community's mem-

bers being aware of it (hence: unconscious). The problem with a Smithian proposition is that it refers to population growth regulation *sui generis* as a target, without exploring the extent to which demographic homeostasis could be the result of manifest short-run goal-setting (conscious rationality) by individuals with respect to *other facets* of social life. In other words, it may well be that the restrained use of the reproductive capacity leads to a long-term improvement in individual welfare, but the imposition of restraints may have its origins in mechanisms other than those associated with a long-term economic-demographic equilibrium.

As a complementary proposition, we would like to posit that long-term demographic homeostasis is the result of enforced, rather than self-imposed, restraint. Appropriation of resources takes place, not only in human populations but also in animal ones, at very early stages of social organization. Such an appropriation leads inevitably to inequality with respect to access to resources, and its maintenance (both as a short-term and a long-term goal) implies the imposition of restraints and the emergence of social controls.[5] In traditional societies the regulation of the right to reproduce constitutes an appropriation of female labor resources and of sexual gratification by those who, by virtue of age and descent, form the ruling group in an asymmetric authority structure and exchange system. If their objective is to maintain such privileges, others must practice restraint. The legitimization of such restraint is embedded in an ancestral or religious code with appeal to a "natural order." The outcome is not only the emergence of preventive checks, which may indeed be beneficial for everyone in the long run, but also continuity of the wealth distribution, which surely is especially beneficial—in the short as well as the long run—to the ruling group. As a consequence, demographic homeostasis is not a feature that stands on its own and needs explanation *sui generis* by inventing a special concept such as "unconscious rationality"; rather it is a logical ingredient in a broader homeostasis relating to the entire social system. Some examples will clarify and substantiate this proposition.

In the traditional African context, control of the reproductive pool and of female and child labor are only two among many elements of an overall pattern of gerontocratic control over people in lineages and crops on lineage land. Polygyny stands for power and influence and implies, of necessity, late age at marriage for men. Initiation rites, the organization of individuals in age grades, and the ordering of individuals in terms of "who pays respect to whom" in function of age differences are other frequently encountered traits of gerontocratic systems. The prevention of close husband-wife solidarity, through the long postpartum taboo in particular and through the maintenance of physical and psychological distance in general, also ensures lineage dominance. The same holds for unilineal kinship organization, sister exchange, the levirate, and a marked division of labor between the sexes.[6] The whole is legitimized by an ancestral code that spells out where every individual fits within the "natural order of things."

Hence, the postpartum taboo in Sub-Saharan Africa has a multi-faceted function: not only does it ensure a certain interval between births and curtail child mortality; it also has a central function in maintaining the grip of the lineages on their members and, particularly through its link with polygyny, it serves as an element of male gerontocratic control. In other words, there is no need to link the demographic effect of the postpartum taboo to a latent aim of controlling population growth via a concept of "unconscious rationality," when other links, all centering on short-term goals (survival of children, maintenance of influence), are available to account for it. The postpartum taboo is thus merely one ingredient in a particular syndrome of societal organization that pivots—like any form of societal organization—on allocation or appropriation of resources.

The African pattern of control clearly implies that the burden falls particularly on younger men and to some extent also on monogamously married men—in short, the poor. Symptomatic of this is that the younger men frequently leave their village and migrate elsewhere (e.g., the Mossi migration from Upper Volta to plantation zones or urban areas in Ghana or the Ivory Coast), that they may form a separate age grade and have to care for themselves outside the village economy (e.g., the Moraan system among the Maasai), or, in more rare cases, that they rebel against the elders.[7] The existence of restraints implies, of course, that there may be a tendency to exploit the loopholes in the system: adultery with a younger man is a common possibility. Also in Eastern Africa the use of coitus interruptus seems to have been a common practice to circumvent the postpartum taboo without publicly violating the child-spacing imperative too frequently.[8] Short-term gratifications that run counter to the "preventive checks" are sought; the game is that such loopholes will be closed up as much as possible by the protectors of the ancestral "natural order" whose interests are defied.

Similarly, one can consider the homeostatic function of nuptiality control in historical Western Europe as an integral part of overall maintenance of the social structure. Since land there did not fall under lineage or community supervision but was largely appropriated by individual nuclear or semi-extended families, the accent is shifted to individual wealth and its inheritance. Europe's development of more privatized forms of resource appropriation also implies a broader scope for decision-making within small household units and a greater importance of individual choice. A second aspect of privatization is that extended kinship solidarity and cushioning of risks within broad kinship groups is to some extent replaced by particular forms of communal risk devolution. Greater reliance on neighbors, on organizations like guilds and corporations (especially in cities), or on community charity funds is a fundamental characteristic of the Western European system. In addition to fulfilling a risk-sharing function, these institutions act as a channel of social control. The village charity funds, for instance, were governed by the village notables (landlords, nobility, rich farmers or merchants, clergy), who claimed moral recognition for their Christian acts, while ex-

tending their influence by setting standards for their "clients." In other words, communal risk devolution has a built-in component of both moral and economic patronage. Also noteworthy is the fact that the shift away from ancestral or religious reference to an overarching "natural order" toward accentuation of "individual responsibility" and moral restraint is consistent with increased individualization of resource appropriation and decision-making. A further development (in certain parts of Germany and Switzerland, for instance) would be the curtailment of "imprudent" marriage during the nineteenth century by entirely secular legal regulations.

Why would the ruling groups in early capitalist systems wish to prevent rapid population growth? A frequently advanced explanation is that such growth would put additional strains on the community's charity fund. This is likely to be a secondary argument. First, the amounts of money paid by such local funds and the number of people benefitting from them were often much more a function of the wealth of the village notables and the strength of their patron status than the size of the destitute population segment. Second, it was not uncommon—at least in eighteenth-century Flanders—that the supply of funds to the charity fund was lowest in moments of crisis, when demand was highest. Hoarding of food reserves and speculation on rapid price rises were just as much ingredients of the reasoning of the village notables as was the fulfillment of their Christian duty. Hence, if charity funds were operating in connection with the propagation of moral restraint, it was essentially to prevent the growth of a destitute population segment that might reject the legitimacy of the notables' status and claim the already appropriated resources.[9]

There were, however, very large differences with respect to the functioning of the village charity funds in the various Western European countries, just as there were many types of landlord-peasant relationships. The English system, operating in accordance with the Protestant ethic, seems to have evolved more rapidly in the direction of forging a fairly cohesive system of communal risk-sharing. The system in the Austrian Low Countries and in France during the eighteenth century, on the other hand, seems to have been characterized by particularistic links and recurrent hoarding and large price rises. It is our impression (1) that the extent of risk-sharing across social class boundaries is a good measure of the degree of social integration and (2) that a high degree of such integration corresponds with a greater preponderance of "preventive checks" over the "positive" ones that operate via mortality shocks or overall low life expectancy. We are obviously back to the thesis that demographic homeostasis is a byproduct of the continuity of a given social structure, but with the addition that the extent of a shift from "positive checks" to reliance on "preventive checks" is a function of the degree of social integration at the community level.

