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ARTICLES

NOTES AND COMMENTARY

Family Ties in Western Europe: Persistent Contrasts

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IN THE WESTERN WORLD it is not difficult to identify areas where families and family ties are relatively "strong" and others where they are relatively "weak." There are regions where traditionally the family group has had priority over the individual, and others where the individual and individual values have had priority over everything else. The strength and resilience of family loyalties, allegiances, and authority can be seen most clearly within the coresidential domestic group and among persons from the same conjugal family, although they extend to the larger kin group as well. These differences may well have characterized the European family for centuries, and there are few indications that convergence is occurring today. The way in which the relationship between the family group and its members manifests itself has implications for the way society itself functions. Politicians and public planners would do well to consider the nature of existing family systems when designing certain social policies.

The geography of these strong and weak family systems does not appear to follow the classic division of Europe into stem-family and nuclear-family regions. The dividing line, in some ways, is actually much simpler, with the center and north of Europe (Scandinavia, the British Isles, the Low Countries, much of Germany and Austria), together with North American society, being characterized by relatively weak family links, and the Mediterranean region by strong family ties.[1] The specific boundaries of different family systems are often not crystal clear, and subregional differences abound. For example, in some respects Ireland does not fit well into northern European family patterns, northern and southern France often appear to walk divergent paths, and the southern fringes of Spain, Italy, or Portugal often show characteristics distinct from the northern parts of those same countries. Within individual societies, there is also much room for heterogeneity affecting families and family life. This multiplicity of forms

and behavior, however, does not negate the existence of more general regularities affecting large areas of Europe.

For the most part, our analysis does not include the Europe lying to the east of John Hajnal's St. Petersburg–Trieste line that set apart fundamentally different marriage regimes, demographic structures, and family systems on the European continent (Hajnal 1965, 1982). In those regions, forms of familial organization are sufficiently different to warrant their own specific study. While limiting the context of our analysis, this focus enables us to keep comparisons fairly straightforward. Contextualizing present familial behavior patterns in the light of historical experience, however, can and should be attempted when examining family systems in eastern Europe or, for that matter, in any other society.

In this essay, then, we emphasize the general over the specific; the big picture set out in bold strokes prevails over attention to detail. In so doing, we portray basic contexts of comparison and underscore the key issues involved as clearly as possible. This entails a certain inevitable reductionism understating the heterogeneity of the European experience within and across societies, as well as over time. In the future, additional reflection and work should fill in many of the gaps in our argument.

Family systems in historical perspective

Vestiges of the divisions just outlined can be seen clearly in many aspects of family life. Among the most important are those centered on the moment of transition when young members of the family group set up households of their own or in the way in which the family organizes support for its most vulnerable members.[2] In northern Europe and in the United States, young adults normally abandon their parental households when they have acquired a degree of maturity so as to start out their adult lives on their own, lives that are occupied by their studies or by efforts to establish economic independence from their parents. Their jobs, even if often unstable or only seasonal, might also enable them to save for their own marriages, although nowadays this sense of saving is much less important than their effort to settle into an independent life. Often these initial forays into the adult world are made while sharing housing with friends and colleagues who are at a similar stage of their own lives. Later, often years later, these young people marry and once again start a new household, albeit this time with the intention of founding a family within the context of a stable relationship with another person.

In societies of Mediterranean Europe, the process of leaving the parental household is quite different. In these societies, the definitive departure of young people tends to coincide more or less closely with their marriage and finding a stable job. The years between adolescent maturity (ages

18–20 years) and marriage are spent largely within the parental household. If a person gets a job during this period, he or she normally continues to live at home, a strategy that enables the young adult to save for his or her own marriage. Generally marriage does not even enter the picture unless it is accompanied by the corresponding emancipation from the parental home and the formation of a new household. This entire process is aptly crystallized in the traditional Spanish aphorism *casada casa quiere*—"the bride (or groom) demands a home." In this way, in Spain and in many other southern European countries, a stable job, access to adequate housing, leaving the parental household, and marriage tend to be closely intertwined events. In fact, an excellent indicator of the labor market and unquestionably the best one for the rate of family formation in southern Europe would be the incidence of first marriages among young adults.[3]

In both contexts there are, of course, many exceptions. In England, the Netherlands, and the United States, for example, young adults often remain at home past 20 years of age, while in Spain and Portugal some people leave home before marriage and others continue to live with their parents after marriage, at least for awhile. In fact, temporary coresidence of parents and married children, and even prolonged periods of economic help, have never been infrequent, either in the past or today.[4] Nevertheless, these moments of help were always considered as exceptional by everyone. These exceptions only underlie the great differences between northern and southern Europe on this point.

These divergent practices appear to have deep historical roots. From at least the latter part of the Middle Ages until the second half of the nineteenth century or the early years of this century, it was common in rural England for young adults to leave their parental households to work as agricultural servants in other households for a prolonged period.[5] Servants might go to households of higher social and economic standing, although servant exchange among households of the same social status was widespread. In other words, it was common for a farmer to send his son out as an agricultural servant on a farm, say, in the neighboring village, while he took other young servants into his own household as agricultural laborers. This practice appears to have affected the majority of young adults in rural England during the seventeenth and eighteenth centuries. Peter Laslett has pointed out that approximately half of all young people of both sexes between 15 and 24 years of age were servants.[6] According to Ann Kussmaul (1981: 12–13), in a large sample of English communities between the seventeenth and eighteenth centuries, about 60 percent of all farmers had servants, and these represented about half the supply of nonfamily labor in rural areas and accounted for 10–12 percent of the total population. The extent of this practice implies that the great majority of young adults in England left their parental households more or less permanently between

15 and 19 years of age. There is also ample evidence of the importance of servants in other northern European societies, where numerous studies suggest that between 9 and 17 percent of the total population were servants.[7]

In Spain and other southern European societies, on the other hand, even though there were servants in both rural and urban settings, since the Middle Ages it appears to have been for the most part a job that took young people into households of higher social standing and affected only a small part of the young population in rural areas.[8] The census of Floridablanca (1787) in Spain suggests that a relatively small fraction of the population were servants, despite the fact that the data include servants in urban areas where they were frequently more numerous than in the countryside. According to this census, servants made up 22.5 percent of the nonfamily supply of labor and 2.7 percent of the total population.[9] Despite substantial regional variation, everywhere in ancien régime Spain percentages of servants are far below those found in northern Europe. Much the same appears to hold in the rural areas of Portugal, Italy, and perhaps in Greece as well,[10] although in cities the importance of domestic servants was usually far greater.[11]

The data taken from numerous local studies before the mid-nineteenth century are corroborated by the first round of modern European censuses. According to the manuscript returns of the 1851 census in England, servants represented 7.1 percent of the total rural population and 3.2 percent of the urban population (Wall 1983: 498). If lodgers are included in England, these percentages increase to 12.1 percent in rural areas and 14.3 percent in urban areas. In Belgium in 1890, 11.5 percent of the total population were servants in either rural or urban areas (13.7 percent men, 9.6 percent women). In Sweden according to the 1860 census, servants represented 10.4 percent of the total population. In France in 1872, servants represented 6.5 percent of the population (5.2 percent men, 7.6 percent women). The figures for southern Europe are in sharp contrast. In Spain according to the 1860 census, 1.3 percent of all men and 1.5 percent of women were servants, and in the 1887 census these figures stood at 1.0 and 3.6 percent respectively. In Italy according to the 1861 census, servants represented 2.2 percent of the entire population (1.5 percent of men and 2.9 percent of women).[12]

These data suggest that, despite notable local variations, servants were generally between two and four times more numerous in northern European societies than they were in Mediterranean regions. In the northern part of the continent between 30 and 55 percent of all young persons 15–24 years of age were servants, as opposed to southern Europe where the range was between 5 and 20 percent. This means that, on the whole, probably between 50 and 80 percent of young people spent some of their young lives as servants before marriage in weak-family areas of Europe, as op-

posed to 15–30 percent in strong-family areas of the south. In one part of Europe spending a number of years as a live-in servant was the lot of the vast majority of young people, while in another part it was not.

Service had important implications for nuptiality as it was, at least in part, the key to the fairly late marriage age characteristic of the European marriage pattern so aptly described by Hajnal (1965).[13] A close perusal of Tables 2 and 3 contained in his article (pp. 102–103), based on late-nine-teenth-century census data, reveals that southern Europe did not fully fit the European marriage pattern of late and low levels of nuptiality, although it was fairly far removed from patterns holding in eastern Europe.[14] In Medi-terranean Europe, where servants were far less prevalent than in the cen-tral and northern parts of the continent, nuptiality tended to be somewhat earlier as well. A wealth of research in historical demography attests to the depth of these differences. While the frequency and duration of entering into service were not the sole determinants of marriage patterns, they were not negligible factors.[15]

Despite slightly earlier ages at marriage in Mediterranean Europe, the importance of service as a life cycle activity meant that children ended up leaving home far later in Spain or Italy than they did in England or Den-mark.[16] For the most part, peasant families in southern Europe with small and medium-sized farms tended to prefer family labor to nonfamily labor, quite unlike in other parts of the continent. In such areas as the southern parts of Spain, Portugal, or Italy, where farm size made the exclusive use of family labor impractical, there was an abundant supply of day laborers who did not coreside with the farmer and his family.

For most people in southern Europe, then, the permanent departure of young adults from home came only with marriage, as opposed to the practice in England or Holland where marriage took place after several years away from home and only after young adults had often accumulated sub-stantial savings.[17] In the parts of Spain where conjugal families prevailed (the center, south, and parts of the north), evidence of this practice is abun-dant, and in diverse historical contexts the percentage of young males head-ing households in different age groups has been shown to be practically the same as the percentage of married males and the percentage of house-hold heads.[18] Before marriage, leaving the parental home was a temporary or a seasonal phenomenon for most young adults. While young girls might go as servants to nearby towns and young men often participated in sea-sonal migration centered on the harvest or with transhumant livestock, the parental home continued to be the base for most people until mar-riage. Even in stem-family areas of the Iberian Peninsula the situation was similar. For the chosen heir, of course, marriage led to continued coresidence with his parents, but for his siblings leaving home took place only at mar-riage; those siblings who did not emigrate or enter the clergy typically stayed

at home until their marriage. If marriage proved impossible for some reason, grown children were normally entitled to stay at the family home as long as they wanted or needed. In the few areas of western Europe where the joint family prevailed, the entire system of household formation was quite different, with little or no relationship between marriage and headship.[19]

In England, on the other hand, departure from the parental household took place long before marriage, either as a rural servant or, especially more recently with the decline of agricultural service, as a boarder or lodger in the households of others.[20] In a recent study, Colin Pooley and Jean Turnbull (1997: 398) have estimated that in England between 1850 and 1930, men set up their own households between 2.5 and five years before their marriage, and women did so between one and two years before. This situation contrasts to that in Spain, where leaving home before marriage was not only less frequent than in England but also seldom meant that the ties to the parental household were completely severed. One of the implications of these differences was that in northern Europe the need to cope with periods of economic difficulty fell squarely on the shoulders of these young adults, as opposed to the south where economic hardship was shared more equally by the entire family group. The protective function of the family in Spain was far greater than it was in England.

There is little evidence that these differences between regions of Europe have been erased in recent years. In Spain, for example, the substantial increase since 1977 in the age at which children leave their parental households has been strictly paralleled by the increase in the age at marriage, with both indicators situated today at extremely high levels. In the United States, England, Denmark, and the Netherlands, on the contrary, leaving home long before marriage has tended to be normative behavior.[21] Everywhere, times of economic bounty have tended to bring about younger ages at marriage and earlier emancipation, albeit leaving home was never as early in Spain as it was in England. In other words, despite fluctuations over time and often regional variability (especially within Spain) in the age at leaving home, areas of strong and of weak family systems tended to occupy distinct vital spheres.

Patterns of family solidarity

In southern Europe the family takes on many other roles that are largely foreign to its tasks in northern latitudes. Perhaps the most important is the organization of solidarity for the needy and vulnerable in society. The starting point for our discussion of this issue is to consider that vulnerability to personal hardship in historic Europe was sharply constrained by prevailing demographic conditions, especially mortality. Apart from the type of hard-

ship imposed initially and directly by economic factors, it is likely that the incidence of vulnerability in southern Europe always tended to be somewhat higher than in northern Europe because substantially higher levels of adult mortality in the south led to greater numbers of lone-parent households and to earlier breakups of the marriages of couples in and past the reproductive age. In other words, the "nuclear hardship hypothesis" so aptly described by Peter Laslett would always be more pertinent in high-mortality regimes than in low-mortality ones.[22] Over the past 30 or 40 years, these structural differences caused by mortality have all but disappeared in western European populations.

Traditionally in Mediterranean societies, much of the aid given to vulnerable members of society came from the family or from individual charity, while in northern societies this was largely accomplished through public and private institutions. The classic example of the institutionalization of solidarity in northern Europe was the English Poor Laws, through which the collectivity came to the aid of the needy and the poor. In Mediterranean Europe the family was essential for the wellbeing of its more vulnerable members, while elsewhere it was much less so.

Historically the situation of the elderly is a good example of these differences.[23] Before the development of modern pension systems, everywhere a large part of the responsibility for the wellbeing of the elderly fell directly on the family and was based mostly on coresidence with offspring. Despite these similarities, however, the intervention of the family on this count was much more important in strong-family societies than in societies where weak-family systems prevailed. In Mediterranean Europe, the care of the elderly fell almost exclusively on the family, whether it was carried out by means of coresidence, the circulation of the elderly among the households of their offspring, or the spatial proximity between the homes of the elderly and those of their children: all of these alternatives entailed transfers of goods and services from the families of the offspring toward their elderly parents. In England, on the other hand, the situation was quite different. For one thing, a smaller proportion of the elderly appears to have coresided with their children.[24] A structural characteristic of English society, epitomized in the Poor Laws, was that the ultimate responsibility for the wellbeing of the elderly fell to the collectivity.[25] In Spain there were no Poor Laws and only in such cases as extreme poverty or grave mental or physical illness could people count on institutional support, often organized by the Church. For the vast majority of cases, the family alone took responsibility for the material and personal wellbeing of its elderly.

These differences still exist today. Everywhere, of course, the weight of institutional support has grown with the modernization of society and the increasing longevity of the population, yet divergent patterns of support remain visible. In Spain according to the 1991 census, for example,

approximately 44 percent of the population older than 60 years of age lived with one of their children.[26] In Nordic countries and in the United States, where coresidence with offspring encompasses slightly more than 10 percent of the elderly population, the wellbeing of the elderly is based on residential autonomy or on private or public nursing homes, which are normally paid for by public funds, by insurance policies, or directly from the savings of the elderly themselves. In Spain the elderly generally do not have sufficient savings to handle this sort of expense, due in part to their having supported their children for a far greater period of their lives. Despite proportions of the population in older ages comparable to those in England and the United States, in southern Europe the number of publicly or privately funded nursing homes for the elderly is very small compared with other societies.[27] Recent increases everywhere in the demand for this type of residence notwithstanding, there is no indication of a reduction of these divergent residential patterns in contemporary societies. Substantial differences in the importance of institutionalized populations also appear in historical data, with far higher levels found in northern Europe. In France during the second half of the eighteenth century, the resources available to formal charitable institutions were far from enough to meet the needs of the poor, be they elderly or not.[28] The situation in much of the rest of Catholic Europe was not unlike the one in France. Where, then, were the poor and the needy in southern Europe, who clearly must have been as numerous or more so than in the northern part of the continent? The role of the family in day-to-day poor relief in southern Europe provides the key to answering this question.

Different attitudes regarding aging and the elderly appear to be rooted in the collective culture of western Europe. Proof of this is given by the results of a recent survey within the European Union regarding the preferences of the population with respect to the residential patterns of the elderly who are no longer able to live on their own.[29] In Spain, Portugal, Italy, and Greece an average of 74 percent of those surveyed stated that coresidence with children was the preferred option, as opposed to respondents in Denmark, Finland, Sweden, Great Britain, and the Netherlands, where only 25 percent gave the same answer. The regionalization of these attitudes is not uniform, as shown by the fact that in Scandinavian countries support for coresidence with children is substantially lower than in the United Kingdom; and in some ways the situation of Ireland is more similar to that of Italy than it is to England. Despite this heterogeneity, these data show that the different ways of confronting old age within society exist both in practice and in popular opinion.

It is instructive to observe that these differences seem to have little to do with the classical types of familial organization existing in Europe, where there were areas of conjugal or nuclear families based on patterns of divis-

ible succession and inheritance (central and southern Italy, Spain and Portugal, central and northern France, a large part of England, etc.), together with areas based on the stem family, where designated heirs inherited the bulk of family property on the condition they would continue to coreside with their parents after marriage (much of central Europe and Scandinavia, Scotland, part of the Low Countries, much of northern Spain and Portugal, and the mountainous regions of the Pyrenees, the Alps, and the Massif-Central). Indeed the strong families we have encountered were not confined to areas characterized by stem families, much as weak-family systems were not restricted to conjugal-family regions.[30]

Historically the strength of familial ties appears to have conditioned the way in which succession was carried out in stem-family regions. In Catalonia and the Basque Country of Spain, stem-family areas par excellence, the obligation to coreside *en una mesa y compañía* ("at one table and in the company of") with the parents was normally stipulated quite simply in the marriage contract (*capitulaciones matrimoniales*). In much of central and northern Europe, veritable retirement contracts between parents and their children were drawn up listing in great detail the rights and obligations of children and parents.[31] These contracts, which originally did not necessarily even involve kin, were designed to safeguard the wellbeing of the elder generation and to facilitate the emergence of inheritance *inter vivos* (Gaunt 1983: 251–258). The history of these contracts was frequently fraught with the intergenerational strife they were designed to minimize.[32] Contracts such as these are simply unimaginable in a southern European context. In other words, succession itself within stem-family systems appears to have been conditioned by the strength of familial loyalties and solidarities holding in any given region of Europe.

In Spain outside of the stem-family regions, parents also facilitated a type of inheritance *inter vivos* for their children, but these arrangements were invariably informal and seldom contained terms stipulating how intergenerational support mechanisms were to be implemented (Reher 1997: 48–56).[33] Of course, family strife has existed in every culture. What is instructive in this comparison is that formal and informal retirement arrangements in Spain, and likely throughout southern Europe, had little to say regarding the everyday dealings between parents and their children, as opposed to northern Europe where the key to an amicable arrangement was that it was thorough to the minutest details. In Mediterranean Europe these arrangements were made within the context of a culture where strong family ties were an essential component and intergenerational relationships were strictly and normatively controlled, as opposed to Germanic Europe where this cultural component was far weaker.

Each of these family systems has ended up generating justifications that are coherent with its own premises. In weak-family areas, the value

attributed to the individual and to individualism tends to predominate.[34] Young adults leave home, encouraged by their parents, so as to acquire the experiences they need to handle life as autonomous individuals. Leaving home at an early age is considered an important part of their education. Where the strong family flourishes, the familial group more than the individual tends to predominate in the socialization of the young. In these contexts, the family is seen as defending its members against the difficulties imposed by social and economic realities. A child receives support and protection until he or she leaves home for good, normally for marriage, and even later.

Faced with the transition to old age, in one context individuals attempt to prolong their physical independence as long as possible and, when this is no longer feasible, to conserve a measure of economic independence that will enable them to enter a nursing home or afford some other solution. They would never give serious consideration to going to live with their children; nor would it enter the minds of their children to have their elderly parents at home with them. This attitude is so widely held in the United States, for example, that the elderly who do live with their children probably tend to come from strong-family ethnic backgrounds.[35] In sharp contrast to this pattern, in areas of strong families, maintaining independence as a matter of principle would seem like nonsense, and this only happens when, for one reason or another, there is no family. In Spain it has always been said that the only truly poor person is one who has no family. Furthermore, the solidarity between the older and the younger generation never breaks down; it is a social obligation expected by individuals and by their families. The elderly who do not maintain regular contact with their children are a small minority of the population, much as are the aged in weak-family societies who receive regular weekly or daily visits from their children. In both situations there is intergenerational reciprocity, although it is understood quite differently. These are distinct modes of behavior, applied in each context with a maximum of good will.

Uncertain but distant origins

The social, economic, and even demographic circumstances normally used to explain the origins of these diverse ways of family life are not convincing, even though their geography is fairly clear: the Mediterranean region has strong families, while the northern part of the continent is characterized by weak families. In between, countries like France and, to a lesser extent, Germany do not fit easily into either system, and constitute a good indication that our portrayal simplifies a heterogeneous European experience. The differences we have pointed out are visible as early as we have empirical data to test for their existence (the seventeenth century, more or less), although it seems likely, as we have hinted, that they were in place long before.

The basic geography of our family forms suggests that their origin is related to Roman and Germanic–Nordic Europe, and may well have been forged at least initially during the later Roman Empire and the early Middle Ages. In a thought-provoking book on the family and marriage in Europe, Jack Goody (1983) traces the roots of the Western family tradition back to the fourth century. Before that, in the ancient world on both sides of the Mediterranean and in the Near East, there were certain common characteristics of familial organization among which he emphasizes the existence of patrilineal clans, the ability of both men and women to inherit property, and, perhaps more important, the facts that most marriages were strictly endogamous, the kin group had great importance while the conjugal family did not, and in social and cultural terms women had relatively little importance.[36] This "Oriental" family system was replaced during the late Roman Empire by an "Occidental" structure in which the basic cell of social organization became the conjugal pair, and norms for marriage outside the kin group were strictly enforced. Goody avers that this change, which led to a fundamental weakening in the ties of the kin group in favor of the primacy of conjugal marriage, began during the late Empire, gradually became a structural characteristic of the entire Christian world over the next millennium, and eventually formed the basis for a family system in the West that gave rise, among other things, to its characteristic marriage pattern (Hajnal 1965).[37]

Here we suggest that the implantation of this Western family structure in Europe was not uniform. In the northern part of the continent, Christianized forms of familial organization ended up meshing gradually with existing Germanic legal and social traditions based, among other things, on the importance of the tribe, the individual, and the visible social position of women.[38] In southern Europe the influence of the Germanic tribes was much more superficial and short-lived. Besides, from the early eighth century on, a series of Muslim incursions occurred, strongest in Spain and Portugal and in the Balkan Peninsula but also present in southern Italy, which tended to bring back Oriental family structures, so central to Islamic societies, that are based on the overriding importance of kin ties. At least in the Iberian Peninsula, repeated Berber invasions during the Middle Ages ended up emphasizing this presence. Even where the Muslim occupation was short-lived, the geographical proximity of Oriental family systems in North Africa could not help but influence the development of the family in southern Europe. What arose in those areas was a family system that in all likelihood was hybrid in nature, with a basic Western structure but also with certain Oriental trappings centered on the importance of kin ties and extended family loyalties.[39]

The Reformation, with its emphasis on the individual and self-reliance, on the value of work, on a this-worldly asceticism, and on predestination, represented a sharp contrast to Catholicism, based on authority,

the other-worldly, and spirituality. These contrasts had fundamental implications for family life and for the economic and social organization of European society. For Protestant reformers, marriage ceased being a sacrament and became a civil contract governed by matrimonial tribunals, and many of the traditional Catholic constraints on marriage (e.g., the forbidding of consanguineous marriages to the seventh degree) were either relaxed or repealed.[40] More important, perhaps, the home itself became a place of self-fulfillment and of sharing. Most notably in Calvinism, an emphasis was placed on marriage, not so much as a context for reproduction, but rather as a partnership in the garden of the Lord, in the rearing of children in the faith, and the advancement of God's Kingdom. In so doing, the Reformation had laid the grounds for marriage as a partnership, so essential for northern European marriage systems and for the full development of the potential of individuals in this world, all in sharp contrast to the Catholic world where parental authority and family loyalties tended to be far more hierarchically structured.[41] By implication, the Reformation ended up enhancing women's position in society as opposed to the Europe of the Counter-Reformation where, despite luminous figures like St. Teresa of Avila and others, the position of women seems to have undergone comparatively little change before the eighteenth century or even later.[42]

These fundamentally different attitudes toward life and religion settled on a continent where divergences in family systems had already been developing for over 1000 years. We can argue that the progress of the Reformation was itself facilitated and influenced by the differing attitudes toward the individual and family life existing in Europe during the medieval and early-modern periods. It is unquestionable, however, that the Reformation tended to deepen and solidify the age-old north–south contrasts in Europe. It is of interest that in Catholic countries of northern Europe, forms of familial organization tend to diverge at least partially from the prevailing patterns. Ireland is an excellent example of this: a decidedly Catholic country in northern Europe whose forms of familial organization often fit quite poorly with our north–south comparisons.

The effects of the Industrial Revolution were felt first and most profoundly in northern Europe, and this can be interpreted both as cause and as consequence of its prevailing family system. Hajnal (1982: 476–481) has discussed this process from one vantage point, arguing that family and marriage patterns contributed to the low-pressure demographic regimes existing there and ultimately to the flowering of northern European economic growth after the second half of the eighteenth century.[43] The Industrial Revolution, based on an ethic in which the economic rationality and creativity of individuals was paramount, reinforced an individual-oriented family system in the industrializing areas well before this same process began to take effect in most of southern Europe.[44] Thus, at least in its origin, the

entire process of economic modernization would seem to have reinforced the prevailing family differences in Europe.

Regardless of their historical origins, attitudes toward the family and the individual make up the cultural tapestry of societies, and thus they are models that are learned at very young ages and that societies—individuals, families, institutions—help perpetuate. Learning these behavior patterns is the cornerstone of the socialization of children. They are attitudes shared by the society as a whole. Perhaps because of this, they have been so resistant to the otherwise corrosive effects of economic, political, social, and demographic modernization. Even though the changes of this past century have tended to make cultures and mentalities more uniform, they have done little to erase the historic profiles of family systems in Europe.

We have described family systems in which either the individual takes precedence over the family group or the individual develops his personality and even his freedom within the family group. The systems we have described are by no means the only ones possible, although they are the most widespread in western Europe. Had we wanted to enlarge our perspective on this point, it would have been necessary to consider the type of family found, for example, in eastern Europe or in areas of the Muslim world and Asia, especially China, where the weight of the extended kin group is far greater than it is in southern Europe. At this level, our strong family from Mediterranean Europe in reality lies somewhere between the individualism characteristic of northern Europe and North America and the strict allegiances and corporatism generated within enlarged family lineages and clans that characterize large regions of Asia.[45]

Some implications of family systems for society

Family systems are neither good nor bad, but they are not neutral either. They do much to characterize the societies that possess them. Many of the differences distinguishing European societies are derived directly or indirectly from the nature of their prevailing family systems. The Church and the state have been aware of this for centuries, and here we are not saying anything surprising. It might prove instructive, however, to point out some of these differences existing in the West at the end of the twentieth century, because doing so may enable us to rediscover the importance of the family, an institution apparently given up for dead by many students of contemporary society.