The observation that restrained use of the reproductive capacity protects the wealthy against the proliferation of the poor does not, however, account for the fact that the Western European check operated on the start-

ing pattern of reproduction rather than on the spacing or stopping pattern. In our view, the nuptiality check was intimately linked to the early emergence of the predominantly nuclear family as an independent unit of production, in much the same way as the child-spacing pattern reflects the lack of close partner relationships in the African societies built on the dominance of gerontocratically controlled kinship groups. In essence, parents or lineages have three basic ways of maintaining control over labor provided by the younger generation:

1. They pass on a daughter at a very young age to another family (which has an interest in taking care of the remainder of the socialization process of their new daughter-in-law) in the expectation that their sons will bring in replacements. In such an exchange system, it is obvious that the demographic checks cannot operate via the starting pattern of reproduction.
2. They allow young persons to form a procreative unit, but they make sure that no emotional nuclearization takes place. Allegiance to the respective kinship groups remains essential for each of the partners who maintain largely independent means of subsistence. Temporary separation of the spouses is an obvious device to maintain the distance between the spouses.
3. They do not allow their children to form a procreative and nuclear residential unit until this new unit can be economically independent. For as long as this prospect does not materialize, parents benefit directly from the labor capacity of their unmarried children.

It is now obvious that the African solution corresponds largely with strategy 2 and the Western European one with strategy 3. Strategy 3 implies that the nuptiality check is directly beneficial for parents and that parents, more than the community, controlled the maintenance of the nuptiality check in historical Western Europe.

Little so far has been said about the response patterns of those who lose out in such systems. The pill of forced restraint can be sweetened in a variety of ways. First, the more docile may have duly internalized the virtues of respect for ancestral rules, of pious devotion to a religion that promises a better deal after death, of ascetic belief in responsible restraint, or, later, of abidance by civic law. Those less easily pacified can fall back on deferred gratification: as age accrues of necessity and since access to resources and to the reproductive potential is associated with age, the prospect of the opening up of an "ecological niche" or the status of lineage elder comes closer as time advances. In the meantime, one can make the best out of current forced restraint by starting the accumulation of resources (in the form of savings or promising connections) to improve one's chances. Occasional circumvention of the system will also occur. Those few more impatient individuals who claim their shares too soon and without respecting the moral code face the inevitable social sanctions for being a nuisance to all the others. Usually they can either leave or back down. Finally, more rarely, strong-willed individuals (not necessarily belonging to the peasant class) may bend the rules in a

systematic way. They need, however, a new symbolic code in order to legitimize their actions. Needless to say, success in such ventures is contingent upon a large number of other factors that generally amount to major discontinuities in the course of social, economic, and cultural history.

Social Control and Demographic Change

Having established a link between appropriation of resources, patterns of social control, risk-sharing, and demographic checks in pretransitional settings, we can now turn to the connections between these variables in transitional situations.

Homeostatic regimes can be fundamentally altered by technological innovations, new modes of production, or new patterns of appropriation or control. However, a considerable number of additional specifications ought to be made in order to elucidate why, for instance, economic development is not directly translated into a fertility decline, why fertility control can occur in a rural setting, or why an initial fertility increase as a symptom of modernization is not paradoxical.

Whether we deal with demographic modernization or with economic and political change, during any transitional phase crucial questions arise that center on the response pattern in the various domains of social life. More specifically, the degree of *synchronization of the process of adaptive upgrading* in the spheres of political organization, social stratification, systems of exchange, patterns of control embedded in the cultural code, and forms of reproductive control becomes a central issue. (By adaptive upgrading, we mean the evolution of any of these subsystems to greater complexity, sophistication, and efficiency, which, reintegrated, leads to a new societal type of a more advanced nature.)[10] In fact, a substantial part of the social science literature on modernization deals with the lack of synchronization in the evolution to greater sophistication of the economic, political, and cultural subsystems. Moreover, not only is the notion of a lag central in this context, but also a good deal of attention is paid to the strains that such lags produce on the subsequent integration processes. Hence, we should not be at all surprised that the classic regressions between indicators of economic change and those of demographic change leave a substantial amount of unexplained scatter and that the residuals are related to the institutional context in which individuals (or cohorts) drop their old and tried patterns for new ones. In short, problems of modernization deal in one way or another with the juxtaposition of individuals seeking more room for individual choice in response to new conditions, and the inheritance of the past operating on the level of the moral code and traditional forms of control. Applied to fertility behavior, the key questions are then (1) how individuals take note of institutional arrangements and their changes when evaluating the utility-cost struc-

ture of alternative childbearing strategies and (2) how the cultural system is modified and diversified under the pressure of the greater need for individualized decision-making. Hence, not only should formal economic rationality be able to surface as a legitimate mode of thought, but also the outcome of such calculation needs legitimization when it points in nontraditional directions.

In the following sections, we try to illustrate the interplay between individual calculation and institutional control in the contexts of the Western European fertility transition and of current fertility behavior in Sub-Saharan Africa. In both contexts, diversification of the cultural code is a necessary condition for a change in reproductive behavior. Such diversification springs, however, from different origins in the two settings; and the path toward a new demographic homeostasis necessarily differs because of differences in the forms of preventive checks in the pretransition settings.

Social Control and Individual Choice: the Western European Fertility Transition The combined effect of social control and individual rationality vis à vis family formation has been captured in a succinct way by the first two of Ansley Coale's preconditions for a marital fertility decline: (1) fertility control must be advantageous in one way or another for the household concerned; and (2) the act of controlling fertility within marriage must be ethically and morally acceptable. It has also been treated by Nigel Crook in a more elaborate way.[11] The gist of the story is, as Crook observes, that individual choice centers on the maximization of child utilities and minimization of disutilities, which, along with biological restraints, set some but not all of the terms of the demand and supply functions. The missing ingredient is the cost associated with social deviancy. Crook, however, takes it implicitly that there exists a common pattern in which the economic evaluation of child utilities and costs starts to favor marital fertility control in an increasing number of households, while the legitimization and ethical approval of such action lags behind. The important feature of Crook's thesis is that he clearly confronts the individual strategy with the control system of the village. This makes sense in view of what was said in the previous section of this paper about the props of demographic homeostasis.

Very much the same logic was followed in our analysis of the lags with respect to the marital fertility transitions of the Low Countries, Germany, Switzerland, Denmark, and Italy.[12] There too, lagging ethical approval constitutes one of the cornerstones of the edifice. The situation may be summarized as follows: populations in the societies just mentioned moved away from familial and labor-intensive modes of production (agricultural, artisanal, cottage-industrial), as a result of the opening up of avenues for lateral mobility, into the new wage-paying sectors of the economy. A sustained increase in real wages after 1850 released a "revolution of aspiration" and a change in the structure of child utilities versus disutilities. This would imply that the most rational behavior of households would favor increased fertility

control. All of this constitutes a rather classic economic model of fertility transition. Obviously, the different provinces of the countries concerned underwent these socioeconomic shifts at different points in time, which accounts for a portion of the variance in the measures of regional marital fertility decline. However, the urbanization and industrialization processes also accounted to some extent for the erosion of the old control system: patronage networks of village notables weakened, and individuals broke away from the moral authority vested in the churches. The impact of these changes could be captured statistically because voting behavior for secularized and social reformist parties at the turn of the century reflected the development of different and sometimes polarizing subcultures rather well in these countries (least in certain Protestant areas and best in mixed areas or areas with a Catholic tradition). Further analysis then established that the degree of secularization accounted independently for substantial portions of the variance in the relative speed of the regional declines in marital fertility. This conclusion holds even when the most conservative statistical tests are used that would underestimate the true impact of the secularization variable.

The process occurring in these countries was one of cultural diversification along political, ideological, and religious lines such that individuals could remain conformist with respect to their own ideological "pillar," while being deviant when evaluated against the norms of another "pillar."[13] This segmentation of the cultural code into separate "pillars" constituted a major opening for individuals who wished to adapt their fertility to the situation governed by rapidly decreasing child utility and increasing costs. Social deviancy could no longer be measured with a single common yardstick: it became a considerably more relative concept. However, the cost of nonconformism remained high in several areas (e.g., the southern part of the Netherlands), where the least secularized "pillars" remained in firm control of much of the educational system, mass media, labor unions, welfare organizations, and local community life, or where a region's authenticity was stressed through the maintenance of a specific ethical and religious subculture. In these areas, a major secularization trend was a phenomenon that largely postdated World War II; although they had undergone the most fundamental economic changes before that date, these areas experienced the steepest portion of the downward fertility trend about half a century later than neighboring provinces that experienced similar levels of economic development but much earlier diversifications of the cultural code.

The incorporation of a statistical control for early or late emergence of a more tolerant and pluralistic cultural code (with or without segmentation) has been shown to be necessary to achieve a more adequate explanation of regional patterns of the marital fertility transition not only in the Low Countries, Switzerland, Germany, and Italy, but also in the United States. US marital fertility declined very gradually but also very early, that is, at a moment when the US economy was still largely agricultural. William Leasure,

controlling for a number of economic variables, established that the relative size of membership of religious groups characterized by high levels of tolerance carries a non-negligible explanatory power with respect to the regional pattern of the marital fertility transition in the United States.[14]

There are two important cases that have not yet received comment: England and France. They are often taken as opposites, since the former was the innovator with respect to industrialization but hardly an innovator with respect to fertility control, while the latter fits the inverse description. Furthermore, one of the characteristics of the marital fertility transition in England is its great regional homogeneity: all the counties from Cornwall to the Scottish border tend to move through the transition as a single cohesive cluster. In other words, regional lags in England are very small when measured against the Continental European yardstick. Furthermore, the English ethical code adapted rather belatedly, especially in view of England's very early industrialization and urbanization, but when it did so, change occurred in an equally homogeneous way. There were few traces of segmentation along the lines of "Weltanschauung" with respect to family life, and political parties did not show cleavages along religious lines or with respect to the moral authority of the Churches. Rather, as was also true for Denmark for instance, the Churches gradually accommodated to the altered facts of life without a strong fundamentalist revival, thereby allowing fertility to fall more closely in line with what one might expect on the basis of formal economic reasoning. The striking element in the English transition is then not so much the polarization of alternative subcultures associated with marked regional lags in the fertility transition, but the late alteration of a cohesive and fairly uniform cultural code that was forged before the nineteenth century and survived during much of the Victorian era. England seems to be the case that makes the shift to a capitalist industrial state without generating peasant or urban proletarian revolts that would have endangered both the social stratification system and the moral code. We suspect that the two characteristic features of the English transition, its lateness and its homogeneity, are to be seen in the light of the lack of threats to social and cultural continuity during the eighteenth and nineteenth century. It is somewhat ironic, but not at all inconsistent, that the high degree of social integration found in England was instrumental in creating one of the first stable and sophisticated forms of government and the first industrial world power, while also being instrumental in maintaining an unchallenged moral code during much of the nineteenth century. Viewed in this light, it is less surprising that a fertility transition only occurred after 1880, when real wages had nearly doubled and when the formal aspects of household economics had made continued high fertility untenable.

The French marital fertility transition is even more within the domain of speculation because there are few statistical sources on the background variables. Although no firm conclusion can be drawn, some evidence in support of the secularization hypothesis is available.