Societies with strong families tend to have greater social cohesion. The low incidence of divorce and extramarital pregnancy in them is a good example of this. Strong-family societies are usually more conservative than weak-family ones in social—though not necessarily in political—terms. In other words, the social control of behavior tends to be more effective in

strong-family societies. The majority of the social indicators related directly or indirectly to the family seem to indicate this.[46] Some people have attempted to explain these social differences in terms of religious attitudes or by the stage at which each society finds itself on its particular road to modernization. They can be more easily explained, however, by the nature of the family systems prevailing in particular societies. The problem of the homeless is a prototypical example of the lack of social cohesion in contemporary society. It is often surprising to note that the incidence of homelessness is much greater in the United States, for example, than it is in Italy, Spain, or Portugal, despite the greater economic dynamism, higher living standards, and lower levels of unemployment in the United States. In all probability, families in Mediterranean Europe have absorbed a part of this mass of uprooted people who in northern Europe and the United States have had to fend for themselves, either on the public dole or with private charity.

The subject of unemployment is intriguing on this count. An apparent contradiction in Spain, for example, is that it has very high levels of unemployment, yet people seem to live modestly well and the external indicators of social distress are fairly muted, at least in comparison with countries where unemployment is far lower. In Spain, the essential mechanisms of familial solidarity stipulate that the family group protect its members from the vagaries of economic and employment cycles, and thus the social implications of unemployment tend to be hidden, at least in part, within the family. If a country like the United States, for example, had similar levels of unemployment, uprootedness would have been widespread and the social and political consequences enormous. In Spain, comparatively little social disruption has taken place, largely because of the role of the family.

Another eloquent example of how southern European families actively intervene to ensure the wellbeing of their own members can be seen in lone-parent households. Due to divorce and teenage pregnancies, everywhere in recent years the number of these types of households has been on the rise, although there continue to be important and now familiar north–south differences in levels.[47] Two recent studies of this phenomenon in Spain have brought to light a significant "grandmother effect," whereby high percentages of single mothers end up coresiding with their own mothers (the grandmother). In 1991 nearly 30 percent of all lone mothers (independent of their marital status) with children under age 18 coresided with their own mothers, as did slightly less than half of all mothers with children under six.[48] Interviews have confirmed that even when there was no coresidence, grandmothers often lived nearby and were essential in helping the mothers care for their children and secure a job to support their families. By contrast, in Britain between 1991 and 1993 only 9 percent of all lone mothers and 16 percent of never-married mothers continued to

live with their parents (Kiernan, Land, and Lewis 1998: 133). In more general terms, the intervention of grandparents is not restricted to exceptional situations such as lone-parenthood, but is a structural characteristic of family life in Spain. The massive entry of women into the labor market in recent years in Spain has been largely facilitated by the willingness of grandparents to help care for the children when their parents are at work. Although the importance of the grandmother effect has been noted in diverse contexts, it would seem unlikely that this sort of straightforward familial solidarity has ever been as important in northern Europe or the United States as it is in the Mediterranean region.[49]

Loneliness is one of the most important social problems in weak-family societies. I refer to the loneliness of the individual who must confront the world and his own life without the safety net of familial support so characteristic of strong-family regions.[50] Suicide, often an indirect consequence of loneliness, tends to be far higher in northern Europe and the United States than it is in southern Europe.[51] The effects of loneliness are compensated in weak-family societies by a strong tradition of civic association, where people form groups, clubs, and societies for the most varied purposes. The number and variety of these associations in England or the United States would be unimaginable for a citizen of southern Europe. In weak-family societies the individual is able to combat loneliness by turning directly to civil society, itself largely the product of the needs and initiatives of its members, in contrast to strong-family societies where the family comes between the individual and civil society, meeting a large part of the needs stemming from loneliness.[52]

Weak-family societies, then, tend to be associational societies with a deep civil component, and strong-family ones tend to be more passive societies, at least in terms of the importance of individual initiatives within them. The sense of individual responsibility for collective norms and needs, so essential for the concept of democracy and civil society in the West, is often conspicuously absent from southern European societies, while in northern societies it is an integral part of the social fabric. In sum, the countries of northern Europe and of North America have well-developed civil societies that thrive on individual initiatives, but with a dark side shown by their lack of social cohesion and by the desperation and anguish so prevalent in them. They are tough societies, but they are also dynamic ones. Mediterranean societies are more pleasant, more comfortable, more conformist, more oriented toward the family group, and less dynamic.

The increasingly rapid process of population aging is one of the most important challenges confronting developed societies today. Meeting this challenge will not be the same in societies where strong-family systems prevail as in those with weak-family systems. Strong-family societies can and should count on the institution of the family when planning means of

support for the elderly. This support can be expected to begin when the health of the elderly is still good, and will be offered by means of coresidence or residential proximity with frequent personal contact. Once health begins to deteriorate, the family will continue to be essential both as a place for the elderly to live and as a source of company for them. This last aspect is difficult to measure empirically, although it makes up an important part of the wellbeing of the elderly. It is also likely that strong families will continue to be a source of income supplement for their needy elderly, much as they have been until now.

In weak-family areas, the care of the elderly will be based much more on individual savings, on residential autonomy, on retirement communities and nursing homes, and on the support of public institutions. The most common pattern of behavior will be for an elderly person to move directly from an autonomous residence to a nursing home, normally obviating the need for an intermediate stage of coresidence with a child, so frequent in southern Europe. Social and emotional support for the elderly will be offered by charitable institutions and volunteers, as well as by the families themselves, albeit on this point a large number of families will not be up to the task. Institutional care is much more costly and demanding for society than care based on the family. Yet in relative terms the level of savings among the elderly will tend to be greater in weak-family areas, enabling many elderly to contribute economically to the costs of their own care. Implicit in this same context is the fact that economic abuse of the elderly, a crime on the rise the world over, will always be more common where personal savings are greater and where there is less family influence on those savings. Family-based abuse, on the other hand, may well be more prevalent in strong-family societies, although here the active participation of the entire family in the welfare of the elderly will lessen the ability of certain individuals to manipulate elderly parents to their own ends.

Politicians, government officials, and public planners would do well to bear in mind the specific characteristics of family systems when designing social policies affecting the elderly, because the effectiveness and success of these policies will depend on how well-tuned they are to these characteristics. Everywhere, of course, promoting healthy living among the elderly as well as keeping pension systems afloat will have priority, although specific policies will work differently in different family systems. In strong-family areas, for example, the protection of the elderly should include support for the family in carrying out its traditional role of attending to the needs of the elderly. Where weak-family systems prevail, on the other hand, stimulating individual savings and the work of charitable groups as well as safeguarding the elderly from predators will all be essential.[53]

It is evident that the nature of family systems and their loyalties do not fully explain these social differences, even though understanding them adequately is impossible without keeping in mind the importance of the

family. It is within the family that the way in which the individual relates to the family group and to society is first learned. This learning process is deep and lasting, and during the rest of our lives we end up implementing the behavioral norms we learned during our early years. They are norms that life itself ends up confirming all the time.

Present and future challenges to family systems

It would be incorrect to believe that familial forms are frozen in time. Throughout history the family has been changing, and it continues to do so today. Unquestionably one of the main destabilizing factors in the contemporary world is the new demographic regime that affects all of us. This demographic challenge has two principal characteristics. For one, there has been a substantial reduction in mortality, especially among adults and the elderly, thus leading to growing numbers of elderly persons who are spending increasing numbers of years in that stage of their lives. Although the scientific evidence is still inadequate on this issue, it is also possible that the elderly will end up spending an increasing proportion of their lives with precarious mental or physical health, thus making them still more vulnerable. The second characteristic is that in the past 20–30 years a drastic reduction in fertility has also occurred in most Western societies, with indicators currently at the lowest levels ever attained and with rapidly declining numbers of births. This demographic regime has produced extremely rapid aging, with the elderly occupying ever greater proportions of the total population.

Perhaps more pertinent for the subject at hand is the fact that everywhere families find themselves with ever fewer children and ever more elderly members. The demographic balance of the family group is now in rapid transformation. While differences do exist, in most developed societies the demographic context is basically the same. This reality is vital for the family, and its consequences will likely be far greater in strong-family areas than in those where the family tends to be weak. Where strong families prevail, the support children provide for their elderly parents is closely dependent on whether there are enough children to take care of their parents. Yet recent demographic change has altered this circumstance and it is now possibile that the family group in southern Europe will end up having as many dependent as active members.[54] In weak-family societies, this challenge will tend to be posed in terms of the society as a whole, and somewhat less so in terms of the family, mainly because the type of familial solidarity so characteristic elsewhere is much less decisive within society. As a result, strong-family systems appear to be much more vulnerable to the effects of demographic change than do weak-family systems.

We might wonder whether the differences described here will continue to characterize European societies or whether some sort of conver-

gence in family forms will occur. Louis Roussel (1992) has proposed a model for the future development of the family in western Europe. Roussel sees a process of convergence afoot on the continent that will eventually render the family similar in Germany and in France, in Sweden and in Spain. He feels that in the more "advanced" northern countries, the rates of change will slow, while they will remain high in the southern flank of Europe. The end result will be a truly "European" family for the first time. Roussel's idea is attractive, especially because it emphasizes the commonality of European experience.

Nevertheless, I cannot agree with this idea, mainly because its underpinnings appear to be antihistorical. At the very least they tend to minimize the depth of cultural and historical differences in Europe. Once again it is as though modern society had finally done away with the pernicious effects of history, launching us toward the adventure of the future. It is a type of neo-modernization discourse in which economic and social change torches all vestiges of cultural and historical difference. This seems hardly likely because these differences have characterized European societies for centuries, and it would not be prudent to write their death certificate too hastily.

It is unquestionable that in Europe certain external indicators of the family and of family forms are converging: the importance of solitary households is increasing, the weight of extended families is decreasing, fertility and nuptiality are declining, and the number of children born out of wedlock is rising. Additionally, parental authority has diminished, improvements in health and social welfare have led the elderly to maintain their independence much longer before going to the state or to the family for help, children and women have acquired far greater autonomy with respect to the familial group, and women have entered the labor market in great numbers. It is also true that the rate of change in much of southern Europe over the past 15–20 years has often been dramatic. These are all indisputable signs of the times that affect all Western societies.

But does this mean that European families are on the path to uniformity, much as Roussel seems to suggest?[55] Perhaps not. For one thing, despite general moves in the same direction, most of these indicators show no decline in relative variability. Even with the great transformations in recent years, the rank order of European countries in most instances has remained unchanged. Perhaps more important, the family is an institution that is far more complex than we might suspect when using straightforward empirical indicators reflecting certain types of behavior bearing on the family. People's attitudes toward the family, the way they live family life, and the type of influence the family has over the lives of its members are essential to the meaning of the family; and there is no indication of convergence on this count.

My guess is that the outcome of these transformations will be a convergence in the external indicators of family life, but this convergence will not undermine the deep disparities that have always characterized the family in the different regions and cultures of Europe. The forces making up the contemporary world, common for the most part in all societies, are not the only factors shaping these societies, because societies' own historical trajectories, different in each case, will also contribute to the specific contours of the present and the future. This concept, known as "path dependency," refers to a simple but important reality. No matter how nearly universal the factors of modernization may be, once they enter into contact with different historical, cultural, geographical, or social realities, the end result will necessarily be different in each context. The confluence of factors of change and of structural realities, with different results every time, has occurred many times in the past, and there is no reason that the near future should be different. It is worth invoking this concept here because it underscores the fact that the realities of the present-day world cannot be adequately understood without bearing in mind both contemporary forces and historical traditions.

In the future, too, the Spanish family will be traditional and strong, the English family traditional and weak. Spaniards and Italians will continue to care for their elderly and vulnerable parents, just as grandparents take care of their children's offspring when they are at work. The English, the Americans, and the Swedes will continue to maintain their commitments to individualism and to residential autonomy. Spaniards will continue to remain at home until they get their first stable job, and Nordic adolescents will continue to seek their liberation from the family ties that bind them. Demographic change will have more severe effects in the south, making the state and personal savings play a greater role in the wellbeing of the elderly, although these will not replace the role of the family in a decisive fashion. The future promises to bring many changes, but weak-family and strong-family systems will continue to occupy clearly differentiated vital spheres. Appreciating the strength, flexibility, and resilience of the modern family continues to be essential for a viable understanding of society.

Notes

1 Scandinavia includes Iceland but not Finland. Our definition of northern Europe for the purposes of this article is very similar to the one used by Hajnal (1982: 449) for Northwest Europe. The Mediterranean region refers here mainly to Portugal, Spain, and Italy, although at times in this text southern France and Greece are included as well.

2 Both John Hajnal (1965, 1982) and Jack Goody (1996a) have pointed to these two factors as defining traits of what has been called the Northwest European household formation system. These authors have concentrated more on comparing these patterns in historical contexts with eastern European or non-European populations than on detailing north–south differences within Europe. See, for example, Hajnal (1982: 450).

3 On this point see, for example, Reher (1998).

4 An example of such behavior was found in the town of Cuenca (Spain) during the nineteenth century, where more than half of all newlyweds lived for some time in either the bride's or the groom's family household. This type of coresidence, however, was always temporary. See Reher (1990: 213–215).

5 There are indications that the institution of agricultural service in England dates at least as far back as the 1377 Poll Tax, which indicated that one-third of all farmers had servants (Smith 1981).

6 These percentages varied widely by locality. For more on the importance of agricultural service as a life-cycle activity, see, for example, Laslett (1977a: 29–65; 1977b: 102–113) and Wall (1983a: 498).

7 For a sample of 21 English communities, Richard Wall estimated that, at 10–14 and 15–19 years of age, almost half of the people had already left their family homes and had entered agricultural service in other households or were lodgers in autonomous residences. See Wall (1987: 90–97; also 1978).

Mitterauer and Sieder (1977: 41) have estimated that on average between 7 and 15 percent of the population in preindustrial times were servants in northern Europe. For slightly higher estimates, see Burguière (1986: 42–47). Various estimates of servant populations in Europe can be found in Table 1 on page 228 of the present article.

The sharp difference between the importance of servants in the examples taken from northern and southern France suggests strongly divergent practices on this point.

8 In his comments on the study by Herlihy and Klapisch-Zuber (1978), Richard Smith (1981) points out the relative absence of servants in Tuscany (only 0.2 percent) based on the Florentine *Catasto*, as opposed to the abundant presence of servants in England during the same period. For more on servants in the 1427 *Catasto*, see Klapisch (1972: 277–278).

9 Here we consider "nonfamily labor" to be the sum of servants (*criados*) plus day laborers (*jornaleros*). Ten years later, the census of Godoy (1797) showed that servants made up 1.7 percent of the population of Spain, and 17.8 percent of the nonfamily supply of labor.

10 Regional differences in southern Europe were considerable, as has come to light in several local studies, with northern regions showing higher proportions of servants than elsewhere (e.g., for Spain, see Reher, Pombo, and Nogueras 1993). Nevertheless, levels of servants were never as high as they were in England or in other parts of central and northern Europe. Estimates of southern European servant populations can be found in Table 2 on page 229 of the present article.

In Greece, studies suggest that agricultural service was relatively unimportant and that emancipation from parental households for most people came only with marriage. On this point, see Osswald (1990: 222–223) and Hionidou (1995: 93–95).

11 Everywhere in southern Europe cities had far higher levels of servants than rural areas. In the city of Parma in 1545, for example, 30.7 percent of all households had servants, as opposed to only 10.4 percent in the *Contado*. For data on Parma and on other sixteenth-century Italian cities, see Barbagli (1984: 216–233); see also Arru (1990). In the small town of Cuenca (Spain) in 1800, for example, servants made up 11 percent of the total population and 25.4 percent of households had servants, as opposed to rural areas where servants represented only between 3.6 and 5 percent of the total population during that period (Reher 1990: 205). According to the census of Floridablanca (1787) servants represented 11.7 percent of the population of the city of Madrid, as op-

posed to only 2.7 percent of the population of Spain.

12 We have been unable to make use of censuses from other European countries because the occupational structure found in them makes identifying servants in rural areas problematic.

13 For the importance of service for late marriage age, see also Hajnal (1982: 470–476).

14 This can also be seen vividly in the map of I_m (the index of female nuptiality) around 1870 based on the data compiled by the Princeton European Fertility Project (Coale and Watkins 1986). For a more general discussion of this issue, see R. Smith (1990: 171–178).

15 Hajnal (1965: 130–132) and other authors have asserted that later marriage was linked to higher standards of living.

16 In contrast to the 50 percent of the population aged 10 to 19 living away from home in England (Wall 1987), Reher (1988a: 167) found that in rural areas of Cuenca during the nineteenth century around 90 percent of people of the same age groups continued to reside in their parents' households.

17 According to McIntosh (1984), for example, during the second half of the sixteenth century in Essex, where servants made up 20 percent of the total population, young adults left their familial homes as adolescents and spent between five and ten years as servants before setting up a home of their own.

18 On this point see, for example, Reher (1997: 82–86).

19 In western Europe, joint-family systems were found only in areas of central Italy and in parts of central France between the Franche-Comté and the Massif-Central (Burguière 1997: 141–149; also 1986: 25–31). In joint-family systems the gap between proportions of ever-married men and proportions of household heads or married household heads would be much greater than in stem-family systems. The classic example of this can be found in Tuscany after the Black Death (1427–30), where the highest proportions of ever-married men are reached around 40 years of age, while peak levels of headship are reached much later in life. The situation of medieval Tuscany, with a prevalence of joint-family households and late male age at marriage together with very young female age at

marriage, is exceptional in Europe. See Hajnal (1982: 464–465) and Klapisch and Demonet (1972).

20 The prevalence of boarders might be significant in northern Europe and in American society. This is pertinent to our argument when the lodgers were young, as they often were (Wall 1983b: 392–393). Numerous studies covering England suggest that lodgers represented between 4.9 and 5.8 percent of the population of rural England between 1650 and 1821 (Wall 1983a: 498) Their presence in industrial areas was always greater than in the countryside. In the 1851 census of England, lodgers made up 11.2 percent of the urban population, in contrast to 5.0 percent in rural areas (ibid.). See also Anderson (1972: 234), Glasco (1977), Modell and Hareven (1977), and Blumin (1977). Under exceptional economic circumstances, lodgers might also be a significant group in nineteenth-century Spain. An example of this is San Salvador del Valle, a mining settlement near Bilbao in northern Spain, where lodgers made up between 25 and 30 percent of the total population between 1887 and 1900. See Pérez-Fuentes (1993: 171).

21 This divergent behavior pattern can be seen in the following data:

Percent of men and women aged 25–29 still living with parents in European countries, 1994

Country	Men	Women
France	22.5	10.3
Germany	28.8	12.7
United Kingdom	20.8	10.8
Greece	62.6	32.1
Italy	66.0	44.1
Spain	64.8	47.6

SOURCES: Fernández Cordón (1997: Table 1, 2); *Eurostat Labor Force Surveys.*

22 During the seventeenth and eighteenth centuries, life expectancy at birth in southern European countries was between 25 and 30 years, in contrast to northern Europe where it varied between about 33 and 40 years. For more on the nuclear hardship hypothesis, see Laslett (1988). For estimates on the incidence of vulnerability over the life course in a preindustrial Spanish population, see Reher (1997: 107–116).

23 For a discussion of systems of support for the elderly during past times, within the context of a basic Northwest Europe–non European comparison, see Hajnal (1982: 477–478) and Goody (1996a: 9–13).

24 For more on the circulation of the elderly among the households of their children, often called *ir por meses* in Spain, see Reher (1988a: 227–230). An example of family groups maintaining patterns of residential proximity, even in urban areas and over several generations, can be found in the case of the Recuenco family in the town of Cuenca during the eighteenth and nineteenth centuries (Reher 1990: 222–226).

Based on our still inadequate understanding of the coresidence patterns of the elderly, it appears that between 40 and 50 percent of the English elderly coresided with their children during the eighteenth century, in contrast to somewhat higher values in Spain at later dates. For the English data, see Laslett (1977: 204–205; 1989: 111–114) and Wall (1984, 1995). In the northern Spanish city of Bilbao between 1825 and 1935, approximately 70 percent of the ever-married elderly continued to live with their children (Pérez-Fuentes and Pareja 1997: 92–94). In rural areas of Coimbra (Portugal) in 1801, 78.7 percent of all elderly 65 and older coresided with kin (Mota 1988: 36).

25 On this point see Richard Smith (1984), who questions the idea that the elderly depended exclusively on the family and emphasizes the importance of the structural dependence of the elderly on the collectivity, especially in England. According to Smith (p. 424), "From a very early period in English history, and in other Northwestern European areas, it seems that 'risk devolution' and poor relief have been centered on the community rather than on the family." One of the reasons for this was that the needs of the elderly were greatest just when the households of their offspring were undergoing particularly difficult economic times due to the presence of young children at home (R. Smith 1984: 425; Anderson 1977: 56). For more on the role of the collectivity in the support of the widowed elderly, see J. Smith (1984), Laslett (1984: 385; 1988; 1989). James Smith (1984: 439) underscores the inability of households to generate additional income in order to maintain their economically inactive elderly, thus making the flow of income from outside the household essential. David Thomson (1984) has suggested that the benefits of social welfare going to the elderly British today are lower in relative terms than the pensions paid during the first half of the twentieth century, and much lower than the income transfers derived from the Poor Laws during the nineteenth century. Elsewhere Thomson (1991: 191) has gone so far as to affirm, "It is unEnglish behaviour to expect children to support their parents." In a recent paper, Pat Thane (1998) has argued that in both the recent and more distant past of England, the family has played a complementary role to that of the community in supporting the elderly. For a partially divergent point of view on this issue, see Kertzer (1995: 369–378).

26 This percentage varies by age, with fairly high levels for persons aged 60–69 due to families with children still at home (45–50 percent), somewhat lower levels for persons aged 70–79 (33–35 percent), and then much higher levels for persons over 80 years of age (>50 percent).

27 The data in the following table, containing summary statistics of the importance of institutional living arrangements for the elderly around 1990 in Europe, show this pattern quite clearly:

Elderly persons living in institutions circa 1990, as a percent of different age groups

	Age group	
Country	65+	85+
Belgium	4	—
Denmark	7	—
France	6	20
Germany	5	17
Ireland	5	—
Netherlands	10	47
United Kingdom	5	—
Italy	2	—
Portugal	2	7
Spain	2	6

— = not available.
SOURCE: Jani-Le Bris (1993).

On this subject, see also De Jong-Gierveld and van Solinge (1995).

28 Wall (1984: 487) has found that around 5 percent of the population above

age 60 lived in institutions in several English communities during the eighteenth century. In Spain, according to both the census of Floridablanca (1787) and that of Godoy (1797), somewhat less than 1.4 percent of the population above 50 resided in institutions. This last percentage is based on the supposition that all physically ill, mentally deranged, or indigent people residing in hospitals or charitable institutions (*Casas de Miserecordia*) were above 50 years of age. The Spanish data include major towns such as Madrid, Barcelona, and Seville, where the weight of institutions was far greater than in the rest of the country. In other words, our estimation procedure tends to overestimate the number of the institutionalized elderly present in these censuses, and thus the comparison with English figures tends to understate the differences.

In France the system of poor relief was similar to that found in much of Mediterranean Europe and was based on private almsgiving and donations, and on institutions erected in the spirit of the Counter-Reformation. Olwen Hufton has estimated that the total resources available to these charitable institutions would not have been enough in any one year to buy a single pound of bread for each hungry person. See Hufton (1974: 131–133, 176). It is also interesting, however, that in 1791 the degree of institutional help was considerably greater in northern France than in the southern part of the country (Hufton 1974: 175).

29 The results of this survey are reported in van Nimwegan and Moors (1997).

30 For more on the geography of these family forms, see Todd (1990). For an attempt to rethink the implications for people's lives of these classic family systems existing in Europe, see Kertzer (1989; 1995: 375–378).

31 These agreements might stipulate, for example, whether or not the parents could sit next to the fireplace, what they could eat, or other seemingly minute aspects of daily life. The use of these agreements was widespread and had existed since the Middle Ages in areas of Europe where Germanic law had prevailed (Scandinavia, Germany, Austria, England, Bohemia, Moravia, and Finland) (Mitterauer and Sieder 1977: 163–167;

Gaunt 1983: 249–255). For examples of this type of contract between father and son, see Ehmer (1998) and Gaunt (1983: 278–279).

32 In 1772 the agricultural reformer and traveler Anders Bachaeus reported from one central Swedish parish that the young went about calling the retired "the old devils" and demanding, "What is their purpose in living?" (cited in Gaunt 1983: 258–268, esp. 259).

33 In Cuenca and probably in much of central and southern Spain, only about 10–20 percent of property owners even bothered to draw up a will (Reher 1988a: 207–211).

34 For more on this subject, see Macfarlane (1978).

35 In historical contexts differential behavior patterns regarding the family have appeared in different ethnic groups. In her study of the family and the elderly in New York State during the 1920s, for example, Weiler (1986: 91) found that: "The immigrants from eastern and southern Europe stressed the value of children as insurance in old age, whereas Americans and west Europeans valued individualism and independence between generations." See also Chudacoff and Hareven (1979). Regarding more-general aspects of familial organization, cultural contrasts have appeared in studies such as those of Carroll (1988) and Glasco (1977).

36 For a more-complete portrayal of Western and Eastern social structures, see Goody (1983: 6–33) and Guichard (1977: 19), whose ideas are the starting point for Goody's essay.

37 Goody attributes the beginnings of this change to the Christianization of the late Empire and in particular to a policy of the Church designed to undermine the traditional clan and kin networks for its own material benefit (Goody 1983: 83–156). For more on this see R. Smith (1990: 169–171).

38 Goody affirms that the early Christian missionaries in northern Europe went to great lengths to change a number of the Germanic practices centering on strategies an individual might adopt in order to produce an heir that were more like those of earlier Mediterranean cultures (Goody 1983: 34–

47). Nevertheless, Tacitus (in his *Germania*) remarked on a number of aspects of Germanic social organization and behavior that suggest the existence of quite "Western" types of familial organization even in pre-Christian times, as well as an emphasis on the importance of independence and individuality. Tacitus suggests that marriage occurred later for men and women (chapter 19) and that it was viewed as a shared pact (". . . she is thus warned by the very rites with which her marriage begins that she comes to share hard work and peril . . . ") to be used in work, war, and reproduction (husbands brought gifts to the marriage that included tools, animals, and weapons, while the wives contributed a piece of armour) (ch. 18). There were injunctions against infanticide (ch. 19), and mothers practiced breastfeeding their infants (ch. 20). Girls and boys were educated in the same way (ch. 20), and people felt the need to live in widely scattered houses with plenty of space around them (ch. 16). Houses were set up ". . . according as spring-water, meadow, or grove appeals to each man" (ch. 16). Among the Germans, fraternal and paternal ties appear to have been weak. In some cases, for example, fathers even had the right to disavow or sell their own sons. Tacitus points to the existence of a matriarchal society ("Sisters' children mean as much to their uncle as to their father: some tribes regard this blood-tie as even closer and more sacred than between son and father . . . ") (ch. 20). For more on the Germanic family, see Cuvillier (1986: 293–331, esp. 296–298).