On the eve of the Revolution, French society had a pattern of social organization that was far less integrated than England's and was even slipping further back to particularistic traits during the reign of Louis XVI. In addition, the modernizing features seeping through under the influence of Protestantism had been suppressed by more than a century of absolutist rule based on the *Droit Divin*. As a result of missed opportunities in the sixteenth and seventeenth centuries and retrogression with respect to the pattern of social stratification and the degree of integration during the eighteenth, the spirit of Enlightenment and Voltairian rationality developed as the motor of a dissident subculture. The French Revolution was the engine of secularization. The Revolution moved through phases of revolts from the bourgeoisie, the peasants, and the urban proletariat; at its height it questioned the very basis of any form of social organization, namely, the legitimacy of appropriation; and it eradicated the economic basis of the Catholic Church. This all added up to the bankruptcy of the *Ancien Régime* together with its cultural and religious props. As a consequence, many parts of France underwent a deep process of secularization during the decades that followed the Revolution. The moral authority of the Church over the peasants did not decline to the same extent everywhere, however: some parts of France (often, but not always, linguistically and culturally distinct areas) remained faithful to the traditions and authority of the Church and used it as an element of articulation of their own subculture. The regional disparities thus formed with respect to the degree of secularization were largely maintained until the twentieth century. The maps of dominical practice, of Easter duty fulfillment, or of clergymen per 100,000 inhabitants for the French communes in the 1950s composed by Chanoine Boulard[15] show a striking resemblance to those established by van de Walle[16] for the marital fertility decline. But then, there is a gap of more than a century between the two pieces of information, and it may be of little consolation to the reader to be told that regional disparities with respect to religious practice and moral attitudes toward family-related issues have tended to change only very slowly in Western Europe.[17]

Another characteristic of the French picture is that any fundamentalist note with respect to procreation and fertility control remained absent from French theology during the first half of the nineteenth century, when most of the actual fertility transition occurred. The term "laxist theology" has been used to capture the fact that the clergy were reluctant to be inquisitive about issues concerning procreation and felt insecure about what constituted a sin and what did not in these matters.[18] A full "secularization within the Church," such as developed in most Protestant areas, did not materialize, however. Exactly the opposite occurred as a fundamentalist Catholic *réveil* emerged in the 1860s, to combat not only the influence of anticlerical and nationalist bourgeoisie, but also that of a new and much further reaching source of secularization carried by Socialism.

To sum up, the lessons to be drawn from the Western European fertility transition lie not so much in the fact that geographical dispersion patterns are detectable or that the fertility transition followed linguistic and cultural boundaries, but rather in the fact that, over and beyond the effects of changes in the mode of production and its ramifications with respect to the terms of household economic calculations, diversifications emerged in the timing and format of the marital fertility decline that were closely associated with the development of differential and sometimes compartmentalized ideological codes. This diversification of the moral code was a necessary permissive agent and the lack of it a suppressant of marital fertility control. The cost associated with "nonconformism" was, however, not lowered uniformly, so that one can speak of an intermediate phase of segmented cultural transition in continental Western Europe, characterized by what Hofstee has called "asymmetric tolerance."[19] This intermediate phase generated echoes until the 1960s, by which point the remnants of cultural and religious compartmentalization with respect to differential marital fertility levels had effectively disappeared.

Social Control and Fertility in Sub-Saharan Africa The continental Western European experience has given us the chance to document how individualization of decision making, fueled by the gradual break-up of the familial mode of production, led to the fragmentation of the cultural code and of the political control system and then to highly discrete timing patterns of marital fertility decline. The Sub-Saharan African cases illustrate how the erosion of traditional controls and the emergence of new parity-specific control may respond to similar background variables but according to *different elasticities.*

This experience is not new. In the European historical setting too, the changes in the two major components of overall fertility—nuptiality and marital fertility, representing the old and the new control points respectively—have not been synchronous: several Western and Northern European populations modernized their marriage pattern only *after* the onset of the marital fertility decline, thereby preventing growth rates from exceeding 1 percent per annum for any length of time. Here, the old regulatory system remained in operation until the new regulatory system was already well under way. The reason for this cautious transition is probably to be sought in the very fact that the pretransition European control point was located in the nuptiality factor. This may have been a robust anchorage for two reasons. As indicated earlier, the nuptiality check is intimately linked with the dominance of nuclear and economically independent familial cells. This feature existed largely before the nineteenth century and was not altered in any fundamental way during the period of marital fertility transition. In other words, the rules of the game remained essentially intact; the major difference was that the age at marriage could gradually decline as the younger

generation could achieve economic independence at earlier ages. The second reason for the robustness of the control is that it fell largely under direct parental supervision.

The African control points, however, are connected not so much with the starting pattern of reproduction as with the spacing and probably also the stopping pattern. This implies that they are at least one step further removed from direct parental influence (which, through enforced late marriage, can exercise an absolute control over reproduction) but fall more clearly under general community control (through appeals to custom, moral persuasion, etc.). If it is true that community-level controls weaken more rapidly than parental ones, then the rapid decline of the typical Sub-Saharan spacing pattern becomes less enigmatic.

Before going into the details of process, it may be useful to describe the geographical features of the African postpartum taboo on intercourse, one of the essential ingredients of the traditional spacing pattern. The fact that, in the aggregate, prolonged breastfeeding lengthens the postpartum period of physiological nonsusceptibility to pregnancy is well known. Over and above this child-spacing effect achieved through postpartum amenorrhoea, many African societies have an institutionalized taboo on intercourse for women, ideally for the length of the period of breastfeeding. Durations of sexual abstinence for periods of two to three years are not exceptional. If one tries to produce a map of the length of this postpartum abstinence on the basis of anthropological references and small scattered surveys pertaining to the 1950s and 1960s, however, one notices that the taboo extends beyond the period of one year only in the area west of the line that starts in Southern Senegal, runs through the Sahel to Lake Chad, bends southward to the Zaire basin and bends back to the Atlantic somewhere in Angola. This implies that most populations living to the north, east, and south of this line either have substantially eroded taboos on postpartum sexual intercourse or had taboos of short duration to start with.[20] Apart from giving a rough geographical picture, such a map leads to a few interesting speculations. First, it is clear that many populations in the long-taboo zone do not live in the tropical forest belt. Hence, Whiting's explanation of the custom as a response to protein deficiency in the forest belt does not fully account for the spread of the taboo. Second, most of the ethnic groups that have produced Africa's great tradition of ritual art (masks, ritual figures) are located in the long-taboo zone. The correspondence of these phenomena is probably not fortuitous: rituals are classic devices of forging group cohesion and maintaining communal control.