39 The extremely early female age at marriage in southern Europe (17–19 years of age) during the fifteenth and sixteenth centuries, together with a fairly low incidence of remarriage among women, would seem to have much in common with marriage patterns in northern Africa. Even much later during the eighteenth century, female age at marriage continued to be noticeably earlier in much of southern Europe than in the northern part of the continent. It is also noteworthy here that in the southern parts of Spain, Italy, and Portugal age at marriage throughout the preindustrial period was always much younger than in northern parts of those same countries. This suggests that even in southern Europe the degree of im-

plantation of these family forms was heterogeneous. For Italy, see Da Molin (1990a: 91) and Delille (1985); for Spain and Portugal, see Rowland (1988: 110). See also R. Smith (1990: 173–176).

40 A number of these ideas about marriage, especially that it was not a sacrament and that it rested on mutual acceptance, were originally developed by the Cathars in twelfth-century France (Goody 1983: 158–161). For the influence of the Reformation on marriage and on attitudes toward family life, see Goody (1983: 164–182).

41 On this subject, see Bainton (1952: 255–261). Regarding the control of sexuality during this period, Goody maintains that "Eastern" or "Eurasian" patterns prevailed in southern Europe. These controls were based on pressures from a more extensive and more effective kin network as well as on an earlier age at marriage for women, all of which meant that such control was more intensely felt and more easily maintained (1983: 190–193). These controls were never as effective in Protestant Europe, where marriage was later and there was no southern heritage of strong families. On this subject, see also Lebrun (1986).

42 A good example of these differences can be found in the gap between literacy rates in northern and southern Europe. Even though both sexes showed higher literacy levels in the north, the north–south differences were far greater for women. As late as 1887 in Spain, 70 percent of adult women continued to be illiterate, and in certain areas of the country this figure was closer to 90 percent (Reher, Pombo, and Nogueras 1993). Spanish and Italian women did not reach German or English female literacy levels of 1700 until after the start of the twentieth century, and Swedish levels of 1700 were not reached until the 1960s (Núñez 1997: 235–236).

43 While tackling this issue from the same perspective, Goody (1996a: esp. 13–17; 1996b: esp. 138–204) has always maintained a degree of skepticism as to the real advantages of the Northwest European family system for economic growth and modernization. He avers that perhaps they were more significant "in the shape that economic development took rather than development per se" (1996a: 17).

44 Here, the exaltation by Martin Luther of common occupations as a "calling" is essential because an individual's job became also his religious calling. In the words of Roland Bainton: "The term *vocation* was transferred by Luther from the cloister to the workshop." On this subject, see the classic essay of Max Weber (1948), *The Protestant Ethic and the Spirit of Capitalism*. See also Bainton (1952: 244–255, esp. 246).

45 For comparative East–West viewpoints, especially insofar as they affect subsequent economic development, rational thought processes, and family systems, see Goody (1996a, 1996b).

46 The indicators shown in Table 3 on page 229 of the present article are good examples of these differences. The case of Portugal, with a very high incidence of births outside marriage, has always been exceptional in southern Europe and it largely reflects the fact that for well over two centuries large-scale male emigration has left a society with far fewer men than women.

47 In 1990/91 lone-parent families represented 8.6 percent of all families with children under 18 years of age in Spain, in contrast to 11.9 percent in France, 15.7 percent in Germany, 16.8 percent in Canada, 18.1 percent in the Netherlands, 22.0 percent in Denmark, 22.3 percent in Sweden, and 23.5 percent in the United States (Fernández Cordón and Tobío Soler, Table 2, in press). See also Hantrais and Letablier (1996: 20).

48 See Fernández Cordón and Tobío Soler (in press) and Tobío Soler and Fernández Cordón (in press). When only never-married mothers are included, the percentage living with the grandmother rises to 60 and 69 percent respectively. It is instructive that in northern Spain, especially Catalonia and the Basque Country, the grandmother effect appears to be much weaker than in southern regions of the country.

49 According to a 1993 survey, over 35 percent of all persons older than age 65 regularly help their children and grandchildren. This help is often centered on child care. See Tobío Soler and Fernández Cordón (1996). An exception on this point is the role of grandmothers in African-American families in the United States, where they often rep-resent the survival of the traditional African extended family within a context of the breakdown of the conjugal family. On this subject, see for example, Wilkinson (1984) and Timberlake and Chipingu (1992).

50 A proxy for loneliness in society is the proportion of single-person households. Here again the differences between northern and southern Europe are striking:

Percent of single-person households in Europe, 1990/91

Country	Percent
Austria	32.3
Belgium	31.4
Denmark	38.1
Finland	38.0
France	29.2
Germany	37.7
Ireland	27.1
Netherlands	37.7
Sweden	44.0
United Kingdom	30.0
Greece	21.1
Italy	23.7
Portugal	16.6
Spain	16.9
European Union	30.3

SOURCE: Eurostat, *Statistiques en bref. Population et conditions sociales* (1995/no. 5).

51 The following data regarding suicide in Europe bring this pattern out clearly:

Deaths by suicide in Europe, 1990 (per 100,000 population)

Country	Men	Women
Belgium	25.0	9.4
Denmark	30.7	14.8
Finland	47.9	11.8
France	29.1	10.2
Germany	23.6	8.6
Ireland	16.1	5.3
Netherlands	12.1	6.8
Sweden	22.5	9.7
United Kingdom	12.2	3.6
Italy	10.7	3.6
Portugal	13.9	4.1
Spain	11.2	3.6
European Union	18.9	6.6

SOURCE: Eurostat, *Yearbook*, 1997.

52 The tradition of civil association is much stronger where government intervention is weak and relatively distant, as in the United States, than where it is ever-present, as in Nordic countries.

53 The responsibility of the state as opposed to that of the family in supporting the elderly is a frequently debated issue. For historic contexts see, for example, Kertzer (1995: 377–378).

54 For a perspective on this issue based on a microsimulation study of kinship networks in Spain, see Reher (1997: 258–268).

55 In a recent paper, Anton Kuijsten (1996) has made a strong case that family patterns in Europe show more signs of divergence than of convergence. For a review of the common demographic constraints affecting family life in Europe, see Bégeot and Fernández Cordón (1997).

TABLE 1   Percent of servants in several northern and central European populations

Country	Sample or place	Date	Percent servants
Denmark	Sample of parishes	1787/1801	17.6
Iceland	3 counties	1729	17.1
Norway	3 areas	1801	8.9
Belgium	9 Flemish villages	1814	14.2
Austria	Large sample (19 listings; median value)	17th–19th centuries	13.0
Holland	4 localities	1622–1795	11.7
Germany	Grossenmeer	1795	10.7
France	Longuenesse (north)	1778	12.6
France	2 southern villages	1644–97	6.4

SOURCES: Denmark (Hajnal 1982: 456; Johansen 1975); Iceland (Statistical Bureau 1975); Norway (Drake 1969; Hajnal 1982: 485); Belgium (Wall 1983b: 387–393); Austria (Schmidtbauer 1983: 354–362, 375–378); Holland (van der Woude 1972: 314; Laslett 1977a: 34–35; also Schellekens 1991); Germany (Laslett 1977a: 34–35); France (Laslett 1977a: 34–35).

TABLE 2   Percent of servants in southern European populations

Country	Region	Sample/place	Date	Percent servants
Italy	Kingdom of Naples (South)	Large multiregional sample	1610–1839	0.7–1.5
	Parma (Po River Valley)	*Contado* (rural areas)	1545	4.0–6.0[a]
	Pisa (Tuscany)	4 villages, several listings	1656–1740	9.5[b]
	Bologna	Adjacent rural areas	1853	5.0–7.0[a]
Portugal	Minho (northwest)	São Tiago de Ronfe (Guimarães) (33 listings, 5-year intervals)	1740–1900	3.6
	Trás-os-Montes (northeast)	Regional rural sample (82 villages)	1796	4.6
	Santarém (central)	Vila de Coruche, Salvaterra de Magos (2 villages)	1788, 1789	6.0
	Coimbra (north central)	Regional rural sample (26 parishes)	1801	2.5
Spain	Valencia (east)	Meliana, Benimaclet (2 villages)	1753, 1788	3.8
	Navarre (north)	Large regional sample	1786	7.3
	Santander (north)	Subregional sample (Buelna)	1752	3.0–4.0[a]
	Galicia (northwest)	Large regional sample	1752	2.6–3.5[a]
	Basque Country (north)	San Salvador del Valle, Irún	1766, 1877	5.3
	Cuenca (center)	Large regional sample	1750–1850	3.6–5.0
	Murcia-Alicante (southeast)	Orihuela (Santiago), 4 listings	1719–1829	1.3
	Andalusia (south)	Entire region	1787	2.4

[a]The data from the following places have been inferred indirectly based on the percent of households with servants: Parma (10.4 percent of all households with servants; 10.5 percent of the population aged 15–24 listed as servants); rural areas surrounding Bologna (17.7 percent of households); and Santander (7.7 percent of households). For Galicia, estimates based on servants in different social and economic groups.
[b]These are suburban parishes located only about 2–3 km. from Pisa. This may explain in part the high levels of servants that were found.
SOURCES: Italy: Southern Italy (Da Molin 1990a: 84–89, 123–159; also 1990b: 513–518); Parma (Barbagli 1984: 234–236); Pisa (Doveri 1993: 430–431); Bologna (Angeli and Bellettini 1979: 162). Portugal: Minho (Scott 1998, by kind permission of the author; see also Brandão: 1994: 36); Trás-os-Montes (Mendes 1995: 566); Santarém (Nazareth and Sousa 1981: 325; 1983: 13); Coimbra (Mota 1988: 32). Spain: Valencia (Garrido Arce 1992: 87, Pérez García 1988: 10); Navarre (Mikelarena Peña 1995: 297); Santander (Lanza García 1991: 356); Galicia (Dubert García 1992: 116–119); Basque Country (Pérez-Fuentes 1993: 170–172; Urrutikoetxea Lizarraga 1992: 147); Cuenca (Reher 1988a: 172–175; also 1988b: 64); Murcia-Alicante (Chacón Jiménez 1983: 251); Andalusia (Census of Floridablanca).

TABLE 3   Social indicators related to family behavior in European countries

Country	Divorces per 1,000 population, 1995	Nonmarried couples cohabitating, aged 30–44 (percent of total population in age group), 1993	Births outside marriage (percent of all live births), 1995
Austria	2.3	—	27.4
Belgium	3.5	9.2	15.0
Denmark	2.5	20.9	46.5
Finland	2.7	—	33.1
France	2.0	11.5	37.2
Germany	2.1	5.9	16.1
Ireland	—	1.7	22.7
Luxembourg	1.8	7.7	13.1
Netherlands	2.2	—	15.5
Sweden	2.6	—	53.0
United Kingdom	2.9	9.3	33.6
Greece	1.1	1.0	3.0
Italy	0.5	2.2	8.1
Portugal	1.2	1.4	18.7
Spain	0.8	2.9	10.8

SOURCES: European Observatory on National Family Policies (1998: 12, 15); Eurostat, *Statistiques en bref* (1997: 14).

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Communism, Poverty, and Demographic Change in North Vietnam

JOHN BRYANT

FOR ABOUT 30 years North Vietnam has had mortality and fertility rates near the world median, and a per capita income among the world's lowest. Figure 1 shows comparative data for 1981 and 1995.[1] North Vietnam acquired this unusual profile—moderate mortality and moderate fertility combined with a very low income—in the years following its adoption of a communist development strategy. This article describes how the political and economic institutions that emerged during North Vietnam's communist period helped shape the economic and demographic outcomes. Market reforms during the 1980s and 1990s have been accompanied by continued mortality and fertility decline. Although income is now rising, it remains low enough for North Vietnam's moderate mortality and fertility to be exceptional. The article examines why mortality and fertility have continued to fall, despite continued low incomes and the introduction of a new set of institutions.

Mortality and fertility trends, 1920s–90s

The term North Vietnam is used here to refer to the area that between 1954 and 1976 formed the Democratic Republic of Vietnam. It contains half the land area of all Vietnam and, with 32 million people in 1989, half the population (Vietnam 1991b: Table 1.1). Estimates from the vital registration system of North Vietnamese birth rates and death rates between 1930 and 1979 are shown in Figure 2. These data must be interpreted with caution.[2] Gourou's (1936: 140–141, 196–197) tabulation of vital registration data from villages with relatively good systems produced a mean crude death rate of 20 per thousand and a mean crude birth rate of 20. Gourou warns, however, that both rates are too low, because the registration systems missed infants who died. The Ministry of Health estimated the death rate at 26 for 1936 (Banister 1985: Table 5).

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FIGURE 1   Relationship of mortality and fertility to income per capita, in North Vietnam and in countries covered by World Bank statistics, 1981 and 1995
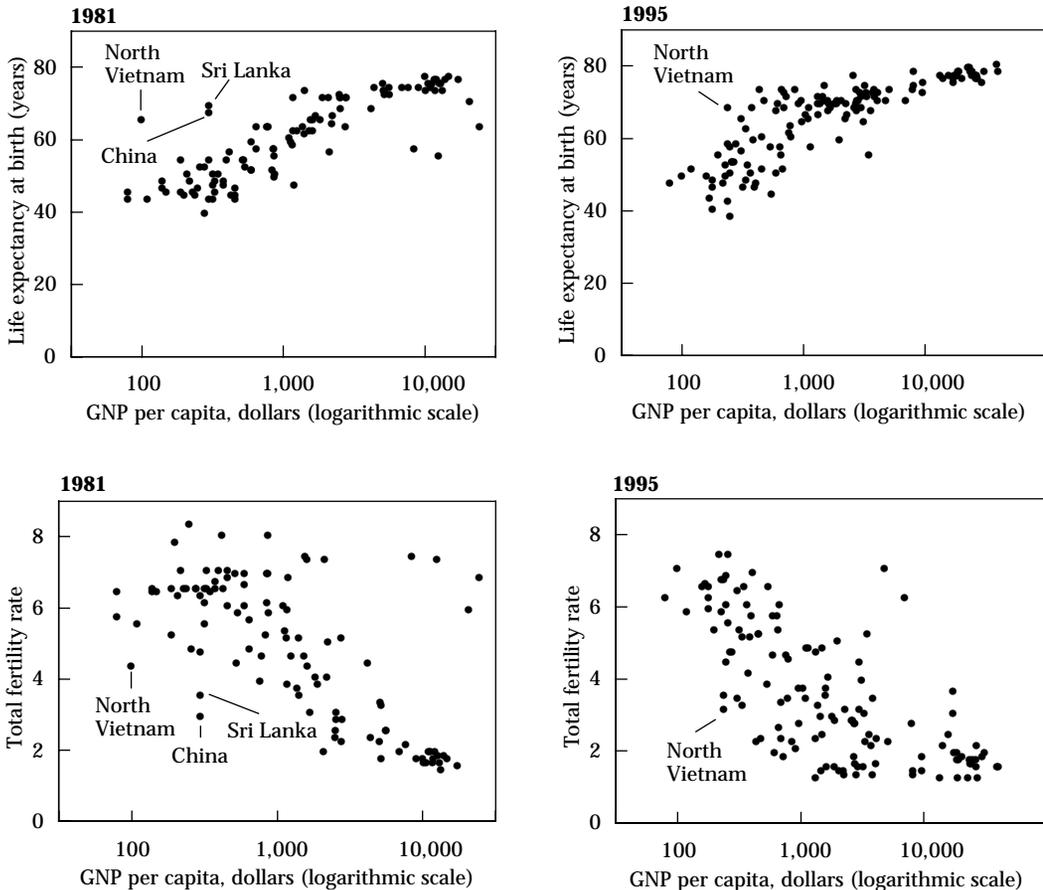
NOTE: Number of countries represented is 125 in 1981 and 133 in 1995.
SOURCES: World Bank (1983: Tables 1, 29; 1997: Tables 1, 6); Banister (1985: 3).

Little is known about mortality and fertility from the mid-1940s to the late 1950s. In 1945 North Vietnam suffered a catastrophic famine. The French administration claimed a death toll of half a million, while Ho Chi Minh claimed 2 million; neither authority has any obvious evidence for its estimates (Moise 1983: 154; Marr 1995: 227). Historians have speculated that half a million North Vietnamese may have lost their lives during the 1946–54 war against the French (Hirschman, Preston, and Vu 1995: 783).

The most detailed source of mortality data for the late 1950s to the early 1970s is the vital registration system, which the Vietnamese government revived in 1957, achieving coverage of all provinces in 1968. Viet-

FIGURE 2   Estimates of the crude birth rate and crude death rate (births and deaths per thousand population), North Vietnam, 1930–1979
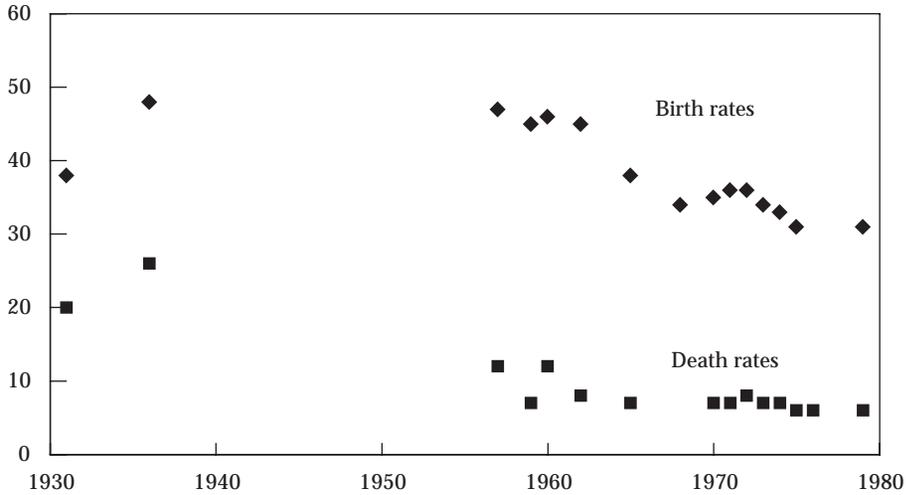
SOURCES: 1930: Gourou (1936: 196–197); 1936–79: Jones (1982: Table 3), Banister (1985: Table 5).

namese statisticians note that the system understated births and deaths, particularly war deaths. Aside from war deaths, however, the degree of understatement was probably less than in most other developing countries, as North Vietnamese families had at least some incentive to register births and deaths: families were required to register a child's birth before the child could receive rations, and families had to register a member's death before the family could receive free funeral goods such as incense and burial cloth (Jones 1982: 807). The rate of natural increase reported by the vital registration system is, moreover, consistent with the population growth rate implied by the 1960 and 1979 censuses and best guesses about migration during intervening years (Jones 1982: 789–791).

The 1960 census question on deaths over the last year yielded a crude death rate of 12 per thousand (Banister 1985: 15), which is consistent with the vital registration estimates. Both sources probably missed some deaths, although as Jones (1982: 790) points out, a true death rate not far above 12 per thousand is possible, as mortality in Sri Lanka during the 1960s was lower still. The important point is that mortality had definitely fallen significantly compared with late colonial times.

The best available estimates of mortality during the 1965–75 war are Hirschman, Preston, and Vu's backward projections using the 1991 Vietnam Life History Survey data on deaths of kin. These estimates have a firmer empirical basis than their rivals, although Hirschman et al. (1995: 808) acknowledge that the estimates are provisional, since survey data were col-

lected in only four small localities. Hirschman et al. do not give separate totals for North and South Vietnam. They estimate that the war directly caused about one million deaths, with 60 percent of these deaths suffered by males aged 15–29, whose crude death rates were raised by 9.4 per thousand, from 1.5 to 10.9.[3] As they point out, the number of males aged 15–29 still grew at an annual rate of around 37 per thousand during the war. War-related deaths affected but did not dominate the age-sex structure of the Vietnamese population (Hirschman, Preston, and Vu 1995: Table 7, p. 805).

Reunified Vietnam held a census in 1979. Census officials used vital registration data on deaths during the previous year and census data on age structure to derive an estimate of life expectancy at birth for the whole country of 66 years (Vietnam 1983: Table 9). Banister (1993: 12–19) investigated the quality of the data and suggested that a figure of around 60 years would have been more likely, although she does not give any strong justification for her choice. Unfortunately, separate North–South or provincial estimates of life expectancy from the 1979 census have not been published. Life expectancy in the North may well have been higher than in the country as a whole, since the vital registration system reported lower mortality in the North than the South, and the North's public health system was older and more effective than the South's (Banister 1985: 13–16).

The 1989 census provides Vietnam's most reliable mortality estimates so far. Regional estimates from a census report were used to calculate a life expectancy for males and females combined for North Vietnam of 67 years, shown in Table 1. The same regional estimates yield a life expectancy for all Vietnam of 67 years, which is one year higher than the more commonly cited figure from the 1991 Five Percent Sample Report (Vietnam 1991b: Table 10.2). An Intercensal Demographic Survey (ICDS), following a format similar to a Demographic and Health Survey, was carried out in 1994. The survey found that infant mortality for all Vietnam fell from about 55 per thousand in 1979–83 to 46 in 1985–88 and 44 in 1989–93 (Vietnam 1995a: 97). The available statistics suggest that mortality in North Vietnam continued falling during the 1980s. Without regional figures and without knowing the degree of overestimation in the 1979 census, it is, however, impossible to estimate a rate of decline. Given that it is also impossible to estimate a rate of decline for the period before the 1980s, it is hard to say anything definite about the effect of the 1980s market reforms on mortality, except that the mortality decline neither ceased nor reversed.

Fertility appears to have been high in colonial North Vietnam. Once allowance is made for downward bias in Gourou's estimates, the data shown in Figure 2 suggest a crude birth rate of 40 to 50 per thousand. Crude birth rates in the range of 40 to 50 per thousand usually correspond to total fertility rates of around six to seven births per woman. According to the vital registration system, fertility was at colonial levels at Independence in 1954, but began falling around 1960. Census officials have used the re-

TABLE 1 Estimates of mortality and fertility, North Vietnam, selected years

Source	Life expectancy at birth, in years (both sexes)	Infant mortality rate (per thousand births)	
	1988–89	1984–93	1989
1989 census[a]	67	—	42
1994 ICDS[b]	—	45	—

Source	Total fertility rate					
	1965–69	1970–74	1975–79	1980–84	1985–89	1989–93
1979 census[c]	5.2	5.0	4.3	—	—	—
1989 census[c]	—	—	4.3	4.4	4.2	—
1994 ICDS[d]	—	—	—	—	—	3.4

NOTE: All estimates shown here are population-weighted means of provincial or regional results from the sources cited. Dashes indicate category not applicable or estimate not available. In Vietnam (1995a: Table 3.4) the regional results for fertility were presented in the form of total duration-specific marital fertility rates rather than total fertility rates. To obtain the figure of 3.4 for North Vietnam in 1994, I first multiplied all regional TDMFRs by the ratio of the national TFR to the national TDMFR, which provided estimates of the regional TFRs. I then took a population-weighted mean of the regional TFRs. As this procedure is not wholly satisfactory, the figure of 3.4 can only be considered a rough approximation.
SOURCES: [a]Vietnam (1994a: Table 2.5); [b]Vietnam (1995a: Table 6.2); [c]Vietnam (1994b: Table 1.2); [d]Vietnam (1995a: Tables 3.2, 3.4).

verse survival method on data from the 1979 and 1989 censuses to make backward projections for fertility, province by province. These results were used to calculate the total fertility rate estimates for North Vietnam shown in Table 1. Because the reverse survival method is unreliable, the earlier estimates have wide margins of error. Estimates from the 1994 Intercensal Demographic Survey shown in Table 2 imply a further drop in fertility since the 1989 census. Support for the approximate correctness of the estimates from the 1989 census and 1994 Intercensal Demographic Survey is given by the World Bank's Vietnam Living Standards Survey, also shown in Table 2.

TABLE 2 Estimates of the total fertility rate, Vietnam

Source	1989	1993
1989 census	3.8	—
1993 Vietnam Living Standards Survey	3.9	3.2
1994 Intercensal Demographic Survey	—	3.1

SOURCES: Vietnam (1991b: Table 9.3); Vietnam (1995a: Table 33); Haughton (1997: 204). Dashes indicate no data available.

Together, the available statistics depict declining fertility, dating from the 1960s. It is, however, futile to calculate a rate of decline, because of the level of uncertainty of the estimates. The data provide no clear evidence for or against the existence of war-induced baby booms or busts,

except to rule out extreme fluctuations. Likewise, the data provide no evidence of a post-reform speeding up or slowing down of fertility decline.

Published data give some indication of geographical variation in rates. Around 6 percent of the population lived in urban areas at the time of the 1960 census, and 13 percent at the time of the 1989 census (Vietnam 1962: Table 9A; Vietnam 1991: Tables 1.1A, 1.1B). The only census statistics on urban–rural mortality and fertility rates refer to all Vietnam. In 1989, life expectancy at birth was reported to be 70 years in urban areas and 65 years in rural areas, and the total fertility rate was reported to be 2.5 in urban areas and 4.4 in rural areas (Vietnam 1994a: Tables 1.2, 2.5). It is not clear how long these differentials have existed. The only relevant statistics I have found indicate that in 1980 the crude birth rate was 21 per thousand in the city of Hanoi and 31 per thousand in the Red River Delta as a whole (People's Committee of Hanoi 1989: 15; Nguyen The Hue 1995: Appendix Table 7).

In North Vietnam, as in all of mainland Southeast Asia, there is a social division between the plains and the mountains. The economically, politically, and demographically dominant ethnic group is concentrated on the plains, while other groups are concentrated in the mountains. The 1979 census reported that upland areas contained one-fifth of the national population (Vietnam 1983: Table 4). Table 3 illustrates some demographic components of the plains–mountains divide, using data from provinces whose territory fits entirely or almost entirely into the 1979 census categories "upland" and "lowland."

In summary, the present status of North Vietnamese demographic statistics allows the following observations about mortality and fertility trends:

—By the late 1950s, North Vietnamese mortality was substantially lower than during colonial times. Mortality has continued to fall, and in the late 1990s life expectancy at birth could be in the high 60s.

TABLE 3   Demographic differences between mountains and plains, 1989 census data, Vietnam

	Mountainous provinces	Red River Delta provinces
Percent belonging to Viet ethnic group	26	100
Persons per square kilometer	57	1019
Total fertility rate	5.4	3.0
Life expectancy at birth	62	70

NOTE: The mountainous provinces were Cao Bang, Ha Tuyen, Lang Son, Lai Chau, Hoang Lien Son, and Son La. All of these provinces had 100 percent of their populations living in upland regions as defined by the 1979 census (Vietnam 1983: Table 4). The Red River Delta provinces were Hanoi, Hai Phong, Hai Hung, Thai Binh, and Ha Nam Ninh. All had at least 90 percent of their populations living in lowland regions.
SOURCES: Calculated from Vietnam (1991a: Table 1.4), Vietnam (1991b: Table 4.4), and Vietnam (1994a: Tables 1.2, 2.5).