As pointed out earlier, the old regulatory system based on the maintenance of distance in husband-wife relationships was not devised to control population growth as such, but was an ingredient of a more general form of societal organization based on gerontocratic lineage control. As this control system is replaced by other models, many of its constituent parts may disappear. It would be a crucial mistake, however, to presume that all of these ingredients would weaken *at the same pace*. Much depends on whether or

not they maintain some of their functions. Some elements, such as the initiation rites, may lose their functions quite rapidly and disappear accordingly. Others—for example, extended kinship relations—would maintain their functions. As long as there are no satisfactory modern social security arrangements, risk-sharing is likely to remain within the kinship context, and kinship ties may even be strengthened rather than weakened. Also, the maintenance of strong kinship ties does not necessarily prevent fertility control.[21]

Which factors, then, would provoke a rapid erosion of the traditional child-spacing pattern in Sub-Saharan Africa? First of all, the gerontocratic control system is being successfully challenged by one in which young males rise to prominence as a result of education, a factor that inevitably creates a gap between generations. Moreover, the large psychological and social distance between the spouses, a major prop of lineage control, is gradually narrowing. This is to a considerable extent also a result of education. The symptoms are most clear in the urban areas: polygamy decreases, and more educated wives fear that long postpartum abstinence would encourage their husbands to find a concubine. The weakening of the child-spacing pattern is, however, by no means restricted to the middle and top urban layers of the population; it extends also to the rural areas. Most of the survey data from Nigeria, for instance, on the issues of breastfeeding and postpartum abstinence suggest a cohort effect in all areas and strata of the population.[22]

A fair portion of the very high fertility and high population growth levels in Kenya can probably also be traced back to an early erosion of the traditional child-spacing mechanisms in strictly rural areas. Increasingly, the heterogeneity with respect to breastfeeding and postpartum abstinence duration that existed earlier between ethnic groups is being replaced by heterogeneity between educational groups or age cohorts. Data for the Yoruba in Nigeria show that a difference of five years in age or two to three years in education matters.

Second, factors centered on fertility tempo and intensity may not respond with the same elasticities: the social sanctions associated with deviancy from traditional norms concerning final family size may be stronger in the initial phase than those associated with deviancy from the breastfeeding or postpartum abstinence norms. If a woman is "overshooting" an acceptable family size as a result of less than adequate spacing, there will hardly be a social sanction for such overachievement, provided that the children survive and are in good health.

This leads us to a third factor: infant death or illness used to be the crucial indicator to the community of a woman's misbehavior during the postpartum period. With increasing access to health facilities, urban and local elites can easily reduce their infant losses, avoid community sanction, and set a precedent for others.[23]

The fourth factor is the one that has received least attention: as income and employment disparities between urban and rural areas and between rural zones tend to be marked and even to increase, sizable proportions of

the population—including women—migrate periodically between the village of origin and the place of employment. This weakens social control by the village and the kinship group. A glimpse of this effect was obtained in the data of the Lagos Parity Study: durations of breastfeeding or postpartum abstinence showed no variation across duration of residence in Lagos or with migrant status. It appeared that those willing to leave their village had already prepared themselves for the "other way of life" and selected themselves in this way from those remaining "at home."

On the whole, it appears that such characteristics as education or working in another area are used by individuals as symbols to signify that they can be excused for behaving in a different way, or at least, that they have worked themselves up to an exempt status relative to traditional judgment.

Finally, it appears that individual rational calculation proceeds in a sequential rather than synoptic fashion.[24] This implies that individuals would gradually move to a definition of means and ends as a result of a cognitive learning process (i.e., empiricism) rather than starting off from some sort of cost-benefit analysis aimed at the maximization of utilities on the basis of clearly and a priori defined goals and criteria. Such sequential rather than synoptic rationality would also be a much safer procedure: it has a built-in degree of flexibility and allows for adjustments to social and cultural constraints. In this sense, women would not start off by preprogramming their entire reproductive history (or continue to follow a handed-down script); rather, they would proceed from birth to birth by acting on the major components of each successive birth interval. The sequential format allows for the fact that long periods of abstinence could be perceived as dysfunctional during the early years of married life, while a fertility excess (supply greater than demand) would only emerge later on.[25] The net result may then be a temporary fertility supply-demand disequilibrium at a particular point in the life cycle of households and only a partial modernization of the reproductive system during the first years of the fertility transition.[26] In short, as the Sub-Saharan African experience illustrates, an initial fertility increase as a symptom of modernization is not paradoxical.

Conclusion

The main points of the argument can be summarized as follows:

The explanation of demographic homeostasis and the use of preventive checks on the basis of a Smithian "invisible hand" theory or a classic functionalist one is not entirely adequate: it focuses solely on the long-term population growth aspect *sui generis* (thereby requiring the concepts of unconscious rationality or latent function), while leaving aside other major aspects of the social system and more immediate interests of the population. The alternative explanation advanced here considers the linkages between appropriation of resources, patterns of social control, risk devolution, and demographic checks as parts of a system that tends toward homeostasis.

In this context, pretransitional demographic homeostasis can be seen as a result of the continuity and the degree of integration of a social system in which resources (including access to and use of the reproductive potential) are appropriated as a function of age and descent as traditional props of authority and control. In primitive societies, the establishment of exchange systems resulting from appropriation of resources and from division of labor is sufficient for a shift to occur in the demographic regulatory process from positive to preventive checks. At a given level of technology, a high level of social integration with a more efficient exchange system leads to a greater preponderance of preventive checks by spreading risks over a larger population base. A strong communal control system and a fairly monolithic cultural code secure the maintenance of preventive checks, not so much as a goal in their own right, but as a logical result of the overall maintenance of the prevailing social structure.

The locus of the preventive checks in the starting, spacing, or stopping pattern of fertility is a function of the institutional arrangements through which parents or kinship groups control the younger generation, including its labor capacity. It seems plausible that checks dealing with the starting pattern of reproduction are the most robust because they depend more on parental control than those connected with the spacing or stopping pattern, which rely more on communal control for enforcement.

The modernization of the reproductive system is not only a question of adoption of new parity-specific controls within marital fertility but depends also on the speed of the dissolution of the old regulatory mechanisms. The erosion of the latter is directly related to broader changes in familial, communal, and national control systems. In particular the emergence of parity-specific checks on marital fertility seems to depend on concurrent alterations and diversifications of the moral code in the direction of greater tolerance for individual choice: both formal economic rationality as a particular mode of thought and the outcome of its application need legitimization. The fact that marital fertility control has been contingent on the evolution of the moral code indicates that an emancipation process is involved. The observation that the decline of the old demographic control system and the emergence of a new one are not necessarily synchronous, together with the fact that the model of sequential rationality seems to fit, indicates that an experimentation process is involved as well.

The incorporation of the interplay between individual strategies and the historically inherited normative system calls for the use of conceptual frameworks other than those based on synoptic maximization algorithms. The previously compartmentalized "economies," "sociologies," and "psychologies" of human fertility are already converging to some extent toward more complex conceptual frameworks and it may well be that a structuralist approach,[27] together with elaborated typologies of the forms of "rational action," could emerge as the central module of analytical paradigms of fertility transition.

Notes

The author wishes to thank Ron Freedman, John Casterline, and Hilary Page for their comments on an earlier draft and E. W. Hofstee for making available a copy of his paper on demographic change in the Netherlands.

1. The role of nuptiality in the seventeenth- and eighteenth-century European demographic system may have been somewhat overstressed, in part because it fits so well within the homeostatic picture. There is evidence that marital fertility was by no means stable. A first piece of evidence stems from Lee's spectral analysis of births and marriages in England [R. D. Lee, "Natural fertility, population cycles and the spectral analysis of births and marriages," *Journal of the American Statistical Association* 70, no. 350 (June 1975): 295–304; and R. D. Lee (ed.), *Population Patterns in the Past* (New York: Academic Press, 1977), chapter 12]. He shows by disentangling the interconnections and echoes that (1) short-term, but annual fluctuations in preindustrial birth sequences were not solely due to those in nuptiality or mortality but to genuine fluctuation in marital fertility and (2) that the coefficients of variation in baptisms can be as large as those in burials or marriages. A second piece of evidence for the nonstability of marital fertility is the marked seasonality in conceptions that persists even after controlling for seasonality in migration and marriages. We suspect that this seasonality is far more likely to have been linked with seasonal variation in coital frequency than with variation in lactational amenorrhoea since the latter is far less subject to individual control. An explanation of seasonal variation in fecundability by variations in nutrition status is most plausible, but the fact that the seasonality exists in so many villages that certainly span a wide spectrum with respect to nutritional status is troublesome. Even more puzzling is the fact that during the nineteenth century, seasonality of conceptions gradually disappeared in urban centers—and even in industrial ones with high levels of pauperization—while it continued to be evident in villages. Hence, variation in coital frequency remains a strong candidate to account for variation in marital fertility. Moreover, we know from other societies that periodic abstinence is not necessarily viewed as being traumatic. In the light of this, the parity-specific form of marital fertility control as practiced by the nobility and bourgeoisie but also by the French and Hungarian peasantry in the eighteenth century or the first half of the nineteenth is probably far more revolutionary from the point of view of the demographer interested in final family size than from the point of view of the historian interested in the evolution of "contraceptive technology." For a general discussion of the mechanisms of the Western European demographic homeostasis, see also Lee's introductory chapter in *Population Patterns in the Past*.

2. The child-spacing tradition based on postpartum sexual abstinence for women during part or all of the breastfeeding period was reported as early as 1910 by various colonial agents, medical personnel, and missionaries. It enters the demographic literature with A. M. Carr-Saunders' *World Population: Past Growth and Present Trends* (London: Oxford University Press, 1936). The first detailed demographic study of the pattern dates from 1977: John C. and Patricia Caldwell, "The role of marital sexual abstinence in determining fertility: A study of the Yoruba in Nigeria," *Population Studies* 31, no. 2 (1977): 193–217, while several other demographers working with the Yoruba culture had drawn attention to the phenomenon (P. O. Olusanya, P. Ohadike, R. Morgan). The subject has continued to attract the attention of demographers, and a fair portion of the survey results for Ghana, Togo, Senegal, Nigeria, and Zaire is brought together in Hilary J. Page and Ron Lesthaeghe (eds.), *Child-Spacing in Tropical Africa: Traditions and Change* (London: Academic Press, forthcoming).

3. See John Bongaarts, "Why high birth rates are so low," *Population and Development Review* 1, no. 2 (December 1975) and "A framework for analyzing the proximate determinants of fertility," *Population and Development Review* 4, no. 1 (March 1978): 105–132 for lucid discussion of the impact of the intermediate, or proximate, fertility variables. Also falling within the tradition of fertility simulation, but dealing directly with an African population, is G. Santow's *A Simulation Approach to the Study of Human Fertility*

(Leiden: Martinus Nijhoff for the Netherlands Interuniversity Demography Institute, 1978), especially chapter 5.

4. E. A. Wrigley, "Fertility strategy for the individual and for the group," chapter 3 in *Historical Studies of Changing Fertility*, ed. C. Tilly (Princeton University Press, 1978). Note that the reference to Wilkinson is a part of Wrigley's text.

5. For an interesting treatment of the topic, see J. Dupâquier in "De l'animal à l'homme; le mécanisme auto-regulateur des populations traditionelles," *Revue de l'Institut de Sociologie*, vol. 2 (Université Libre de Bruxelles, 1972), pp. 177–211. See also Daniel Scott Smith, "A homeostatic demographic regime: Patterns in West European family reconstruction studies," in *Population Patterns in the Past*, ed. Ron D. Lee (London: Academic Press, 1977), pp. 19–51.

6. The most extensive anthropological interpretation of the long postpartum taboo is, to our knowledge, to be found in J.-F. Saucier's "Correlates of the long postpartum taboo: A cross-cultural study," *Current Anthropology* (1972): 238–249. In contrast to earlier hypotheses referring to climatic and nutritional aspects only, Saucier stresses the function of the taboo in the framework of a particular pattern of societal organization, a position with which we agree. For further evidence concerning the functions of the taboo see R. Schoenmaeckers, I. H. Shah, R. Lesthaeghe, and O. Tambashe, "The child-spacing tradition and the postpartum taboo in Tropical Africa: Anthropological evidence," Chapter 2 in *Child-spacing in Tropical Africa: Traditions and Change*, ed. H. J. Page and R. Lesthaeghe, cited in note 2. For a clear treatment of gerontocratic lineage control and the economic and cultural aspects of fertility in Africa, see Helen Ware, "Economic strategy and the number of children," in *The Persistence of High Fertility*, vol. 2, ed. John C. Caldwell (Canberra: Australian National University, 1977), pp. 469–592.