—In the late 1950s, North Vietnamese fertility was still at approximately colonial levels, or about six to seven births per woman. Fertility has declined steadily since then, and in the mid-1990s was somewhat above three births per woman.

Socialist construction and economic development, 1950s–70s

In 1945 the Vietnamese communists led a mass movement that toppled the weak Japanese-installed government in Hanoi. The following year, the French went to war with their former colony. The communists bolstered support for themselves and for the anticolonial struggle by launching education and health campaigns and by carrying out land reforms. The war ended with the French defeat at Dien Bien Phu in 1954. Diplomats at the Geneva peace settlement partitioned Vietnam at the 17th parallel, with the communists receiving control only of the North, pending nationwide elections that were never held. Moves toward collectivization late in the period of land reforms deprived the revolutionary government of some of the popularity and legitimacy it had acquired during the early reforms.

At independence in 1954, North Vietnam was one of the poorest and least developed countries in Asia. With less than 6 percent of the population living in urban areas, it was about as urbanized as Bangladesh and about a third as urbanized as China (Vietnam 1962: Table 9A; World Bank 1991: Table 31). Much of the limited economic development that had occurred under the French had been undone by the effects of the Great Depression of the 1930s and the subsequent wars. The modern industrial sector consisted of a handful of factories and mines (Beresford 1988: 129). The agricultural economy resembled that of Bangladesh or Java, with high population densities on usable land, little capital, low yields per hectare, and extreme poverty (Rambo 1972: 40–41). Colonial Vietnam's education system had probably reached fewer people than any other colonial system in Southeast Asia; and, aside from successful campaigns against smallpox and cholera, the colonial health system had been similarly limited. By 1954 the communists' early literacy and health campaigns had at least exposed villagers in liberated areas to the rudiments of reading, writing, and hygiene (Gourou 1936: 188–189; Worth 1985: 144–145; Woodside 1991: 181).

North Vietnam's new leaders proposed to modernize the country as quickly as possible through application of communist development principles such as state administration of the economy, a priority on heavy industry, and collectivization of agriculture. During the 1950s and 1960s, communist governments shared their faith in state administration and heavy industry with most noncommunist governments. Collectivization was more distinctively communist, although collectivized agriculture played a far

smaller role in the economies of the Soviet Union and Eastern Europe than it did in less developed countries such as China and Vietnam. North Vietnam was distinguished among communist countries by the extent to which foreign aid eased the capital constraint on industrialization and socialist construction. The Soviet Union and China initially promised to provide North Vietnam with capital until its industrialization became self-sustaining. Vietnamese scholars stated that in 1961–64 North Vietnam drew 15–20 percent of its budget from foreign aid (Doan and Pham 1966: 126, cited in Elliot 1982; Fforde and Paine 1987: 39–41; Dinh Thu Cuc and Tran Huu Dinh 1995: 228). Once the war against the American-backed South began, North Vietnam's allies appear to have increased aid to several times pre-war levels. This aid took many forms, from factory equipment, to military hardware, to food for the urban work force (Beresford 1988: Table 9.4).

The new development strategy created a three-layered social hierarchy, similar to that existing in other communist countries. The state sector, at the top, had principal responsibility for administration, modern industry, communications, distribution, and urban social services. On the next level, the collective sector consisted mainly of agricultural cooperatives, but also some industrial, service, and handicraft cooperatives. At the bottom the individual sector consisted of family farms in the uplands, petty traders, and small-scale enterprises such as hairdressers and tea vendors.

Table 4 gives an approximation of the relative sizes of these sectors in 1960 and 1975, as measured by official employment statistics and foreign estimates of military strength. Most collectivization and nationalization had already been carried out by 1960, so both sets of figures represent the post-transformation situation. It is clear that the state sector expanded rapidly, especially since figures on state-sector employment are the least ambiguous and least unreliable. It is also clear that the collective sector absorbed the majority of the population. Finally, it is at least plausible that the indi-

TABLE 4   Structure of employment in North Vietnam, 1960 and 1975

	Number employed (millions)		Percent of total	
	1960	**1975**	**1960**	**1975**
State sector	0.5	1.8	7	20
Collective sector	5.3	5.9	74	66
Individual sector	1.1	0.6	15	6
Armed forces	0.3	0.7	4	7
Total	7.2	8.9	100	100

SOURCES: The figures for the civilian work force were calculated from Tables 12, 37, 73, and 96 of the official statistical compilation translated by Fforde and Paine (1987). The figures for the armed forces were calculated from Pike (1986: 2).

vidual sector shrank and the armed forces grew, even if the numbers cannot be taken literally.

Generous foreign aid allowed North Vietnamese planners not only to inflate the state sector rapidly, but also to offer its employees and work units substantial privileges. North Vietnamese state-sector workers, like their counterparts in other communist countries, received guaranteed employment, sick pay, maternity leave, retirement pensions, and subsidized housing, education, and health care. They ate cheap rice, which the government procured from agricultural cooperatives at artificially low prices. Reflecting its central position in the government's development strategy, industry received about 2.5 times more state investment than agriculture during the 1950s and 1960s, and about 1.5 times more during the 1970s (Beresford 1988: Table 9.3). State factories bought their inputs at subsidized prices. American bombing beginning in 1965 destroyed a large number of North Vietnam's new factories, but many were rebuilt in the countryside, where they were less vulnerable to air attack.

The collective sector consisted mainly of agricultural cooperatives, reflecting the fact that 90 percent of the national population lived in rural areas. North Vietnamese leaders claimed that introduction of agricultural cooperatives would strengthen the government's hold on the countryside, prevent the reappearance of rural class stratification, provide economies of scale, and make it easier to extract resources for industry. Policymakers urged cooperatives and communes, the next highest units, to provide welfare and services to their members. Unlike state-sector work units, which drew funds from the central budget, cooperatives and communes were required to be self-sufficient, paying for services from local resources. As Table 5 shows, most of the population was organized into cooperatives between 1958 and 1960, although consolidating the cooperatives took more time.[4] Vietnamese leaders later admitted that rapid collectivization had partly been achieved through disregard of the official policy of voluntarism (Van Tao 1995: 81). But like in Chinese collectivization, and unlike in Soviet collectivization, bloodshed appears to have been largely avoided.

Financial independence, combined with some enduring local solidarity and the impracticality of much official policy, meant that most communes and cooperatives implemented important details of official policy incompletely or not at all. Implementation was particularly weak in the uplands (Phi Van Ba 1992: 18). During the late 1970s roughly three-quarters of North Vietnamese cooperatives lost to smaller units, called brigades, the ability to direct production, allocate work points, and control land. This occurred despite hard-liners in Hanoi calling for ever greater consolidation (Fforde 1989: 53, 55, 81, 99, 103, 123–124). The sharp geographic variation that characterized prerevolutionary institutions such as collective land or handicraft production also applied to postrevolutionary institutions. Co-

TABLE 5 Official statistics on North Vietnamese agricultural cooperatives, 1958–80

Year	Percent of peasant households belonging to cooperatives	Mean per cooperative		
		Number of households	Cultivated area (ha)	Members of working age
1958	5	26	<20	—
1959	45	40	—	—
1960	86	68	33	125
1965	90	85	49	170
1970	96	—	—	—
1975	96	199	115	337
1980	—	369	202	—

NOTE: Dashes indicate no data available.
SOURCES: 1958, 1959: Vickerman (1986: 143–145, Appendix Table 3); 1960–75: Fforde and Paine (1987: Appendix Tables 69, 70, 71); 1980: Kerkvliet and Selden (1995: 16).

operatives within a few hundred meters of each other would, for example, use different systems for paying workers (Gourou 1936: 505–514; Pham Cuong and Nguyen Van Ba 1976: 54–56; Bhaduri 1982: 48; To Lan 1993). Implementation of collectivization guidelines was also incomplete and variable in China, but not to the same degree as in North Vietnam (Fforde 1989: 5–6; Kerkvliet and Selden 1995: 44).

Cooperative regulations permitted households to retain small plots and to sell produce from these plots on private markets. Rural families also retained household plots in China and the Soviet Union, except during ideological high tides such as the Great Leap Forward. In all communist countries, rural people strongly resisted attempts to take away such plots, and governments tolerated the plots in return for compliance on other aspects of policy. By the late 1970s rural families in most North Vietnamese cooperatives had enlarged their household plots to two or three times the official limit, and were devoting more and more time to household production and less and less to collective labor, to the point where household plots provided 60 to 75 percent of farming families' total incomes (Kerkvliet 1995c: 405–406). Income from household production was also important in China, but not to the same extent as in North Vietnam (Kerkvliet and Selden 1995: 18).

The North Vietnamese government attempted to suppress markets and carry out most tasks of allocation and distribution through state agencies. The process began during the 1946–54 Liberation war, with the introduction of rationing and price-setting. The government accelerated the process during the late 1950s, although it continued to permit some private trading, such as the sale of produce from rural household plots, and the

subcontracting of minor tasks by urban enterprises. In practice, administrative controls were only partly able to override pressures created by relative scarcities, and private trading was rife, particularly by the late 1970s. Fforde (1989: 14) estimates that, with prices higher in the black and gray markets, the value of goods passing through these markets may have been about equal to that of fully legal channels.

Communist economies around the world followed broadly similar patterns of growth. High rates of investment allowed a rapid expansion of industrial production, but the macroeconomic distortions and microeconomic inefficiencies created during the rush for growth eventually limited further growth. After initial dislocation, land reform stimulated agricultural production. The subsequent collectivization also caused an initial decline, followed by growth that was disappointingly slow because of state extraction of agricultural products and because the institutions of collective agriculture were unwieldy and inefficient (Kornai 1992).

North Vietnam conformed to these patterns, but with the distortions and inefficiencies appearing unusually quickly and severely and with the war effort aggravating the problems and putting a brake on economic growth. According to official figures, North Vietnamese industrial production increased at an impressive 15 percent a year between 1959 and 1964, although North Vietnamese economists were already complaining that shortages of parts and materials limited the expensive new factories to running at half capacity (Beresford 1988: 132, 143). Official figures show industrial production slowing to 6 percent a year between 1965 and 1975 and to less than one percent a year from 1976 to 1980 (Fforde and Paine 1987: Appendix Table 30; Vietnam 1990a: Table 57). Paddy production reportedly grew at 15 percent a year from 1954 to 1957, but fell behind population growth after collectivization (Vickerman 1986: Appendix Table 4; Vietnam 1990a: Table 39). All Vietnamese production figures must be treated with caution, particularly agricultural ones, given the interest of cooperatives to reduce state procurement by understating production. Interviews with North Vietnamese villagers nevertheless confirm the general impression of hardship and inefficiency. There are numerous accounts of food shortages, corrupt or incompetent officials, and payment systems that failed to link incomes to effort (Nguyen Luc et al. 1990: 46; Luong 1992: 204; Kerkvliet 1995c: 402–407).

Events in the late 1970s threatened to push the economy of the newly united Vietnam from stagnation to crisis. Without wartime loyalty and nationalism to hold them in check, shirking and rule-breaking became increasingly serious. Economic planners had expected grain surpluses from the South to permit an acceleration of industrialization; instead the South required large transfers from the North to alleviate the disruption caused by the sudden withdrawal of American spending and economic support. Viet-

nam occupied Pol Pot's Cambodia in 1978, a step that further strained the national budget and led China to cut off aid and then wage a brief but destructive war with Vietnam. Food shortages appeared in the cities (Kerkvliet 1995b: 70). In 1979 the government announced that some of its economic policies might have to change (Fforde and de Vylder 1996: 129–31).

Summing up the successes and failures of North Vietnam's communist-era economic development strategy, it is necessary to acknowledge, first, the extent to which the economy was indeed transformed during the 1950s and 1960s, and, second, the difficulty of industrializing while fighting a war against a superpower. Nonetheless, the similarity between North Vietnam's economic problems and those of other communist countries was so close that the ultimate blame for the slow growth and then crisis almost certainly rests with the development strategy adopted. Under more favorable circumstances, the system might have delivered more growth and survived for longer, but there is no reason to believe that its eventual fate would have been different.

The role of primary health care in mortality decline, 1950s–70s

North Vietnam could spare only limited resources for health care but nevertheless achieved rapid mortality decline. The decline occurred because scarce resources were employed effectively through a primary health care system that emphasized community involvement, simple technologies, and selective use of traditional medicine, and that was supported by complementary social programs. This is the conclusion of previous research, and also of the 1978 Alma Ata Conference on Primary Health Care, which pointed to the North Vietnamese health system as a model for other poor countries to emulate (Hoang Dinh Cau 1965; Nguyen Van Huong 1970; Banister 1985: 13–14; Ladinsky and Levine 1985; Worth 1985). There is ample evidence supporting this interpretation.

Beginning after the 1945 Revolution and continuing through the 1946–54 war, the main method of providing health care to the civilian population was mass campaigns. Thousands of health workers were given basic training and sent to villages to promote use of mosquito nets, distribute locally made drugs, deliver babies, administer vaccinations, and carry out other standard primary health care functions. With the army absorbing most of the limited supply of medicine and trained personnel, primary health care was the only type of health care the revolutionary government could offer to civilians on a large scale. The government made a virtue of necessity, emphasizing the Vietnamese tradition of preventive medicine (Worth 1985: 204–205, 221; Marr 1987: 46). Health care cadres charged fees for their services, although they often had to supplement their incomes

by farming (Worth 1985: 204–205). Mass campaigns continued in full force after the liberation war. Government statisticians, over-optimistically perhaps, reported that 13 million people attended classes in hygiene and preventive medicine in 1956 alone; similarly impressive figures were given for well-digging and latrine-building (Van Tao 1995: 54).

As the data discussed above suggest, much of North Vietnam's early mortality decline may have occurred during the 1950s, the time of the mass campaigns. This impression may well be correct: experience from other developing countries indicates that behavioral changes, basic sanitation measures, and inoculation programs like those promoted by the mass campaigns can reduce mortality from high to moderate levels if they occur throughout a population (World Bank 1993b: 34–36, 106–107).

Over the 1950s and 1960s, the North Vietnamese government established more permanent health care institutions, notably commune health centers. By the mid-1960s all lowland villages and 80 percent of upland villages reportedly had such centers, each with two to four trained staff, even though salaries were often not high enough to support these staff full time (Hoang Dinh Cau 1965: 42, 58; Dinh Thu Cuc and Tran Huu Dinh 1995: 261). Local communities were responsible for the operation and funding of their centers. Sources of funds included the budgets of local cooperatives, annual payments by individuals, contributions of labor or materials, and sales of medicine (Worth 1985: 230; Pham Bich San 1991: 47). Health workers were usually recruited from the communities in which they would work, but were trained in state-sector colleges in the towns. According to official figures, the combined number of medical assistants, nurses, orderlies, and midwives rose from around 44,000 in 1960 to 79,000 in 1970, and then fell to 75,000 in 1975 (Fforde and Paine 1987: Appendix Table 151). Health centers delivered health education, sanitation, and maternal and infant care. They participated in vertical campaigns run by the state sector, administering vaccines against cholera, smallpox, typhoid, tuberculosis, plague, diphtheria, and polio, and implementing measures against trachoma and malaria (Nguyen Van Huong 1970: 11; Banister 1985: 15). Health centers provided first aid and simple treatments and passed more complicated cases up to district clinics or beyond. About 40 percent of drugs used at village health centers reportedly were traditional medicines, many derived from plants grown at the health centers (Ladinsky and Levine 1985: 262). The system appears to have worked best in the 1960s and early 1970s, and to have come under intense strain in the late 1970s when the economic situation worsened, foreign aid was reduced, and resources were diverted to the army and to South Vietnam (Banister 1993: 14–15; Allen 1993: 44).

Besides extensive public health services, factors that have been hypothesized to help poor countries lower mortality include provision of nu-

tritional floors; promotion of mass education; and a social setting that accords a measure of autonomy and influence to women (Caldwell 1986: 184, 208). Education is thought to assist mortality decline partly through imparting knowledge about health and sanitation, and partly through increasing people's confidence in dealing with and gaining access to public services. When women have relatively great freedom of movement and influence over family affairs, mothers can obtain health care for themselves and their children more easily, and daughters are less likely to be neglected. Communist North Vietnam fits this pattern well. Although, as mentioned above, agricultural cooperatives were associated with low and falling per capita production, their remuneration systems at least protected the food entitlements of vulnerable groups such as the young, the old, and the ill, judging by published descriptions (Chaliand 1969: 219; Nguyen Khac Vien 1977: 190; Bhaduri 1982: 49; Fforde 1989: 123–124). For the mortality decline of the 1950s the relevant exposure to education was achieved through mass campaigns, rather than formal schooling, which was in its early stages of development (Woodside 1983: 409). Mass campaigns presumably provided some of the benefits to health usually provided by formal schooling. North Vietnamese women, in common with women across Southeast Asia, have long had relatively great freedom of movement and domestic influence, at least compared with women in most of South or East Asia. Government measures such as the establishment of a Women's Union, enactment of an egalitarian Marriage and Family Law, and propaganda campaigns may have extended these rights (Ginsburgs 1975; Reid 1988: 146–153).

To set up a functioning primary health care system is a rare achievement. Internationally, primary health care programs tend to become underfunded appendages of urban, technology-intensive health bureaucracies (Mosley 1985: 105; World Bank 1993b). What, then, explains North Vietnam's relative success? Historical idiosyncrasies, such as the emphasis on prevention in Vietnamese traditional medicine, were certainly important (Marr 1987). There were, however, ways in which the task of implementing a primary health care system was made easier by the political and economic institutions in North Vietnam.

The institutions of the collective sector, for instance, led naturally to some of the outcomes desired by primary health care systems. Rural health workers were accountable to their communes, which had recruited them and which paid their salaries. Commune officials were in turn somewhat accountable to their members, through meetings and elections (Houtart and Lemercinier 1984: 70–75). The policy of recruiting commune officials and health workers from the local population meant that health workers' clients included their own family and neighbors. When subject to the pressures created by the organization of communes and commune health cen-

ters, dedicated individuals may have come to resemble the active and re-
sponsive cadres depicted in the official sources (Hoang Dinh Cau 1965). At
the very least, North Vietnamese communes and cooperatives probably gave
people greater voice in the local provision of health care than did the top-
down health bureaucracies criticized by primary health care advocates.
Caldwell (1986: 203, 208) makes similar claims for the local institutions of
communist China and suggests that in West Bengal monitoring by the state's
communist party officials may have played the same role in enforcing stan-
dards as did strong civil societies and traditions of popular protest in Kerala,
Sri Lanka, and Costa Rica.

A second clear link between the feasibility of the primary health care
system and the political and economic institutions was through the at-
tempted replacement of markets by administrative controls. The govern-
ment nationalized the production and distribution of pharmaceuticals in
the late 1950s (Worth 1985: 234), at the same time as it was nationalizing
other industries. The limits on the government's control over the distribu-
tion of goods have been mentioned already, and by the late 1970s sales of
medical supplies to the black market were leaving fewer and fewer resources
in the state system (Banister 1985: 17). These loose controls were none-
theless tighter than those in noncommunist countries with less extensive
bureaucracies and with legal pharmaceutical markets. The North Vietnam-
ese government was able to distribute medical supplies according to need
rather than according to ability to pay. It was therefore relatively well placed
to pursue the primary health care ideal of supplying cost-effective drugs to
the whole population.

Similar considerations apply to the allocation of medical personnel.
Communes, cooperatives, and the state sector were the sole legal employ-
ers of trained medical staff. Like everyone else, health workers had only a
limited right to select their place of employment. Government control over
occupations was reinforced by the system of household registration, which
made it difficult for illegal migrants to obtain food rations or housing. Large
numbers of health workers did abandon their official duties or sell their
services privately during the late 1970s, as their official wages, like those
of most of the population, fell below subsistence levels (Beresford 1988:
143; Allen 1993: 40). However, the North Vietnamese state exerted far
greater control over the allocation of health workers than did most non-
communist states. It did not have to train large numbers of rural health
workers only to have them migrate to the cities; nor did it have to pay
large bonuses to prevent them from doing so. Nor did it confront a power-
ful doctors' lobby with a vested interest in opposing primary health care.

The success of China's primary health care system appears to have
been linked to its communist institutions in similar ways (Parish and Whyte
1978: 85–94). Communist Cuba's low mortality is well known, and, de-

spite later failures, the Soviet Union and the Eastern European communist regimes experienced rapidly falling mortality in the early years following World War II (Okolski 1985: 446). Many of the countries depicted in Figure 1 with moderate incomes but low mortality in 1995 are former members of the Soviet Union. There appears, then, to be a general association between communism and low mortality, at least among poor countries. Casual review of the international evidence seems to reinforce the conclusion suggested by the Vietnamese evidence: that North Vietnam's primary health care successes can be traced, in part, to the government's adoption of a communist development strategy.

Changes in demand for children and fertility decline, 1950s–70s

At the beginning of the 1965–75 war, some 400,000 men were enlisted in the North Vietnamese army; by the end of the war the number had risen to about 650,000 (Pike 1986: 2). Throughout the war, the North probably had several hundred thousand soldiers, cadres, and guerrillas in the South at any one time (Kolko 1985: 186–187). This number was equivalent to one-quarter of North Vietnamese men aged 20–34, the prime years for military service.[5] Further mobilizations occurred during the occupation of Cambodia in 1978 and the war against China in 1979.

   Mass mobilization and war presumably affected marriage and fertility by separating couples and by inducing people to delay childbearing and reproduction. Fertility statistics for the 1960s and 1970s are too imprecise to permit any stronger judgment than a rejection of the possibility of huge baby booms or busts. Vital registration statistics on marriage, shown in Table 6, suggest only a slight rise in the mean age at marriage. Similarly, the median age at marriage reported by North Vietnamese women in the 1988 Demographic and Health Survey was in the range of 20–22 years for all age groups between 20–24 and 45–49 years, suggesting no strong trends (Vietnam 1990b: Table 2.7). The marriage statistics should, however, be interpreted with the same skepticism as applied to the fertility statistics.

TABLE 6   Mean age at marriage in the Red River Delta, 1946–80

	1946–59	1960–75	1976–80
Men	21.5	23.0	23.5
Women	19.5	21.5	22.5

SOURCES: Nguyen The Hue (1995: Table 13). Nguyen The Hue does not state the origin of these figures, but they presumably come from the vital registration system, which did collect data on marriage (Jones 1982: 806–807).

On present knowledge, then, it is difficult to assess the contribution of war to North Vietnam's fertility decline during the 1960s and 1970s.

Some accounts mention population policy as a significant factor in the North Vietnamese fertility decline (Vietnam 1991b: 98; Barbieri et al. 1995: 630). As early as 1963, the North Vietnamese government established a family planning program and announced that couples should have no more than two or three children. Only after 1973, however, were contraceptives distributed on a large scale (Banister 1985: 18; Vu Quy Nhan 1993: 2). The vast majority of contraceptives distributed were IUDs. In 1975, the family planning program claimed a cumulative total of 600,000 IUD acceptors in North and South Vietnam combined, with most of these in the North. By 1980 the program was claiming 2.1 million IUD acceptors, with the majority again in the North. These figures give some indication of changes in resources committed to the family planning program, but reveal little about contraceptive prevalence rates, since the same woman could be counted as a new acceptor many times. It appears that no usable figures on contraceptive prevalence were collected during the 1970s (Banister 1985: 19–20).

With the launch of the later-longer-fewer campaign in 1971, China abandoned voluntary family planning in favor of a coercive birth control program. Most of the reduction in the Chinese total fertility rate from 5.8 in 1971 to 2.8 in 1979 appears to be attributable to the campaign (Wolf 1986; Greenhalgh 1988: 660–662, 664–665, Appendix). North Vietnam's population policy had some of the elements of the Chinese one.[6] By the time of Vietnam's second Five Year Plan in 1976–81, national birth rate targets were being converted into targets for provinces, districts, and communes (Jones 1982: 795, 802; Vu Quy Nhan 1993: 1, 5). Official pronouncements on birth rate targets often condoned the use of coercion, although they often also condemned it (Banister 1985: 20–21). The same institutions that had made a coercive population policy feasible in China, such as household registration and agricultural cooperatives, also existed in North Vietnam, albeit less tightly organized. The problems of rapid population growth and high population densities were at least as severe in North Vietnam as they were in China.

There is, however, no evidence of Chinese-style coercion being applied in North Vietnam during the 1960s and early 1970s, and some weak evidence that it was not. Provinces appear to have repeatedly violated plan targets without facing penalties. Fourth, fifth, or higher-parity children qualified for rice rations and housing allowances, and their mothers qualified for maternity leave (Jones 1982: 797, 802; Werner 1984: 53). The government's choice not to launch a large-scale birth control campaign presumably reflected the pressing demands of war and, in the late 1970s, the threat of economic collapse. Limits on evidence make it difficult to assess the contribution of more orthodox family planning efforts, although the fact that fertility be-

gan falling before the major program efforts of the mid-1970s suggests that the programs at most hastened the decline rather than initiating it.

North Vietnam's fertility decline evidently reflects changes in the demand for children. The rapid mortality decline improved survival chances and made it easier to achieve, or harder to avoid, large families. Fertility fell fastest in the cities and lowland areas, where mortality also fell fastest. Greenhalgh's (1988, 1989) analysis of families, the state, and fertility decline in China is an appropriate place from which to offer an explanation why many Vietnamese parents chose to avoid large families, given that North Vietnam and China shared similar family systems and underwent similar political and economic transformations after their revolutions. Greenhalgh's account, drastically simplified, may be stated as follows. Chinese families can be seen as deriving two main types of economic and social benefits from children: security and mobility. The limited social welfare provided by Chinese agricultural cooperatives did little to reduce children's importance as providers of security in the Chinese countryside, while the relatively generous state-sector welfare system significantly reduced their importance to security in the cities. Throughout China children had traditionally contributed to mobility through participation in family enterprises, but these enterprises were suppressed under communism. Getting a child a job in the state sector emerged as a new mobility strategy, but in most years during the 1960s and 1970s job vacancies were scarce. Meanwhile, Greenhalgh argues, rural children did not spend sufficiently long at school to significantly raise childrearing costs in the countryside, while schooling, housing shortages, and greater labor force participation by women made childrearing increasingly difficult in the cities. Together these changes persuaded many rural parents to aim for slightly lower fertility, and persuaded many urban parents to aim for much lower fertility. Even without the later-longer-fewer and one-child campaigns, China's fertility would have fallen, although probably not as fast.

Socialist construction appears to have had a similar influence on children's security value in North Vietnam. Descriptions of North Vietnamese agricultural cooperatives mention a number of welfare provisions. For instance, government surveys conducted in the Red River Delta during the late 1970s found that 95 percent of elderly people bought rice from their cooperatives at subsidized prices, 30 percent were allocated "appropriate work," and 30 percent were given allowances (Nguyen The Hue 1995: 63). Many cooperatives appear to have paid for members' funerals, just as village organizations had done in prerevolutionary times (Nguyen Van Huyen 1944: 92–93; Chaliand 1969: 201; To Duy Hop et al. 1993: 105; Bui The Cuong 1994: 49). Nevertheless, welfare payments from the cooperative can only rarely have been a significant part of households' income, since, as noted above, the total income received from cooperatives was usually well

under half the total income received from all sources by the late 1970s. Some elderly people, such as those who had lost children in the wars, also received small allowances from the central government. Rules for allocating extra land for household plots to families with more children had the potential to increase the benefits people obtained from children. However, the formal rules became increasingly irrelevant during the 1960s and 1970s, because of the illegal expansion of household plots. By the end of the 1970s, the size of a household plot presumably reflected the quality of the family's political connections, rather than the number of children it had borne. Urban state-sector workers received more-generous welfare provisions than did rural collective-sector workers. State-sector workers first qualified for pensions in 1947 (World Bank 1995: 109), and by the 1960s and 1970s retired state-sector workers could obtain pensions and rations close to those they had received when working. For urban dwellers the imperative to have children to look after them in old age was reduced somewhat, while for rural residents it was reduced slightly or not at all.

In North Vietnam, as in China, the suppression of private entrepreneurship and the establishment of a privileged state sector made acquisition of a state-sector job the main route to upward mobility. Over the 1960s and 1970s, however, North Vietnam's state sector grew rapidly (see Table 4), while China's merely kept pace with population growth. One indicator of the state sector's ability to absorb new working-age cohorts is the increase in the number of jobs divided by the increase in the number of people of working ages. The figure for North Vietnam between 1960 and 1970 was 40 percent, while in China it was 12 (Fforde and Paine 1987: Appendix Tables 10, 12; Selden 1988: Table 6.2; United Nations 1995: 588). A state-sector job was a much more feasible goal in North Vietnam than it was in China.

In both countries a prerequisite for most state-sector jobs was educational qualification. The North Vietnamese formal school system expanded at the same pace as the formal health system, so that by the mid-1960s every lowland village and most upland villages had their own primary schools (Le Thanh Khoi 1987: 133–134). Communities were generally more enthusiastic about schools than about clinics, and far more willing to contribute to their maintenance (Woodside 1991: 174–175). North Vietnamese educators were nevertheless unhappy at the motives of students, complaining that they chased diplomas to escape the countryside, and spurned vocational schools in favor of the general schools that prepared them for state-sector jobs (Nguyen Canh Toan 1977; Woodside 1983, 1991). Critics of this behavior tended to characterize it as a pathology inherited from the precolonial examination system. It should be acknowledged, however, that the rapid expansion of the state sector and the lack of alternative sources of mobility made this behavior rational from the student's point of view.

For parents, grooming a child for a state-sector job was expensive. Although some education costs were shared by the whole community (Woodside 1991: 174), parents had to pay for writing materials, examinations, and supplements for teachers' income. Such charges increased substantially in the late 1970s. Post-primary education was more expensive than primary education, especially for rural students who would have to move to towns or cities to attend school. Government surveys between 1965 and 1975 found that expenditures on education averaged only 2–3 percent of total household expenditures in rural areas[7] (Fforde and Paine 1987: 138). These low numbers give a misleading impression of the costs faced by parents, however, since they average across all households regardless of whether they had children in school and what sort of schools the students were attending. Urban children had a distinct advantage in the competition for places in higher education and the state sector, since urban schools were at a higher standard than rural schools, and urban parents were more likely to have contacts with the appropriate officials.

In North Vietnam, as in Bangladesh in the 1970s (Cain 1986: 300), the largest childrearing cost was probably food. Vietnamese government surveys in the 1960s and 1970s found that food made up 60 to 70 percent of household expenditures (Fforde and Paine 1987: Appendix Tables 135, 138). In North Vietnamese cities, low government investment and American bombing caused housing to be especially scarce, so that an important cost of childrearing for urban parents was severe crowding.

In both China and North Vietnam, then, getting children into the state sector was the preferred route to upward mobility. In China the probability of getting a child into the state sector was low; mobility strategies thus implied a low demand for large families. In North Vietnam, the probability of getting a child into the state sector was much higher. Does this mean that mobility strategies implied a much higher demand for large families? It would have done so only if North Vietnamese parents had been able to meet the immediate costs of preparing their children by borrowing against the future benefits. There was, however, no obvious mechanism for borrowing in this way. Parents were faced instead with the task of securing sufficient resources for each child in the short term. One obvious way to make the task easier was to have fewer children, so that more was available to spend on each child. North Vietnam was exceptional in that conditions favoring this substitution of child "quality" for child "quantity" (Becker 1991) appeared at a very low level of national income.

Market Leninism and economic development, 1980s–90s

The Vietnamese economy in the late 1970s was an unstable combination of central planning and semi-legal markets. During the 1980s and 1990s,

the economic institutions of central planning collapsed, while the political institutions underwent little change, as in China, where the term "Market Leninism" was coined. The account of Vietnamese institutional change presented here derives from the work of Fforde and de Vylder (1996) and Kerkvliet (1995a, 1995b, 1995c), who muster considerable evidence to show that uncoordinated grassroots innovations played a major role in the shift in economic policy and practice. A similar argument has been made for China (Kelliher 1992; Zhou 1996).

Faced with the threat of economic collapse, the central government announced in 1979 that it would permit economic units to experiment with any new institutional arrangements that would permit a rapid increase in output. By 1981, the government had authorized state-sector enterprises to trade directly with each other and permitted cooperatives to subcontract parts of the production process to individual households, practices that state enterprises and cooperatives had tried repeatedly since the 1960s, but always against central government resistance (Fforde and de Vylder 1996: 130–132, 138–139; Kerkvliet 1995b: 69–70). Most of the leadership saw the reforms of the early 1980s as tactical concessions aimed at preserving the system rather than as a first step toward market reform. The initial results were gratifying: statistics show paddy production increasing by one-fifth between 1981 and 1984. But because so much of the old system was maintained, the old inefficiencies reasserted themselves (Nguyen Luc et al. 1990: 38; Fforde and de Vylder 1996: 126). By the mid-1980s, production growth had once again stalled. A mismanaged wage and price reform in 1985 set off hyper-inflation and pushed the economy back into serious difficulties.

Resources continued to shift into the private sector as people took advantage of legal and illegal opportunities to make money there. Among state-sector workers, for instance, incomes earned from sideline activities grew from less than one-fifth of household income in 1979 to about one-half in the mid-1980s (Fforde and de Vylder 1996: Figure 3.10). At the Sixth Party Congress in 1986, the Vietnamese leadership announced its acceptance of a fundamental shift toward a market economy. Over the following years the government passed legislation specifying the rights of entrepreneurs, as well as reducing subsidization and phasing out rationing. Between 1985 and 1991 the government reduced the size of the state-sector work force by about one-quarter (Vietnam 1995b: Table 2.9). In 1988, it legalized a full transfer of agricultural production and assets from cooperatives to households, although de facto transfers were in fact common before then (Fforde and de Vylder 1996: 157; Kerkvliet 1995a: 412). By 1989 economic transformation had gone sufficiently far that, from then on, the Vietnamese economy was "most usefully considered as a market economy" (Fforde and de Vylder 1996: 178).

Beginning in the late 1980s, the rapid expansion in entrepreneurship and income spread from the cities to the countryside, particularly the low-

lands. In rural North Vietnam, favored activities were livestock-raising, trade, and handicrafts. Rice land per person is too limited for rice farming to be a viable route to upward mobility. Many North Vietnamese communities are using rice farming as a subsistence guarantee and have organized periodic redistributions of land (Le Thi Vinh Thi 1993: 10, Kerkvliet 1995b: 74–75). Often women have primary responsibility for farming: a 1995 study in one village found that men knew little about the state of their family farms and considered farming to be women's business (Le Thi Vinh Thi 1993: 12; Nguyen Van Chinh 1997: 14). Some areas that lack saleable products or market access have seen little improvement or have become poorer since the introduction of market reforms. Overall, however, the Vietnamese economy grew at nearly 10 percent annually during the early 1990s (Fforde and de Vylder 1996: 306).

At the same time, most of the apparatus of the Leninist state has been left intact, including the censors, the Party's monopoly on legitimate political activity, and the strong government presence at the local level. The changes that have occurred, such as the introduction of some genuine competition into Party elections, have not shaken the basic political structure. Ideological commitment to the economic strategies of the Leninist or Stalinist eras has, however, disappeared, except within isolated pockets of the Party. State propaganda now dwells on the Party's nationalist roots and the recent economic successes. Vietnam's mix of authoritarianism, developmentalism, nationalism, and free markets increasingly resembles the political economy of its richer neighbors in East and Southeast Asia.

Mortality decline, 1980s–90s

During the 1980s, Vietnam's primary health care system fell into disrepair. Commune health centers had already been under strain in the late 1970s, when economic difficulties and the costs of reunification led to reductions in health workers' pay and scarcities of essential supplies. The withering away of agricultural cooperatives during the 1980s increased the strain by depriving health centers of a crucial source of funds. At the same time, the central government held down spending on health (Quinn-Judge 1986; Allen 1993: 44). Training was neglected, and the skills of health center staff deteriorated. Many of the health centers appearing in government statistics had in fact ceased to function, particularly in the uplands (World Bank 1993a: 164). Some of the problems of commune health centers were addressed in 1989, when the government gave provinces and districts responsibility for paying commune health center staff (Allen 1993: 40). A number of vertical programs, such as malaria control, went into decline, though others, such as child immunization, were strengthened with foreign assistance (Banister 1993: 18; World Bank 1993a: 161).

By the end of the 1980s, purchase of health services on the private market had become thoroughly entrenched. A creeping de facto privatization of health services probably dated from the beginning of the public-sector funding crisis in the late 1970s. The thriving black market in pharmaceuticals has been mentioned above, and health center workers, like teachers, began to charge fees and provide private after-hours service to make ends meet (Marr 1993: 339–341). According to government surveys, spending on health, "culture," and education rose from 5 percent of rural household expenditure in 1981–85 to 10 percent in 1986–90 (Nguyen The Hue 1995: 91). Private-sector health care was legalized in 1989, when the government passed regulations authorizing private practice, fee-charging, and a pharmaceuticals market (World Bank 1993a: 164–165).

The private sector has replaced the public sector as the dominant provider of health care in North Vietnam. Official figures show the number of visits per capita to public outpatient facilities declining by 50 percent between 1987 and 1993, and the number of visits to inpatient facilities declining by 10 percent, despite a population increase of some 13 percent (World Bank 1995: 96). Surveys undertaken in 1990 to 1993 showed one-half to two-thirds of households buying drugs and treating themselves as the first response to illness. Of those households that sought the advice of medical personnel, slightly more than half went to someone in the private sector (Allen 1993: 46–48; World Bank 1995: 97–98).

Standards of health care have reportedly been rising since the late 1980s (Allen 1993: 46–48), and fee-paying and competition can create pressure for an improvement in service. The transformation of the health system has, however, brought new problems. The balance between primary and secondary health care that once distinguished the North Vietnamese health system has shifted. As commune health centers weakened, the public sector was left with a strong bias toward secondary care, and the private sector provides little primary care (World Bank 1993a: 168). Although an increase in spending on secondary care was perhaps appropriate, given Vietnam's moderate mortality rates, the country still has sufficient problems with communicable diseases and sanitation to justify continued heavy investment in primary care. The prescription and sale of pharmaceuticals are causing problems, with retailers and health workers selling inappropriate or dangerous drugs and ignoring dangers of drug resistance. Health workers generally provide free consultations and make their money from pharmaceutical sales, as demonstrated by survey findings that 97 percent of private health expenditures go toward medicines. This practice encourages over-prescription (David Craig, personal communication; Vietnam 1995c: Table 3.9.5). These problems are shared by most developing countries. Indeed, North Vietnam's health care system, like its political and economic systems, no longer looks markedly different from that of its neighbors.

Why, then, has abandonment of a health system that achieved such striking advances in the past not been followed by a rise in mortality? Definitive answers are still not possible, but a partial answer is that the North Vietnamese health system was already disintegrating in the late 1970s, leaving plenty of room for improvement. A more fundamental reason is probably the rapid rise in households' income resulting from the market reforms. While food is shared less evenly now, much more of it is being produced. Although much of the new purchasing power may be wasted on inappropriate medicines, some of it is presumably spent on appropriate ones.

Population policy and fertility decline, 1980s–90s

Over the 1980s and 1990s, the Vietnamese government devoted increased attention to population policy. In 1981 the Council of Ministers proposed that the annual population growth rate be lowered from 2.1 percent to 1.7 percent by 1985, that couples should have no more than two children, and that women should not have their first child until age 22 and should wait five years for the next. It suggested that incentives be introduced for couples who practiced family planning, and that subsidies with pronatalist effects be amended. Family planning committees were to be established at every administrative level down to the commune, with each family planning committee headed by the chair of the local People's Committee (Vu Quy Nhan 1993: 5). At its Sixth Congress in 1986, the Party declared population control to be the second most important national objective, behind only food production (World Bank 1993a: 178). Further announcements by the Council of Ministers in 1988 and the Party Central Committee in 1993 reaffirmed the substance of the 1981 message (NCPFP 1994).

In 1984 the National Committee for Population and Family Planning (NCPFP) was established. It was given responsibility for coordinating family planning service activities and for establishing birth rate targets down to the local level, although responsibility for the distribution of contraceptives remained with the Ministry of Health. The NCPFP began setting up offices at the provincial, district, and commune levels (Hull and Le 1992: 84–86; Goodkind 1995: 89). The 1993 decree on family planning called for staff in communes to work full time on family planning matters, and for family planning "collaborators" to be assigned to hamlets or sub-hamlets (NCPFP 1994: 113).

If international aid is included, funding for family planning appears to have been maintained at approximately the same level between 1985 and 1990, while other areas of social spending were cut (World Bank 1993a: 178). Between 1990 and 1993, spending on the category "population and family planning" grew from 0.09 percent of the state budget to 0.35 percent (Vietnam 1995a: Table 4.16). In 1993, the government announced its

intention to provide adequate funds for maintaining the supply of contraceptives, giving material incentives to family planning acceptors and family planning workers, carrying out information, education, and communication work, and collecting reliable statistics (NCPFP 1994: 125).

Of the women reported as using modern contraceptive methods, over 80 percent were using IUDs (Nguyen Van Phai et al. 1996: 8). Abortion, which is provided legally and cheaply through the public health system, is probably a significant method of fertility limitation in North Vietnam. About 8 percent of North Vietnamese women reported in the Intercensal Demographic Survey that they had ever had an abortion, although hospital records suggest a higher incidence (Goodkind 1994; Vietnam 1995a: Table 4.12). Government agencies supply 90 percent of all modern contraceptives used in Vietnam (Vietnam 1995a: Table 4.7). Many branches of the Vietnamese family planning program are, however, inefficient and unresponsive to clients' needs (Knodel, Phan, and Dao 1995). In short, they function like other state-run distributors in Vietnam.

How crucial has the government distribution system been to the North Vietnamese fertility decline? What, in other words, would have happened had the system been less extensive? More couples would presumably have resorted to traditional methods, such as periodic abstinence and withdrawal. Rates of use for these methods in North Vietnam are several percentage points below those in South Vietnam, and for withdrawal alone around half the rates found in several European countries during the 1970s (Santow 1993: Table 3). Demand for contraceptives not satisfied through government programs would probably have called forth increased supply through private channels. North Vietnamese entrepreneurs have, after all, established sophisticated national and international trading networks for other products. Although the complete absence of government services would likely have led to a slower rate of fertility decline, there is no reason to think that the current situation of near-total government provision is in any way optimal.

During the 1980s and 1990s, North Vietnamese population policy has extended beyond the distribution of contraceptives into mechanisms of "strong persuasion" such as penalties, targets, and incentives. There is scattered evidence of coercion during the early and mid-1980s. Official statements and newspaper articles continued arguing for the use of coercion to meet family planning targets. Some targets appear to have been expressed in terms of numbers of contraceptive acceptors, others in terms of numbers of births (Banister 1985: 18–21). In 1987, the Hanoi Municipality appears to have forcefully implemented the incentives and penalties alluded to by the 1981 Council of Ministers statement, judging by the complaint from an official in the Ministry of Labor, who said that some penalties had been "unsuitable, and have even violated the rights of citizens. For ex-

ample, people have not been allowed to study, have had their bonuses cut off, have been dismissed, etc." (Banister 1989: 159). During the mid-1980s, some cooperatives provided women with money, food, or leave from work after they had had an IUD fitted or had undergone an abortion. The Women's Union complained that some cooperatives also cut the food rations or work points of women who gave birth outside the cooperatives' plans (Nguyen Huyen Chau 1988: 66–69). Expatriate scholar Lam Thanh Liem (1987) was told by Vietnamese who had recently emigrated to France that city hospitals were forcing women who had had two or more children to be fitted with IUDs, and that mobile clinics were doing the same in some rural areas.

More examples of official pressures for birth control in North Vietnam have been reported for the late 1980s and the 1990s. Xenos et al. (1993) and Goodkind (1995) have described villages imposing fines against couples violating the national two-child policy. Researchers from Hanoi's Institute of Sociology have described a village in Ha Son Binh Province where in 1991 women with two or more children were required to have IUDs inserted. A woman with two or more children who failed to have an IUD inserted was to be penalized by a fine of 20 kilograms of paddy. Fees for births at the infirmary were about US$0.50 for first and second births, $5 and 100 kilograms of paddy for third births, and more still for higher-order births (Nguyen Thi Huong 1992: 118). Vietnamese social scientist Vuong Xuan Tinh (1994: 27–28) wrote that parents in one village in Thai Binh Province were paying fines of 800 kilograms of paddy for third or higher-order births; parents were willing to bear the risk of heavy fines if they still had not borne a son. A Vietnamese family planning worker (Tran Thi Hoai 1994: 99–100) claimed that a village in Thai Binh Province imposed fines of up to 750 kilograms of paddy for fifth or higher-order births, with payment being spread out over five years.

Great care must be taken in interpreting information on the birth control program in North Vietnam. The greater evidence of coercive birth control measures in the late 1980s and early 1990s does not necessarily mean that such measures have become more common. Vietnam became more open in the late 1980s, so evidence on virtually every aspect of society is more plentiful from that point on. None of the sources listed above identified the situations they described as typical. Vietnamese researchers have reported that birth control measures vary widely between localities; for instance, the village mentioned above that imposed fines as high as 750 kilograms of paddy was next to a village that imposed no fines at all (Tran Thi Hoai 1994: 99–100; Nguyen The Hue 1995: 123–124). Implementation of population policy seems to show the same local variation as does implementation of every other policy in Vietnam.

The intensification of North Vietnam's birth control program has coincided with the weakening of cooperatives, household registration, and

other institutions that the early Chinese birth control program used effectively. Market reform has not necessarily undermined the Vietnamese government's birth control program. In one sense it has facilitated the program, since by relieving the economic crisis it has given the government an opportunity to direct its attention to population policy. Greenhalgh, Zhu, and Li (1994) present compelling evidence from China that tight birth control programs can be maintained in the post-reform institutional environment. In a study in Shaanxi Province they found that the weakening of collective institutions did indeed weaken the program in the mid-1980s. By the late 1980s, however, the Shaanxi government responded to pressure from Beijing by reorganizing the program, tightening accountability, and using increasing revenues to boost wages, incentives, and service quality. Shaanxi's fertility decline resumed. Program officials in North Vietnam have been experiencing similar difficulties with paying incentives and maintaining birth registers as did their colleagues in Shaanxi during the mid-1980s (Kaufman and Sen 1993: 243; Goodkind 1995: 91, 102). The North Vietnamese government, like the Shaanxi government, has addressed these problems by strengthening the bureaucracy and injecting more funds. It remains to be seen whether these measures will be as effective in North Vietnam as they were in Shaanxi.

Meanwhile, market reform has altered some of the security and mobility strategies open to families. Although much of the literature on Vietnam creates the impression of a dramatic shift in the provision of social welfare services, actual resource flows have undergone only moderate changes. Redistribution through the workpoints system disappeared along with the cooperatives, but by the late 1970s the amounts redistributed had in any case been small. Some rural communities continue to provide limited support to the elderly, for instance by selling them rice at subsidized prices (Phi Van Ba 1992: 23; An Dien Research Group 1994: 58). Others allocate agricultural land, and sometimes subsidized fertilizer, pesticides, or other inputs to the elderly (Phi Van Ba 1992: 22–23; An Dien Research Group 1994: 58; Dang Thu 1994: 5). On a smaller scale, there has reportedly been a proliferation of local old people's organizations, operating schemes to pay for funerals, visit the sick, or exercise outdoors (Duong Chi Thien 1994: 87). The central government still provides allowances to the elderly, such as those who lost children during the wars. These allowances are sufficient to pay for simple meals (Dang Thu 1994: 5). In 1993 the government introduced legislation carrying over most of the former provisions for state workers, and extending them to employees in private firms with ten or more people.[8] As the World Bank (1995: 109–112) points out, the social security system's dependence on large sums from general taxation makes it regressive. It is, however, no more regressive than its socialist predecessor—simply more transparent. In sum, families rather than public provi-

sion are still the most important source of economic security in North Viet-
nam, although urban residents obtain more security from public provision than
do rural residents.

Now that private entrepreneurship is legal, it has become the leading
route to upward mobility. Children can make important contributions to
family businesses as sources of labor and eventually as partners or useful
contacts. These contributions are unlikely to give rise to a demand for large
families, however, when entrepreneurs have so many competing claims
on their scarce resources. In a large survey in 1991, both urban and rural
enterprises cited capital shortages as by far the most important constraint
on establishing a new business (Ronnas 1992: 51). Vietnamese researchers
have in fact reported cases of couples delaying or reducing childbearing in
order to devote their resources to business (Nguyen The Hue 1995: 122).

State-sector jobs are poorly paid and, with the sector shrinking, diffi-
cult to get. The experience of Vietnam's more-developed neighbors sug-
gests that the security, prestige, and opportunities for graft that come with
state employment will, however, continue to attract new job-seekers. Em-
ployment in private companies offers fewer fringe benefits but better pay.
With non-state industry expanding production by one-third between 1990
and 1993, more and more private-sector jobs are available (Dang Duc Dam
1995: Table II.4). Parents hoping to get a child a good job must, on the
other hand, cope with the rising costs of education, particularly if they want
to provide their children with expensive extras such as instruction in En-
glish. Such costs can put advanced education beyond the means of poorer
parents, particularly in the countryside (Rubin 1988: 50–55; Marr 1993:
339). Between 1987 and 1993, the number of students enrolled in upper
secondary school fell by around 45 percent, while the number in lower
secondary school dipped and then regained its 1987 level; this despite an
increase in the size of the relevant age groups of around 15 percent (Viet-
nam 1991b: Table 11.2; World Bank 1995: 82–83). The strategy of groom-
ing children for good jobs appears to have become more concentrated among
the rich and urban dwellers. Among these groups, the quest for upward
mobility has generated increased pressure to limit family size to one or
two children.

Decollectivization may have encouraged rural parents to have more
children to provide labor for their newly acquired family farms (Allman et
al. 1991: 308). The North's recent diversification away from dependence
on rice-growing has, however, diluted any such pronatalist effects of
decollectivization. These effects are probably important only in upland ar-
eas, where the economy has been far less diversified and where fertility is
highest.

One final effect of market reform on mobility strategies is the new
scope that it has provided for status enhancement through conspicuous

consumption. Now that reforms have legalized accumulation of wealth and many of the means for doing so, families are free to build elaborate houses, wear expensive jewelry, or spend a year's income or more on a child's wedding. Since 1989, high-quality imported consumer goods have been widely available, enabling those with sufficient income to purchase motorbikes, soft drinks, and stereos (Fforde and de Vylder 1996: 177). The pursuit of upward mobility through conspicuous consumption raises the cost of each child and opens up alternative uses for parents' resources.

The post-reform influences on fertility in North Vietnam again resemble those present among Vietnam's neighbors. The continued importance of children for old-age support, intrusive family planning programs, and rapid economic development pushing up childbearing costs are all familiar to parents in Thailand, Indonesia, South Korea, and the other relatively prosperous countries of East and Southeast Asia.

Conclusion

From the 1950s to the 1970s, the North Vietnamese government attempted to implement a communist development strategy, and in the process created distinctive political and economic institutions. These institutions proved to be poor at mobilizing resources for economic growth, but were well suited to delivering a primary health care program. Many families responded to the new institutional environment by adopting mobility strategies that required childbearing to be held in check. The result was that, during the 1960s and 1970s, incomes remained low and mortality and fertility declined to moderate levels. In the late 1970s and the 1980s the communist economic institutions disintegrated, and, with belated approval from the politicians, a new market-based economy emerged. Although Vietnam is still officially a socialist country, its political and economic systems have moved toward those of its authoritarian capitalist neighbors. The new institutions are well suited to promoting economic growth but not so well suited to organizing primary health care services; declining efficiency in the health sector appears, nevertheless, to have been offset by increases in the resources available to it. Families are following new routes to upward mobility, but the new strategies, like the old, require childbearing to be limited. Economic stability has provided the government with the opportunity to develop an extensive birth control program. During the 1980s and 1990s, incomes rose quickly, and mortality and fertility continued to decline.

The argument, in a nutshell, is that North Vietnam's communist-era institutions created the conditions for declining mortality, declining fertility, and stagnant incomes, while the Market Leninist institutions created the conditions for declining mortality, declining fertility, and rising incomes.

From an international perspective, the first set of outcomes is highly unusual, the second is less so.

Notes

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1 The estimates of North Vietnamese GNP per capita used here in fact refer to all Vietnam. Given the imprecision of all such estimates, however, I have not attempted to correct for North–South differences. The sources for the mortality and fertility estimates for North Vietnam are given in the first section of the text. All other estimates come from World Bank (1983: Tables 1, 20; 1997: Tables 1, 6). I was unable to use purchasing power parity figures because no such figures have been published for Vietnam for 1981 or 1995.

2 A number of possible data sources have not been used in this discussion. Vital registration data for 1980 and thereafter are not shown, as I was unable to find separate data for North and South Vietnam, or for the provinces. North Vietnam held a population count in 1974 but I do not use the results here, as I was unable to obtain a report. A widely quoted survey (Vietnam 1990b) carried out by the National Committee for Population and Family Planning in 1988 is used here only for information on mean age at marriage. Although this survey followed the standard Demographic and Health Survey format, and was called the Vietnam Demographic and Health Survey, the official international program of Demographic and Health Surveys did not participate. Published tabulations from the official 1988 VNDHS report contain many errors, and analyses of the survey data have yielded far more rapid fertility declines than any other sources, and mortality levels for the 1965–75 war that are substantially lower than those estimated in the 1990s (Feeney and Xenos 1992: 62; Savitz et al. 1993: Table 1; Nguyen Van Phai et al. 1996: fn 4; Vietnam 1995a: Table 6.1). There seems to be little point in using 1988 VNDHS estimates for any variable that was also measured by the 1989 census.