7. The Hoyo in Tivland beat or killed those elders who had been shown, by a divining apparatus, to be bewitching their members: see J.-F Saucier, cited in note 6, p. 247 referring to Buchanan.

8. See Angela Molnos, *Cultural Source Materials for Population Planning in East Africa* (Nairobi: East African Publishing House, 1972) and especially the contributions on the Kgatla-Tswana, Nyakyusa, Chagga, Hehe, Kaguru, Kikuyu, Shambaa, and Shona.

9. The Anabaptist revolt in the Low Countries during the sixteenth century is a clear example of an overall rejection of the entire prevailing social system and its moral code. Anabaptists, recruited especially among the rural landless laborers and the urban proletariat, rejected any form of private appropriation, led the storming of churches, and tried to establish new city-republics (e.g., the Munster Republic). The rejection of appropriation went so far that marriage as an institution was occasionally replaced by "group marriage" and living in what we now would call a commune. One could not have been further away from the Malthusian marriage restriction. See Louis-Paul Boon, *Het Geuzenboek* (Amsterdam: Arbeiderspers-Querido, 1979), for a lengthy but romanticized account of the Anabaptists' social origin and goals. For a detailed account of the bases of peasant revolt, see B. Moore, Jr., *Social Origins of Dictatorship and Democracy—Lord and Peasant in the Making of the Modern World* (Boston: Beacon Press, 1966).

10. For a discussion of the term adaptive upgrading, see Talcott Parsons, *Societies—Evolutionary and Comparative Perspectives* (Englewood Cliffs, New Jersey: Prentice-Hall, 1966), pp. 18–25.

11. Ansley J. Coale, "The demographic transition," *Proceedings of the IUSSP Conference* (Liège: Ordina Editions, 1973), pp. 177–211. Nigel Crook, "On social norms and fertility decline," *The Journal of Development Studies* 14, no. 4 (July 1978): 198–210.

12. Ron Lesthaeghe and C. Wilson, "Productievormen, Stemgedrag en Vruchtbaarheidstransitie in Westeuropees Perspectief, 1870–1930," *Bevolking en Gezin*, no. 3 (Brussels, 1978): 309–339; also forthcoming in English as "Modes of production, secularization and the pace of fertility decline in Western Europe, 1870–1930" in the proceedings of the Princeton Conference on the results of the European Fertility Transition Project. Note that the empirical relationship between voting patterns as a proxy of the segmentation of

"Weltanschauung" and the marital fertility transition had been commented upon as early as 1912 by Julius Wolf in his essay "Kinderzahl und Sozialdemokratie im Deutschland," in *Die Volkswirtschaft der Gegenwart und Zukunft* (Leipzig: Anhang 1).

13. We have used the term "pillar" in accordance with the Dutch or German "verzuiling" and "Versaulung." A pillar is a vertical integration of institutions (political party, schools and university, health services, mass media, consumer and producer cooperatives, youth organizations, pension funds, etc.) with a similar political or religious-political ideology. The most easily accessible text on "verzuiling" and its ramifications is A. Lijphart's *The Politics of Accommodation: Pluralism and Democracy in the Netherlands* (Berkeley: University of California Press, 1968). A salient characteristic of "verzuiling" is that issues are often discussed in the framework of arriving at a truce or a pact between the different pillars, a consideration which often prevails over that of getting at the most efficient solution. This sheds more light on how moral and ethical pluralism, although with elements of asymmetry, is achieved through a system that is in fact the outgrowth of late-nineteenth-century economic and social patronage.

14. William Leasure, "The decline of fertility in the United States, 1800–1860," mimeo, Department of Economics, San Diego State University, 1979.

15. See J. Duplex, *Atlas de la France rurale*, Cahiers de la Fondation Nationale des Sciences Politiques. (Paris: Editions Armand Colin, 1968), maps 42–44.

16. Etienne van de Walle, *The Female Population of France in the Nineteenth Century* (Princeton University Press, 1974).

17. Typical in this respect is that the pace of the fertility decline before 1910 is generally a very good indicator of the regional outcome of voting or referendum results with respect to family issues such as divorce or abortion in the 1960s and 1970s. In Switzerland, for instance, the correlation between the regional distribution of votes in favor of liberalizing the abortion legislation in the 1977 referendum and the speed of the marital fertility decline in the Cantons in the period 1860–1910 is no less than .88. Belgian divorce rates of the 41 Arrondissements in 1977 (the most recent series) correlate with the relative speed of the marital fertility transition in the period 1880–1910 at the level of $r = .85$. Similarly, M. Livi-Bacci found for Italy that the speed of the marital fertility decline before 1931 was the single best predictor of the results of the divorce referendum of 1974. In certain European countries matters of outlook regarding family life are regionally differentiated in very much the same way in the 1970s as they were at the turn of the century. It appears that the issues have changed but not the regional differentiation in attitudes toward them.

18. See J. Stengers for a historical overview of the evolution in the Catholic Church with respect to fertility control: "Les politiques anticonceptionelles dans le marriage au XVIIIe et XIXe siècles; problèmes humains et attitudes religieuses," *Revue belge de philologie et d'histoire* 49 (1971): 403–481 and 1119–1174.

19. The term "asymmetric tolerance" was coined by E. W. Hofstee in his 1978 address to the members of the Dutch Demography Association to mean that the ethical and political influence of the Protestant "pillars" in the Netherlands remained dominant until well into the twentieth century, despite the fact that the Catholic population segment had become a demographic majority (but established a number of defensive minority-type reflexes) after 1830. In a more general way, the term captures the unevenness that prevails in systems where ethical pluralism emerges from a set of highly segmented cultural codes. Hofstee's definition is as follows: "I define asymmetric tolerance here as the situation which comes into existence in a democratic state, where freedom of religion, political thought and cultural freedom in general are formally guaranteed, when a group of a certain religious or political faith . . . succeeds in acquiring a kind of national leadership and censorship, which brings groups with different ideological backgrounds in a defensive position." See E. W. Hofstee: "The modernization of the demographic pattern—The example of the Netherlands," unpublished manuscript, July 1978, Wageningen, p. 10.

20. See R. Schoenmaeckers et al. in H. Page and R. Lesthaeghe, *Child-spacing in Tropical Africa: Traditions and Change*, cited in note 2, chapter 2. Note that the Akan-people in Ghana form an exception to the Western and Central African long postpartum abstinence pattern.