3 The Vietnam Life History Survey data provided no evidence of a rise in mortality at younger ages (Hirschman, Preston, and Vu 1995: 804); this result needs to be viewed skeptically, however, as there is great scope for respondents to misreport deaths to young kin occurring 15 or more years earlier.

4 As Fforde and Paine (1987) point out, the official figures on agricultural cooperatives contain numerous inconsistencies. Calculating the mean number of households per cooperative from Appendix Table 70 in Fforde and Paine gives results that differ from those in Appendix Table 71 by up to 15 percent. The results from Forde and Paine's Appendix Table 71 are shown in Table 5 above.

5 Calculated by multiplying the official figure for the 1970 population by the proportion of males aged 20–34 in the 1979 census (Vietnam 1991b: Tables 1.1, 2.1).

6 Indeed, an anonymous referee suggested that the parallels between Chinese and Vietnamese population policy may be sufficiently close to imply intergovernmental borrowing. I have not addressed this possibility here, but it is worth pursuing.

7 Although the meaning of household expenditure is not explained in the Vietnamese tabulations, Chinese statistical compilations (China 1990) based on government surveys similar to the one conducted in Viet-

nam refer to "self-purchased goods," that is, goods produced and consumed within the household. Figures for household expenditure in North Vietnam probably include amounts imputed for such fictive purchases.

8 The relevant decrees are printed in Nha Xuat Ban Chinh Tri Quoc Gia (1995). World Bank (1995: 109–110) gives a brief summary in English.

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On the Quantum and Tempo of Fertility

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GRIFFITH FEENEY

ESTIMATES OF FERTILITY are among the most widely used demographic statistics. In many developing countries recent levels and trends in fertility are avidly watched by policymakers, family planning program managers, and demographers to determine whether and how rapidly fertility is moving in the desired downward direction. In much of the developed world, where fertility is now at historic lows, these same statistics are examined for signs of an upturn in fertility back to the replacement level needed to prevent future declines in population size. Given this interest in measuring human reproduction, it is desirable for users of fertility statistics to understand the strengths and weaknesses of available indicators. It is particularly important to avoid basing policies on statistics that give potentially misleading information.

Although the demographic literature offers many measures of fertility, the total fertility rate (TFR) is now used more often than any other indicator. The TFR is defined as the average number of births a woman would have if she were to live through her reproductive years (ages 15–49) and bear children at each age at the rates observed in a particular year or period. It is a hypothetical measure because no real group of women has experienced or will necessarily experience these particular rates. The actual childbearing of cohorts of women is given by the completed fertility rate (CFR), which measures the average number of births 50-year-old women had during their past reproductive years. The CFR measures the true reproductive experience of a group of women, but it has the disadvantage of representing past experience: women currently aged 50 did most of their childbearing two to three decades ago when they were in their 20s and 30s. The advantage of the TFR is that it measures current fertility and therefore gives up-to-date information on levels and trends in fertility. Another reason for the popularity of the TFR is its ease of interpretation compared with some other measures. Most interested persons will have little

difficulty interpreting fertility measures expressed in births per woman, but few non-demographers will know intuitively whether populations with a crude birth rate of 10 (births per 1000 population) or a general fertility rate of 100 (births per 1000 women of reproductive age) have high or low fertility.

The simplicity and wide availability of the TFR have contributed to a neglect of some deficiencies in this fertility indicator. The demographic literature on the measurement of fertility includes many criticisms of and alternatives to the conventional TFR, but there is no agreement on a replacement for it. In the next section we provide a brief selective review of the past half-century of demographic literature on the subject. This is followed by a proposal for arriving at an adjusted version of the TFR that is free of so-called tempo effects—distortions due to changes in the timing of births. The conventional TFR can be considered to consist of a quantum and a tempo component. We define the quantum component as the TFR that would have been observed in the absence of changes in the timing of childbearing during the period in which the TFR is measured. The tempo component equals the distortion that occurs due to timing changes.[1] Our objective is to measure the quantum component by eliminating the tempo distortion from the conventional TFR. The resulting quantum measure will be called the tempo-adjusted TFR.

Background

Critiques of the total fertility rate involve several common themes: the problems posed by changes in the timing of childbearing; the relationship between period and cohort measures; the nature and validity of period measures interpreted as "hypothetical" cohorts; and the extent to which fertility measures should embody controls not only for age but also for such variables as parity, duration of marriage, or other demographic variables (Ní Bhrolcháin 1992). A penetrating early discussion of several of these issues was provided by Hajnal (1947). Analyzing "the recent international recovery of the birth-rate," he argued that the traditional method of analyzing fertility trends based on annual data is inherently defective and should be abandoned. The widespread practice of fertility control makes it possible for families to time the arrival of their children in accordance with whatever factors they deem relevant, as well as to limit the total number of children born. "Under such circumstances a change in the rate at which people are having children in a given year can no longer be taken as an indication of a change in the number of children they will bear altogether in the course of their reproductive lives" (p. 143).

Direct evidence that timing changes produced undesirable results was presented by Whelpton (1945, 1954), who used US statistics to disaggregate the TFR into its *birth-order components*, where the first-order compo-

nent TFR_1 is defined as the sum of age-specific first birth rates (first births divided by person-years lived by all women), and similarly for higher-order components. The TFR_1 gives the average number of first births women would have by age 50 if they were to bear first births at the age-specific rates observed in a given year or period. By definition, the sum of all order components equals the TFR.

In most years during the late 1940s and early 1950s the TFR_1 in the United States exceeded 1, which would imply that women on average had more than one first birth (see Figure 1). Since this is impossible, these TFR_1 estimates must be rejected or reinterpreted. In considering this puzzle, Whelpton noted but did not deal directly with the effect of timing changes. Instead he focused on inadequate standardization for parity as a potential problem, and he developed a life table procedure based on age-parity-specific birth rates to calculate the TFR implied by these rates. Around the same time, Louis Henry in France was developing a different life table procedure based on birth rates specific for parity and duration in parity (Henry 1980 [1953]). These approaches have been applied and extended in numerous later studies (e.g., Feeney and Yu 1987; Feeney et al. 1989; Ní Bhrolcháin 1987, 1992; Rallu and Toulemon 1994).

Life table procedures used to calculate fertility indicators that are standardized for parity (or duration in parity) do not address directly the distorting effects of changes in the timing of childbearing. During years in which women delay childbearing, fertility rates are depressed; and in years

FIGURE 1   Total fertility rate for the United States, all births and first births, 1945–90
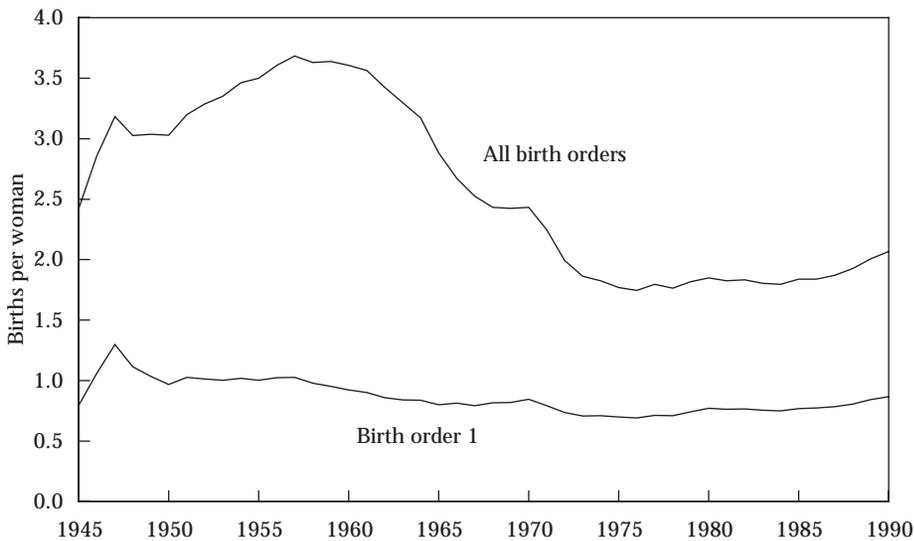
when childbearing is accelerated, fertility is raised. Because these effects depress or inflate *numbers* of births, they influence birth rates of all kinds—life table rates as well as ordinary age-specific rates and TFRs. Interestingly, life table procedures such as the one proposed by Whelpton remove at least partially the most obvious distortions of tempo effects on TFR_1, because the TFR_1 they produce no longer exceeds one. While this gives a more sensible result, it is an inevitable consequence of the life table calculations and does not provide a substitute for dealing directly with the timing distortions.[2]

An extensive analysis of the effects of variations in the childbearing tempo on period fertility indicators has been undertaken by Ryder in a series of influential papers (Ryder 1956, 1959, 1964, 1980, 1983). He demonstrated how changes in the timing of childbearing among cohorts of women in the United States influenced annual period measures of fertility such as the TFR. His 1956 article gave the basic "translation" equation relating the CFR (a cohort indicator) to the TFR (a period measure) in a population in which the mean age at childbearing changes linearly with increments of c years per cohort:

$$TFR = CFR*(1-c) \tag{1}$$

For example, if the mean age at childbearing of successive cohorts increases by 0.1 year per cohort (e.g., from 27 years for one cohort to 27.1 for the next, etc.), then substitution in the above equation yields TFR=CFR*0.9. In other words, a modest annual increase of one-tenth of a year in the mean age at childbearing results in a reduction in the TFR to 10 percent below the corresponding CFR. Similarly, if the mean age were to decline annually by the same amount, the TFR would be inflated by 10 percent. In applications of this equation to fertility trends in the United States, Ryder has demonstrated that a substantial proportion of the post–World War II "baby boom" was due to declines in the age at childbearing during this period (Ryder 1980).

While Ryder's simple translation equation captures the main effect of tempo changes on period fertility, it has not found wide acceptance. Two main reasons may be suggested for this. First, Ryder assumes that the tempo and quantum of cohort fertility are the determinants of the TFR and other period fertility measures. However, extensive empirical analysis of this issue has demonstrated that this is not the case (Brass 1974; Page 1977; Foster 1990; Pullum 1980; Ní Bhrolcháin 1992). For example, Brass (1974) concluded that cohort completed fertility revealed no significant feature that distinguishes it from time averages of period indexes. A recent review of this literature by Ní Bhrolcháin reached a similar conclusion: "of the two dimensions of calendar time—period and cohort—period is unambiguously the prime source of variation in fertility rates" (1992: 600). Second,

changes in the mean age at childbearing of aggregate cohorts do not accurately capture tempo effects when cohort fertility is declining. Cohorts reduce their fertility primarily by reducing childbearing at higher birth orders. As a result, the mean age at childbearing for all births declines even when the timing of individual births does not change. In other words, a decline in the cohort quantum leads to changes in the mean age at childbearing that do not represent true tempo effects. The above translation formula therefore gives incorrect results except when cohort fertility is constant. Fortunately, this second problem can be solved by applying the translation formula separately to each birth order rather than to overall cohort fertility. This option was proposed by Ryder (1959), who noted "the valuable gains in precision offered by this type of specificity" (p. 41), but for some reason Ryder largely ignored order specificity in subsequent work on the translation problem.[3]

Toward a solution

Fertility changes from one year to the next can occur at any age and birth order and can occur because of quantum as well as tempo effects. The information available in observed fertility rates may well be insufficient to disentangle quantum from tempo effects at all ages, orders, and durations. It is possible to make progress, however, by assuming that fertility changes in a structured way. Specifically, we will assume that fertility may be influenced by period, age, parity, and duration since last birth, but not by cohort. We will demonstrate that under this condition the total fertility rate that would have been observed in a given year had there been no change in the timing of births during that year may be estimated by dividing the observed TFR_i at each birth order by $(1-r_i)$ where r_i is the change in mean age at childbearing at order i during the year. This formula makes it possible to adjust the total fertility rate observed in any given year for effects attributable to the changing tempo of childbearing.

To demonstrate this result we begin with a highly stylized reference situation in which (i) only births of order one occur, (ii) all women in every birth cohort have their (first) births at a single exact age, (iii) all births occur at equal intervals during the year, and (iv) all cohorts have the same number of women. This situation is illustrated in Figure 2A, in which births (represented in all three panels by solid circles) occur at intervals of 0.2 years and cohorts 1, 2, . . . , 6 all have their births at the same exact age x.

Suppose now that the mean age at birth increases by 0.2 years (i.e. from x to $x+0.2$) during the year,[4] as illustrated in Figure 2B. Achieving such a rise implies that births occurring at age x in the reference scenario are now deferred. The extent of this delay increases during year t, with cohort 1 having the smallest and cohort 5 the largest delay. Because this

FIGURE 2   Three illustrations of tempo effects on fertility

(A) No change in tempo

(B) Births deferred

(C) Births advanced
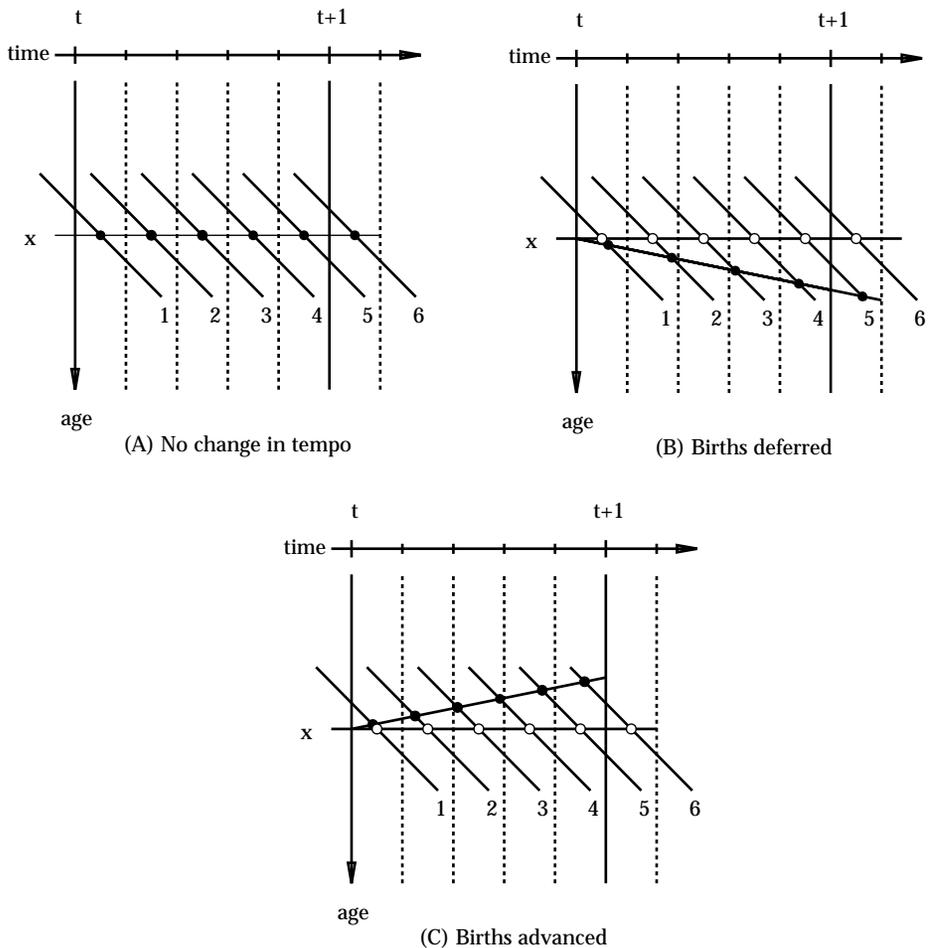
NOTE: See text for explanation.

delay shifts births to cohort 5 from year t into year $t+1$, the number of births in year t declines by 20 percent. Alternatively, suppose that the mean age at birth declines from x to $x–0.2$ during year t, as illustrated in Figure 2C. Births to cohort 6 are now shifted into year t and as a result the number of births in year t rises by 20 percent.

Nothing in this argument depends on births in the reference situation occurring at intervals of 0.2 years, and we can reduce this interval to a value sufficiently small that the effective assumption is simply that births are uniformly distributed over time. With such a uniform distribution the number of births in year t would also have been 20 percent lower with a rise of 0.2 years in the mean age and 20 percent higher with a decline of 0.2 years.

In general, then, a change of r years in the mean age at first birth during year t implies for this simple case that observed births may be expressed as $(1-r)$ times the births that would have been observed had there been no change in the timing of births. Inverting this relationship gives

$$B_{adj} = B_{obs}/(1-r) \qquad (2)$$

where B_{adj} denotes the number of births that would have been observed if no tempo change had occurred and B_{obs} denotes the observed number of births.

The assumption that all women in each cohort have their first births at a single age simplifies the diagrams in Figure 2 and makes the result relatively transparent, but it is not essential to the argument. The argument applies in precisely the same way if births occur not just at age x but at any age. Imagine a copy of Figure 2B or 2C reproduced for every age x at which births occur, and it will be clear both why the initial assumption is made and why it is not essential. In relaxing the assumption of all births occurring at the same age, however, we must introduce the assumption that tempo changes are the same for births occurring at any age. In less formal, more substantive terms, we must assume that women of all ages bearing children in year t defer or advance their births to the same extent independently of their age or cohort identification.

The argument above has been made for first births only, but it applies equally to births of other orders (and more generally to any nonrecurring event). We shall see in the empirical application that it is essential to apply the adjustment formula to births of each order separately and combine the results to obtain an estimate of the tempo effect for all births.

To this point we have focused on the impact of tempo changes while ignoring quantum effects. Quantum effects refer to variations in fertility over time that occur even if the timing of childbearing remains invariant. Fortunately, it is possible to distinguish a change in the annual number of births resulting from a quantum effect from a change resulting from a tempo effect. Changes in tempo are illustrated in Figures 2B and C. Changes in quantum are easily incorporated. Imagine the situation illustrated in Figure 2A, but suppose that births, instead of being constant, decline with each successive cohort. For example, let births to cohorts 1–5 in Figure 2A decline linearly over time while the ages at which births occur remain the same. If the rate of this change is properly chosen, it will result in 20 percent fewer births in year t, identical to the reduction illustrated by Figure 2B. Although the observed number of births of order one is identical in these two situations, it is possible to distinguish between them because the tempo effect involves a change in the mean age at childbearing and the quantum effect does not.

The results obtained thus far have referred to numbers of births, rather than to birth rates; clearly we want to extend them to birth rates. The results for numbers of births are important, however, for they establish something that might otherwise remain obscure. Period fertility measures may be calculated in many ways, and different measures have different properties. Since the effects of changes in birth timing operate on numbers of births occurring during a year or other period, that is, on the numerators of birth rates, the distortions induced by these changes will be observed in most other measures of period fertility, no matter how finely women have been categorized by age, parity, and other relevant variables, and whether or not the calculation involves ordinary summation of rates or calculations of the life table type.[5] Only a method that explicitly adjusts for the distortions induced by changing tempo can control these biases.

Extending the adjustment formula derived for numbers of births to total fertility rates and other relative measures is straightforward in principle, if tedious in detail. As shown in the Appendix, the adjustment formula for the total fertility rate at order i is the same as for numbers of births:

$$\text{TFR'}_i = \text{TFR}_i / (1 - r_i) \tag{3}$$

where TFR_i is the observed total fertility rate in any given year, r_i is the change in mean age at childbearing at order i between the beginning and end of the year, and TFR'_i is the total fertility rate that would have been observed had there been no change in the timing of births. The adjustment made to TFR_i depends solely on the timing changes during the year in which TFR_i is measured, and it is independent of timing changes before or after this year. Summing over all birth orders gives the adjusted TFR':

$$\text{TFR'} = \sum \text{TFR'}_i \tag{4}$$

These equations can also be applied to periods longer or shorter than one year, provided r_i equals the annualized rate of change in the mean age at childbearing at order i.

Most discussion in the demographic literature draws a simple and familiar dichotomy between "period" and "cohort." It is evident that a notion of "deferring" or "advancing" births necessarily refers at some level to cohorts. The births that are advanced or deferred are attached to the women who are their mothers, and the mothers have them earlier or later in time, and hence at younger or older ages. This is the language of cohorts, not of periods. On the other hand, our formulation of quantum and tempo effects is a period formulation. No reference is needed to anything that happens before or after the period with which we are concerned. Changes in

tempo and quantum are assumed to be period-specific and not to vary with age or cohort. This implies that the shape of the age distribution of period fertility (at each birth order) remains invariant, but this distribution shifts to higher or lower ages over time when tempo effects are present. Young women and old women, later cohorts and earlier cohorts, are all assumed to respond in the same way to period influences on tempo. This is a strong substantive assumption, but it is consistent with the empirical evidence cited by Ní Bhrolcháin (1992), if in marked contrast to the cohort emphasis that suffuses the work of Ryder. It is likely that our assumption is in practice violated during certain years (e.g., in wars, famines, etc.) when fertility changes rapidly and suddenly from one year to the next and cohort effects are not negligible. The above adjustment formula should not be used during such periods.

## Applications of the adjustment formula

United States

The United States is in many respects an ideal test case for the application of the tempo adjustment formula. The pioneering work of Whelpton (1954), continued by Heuser (1976) and subsequently by the National Center for Health Statistics in the annual US vital statistics publications, provides a time series of age-order-specific birth rates for single years of age covering most of the twentieth century, during which there have been broad swings in both the level and timing of childbearing. Although a thorough analysis of this extensive empirical evidence would require far more space than is available here, it is ideal for illustrating the application of the adjustment procedure.

From the age-order-specific birth rates in Heuser (1976), updated through 1991 by the annual US vital statistics publications, we compute $TFR_i(y)$ and $MAC_i(y)$ for birth orders $i = 1, \ldots, 7$ and 8+ and for years 1950–90, where $MAC_i(y)$ denotes the mean age at childbearing at order i in year y. From the $MAC_i(y)$ values we compute an annual series $r_i(y)$ of rates of change in mean age at childbearing for births of each order, and from these we obtain the adjusted $TFR'(y)$ with equations (3) and (4).[6]

Figure 3 compares the observed and tempo-adjusted TFRs for the years 1950–90. Between 1950 and 1962, from the beginning of the baby boom to slightly past its peak, declining age at childbearing pushed unadjusted total fertility well above the adjusted values. From 1963 through 1987, however, increasing age at childbearing pushed unadjusted total fertility below the adjusted values. During the last three years of the comparison, age at childbearing was virtually unchanged overall and the adjusted and unadjusted values are essentially equal.

FIGURE 3   Observed and adjusted total fertility rate for the United States, 1950–90
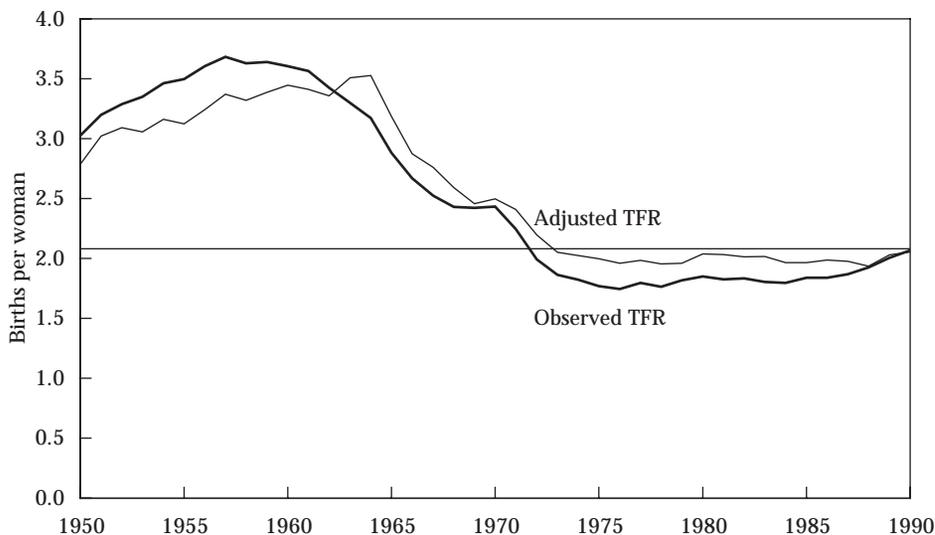
"Age at childbearing" here is multidimensional, represented not by a single index (such as the mean age at childbearing), but by the mean age at childbearing for births of each order. When we speak of "increasing" or "decreasing" age at childbearing, therefore, we necessarily refer to the overall tendency of these birth-order-specific mean ages, which do not necessarily change at the same rate.

Although this multidimensional character of tempo complicates the analysis, it is unavoidable. There were large changes in the quantum of higher-order births in the United States during this period, and since higher-order births occur on the average at older ages, these changes affected the mean age at childbearing for births of all orders independently of changes in tempo. To see the importance of this consideration, note that mean age at childbearing for births of all orders may be expressed as a weighted average of mean age at childbearing for births of each order. For any year y, for example, we may write:

$$MAC = MAC_1 w_1 + MAC_2 w_2 + MAC_3 w_3 + MAC_{4+} w_{4+} \qquad (5)$$

where MAC denotes mean age at childbearing for all birth orders and $w_i = TFR_i / TFR$. If TFR_3 and TFR_{4+} decline more rapidly than TFR_1 and TFR_2, as was the case in the US during the 1960s and early 1970s, mean age at childbearing for all births will decline even if mean age at childbearing for births of each order is constant.

More generally, shifts in relative quantum at different birth orders can magnify, attenuate, and even reverse the trends implied by order-specific mean ages at childbearing. For example, between 1965 and 1974 the mean age at first birth in the United States rose from 22.39 to 22.64 years, the mean age at second birth rose from 24.91 to 25.57 years, the mean age at third birth rose from 27.42 to 27.95 years, and the mean age at fourth and higher-order births rose from 31.13 to 31.98 years. In other words, the mean age at childbearing rose for births of all orders taken separately, producing a clear tempo effect that depressed fertility. However, the mean age at childbearing for births of all orders actually *declined* from 26.55 to 25.74 years during the period as a result of large changes in the weights for different birth orders (see Figure 4). The quantum of higher-order births declined much more rapidly than the quantum of first and second births, so that the weight applied to first births in the above formula rose from 0.2782 to 0.3901 and the weight applied to second births rose from 0.2379 to 0.3118. The weight for fourth and higher-order births, on the other hand, fell from 0.3041 to 0.1496. The combined effect of these weight changes is so large that it more than offset the rise in the means at each order. Using a non-order-specific adjustment procedure in this case would not just get the magnitude of the adjustment wrong, it would adjust in the wrong direction, that is, it would give a less accurate result than no adjustment at all.