21. In this context it is interesting to note that parents with a limited number of children may consciously opt for the maintenance of very close kinship ties in order to secure a bond of solidarity between their own children and their nephews or nieces. They combine the advantages of a smaller family size for themselves with those stemming from the "extended family social security system" on behalf of their children, who will not be able to fall back on a large network of siblings. S. K. Gaisie and S. Loza have pointed out independently for Ghana and Egypt, respectively, that fertility limitation may just as well be associated with the maintenance or strengthening of kinship ties as with their weakening. Similar observations have been made with respect to family structure and the fertility reduction in Taiwan. See Ronald Freedman, Baron Moots, Te-Hsiung Sun, and Mary Beth Weinberger, "Household composition and extended kinship in Taiwan," *Population Studies* 32, no. 1 (March 1978): 65–80.

22. This finding emerges very clearly when comparing Orubuloye's data for rural Ekiti and Ibadan villages with those of the Caldwells for the city of Ibadan and those of Adegbola, Page, and Lesthaeghe for Lagos. All data pertain to the Yoruba population of Nigeria but the three sets span the entire range of socioeconomic variation in that society. S. K. Gaisie's analysis of Ghana, on the other hand, highlights the ethnic differences. See the corresponding chapters in *Child-spacing in Tropical Africa: Traditions and Change*, cited in note 2.

23. Professor Mabogunje gave a similar argument, but with respect to contraception: older men would condemn contraceptive use, not only because it is a novelty, but because the results of "misbehavior" during the postpartum period would no longer be visible for the rest of the community to judge (tape-recording, workshop on child-spacing in Tropical Africa, Brussels, April 1979).

24. The sequential rather than synoptic decision-making process has been a very common point of discussion and elaboration by sociologists dealing with large organizations and bureaucracies. They have especially built upon the ideas of C. E. Lindblom, A. O. Hirschman, J. G. March, and H. Simon. For a detailed discussion, see Michel Crozier and Erhard Friedberg, *L'acteur et le système—les contraintes de l'action collective* (Paris: Edition du Seuil, 1977), chapter 10, pp. 265–280, chapter 12, pp. 313–321, and chapter 13, pp. 325–347.

25. This was simultaneously pointed out by James Kocher and the authors of the Lagos Parity Study in the session on African demography during the meetings of the Population Association of America in St. Louis, 1977. Kocher defined the phenomenon for Tanzania as a supply-demand disequilibrium, in the by-now-standard economic terminology, while the LPS authors (Adegbola et al.) described the same phenomenon using birth interval analysis. For more details on Lagos, see Chapter 6 in *Child-spacing in Tropical Africa: Traditions and Change*, cited in note 2.

26. Note that the potential for a fertility increase at the onset of the demographic transition is by no means typical of Sub-Saharan Africa alone. See Ronald Freedman and R. Casterline, "Nuptiality and fertility in Taiwan" and Ansley J. Coale, N. Goldman, and Lee Jay Cho, "Nuptiality and fertility in the Republic of Korea," papers presented at the IUSSP seminar on nuptiality and fertility, Bruges, January 1979, for a marked increase in Coale's M parameter, i.e. the level of natural marital fertility, during the first phase of the transition. Even more marked is the fertility increase (both in terms of the I_g measure of marital fertility and in terms of the M parameter) in the USSR Central Asian Republics (Tadzhik SSR, Kirgiz SSR, Turkmen SSR, Uzbek SSR, Kazakh SSR). The increase is especially steep after 1959. See Ansley J. Coale, Barbara Anderson, and Erna Härm, *Human Fertility in Russia since the Nineteenth Century* (Princeton University Press, 1979), chapter 3, pp. 85–121. A similar, though less marked phenomenon also emerged in the Japanese fertility transition: see K. Kobayashi and Y. Tsubouchi, "Fertility implications of nuptiality trends in Japan," Bruges Seminar.

For European countries, John Knodel has found the phenomenon in several of his German villages (personal communication), while the phenomenon emerges under the form of a temporary increase in the I_g parameter in several provinces (all the Flemish ones) in Belgium between 1856 and 1890, in several French départements between 1830 and 1900, in 14 of the 92 Italian administrative units between 1861 and 1911, and in 15 of the 48 Spanish units between 1887 and 1910. The exact cause of the initial increase in fertility in these European areas is not known, but it is likely that the level of fecundability increased, as witnessed by the shortening of the interval between marriage and the first birth in several instances (personal communication from Knodel and Wilson for German villages and Van den Broecke for Flemish cases). The shortening of the duration of breastfeeding is another likely candidate as an explanatory variable, but statistical evidence is not available for most of the European examples.

27. Strong arguments for such an approach (with a rather familiar ring to sociologists) are presented by Geoffrey McNicoll in "Population and development: Outlines for a structuralist approach," in *Population and Development*, ed. Geoffrey Hawthorn (London: Frank Cass and Co., 1978), pp. 79–99. In fact, on p. 89, McNicoll gives a task definition for the present paper: "An exploration in functional terms—seeing particular structures as, for example, devices for maintaining power positions or diffusing risk—is an important source of insight into socio-economic stasis in a changing environment. Equally, by identifying who is losing by the present set-up and the kinds of recourse they may have, we can locate emerging contradictions and assess possibilities for their resolution." Most encouraging in current economic literature is the trend back toward more "institutional economics" (e.g., Yoram Ben-Porath's "On the institutional structure of exchange—Economic man finds identity," The Maurice Falk Institute for Economic Research in Israel, Discussion Paper no. 806, Jerusalem, February 1980) and the considerable increase in emphasis on types of rational behavior other than those centered on synoptic maximization (e.g., Harvey Leibenstein's "Relaxing the maximization assumption in the economic theory of fertility," IUSSP Seminar on "Determinants of Fertility Trends, Major Theories and New Directions for Research," Bad Homburg, April 1980). Characteristic of much of this literature is that economists dealing with "deviant" dependent variables such as voting behavior or fertility are drawn much more closely toward classic sociological literature and that this renaissance owes much of its "legitimization" within the field of economics to the impact of H. Simon and the Carnegie School. These developments in recent economic theory are certainly functional for a further integration of "sociologies," "economics," and "psychologies" of fertility.