FIGURE 4   Mean ages of women at birth by birth order, United States, 1950–90
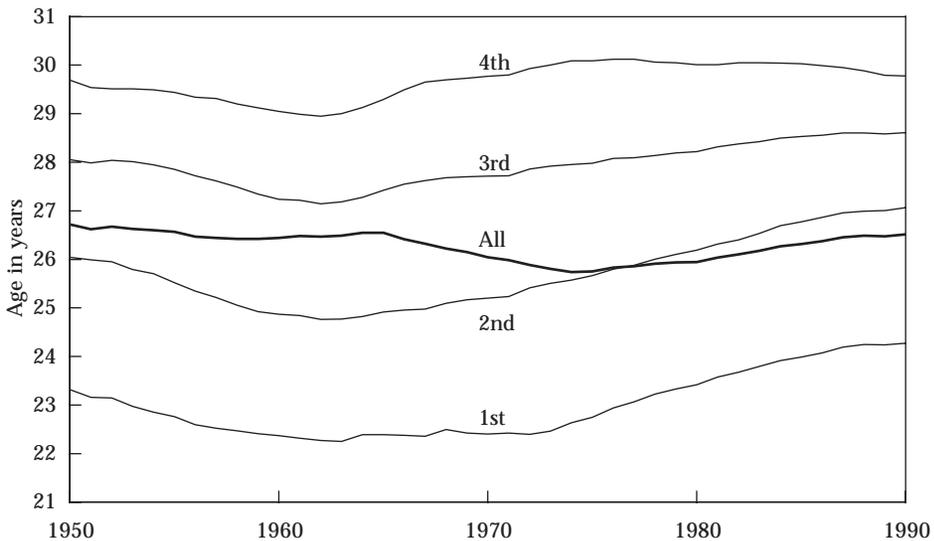
FIGURE 5   Observed and adjusted total fertility rate, Taiwan, 1978–93
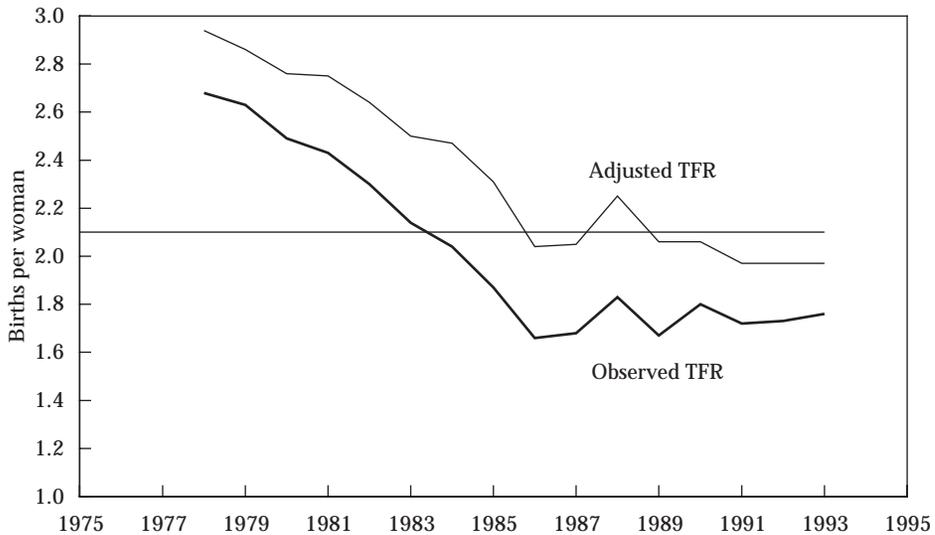
Taiwan

Taiwan is one of the few countries in the developing world with a vital registration system that is virtually complete. Detailed estimates of fertility rates by age and birth order since the mid-1970s are available in the annual *Taiwan Demographic Factbook.* From these data the observed and tempo-adjusted TFRs have been calculated for the period 1978 to 1993 in the same way as in the above illustration for the US. The results are summarized in Figure 5. The TFR declined sharply from 2.68 in 1978 to 1.66 in 1986 before recovering slightly to 1.76 by 1993. Throughout this period the mean age at birth of all orders was rising, and the adjusted TFR therefore exceeds the TFR. The tempo effect amounts to about a quarter of a birth per woman in the late 1970s and early 1990s, but it was higher—about 0.4—in the mid and late 1980s when the change in the mean ages was most rapid. Although the observed TFR has been well below replacement since 1986, the adjusted TFR suggests that in the absence of tempo changes, reproduction would have been close to the replacement level.

A test of the adjustment formula

The objective of the proposed adjustment procedure is to estimate the quantum component of the TFR. There is no direct way to test the accuracy of the TFR'(y) values for individual years, but an aggregate test is feasible, as will be demonstrated next.

The test consists of a comparison of the completed fertility of true cohorts (which is a pure quantum measure) with an average of the ad-

justed total fertility rates (also a quantum measure) over the years during which the true cohorts were in their childbearing years. To illustrate this comparison, examine first a hypothetical case in which only first births occur and fertility does not change over time. All women who enter the childbearing years are assumed to bear exactly one child, but the average age at which this child is born rises at a rate of 0.1 year per year. In such a hypothetical population, the total fertility rate measured during any year would be 0.9 births per woman, even though the cohort fertility measured at the end of the reproductive years would indicate a CFR of 1 birth per woman. By applying the adjustment formula to remove the tempo effects, we find that TFR'=1, which is equal to the observed CFR, thus confirming that the adjustment is accurate.

In actual populations an analogous test can be carried out by comparing the (order-specific) completed fertility CFR_i observed when true cohorts reach age 50 with the (weighted) average of the $TFR'_i(t)$ values in the years during which the cohort did its childbearing (ages 15–49).[7] For example, the CFR1 of the cohort born in the United States in 1935 was 0.918, which implies that when this cohort reached the end of its childbearing years (in 1985), 91.8 percent of these women had a first birth and 8.2 percent remained childless. This estimate can be compared with the weighted average of the TFR'_1s for the years 1950 to 1984, which equaled 0.902 births per woman. Similar comparisons were made for the other birth-order components of this cohort, and the agreement is again good as shown in Figure 6.

FIGURE 6   Observed and estimated completed fertility by birth order for the cohort of US women born in 1935
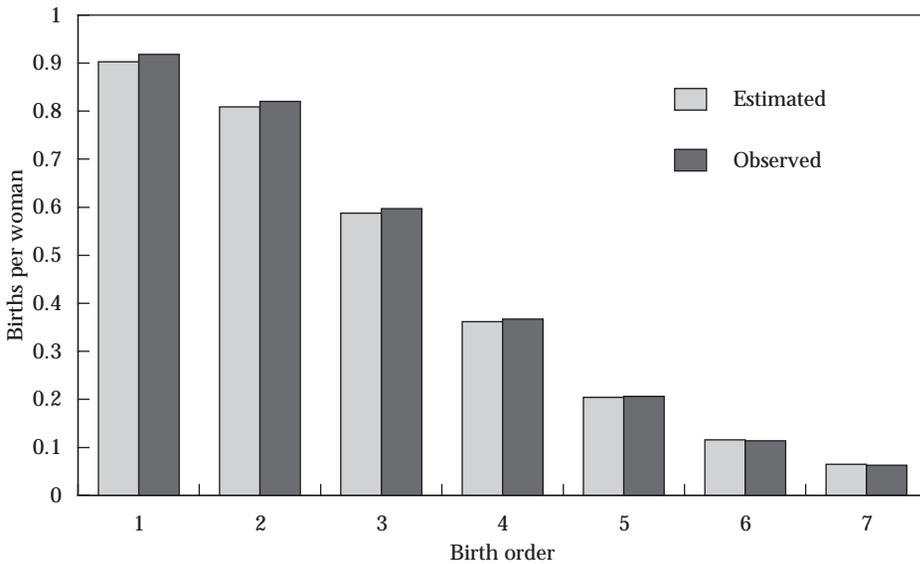
FIGURE 7   Observed and estimated completed fertility of cohorts of US women born 1904 to 1941
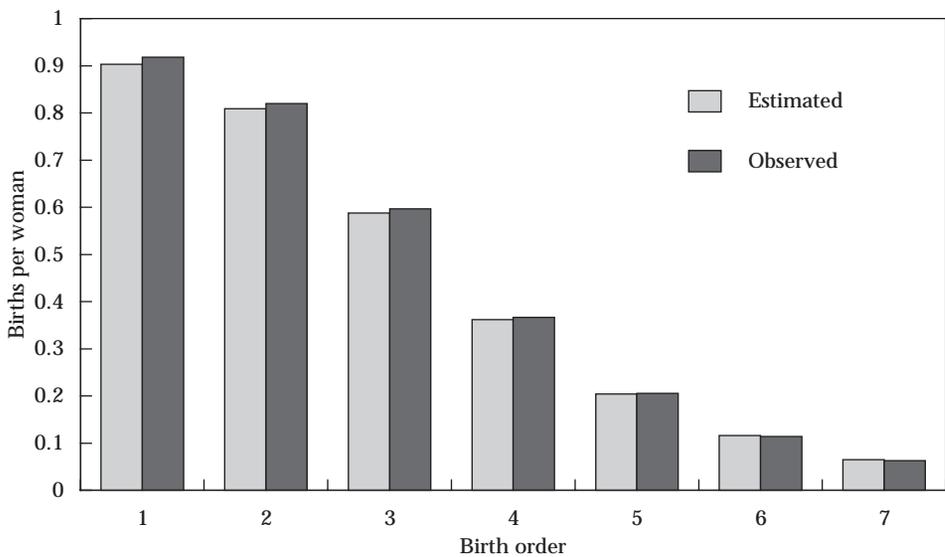
A comparison of CFR and TFR' has been carried out separately for all cohorts born from 1904 to 1941, and the results of this exercise are summarized in Figure 7. The observed completed fertility rates are generally very close to the corresponding weighted averages of TFR'(t), with the average difference for these cohorts amounting to 0.051 births per woman. Figure 7 also shows the weighted average of the *unadjusted* total fertility rates for comparison. These show much poorer agreement with observed cohort fertility. If adjustments in the war years 1943–45 (when the assumption on which our procedure is based was violated) are excluded, then the fit is even better and the average difference is just 0.041 births per woman. These findings provide confidence in the accuracy of the adjustment procedure proposed in this study.

Conclusion

For half a century demographers have known that standard measures of period fertility, such as the widely used total fertility rate, are distorted by changes in the timing of childbearing. The fertility rates we are accustomed to using frequently give an inaccurate indication of the level of completed fertility implicit in current reproductive behavior because numbers and rates of births are depressed during years in which women delay childbearing and inflated in years when childbearing is accelerated. Ryder has argued persuasively that the tempo distortion inherent in the conventional period fertility measures is a serious problem that deserves more attention. In prac-

tice, however, most uses of the total fertility rate effectively ignore the problem because there has been no generally accepted method for solving it.

The method proposed here has been shown both by theoretical argument and by empirical example to be an effective solution to the problem of adjusting total fertility rates for distortions attributable to changes in the tempo of childbearing. This approach is feasible, of course, only by maintaining certain assumptions about patterns of fertility change, and there will always be particular circumstances, such as the disruptions of World War II, in which these assumptions break down. No methodology can avoid the necessity for intelligent application. The essential assumption of the method proposed here is that period effects, rather than cohort effects, are the primary force in fertility change, an assumption supported by past research.

In some circumstances, of course, the conventional, unadjusted TFR will be the measure of choice despite tempo effects. If we are concerned with changes in numbers of births and the implications for future age distribution, for example, no tempo adjustment is called for. For most purposes, however, we are interested in the quantum component of the total fertility rate because it provides a better indication of the level of completed fertility implied by current fertility behavior, and hence a better answer to the question of how many births women will have if current childbearing behavior continues into the future.[8]

We have seen that tempo distortions are substantial and prolonged in both the United States and Taiwan. In general, tempo distortions exist as long as the timing of childbearing is changing. The issue of whether and to what extent fertility is depressed by tempo effects is a crucial one in many other countries. For example, by the mid-1990s the TFR in virtually every developed country had dropped below the replacement level of 2.1 births per woman and in some cases even below 1.5 (e.g., in Italy, Spain, and Germany). If such low levels of fertility are maintained, they will eventually lead to declining population size and extreme population aging. Declining population size would be salutary from some points of view, but rapid population aging is likely to pose profound social and economic problems. By extrapolating current low levels of fertility into the future, analysts often unwittingly ignore the fact that these rates are temporarily depressed by a rising age at childbearing. Eventually, the age at childbearing will stop rising and the removal of this fertility-depressing effect might well result in a rise in the TFR, as in fact happened in the United States in the late 1980s.

Our analysis shows that concern over below-replacement fertility in the United States in the past has been largely misplaced. The appearance of below-replacement fertility throughout much of the 1970s and 1980s was largely due to an increasing age at childbearing. Adjusting for the dis-

tortion induced by this change shows that the underlying level of fertility was in fact essentially constant at close to two children per woman throughout this period.

The new tool provided here affords analysts a better measure of women's true propensity to bear children in various countries. The distorting effects of a changing tempo of childbearing on fertility measures are too important and widespread to continue to ignore them in assessments of fertility behavior and its implications for future population growth. Tempo-adjusted total fertility rates should be added to the existing set of fertility measures used to assess fertility trends. In many if not all circumstances they will do a better job of doing what conventional total fertility rates do poorly in the presence of tempo changes: reveal the level of completed fertility implied by current childbearing behavior.

To be sure, practical matters need to be addressed before such measures can be widely produced. Substantial tempo effects may exist in populations with high as well as low fertility, but the majority of the world's population is not covered by vital registration systems that generate the detailed data needed to compute the new measures. The fertility surveys from which statistics for developing countries are increasingly derived do not involve sufficiently large samples to be an effective surrogate. It is perhaps possible to develop census-based methods to assess tempo effects.

Surprisingly, data availability is a problem for some developed countries as well. In much of Western Europe, in particular, vital registration systems collect information on birth order within marriage, rather than for women. This was perhaps appropriate when most births occurred within marriage, but the large rise in births outside of marriage that began in a number of developed countries during the 1970s has rendered it increasingly inappropriate. When births are not firmly anchored to marriages, the woman, not the marriage, is the appropriate entity to which to attribute order of birth. Fortunately, national statistical offices are aware of this issue, and fertility statistics by true birth order are becoming increasingly available. Once fertility rates by true birth order are available, the calculations required to estimate a tempo-adjusted TFR are straightforward, though admittedly more cumbersome than for the conventional TFR.

It might be objected that tempo-adjusted total fertility rates are excessively "hypothetical" to be used as a routine addition to the demographer's repertoire of fertility measures. It is true that the rationale of their calculation involves assumptions about the patterns of fertility change that will never hold exactly, and we do not suggest that conventional total fertility rates (or other measures) be abandoned. There is a good dose of the hypothetical in the conventional total fertility rate, however, and we see the difference as one of degree rather than one of kind. The tempo-adjusted total fertility rate proposed here represents a technical result that can advance

understanding of the level and trend of past fertility, and provides a firmer basis for projecting trends in future fertility.

Appendix: Derivation of the tempo adjustment formula

The discussion that follows focuses on births of a single order only; to simplify the notation, subscripts for birth order are deleted. The adjustment formula derived below is to be applied separately to births of each order to obtain corrected values of TFR_r, which are then summed to obtain the adjusted TFR for all birth orders.

Let $f_p(t,a)$ denote a surface defined on the age-time plane of the Lexis diagram giving the age-specific fertility rates for women aged a at time t. Let $f_c(T,a)$ represent the age-specific fertility rates at age a for cohorts of women born at time T. Then

$$f_p(t,a) = f_c(t-a,a) \text{ and } f_c(T,a) = f_p(T+a,a) \tag{1}$$

for any age a and times t and T. The period total fertility rate for time t is

$$TFR(t) = \int f_p(t,a)\,da \tag{2}$$

and the completed fertility rate for the cohort born at time T is

$$CFR(T) = \int f_c(T,a)da. \tag{3}$$

Scenario 1: No tempo or quantum effects

Suppose that $f_p(t,a)$ is constant with respect to t for all a (or, equivalently, that $f_c(T,a)$ is constant with respect to T for all a), i.e., that age-specific fertility rates are constant. In this case fertility rates are solely a function of age: $f_p(a) = f_c(a)$ and TFR=CFR for all periods and cohorts. This is the reference situation in which there are no changes in quantum or tempo. A subscript r will be added to fertility measures (i.e., TFR_r and CFR_r) that refer to this scenario.

Scenario 2: Time-invariant tempo effects, no quantum effects

Beginning with Scenario 1, suppose that cohort fertility (quantum) does not change, but that from time 0 births are deferred, so that age at childbearing rises, and that the deferral occurs equally at all ages, so that the shape of the period age schedule $f_p(a)$ with respect to its mean does not change. The level of the period schedules in this second scenario will fall as a result of the deferral (or rise, if births are advanced instead of deferred). We want to find a procedure to determine the TFR that would have been observed in the absence of changes in timing (i.e., the Scenario 1 TFR_r) from the observed TFR in Scenario 2.

Let the surface of age-specific rates in this second scenario be denoted $g_p(t,a)$. By assumption, the shape of $g_p(0,a)$ is the same as $f_p(0,a)$. Moreover,

$$g_p(t,a) = g_p(0,a-rt), \tag{4}$$

which says simply that $g_p(t,a)$ has the same shape as $g_p(0,a)$, but has shifted up the age axis by rt years (if r is positive) or down the age axis by rt years (if r is negative). From (2) above it follows that for Scenario 2

$$\text{TFR}(t) = \int g_p(t,a)\,da = \int g_p(0,a-rt)\,da, \tag{5}$$

i.e., that the period total fertility rate in this second scenario is constant over time. From (1) and (3) it follows that

$$\text{CFR}(T) = \int g_c(T,a)\,da = \int g_p(T+a,a)\,da = \int g_p(0,a-r(T+a))\,da, \tag{6}$$

i.e., that the cohort fertility rate in the second scenario is constant over time. From (6), however,

$$\begin{aligned}
\text{CFR}(0) &= \int g_p(0,a-ra)\,da = \int g_p(0,a(1-r))\,da \\
&= \int g_p(0,a(1-r))(1-r)\,da \times 1/(1-r) = \int g_p(0,a)\,da \times 1/(1-r) \\
&= \text{TFR}(0)/(1-r).
\end{aligned} \tag{7}$$

Since by assumption the completed fertility of cohorts in Scenario 2 is the same as in Scenario 1, the TFR in Scenario 2 may be estimated by multiplying the TFR_r in Scenario 1 by $(1-r)$. Alternatively, if Scenario 2 is observed, then the Scenario 1 TFR_r can be estimated by dividing the observed TFR by $(1-r)$.

Since the shape of the age pattern of period fertility in Scenario 2 is by assumption invariant and the same as in Scenario 1, it follows that

$$g_p(t,a) = f_p(t,a+d)(1-r), \tag{8}$$

where d is the total number of years by which g_p has been shifted relative to f_p at time t. In other words, in Scenario 2 at time t the original schedule of age-specific fertility rates has been moved along the age axis by an amount d and has been multiplied by $(1-r)$.

Scenario 3: Time-variant tempo effects, no quantum effects

We do not expect ever to observe Scenario 2. It is rather a conceptual stepping stone to a more general result. Let $r(t)$ denote the rate at which the mean age at childbearing changes at time t. In Scenario 3 we let r change with time, requiring only that $r(t)$ is piece-wise constant, i.e., is constant for t in any given calendar year. As in Scenario 2, we want to ascertain what the TFR for any given year would have been had there been no change in age at childbearing, i.e., if $r(t)$ had been zero. In Scenario 3, however, the changing r prevents us from doing the integration (7) that establishes the result for Scenario 2.

To establish the adjustment required in Scenario 3, we focus on a single year. From observed fertility in year t, we construct a fertility surface extending from the beginning of year t through such time as the youngest women having children at this time cease having children, roughly 35 years. Equation (8) above applies to this constructed surface,

$$g_p(t,a) = f_p(t, a+d)\,(1-r(t)), \tag{9}$$

and integrating both sides over age yields

$$\text{TFR}(t) = \text{TFR}_r\,(1-r(t)), \tag{10}$$

where $\text{TFR}_r(t)$ denotes the TFR that would have been observed in year t had there been no change in age at childbearing, i.e., if $r(t)$ had been zero. To see that this result applies to year t considered in isolation, observe that (i) a value of $r(t) > 0$ implies that $\text{TFR}(t)$ will be lower than it would have been if $r(t) = 0$ and that (ii) the magnitude of the effect depends only on the value of $r(t)$. Having observed given values of $\text{TFR}(t)$ and $r(t)$, then, and assuming that the value of t is fixed throughout this year, we know that the same value of the TFR will be observed in the following year if the same $r(t)$ is observed in this year, and similarly for as many subsequent years as we care to specify. Having specified sufficiently many years into the future, we may carry out the integration of Scenario 2 to express the value of $\text{TFR}(t)$ in relation to what would have been observed had there been no change in $r(t)$ during the year.

We have thus extrapolated the experience of a single year into the future and ascertained the implied cohort fertility. This is precisely what the customary TFR does, except that in the present case the extrapolation ignores the distorting effects of changing age at childbearing. By computing $\text{TFR}_r(t)$ we accomplish—subject to the assumptions of the adjustment procedure—what the customary TFR fails to accomplish unless there is no change in mean age at childbearing during the year. In particular, we are not attempting to predict cohort fertility, only to get an improved reading of period fertility.

Scenario 4: Time-variant tempo effects with quantum effects

This scenario is the same as the previous one except that the total fertility rate varies over time. Assume that $\text{TFR}(t)$ as well as $r(t)$ is piece-wise constant, i.e., $\text{TFR}(t)$ is constant during each calendar year, with the same assumptions as before about the age pattern of fertility. As in Scenario 3, a family of fertility surfaces is generated, one for each combination of values of $\text{TFR}(t)$ and $r(t)$. With the same derivation as in Scenario 3 we obtain

$$\text{TFR}(t) = \text{TFR}_r(t)\,(1-r(t)) \tag{11}$$

and

$$\text{TFR}_r(t) = \text{TFR}(t)/(1-r(t)). \tag{12}$$

This equation is used in this study to remove the tempo effect from the observed $\text{TFR}(t)$ for different birth orders.

Notes

1 In conventional use quantum refers to the average number of children born to women in a cohort, and tempo to the timing of births by age of mother within the cohort (Pressat 1985: 191). Tempo is often measured by the mother's mean age at childbearing, but (for reasons given later) in our analysis tempo is measured by the mean ages at childbearing at each birth order. The absence of a tempo effect defined in this way implies that the mean ages at childbearing at each birth order remain fixed over time. The word "tempo" is in some respects unfortunate, suggesting occurrence at regular intervals that may be shortened or lengthened. No such regularity is implied in the formal demographic use of the term. Moreover, because "tempo" connotes a process occurring in time, like the ticks of a metronome, confusion may arise when speaking of "changing tempo," which in practice usually refers to changes in some measure of age at childbearing.

2 Another significant shortcoming of these life tables is the implied assumption of homogeneity of the population. All women at a given age, parity, and/or duration are assumed to have the same probability of childbearing no matter what their desire for more children or their fecundity status. This problem can in principle be addressed by separating the population into subgroups that are subjected to different risks of childbearing, but in practice a lack of data makes this solution difficult to implement.

3 Hobcraft (1996) also notes the benefits of adjusting births at each order separately for removing timing distortions.

4 More specifically, suppose that births that occur at time $t+u$ in the reference situation are deferred to time $t + u/(1-r)$, where r=0.2.

5 The main exception to this statement is a situation in which all tempo effects are due to changes in the age at first birth while birth intervals are fixed. In that case higher-order parity progression ratios derived from birth rates by duration since last birth are not distorted by tempo effects. However, parity progressions to the first birth as well as the total fertility rates based on these parity progression rates are distorted. If the birth intervals are not fixed over time, then they are also affected by tempo effects (Brass 1990).

6 $\text{TFR}_i(y) = \sum \text{AOSBR}(x,i,y)$ is simply the sum over ages $x = 14$–49 of the age-order-specific i-th birth rates $\text{AOSBR}(x,i,y)$ for birth order i and year y. $\text{MAC}_i(y) = \sum \text{AOSBR}_x(y)(y+0.5)/\text{TFR}_i(y)$ is calculated using the usual midpoint approximation. To obtain a rate of change in MAC_i for calendar year y, we average the values for years y–1 and y to obtain a value for the beginning of year y, and the values for years y and $y+1$ to obtain a value for the end of year y, and subtract the latter from the former value. This reduces to $r_i(t)=0.5*(\text{MAC}_i(y+1) - \text{MAC}_i(y-1))$.

7 The weights are provided by the distribution of fertility in the years during which the cohorts are aged 20–35.

8 A statistic that provides a good indication of the average number of births per woman implicit in current childbearing behavior will also be a good indication of future cohort fertility *if* current childbearing behavior continues into the future. We do not necessarily expect current behavior to continue, however, and the objective is not to predict future completed cohort fertility, but to arrive at a period fertility measure that gives a demonstrably better indication of the level of completed fertility implicit in current behavior.

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An Old-Age Security Motive for Fertility in the United States?

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IN PERHAPS THE MOST comprehensive review to date of the old-age-security hypothesis, Nugent (1985: 76) argues that "old-age security is likely to be an important motive for fertility when the relevant parent is both uncertain about his or her ability to be self-supporting in old age and dubious that there are other more reliable or more effective means of such support than his or her own children." The most important of the more reliable or more effective means of support is generally believed to be a social security program of old-age pensions and disability insurance. Empirical studies of the effect of social security programs on fertility have found the expected lower fertility in countries with more comprehensive programs (Hohm 1975; Cigno 1992). The old-age security hypothesis has thus been used to explain fertility differences between more and less developed countries (Kagitcibasi 1982), and within and between less developed countries (Cain 1983; Jensen 1990).

The hypothesis does not appear, however, in the explanation of fertility trends and differentials within or between developed countries.[1] This seems to be due partly to a selective reading of the evidence, a reading that overemphasizes comparison between more and less developed countries and that assumes a high degree of homogeneity of economic security among the elderly in developed countries. Among those who cite direct evidence, the cross-national Value of Children surveys of the early 1970s, covering married women under age 40 years and their husbands, are most often cited. The fact that respondents were all currently married implies the omission of women whose financial position in old age is likely to be poorest and most precarious, hence in greatest need of support by children for their old-age security. Kagitcibasi (1982: 33) nevertheless concludes from cross-national analysis of these data that, in the United States and Germany, "'old-age security' provided by the child is not at all an important reason for having a child or wanting another child." This conclusion comes de-

spite the 32 percent of married German women and 27 percent of married American women whom the author reports as having responded that "old-age security" was either a "somewhat important" or "very important" reason for having a child.[2] Schoen et al. (1997), meanwhile, cite Hoffman and colleagues' (Hoffman and Manis 1979; Hoffman, Thornton, and Manis 1978) analyses of the US sample of the Value of Children survey to argue that a lack of economic motivations for having (or not having) children is pervasive. Schoen et al. (1997) note that an emphasis on intrinsic values over instrumental values among reasons that respondents volunteered for having children was "highly consistent across categories of gender, race, and education" (p. 336). Hoffman, Thornton, and Manis (1978: 120), meanwhile, note that "old-age security" was less likely to be *volunteered* as a reason than it was to be rated a somewhat or very important reason for having a child or another child upon direct questioning (as used by Kagitcibasi 1982, in the results cited above). Hoffman and colleagues therefore put more stock in responses to the direct question.[3] Further, after noting that black and less-educated mothers were more likely than white and more-educated mothers to rate "economic-utilitarian values" as important for having children, they speculate (Hoffman and Manis 1979: 591) that "blacks may feel there are fewer dependable alternatives to children for satisfying economic-utilitarian needs."[4] The evidence we present in this article supports the accuracy of this perception. The study by Schoen et al. (1997), using US 1987–88 National Survey of Families and Households data, collapses "having someone to care for me when I am old" into their major explanatory variable, "importance of children as *social* resources" (our emphasis). They find this variable strongly positively associated with intentions to have a child or another child.

Demographers' beliefs that old-age security motives are not relevant in developed countries, however, are probably based as much or more on indirect evidence and assumptions about the nature of "modern society." Specifically, they assume that combinations of private and universal public pension and old-age benefit programs have obviated the need for support from children in old age. For example, in contrasting the high prevalence of time and money transfers received by elderly parents in Malaysia, Lillard and Willis (1997: 134) describe the United States as a country "where employer provided pensions, health insurance, and public social security and Medicare have replaced the family."[5] In a similar vein, Schoen et al. (1997) assert that "With the shift from an agricultural to an industrial economy . . . , the economic benefits [to parents] of children virtually disappear" (p. 333); and Friedman, Hechter, and Kanazawa (1996: 137) assert that "there are no existing theories that can account for women's and couples' decisions to have children when their net instrumental value is negative, as it is in all advanced societies." Given this conviction, it is no surprise that Friedman,

Hechter, and Kanazawa (1994) interpret teenage childbearing among black women as being chosen in spite of the assumed adverse economic outcome.[6]

The indirect evidence against the operation of an old-age security motive indeed at first appears to be compelling. We therefore reexamine this evidence in the present study. In the United States, elderly poverty rates have seen sharp declines, to below the rates for the population as a whole. These declines have coincided both with successive expansions of the Social Security program and with large declines in the proportions of unmarried elderly living with their children (Hurd 1990). Thus it may seem that the old-age security problem, and the use of extended-family households to solve it, have all but disappeared. It further seems that this has occurred for the classic reason that an adequate universal old-age pension system has been implemented. We dispute this line of reasoning by arguing that, while the need for children's support in old age has clearly declined in the United States, the current low levels of poverty and family coresidence nonetheless hide substantial continued dependence of elders on coresident family members. The "hidden" nature of this dependence arises from two sources of inadequacy in the way that poverty is measured. First, measures of poverty do not reveal relationships based on financial dependence within the household. Second, such measures ignore the household labor needed to convert purchased goods into realized consumption.

With respect to the question of financial dependence, we showed in a previous article (Rendall and Speare 1995) that many elderly persons in the United States achieve above-poverty consumption levels only through the resource pooling and economies of scale afforded by extended-family households. We estimated that without family coresidence, overall elderly poverty rates would increase by as much as 40 percent, and that such hypothetical poverty-rate increases were especially large among older unmarried women and among blacks. These results point to the family's ability to fill gaps in the combination of Social Security and private pensions, thus invoking a possible old-age security motive for fertility.

In the present article, we further address the fact that existing poverty measures ignore the household labor needed to convert purchased goods into realized consumption. Incorporating household labor as well as household expenditures into a "household production function" whose output is realized consumption was first proposed by Becker (1965) and has since gained widespread use in the economics of households (e.g., Apps and Rees 1996). The resulting insights have, however, largely been ignored in the poverty literature. In the official US poverty measure, which continues to dominate empirical debates, a household's resource needs are defined solely in terms of consumption goods. Chronic disability meanwhile afflicts one in five members of the US household population aged 65 and older (Manton, Corder, and Stallard 1993),[7] and is more prevalent among

poorer elderly (Rendall and Speare 1993). Without someone, usually a relative, providing unpaid functional assistance, some of these impaired elderly persons would be unable to purchase the combination of household labor and consumption goods to permit a minimum level of realized consumption. In short, some of them would be poor.[8] If it is only with unpaid labor that they are able to avoid poverty, then this household-production-function-based poverty measure implies that family assistance is a necessary condition for their poverty alleviation even in cases where the publicly funded Social Security program allows them the financial resources to purchase the minimum consumption basket. Because of the way poverty is measured, however, it is Social Security income that is seen to keep the elderly out of poverty, while the contribution of family members' unpaid household labor is ignored.[9]

In the remainder of this article, we first present estimates of the large poverty-alleviating contributions of financial and functional assistance of coresident family to the elderly in the United States. We then discuss what these results imply for the operation of an old-age security motive, and what this could imply both for the explanation of differential fertility within developed countries and for the design of public assistance programs for the elderly.

Estimates of US elderly poverty rates with and without coresident family

The data we use are from the 1984 panel of the Survey of Income and Program Participation (SIPP)(US Bureau of the Census 1984), supplemented by estimates of coresident family providers' weekly hours of care from the National Survey of Informal Caregivers linked to the 1982 National Long-Term Care Survey (NLTCS)(US Department of Health and Human Services 1991). Our poverty-alleviation estimates are for the year 1984, when official elderly poverty rates had already fallen below the overall population poverty rate, and a decade after the last of the main expansions to the US Social Security program. The SIPP was recently recommended by a special panel on poverty measurement (Citro and Michael 1995) as the best dataset for this purpose, especially because it aggregates annual income over three sub-annual interviews ("waves"). Our sample consists of the 2,383 unmarried over-65-year-olds for whom data were collected in all three 1984 waves. As in our earlier study (Rendall and Speare 1995), we employ fuller financial resource definitions than do the official poverty statistics, as we include a current-period allocation of assets and non-cash transfers, and we consider separately the resources of elderly and other household members. We refer the reader to this and another earlier study (Rendall and Speare 1993) for details about the data and about the measurement of pov-

erty. The current-period allocation of assets is especially important for disabled elderly, whose expenditures would have to be greater to achieve a given level of consumption in the absence of free functional assistance from relatives. Standard poverty measures, meanwhile, do not allow for any spending of current assets. Our measure also allows us to make an assumption that family contributions to poverty alleviation will be continued over the remaining lifetime of the parents.[10]

We also estimate poverty threshold increments for the extra household labor needs of functionally impaired elderly persons. To do so, we first calculated mean hours of assistance from responses by 491 coresident-relative caregivers of 1982 NLTCS unmarried elderly persons to the following two questions: "Thinking about all of the things that you do for (sample person) because of (his/her) disability, about how many extra hours do you spend helping (him/her) on an average day?" and "How many days per week do you usually help (him/her)?" Mean weekly hours of assistance are then estimated as the product of daily hours of care and care days per week. So that this functional assistance measure does not overestimate functional needs, we selected only those respondents who did not report doing things for the care receiver that they considered unnecessary (question: "Do you ever feel that you are doing things for (sample person) that you think (he/she) can do for (himself/herself)?").[11]

Information on the disability type for which assistance was provided came from responses to questions asking what categories of help are provided by the respondent caregiver.[12] From these, we constructed functional assistance categories corresponding to the standard activities of daily living (ADL) and instrumental activities of daily living (IADL) categories of functional need identified for our sample of unmarried elderly in the SIPP.[13] We estimated the mean weekly hours of care provided by coresident relatives[14] who did not report doing unneeded things as 31.9 hours for the ADL-disabled and 16.3 hours for the IADL-disabled. To convert these hours into a dollar value of incremental resource need due to functional impairment, we used Olson's (1994: 46) estimate of the wages received by paid caregivers of $4 per hour in 1986.[15] Converted to 1995 dollars, an extra $9,732 per year is required for an ADL-disabled elderly person, and $4,973 for an IADL-disabled elderly person. As a point of comparison, the official single-person elderly household poverty threshold (again in 1995 dollars) is $7,242.

Since the coresident relative providing care is not always the only source of assistance,[16] our threshold increments are lower-bound estimates of the full resource-need increment caused by the functional impairment. The restriction of care hours to those provided by coresident relatives, however, allows us to realize our objective of estimating their contribution to elderly persons' poverty alleviation. To do this, in Table 1 we compare an "observed poverty" rate, in which coresident family are assumed to pro-

vide unpaid household labor that compensates fully for functional impairment, to a poverty rate under a "no-functional-assistance" assumption in which the observed poverty threshold is raised by the estimated costs of paid care, while financial resources and baseline poverty thresholds are the same as for the observed measure.[17] To estimate the poverty-alleviation contribution of the combined financial and functional assistance of unmarried elderly persons' coresident family, we additionally estimate a "no-functional-assistance, no-coresidence" poverty rate. In this measure, the elderly person's own financial resources are matched against the standard single-person elderly household poverty threshold, incremented for functional need. The difference between the "no-functional-assistance" rate and the "observed poverty" rate is our estimate of the percentage of unmarried elderly persons whose poverty is alleviated by the unpaid labor of coresident family. The difference between the "no-functional-assistance, no-coresidence" rate and the "observed poverty" rate is our estimate of the percentage of unmarried elderly persons whose poverty is alleviated by the combined effect of financial and household labor contributions of coresident family.[18]

Among all unmarried elderly in 1984, the combination of coresident relatives' financial and functional assistance keeps approximately 1.3 million persons (11.0 percent, subtracting the "observed" poverty rate from the "no-functional-assistance, no-coresidence" poverty rate) from falling into poverty. Put differently, the unmarried elderly poverty rate would have almost doubled to 24.3 percent.[19] About half of this poverty alleviation is due to functional assistance alone, and the remainder is due to the financial resource pooling and household economies of scale achieved with family coresidence. Never-married as well as ever-married elderly persons enjoy poverty alleviation through family assistance, suggesting the operation also of wider kin networks.

Disabled elders are more likely to be unmarried than are non-disabled elders (60.5 percent versus 43.4 percent), and so to be in need of functional assistance from children or other relatives. In the absence of coresident relatives' financial and functional assistance, almost half (44.7 percent) of disabled unmarried elders would be poor, compared with only 14.3 percent who are actually observed poor. That is, 30.4 percent, or almost one in three, are kept out of poverty by living with family members. Among the more severely disabled (ADL-disabled), 59.7 percent would be poor, compared to 13.0 percent observed poor. Coresident relatives' unpaid labor accounts for most of the poverty alleviation of the disabled unmarried elderly; financial pooling and household economies of scale alone lower the "no-assistance, no-coresidence poverty" rate only to 39.5 percent. This suggests both that the coresident relatives providing the assistance are themselves not well off, and that their low income is in part the consequence of their foregone earnings.[20]

TABLE 1 Poverty rates of the unmarried elderly in the United States under different assumptions about functional and financial assistance from coresident family members

	Sample N (unmarried)	Unmarried population estimate (000)	Unmarried as a percent of total population in category	Observed poverty among unmarried elderly in category (000)	(%)	Poverty assuming no functional assistance (000)	(%)	Percent increase over observed poverty	Poverty assuming no functional assistance and no coresidence (000)	(%)	Percent increase over observed poverty
All unmarried persons	2,383	11,429	46.2	1,518	13.3	2,139	18.7	40.9	2,781	24.3	83.2
Ever married	2,080	9,944	42.8	1,286	12.9	1,844	18.5	43.4	2,375	23.9	84.7
Never married	303	1,485	100.0	232	15.6	295	19.9	27.2	407	27.4	75.4
Disability status											
Not disabled	1,878	8,970	43.4	1,167	13.0	1,167	13.0	0.0	1,683	18.8	44.2
ADL- or IADL-disabled	505	2,460	60.5	352	14.3	972	39.5	176.1	1,099	44.7	212.2
ADL-disabled	170	852	56.2	111	13.0	381	44.8	243.2	508	59.7	357.7
IADL-disabled only	335	1,608	63.1	241	15.0	591	36.8	145.2	591	36.7	145.2
Age											
65–69	616	2,815	32.5	420	14.9	498	17.7	18.6	628	22.3	49.5
70–74	614	2,964	43.4	433	14.6	563	19.0	30.0	689	23.3	59.1
75–79	503	2,584	52.2	349	13.5	512	19.8	46.7	594	23.0	70.2
80+	650	3,067	71.7	316	10.3	565	18.4	78.8	870	28.4	175.3
Sex											
Male	472	2,367	23.5	268	11.3	359	15.2	34.0	462	19.5	72.4
Female	1,911	9,062	61.8	1,251	13.8	1,780	19.6	42.3	2,320	25.6	85.5
Race											
White	2,084	10,120	45.1	1,104	10.9	1,572	15.5	42.4	2,087	20.6	89.0
Black	274	1,181	60.3	374	31.7	518	43.8	38.5	625	52.9	67.1
Education											
Less than 12 years	1,426	6,769	50.5	1,202	17.8	1,723	25.5	43.3	2,219	32.8	84.6
12 years or more	957	4,661	41.2	316	6.8	416	8.9	31.6	563	12.1	78.2

NOTES: With the exception of "Sample N," all numbers are weighted by population totals. "Observed poverty" thresholds are 1.25 times the official levels; "No-functional-assistance" and "No-functional-assistance, no-coresidence" thresholds include additional increments for any functional impairment (see text); all poverty measures include elderly persons' spending of current assets and non-cash transfers in resources (see text and Rendall and Speare 1995).

Because the prevalence of disability rises with age, it is unsurprising that the poverty-alleviating role of coresident relatives' functional assistance also becomes progressively more important over time. The putative percentage increase in poverty without coresident relatives' functional assistance rises steadily from 18.6 percent for 65–69-year-olds to 78.8 percent for those over 80 years old. The age pattern of the contribution of financial assistance is in the same direction. The result is that while only 10.3 percent of unmarried over-80-year-olds are poor according to our observed poverty measure, as many as 28.4 percent are poor in our hypothetical "no-functional-assistance, no-coresidence" measure. Thus almost one in five unmarried over-80-year-olds is prevented from falling into poverty by a combination of functional and financial assistance from coresident relatives. We see in our breakdowns by sex that among the more than 1.3 million unmarried persons aged 65 and older who are not in poverty due to assistance by coresident family, 1.1 million are women. This is due largely to the much greater likelihood that women survive to be unmarried. Conditional on being unmarried, men's hypothetical "no-assistance, no-coresidence" poverty rate is almost as high as women's (19.5 percent versus 25.6), and men's and women's likelihood of having their poverty alleviated by family members is about equal (for men, a 72.4 percent higher poverty rate without coresident family members, and 85.5 percent higher for women). Nevertheless, women's much greater unconditional rates of dependence on coresident family members suggest that old-age security fertility motives may be much stronger for women than for men.

Consistent with earlier findings of a greater self-reported old-age security motive for fertility among black and less-educated women, our breakdowns by race and education reveal much greater proportions whose poverty is alleviated by family assistance among blacks (21.2 percent, versus 9.7 percent of whites) and persons with less than 12 years of schooling (15.0 percent, versus 5.3 percent for persons with 12 or more years of schooling). Note that blacks and less-educated persons are also more likely to be unmarried. Conditional on being at risk (i.e., unmarried and poor under the "no-assistance, no-coresidence" measure), however, poverty alleviation is approximately equally likely across racial and across educational groups, as is seen by comparing the "percent increase over observed poverty" columns.

Discussion

We have presented estimates that 1.3 million persons, or 11.0 percent of all unmarried elderly in the United States, are able to live in the community at above-poverty levels because they are living with family members. That is, their observed poverty rates would double in the absence of family

assistance. Among disabled unmarried elderly, almost one-third are able to live in the community at above-poverty levels only through living with family members. The percentages of black and less-educated elderly whose poverty is alleviated by functional and financial assistance from coresident family are respectively double and triple those of white and more-educated elders.

Our results are confined to assistance from family members that results in alleviation of poverty. This keeps the focus on contributions in old age that are "economic" in a narrow sense of that word. We have ignored functional and financial assistance that is not needed to keep elderly persons out of poverty, but that nonetheless contributes to their wellbeing more broadly defined. Even as narrowly defined economic contributions, though, our estimates are likely to be on the low side. First, since our estimates are of point-in-time prevalence of assistance, they will understate a given person's likelihood of *ever* receiving assistance from his or her children. Second, we have not considered reductions in poverty that fail to move the extended-family household out of poverty, even while succeeding in raising elderly persons' consumption levels. Finally, we have not considered functional and financial assistance from non-coresident children and from children of married elders.[21] On the other hand, as estimates of children's support to the elderly, these estimates are upwardly biased due to their including the effects of assistance from coresident family members other than children.

Importantly for judging the operation of an old-age security motive, our estimates understate the number of persons at risk of relying on their children for economic support at some time in their old age. It is noteworthy again from the Value of Children survey that fully three-quarters of US women expected their children to "contribute money in family emergencies," even while only one-tenth expected their children to "support [them] financially when [they] grow old" (Kagitcibasi 1982: Table 2). The results of the present study argue for considering functional support to be at least as important as financial support. Compared to purely financial impoverishment, becoming disabled is both more difficult to predict and more difficult to prevent. For women, in particular, the risk of becoming unmarried and disabled in old age is substantial. It is then especially salient that almost one in three unmarried disabled elders is able to stay out of poverty through family coresidence.

Evidence of children's assistance to their elderly parents is not, of course, sufficient to establish an old-age security motive for fertility. In particular, if the costs of having children are sufficiently high, then the potential value of their support during old age may not be high enough to figure strongly in fertility decisions. Our evidence indicates substantial economic benefits from children, especially for women of lower socioeconomic sta-

tus. We believe that this observation, coupled with other estimates of low economic costs of childbearing among such women (e.g., Geronimus and Korenman 1993), makes a persuasive case for a closer examination of old-age security as an explanation for fertility differentials based on socioeconomic status and, by implication, for fertility differentials by race. Theories of fertility have proven less than satisfactory in explaining such differentials. In particular, the dominant "child-quality" explanation (see Robinson 1997 for a recent statement and critique) seems to be better suited to accounting for lower versus higher family size than for the decision to have any children at all. The more lexicographic nature of the old-age security hypothesis (see Jensen 1990 and references therein to the work of Cain) makes it a promising alternative. Differentials in childlessness have, meanwhile, become increasingly important in the explanation of fertility trends and differentials within and between developed countries (Lutz 1989). For example, regarding recent differentials in childlessness by race in the United States, Chen and Morgan (1991) estimate that only 4 percent of the non-white 1962–67 female birth cohort will remain childless, compared with 22 percent of the corresponding white 1962–67 cohort.

Our results also call for a reconsideration of the relationship between fertility and programs of public support in old age. Being unmarried and disabled during old age are conditions that many persons will never experience. In the event they do, our estimates indicate that the US Social Security program alone would not be enough to keep many of them out of either poverty or a nursing home. While the nursing-home stay would likely be publicly funded under the Medicaid program, the large number of poor elderly who choose to remain in the community (by living in extended-family households) suggests the low preference accorded to the Medicaid-funded nursing-home option among these persons. Further, the financial resource pooling and household economies achieved with family coresidence keep as many unmarried elderly out of poverty as does functional assistance from coresident family members.

This discussion alludes to wider inadequacies in public-support programs and to the implications of inadequacies of public-support programs for a potential old-age security motive for fertility. The main concern in developed countries has been that fertility levels are too low to sustain programs for their future elderly populations (e.g., Demeny 1987). It is possible that such forces will be partially self-correcting: if introduction of effective social security programs has reduced fertility in the past, then concerns about erosion of these programs in the future might have a positive effect on fertility. This need not occur, however, since individuals' concerns about the viability of a future social security program may also lead to further reductions in fertility through an income effect (Nerlove, Razin, and Sadka 1987). Indeed, the effects of program erosion may be heteroge-

neous: persons with lower lifetime earnings potential may choose child-bearing as the best insurance, while persons with higher earnings potential may choose greater private savings as the best insurance. This scenario would result in an increased concentration of childbearing among poorer women, hence in a further increase in the already high proportion of children being raised in poor households in the United States.

Notes

1 See Olsen (1994) and Robinson (1997) for recent reviews of the economic theory of fertility; Friedman, Hechter, and Kanazawa (1994) and Schoen et al. (1997) for recent sociological theory of fertility; and the essays found in Casterline, Lee, and Foote (1996) for explanations of recent fertility trends and differentials in the United States.

2 Moreover, these percentages are from the perspective of the woman deciding how many children to bear. From the perspective of children being borne, the concentration of childbearing in the United States is such that approximately one-quarter of all women bear one-half of all children (Vaupel and Goodwin 1987). This is relevant here because we will argue that old-age security

is likely to be a motive especially among women of lower socioeconomic status, whose fertility is higher.

3 This also suggests that responses to direct questions underestimate the importance of the old-age security motive, since respondents are apparently reluctant to admit to what is clearly a selfish motive for having children.

4 Ethnographic study of poor African Americans (Burton 1991) has found explicit encouragement of childbearing in order to realize a reciprocal child- and elder-care system of kin relations.

5 A related factor may be doubts about the family's providing support even if it is needed by the elderly person. This is reflected, for example, in Holden's (1988) argument that declines in US elderly poverty rates would have been even greater had it not been for decreases in family coresidence among the elderly.

6 Economists and sociologists alike omit any consideration of a link between fertility and old-age security in developed countries, even for the most economically disadvantaged persons. A recent study of the causes of teenage childbearing in the United States (An, Haveman, and Wolfe 1993) is representative of current economic thinking in excluding old-age security from a list of possible factors influencing the teens' fertility decisions.

7 These same authors note that the number of chronically disabled elderly in the household population is greater than the number of institutionalized elderly by a factor of three to one.

8 This outcome is based on their continuing to live in the community. Poverty is in fact defined only for the household population. We

expect that some of the noninstitutionalized elderly would fall into the safety net of publicly financed institutionalized care. We return to this point when discussing implications for fertility theory and public policy.

9 For a wider discussion of the ignoring of the contributions of unpaid labor to family wellbeing, see Beneria (1992). While alternative poverty measures have also largely ignored household labor needs and their provision, an important exception is found in Renwick and Bergmann's (1993) incorporation of the labor requirements for child care, subsequently recommended in Citro and Michael (1995). When Renwick and Bergmann measured poverty using a poverty threshold that adjusts for these additional household labor requirements, the poverty rates of households with children, particularly single-parent households, increased considerably. The analogy to household labor requirements for dependents at the other end of the life course is clear. However, to our knowledge no attempt has been made to estimate poverty measures that take into account the extra labor required for households with functionally impaired elderly. A large gerontological literature on unpaid care of coresident family members, meanwhile, has pointed to its considerable importance (see, e.g., White-Means and Chollet 1996 and references therein).

10 Our assumption of continued family assistance does nothing more to current-period poverty measurement than determine what portion of the elderly person's assets will be allocated to current-period consumption. One alternative assumption would be to allow for no spending of current assets, either under a "bequest-for-care" trade with the coresident relative or under saving for a subsequent privately financed nursing-home stay. Another would be to assume faster spending of assets under an assumed shorter lifespan or shorter time until dependence on a Medicaid-funded nursing-home stay. In Rendall and Speare (1995), we estimated our financial-assistance results under both the remaining-lifetime spending assumption and the alternative, bequest-to-coresidents assumption. No substantial differences in the results were found.

11 We thereby eliminated 177 respondents, or 26.5 percent of our potential caregiver sample of coresident relatives providing unmarried elders with assistance with their instrumental activities of daily living or activities of daily living disabilities.

12 A single respondent caregiver was chosen as the person who responded "yes" to the question about whether he or she was the primary caregiver, or as the person who was assumed to be the primary caregiver in the case of a "don't know" answer.

13 Activities of daily living needs include dressing, eating, taking care of personal hygiene, and getting around inside the house; instrumental activities of daily living needs include housework, meal preparation, and mobility outside the house. We classify as ADL-disabled, persons with any ADL impairments. We classify as IADL-disabled, persons with any IADL impairments and no ADL impairments. The SIPP's wave 3 disability topical module is used to so classify these persons.

14 The weighted breakdown of respondent caregivers is 72.4 percent children or children-in-law, 9.7 percent grandchildren, and 17.9 percent other relatives or non-relatives.

15 Because this wage rate does not take into account any transaction costs—for example, home-help agency placement fees—our calculated increments to the poverty threshold will be downwardly biased, further contributing to the conservative nature of our estimates of the poverty-alleviating value of children.

16 In 59.7 percent of cases in the SIPP in which coresident relatives provided functional assistance, they were the only source of such assistance. In a further 9.0 percent of cases coresident plus non-coresident relatives were the only sources, and in the remaining 31.4 percent of cases coresident relatives were aided also by non-relative care providers, including paid employees, friends or neighbors, and persons from a nonprofit organization or agency or other non-relative. Inference as to who in the household other than the spouse provides the assistance is further hampered by the lack of family-struc-

ture information in the SIPP for non-heads of households. We know only whether they are living with relatives or non-relatives.

17 The "observed poverty" threshold is 125 percent of the official threshold, an adjustment we make throughout this article, as we did in Rendall and Speare (1993, 1995).

18 The resulting interpretation is of what would happen to numbers of elderly in poverty before any compensatory mechanisms—for example, additional preretirement savings—were enacted. Also, we do not consider reductions in poverty (Rodgers and Rodgers 1991) that may occur without a crossing of the poverty threshold.

19 The unmarried elderly constituted 46.2 percent of the total elderly population (see Table 1), and 68.8 percent of the elderly poor (results not shown). Thus the 11.0 percentage-point increase in poverty among the unmarried poor becomes a 5.1 percentage-point increase among the entire elderly population (from 8.9 percent to 14.0 percent). This breaks down to a 7.3 percentage-point increase among all elderly women and a 1.9 percentage-point increase among all elderly men.

20 See White-Means and Chollet (1996) for estimates of the opportunity wages of caregivers of elderly relatives in the United States.

21 This exclusion may not be as serious as it appears. In analyses not reported here, coresident children exceed non-coresident children in the NLTCS by a factor of almost two to one as the main caregivers, and they contribute more than twice the weekly hours of care as do non-resident caregiving children. Finally, the caregiving of coresident children is more likely to result in poverty alleviation also, because coresidence itself is often a result of economic need (Borsch-Supan 1990).

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Malthus for the Twenty-First Century

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WITH BIRTH RATES FALLING, the last gasp of the population explosion may add as few as 2 billion more people to the world's population. Eight billion is the UN's peak population figure, attained by 2050, in the low/medium scenario of its 1996 projection series. (The medium trajectory plateaus at around 10.5 billion later in the century.) If 2 billion is all, however, most of them will come in the next two decades. And 2 billion is not chickenfeed: the world population in 1798, when the anonymous tract *An Essay on the Principle of Population* appeared, stood at about 0.8 billion—a number that is now being added to the world in a single decade.

The *Essay* acquired an author and transformed itself from tract to treatise. Earlier authorities on its subject were acknowledged and a steadily expanding pudding of country case materials was incorporated. But to most readers the original message still came through: there was a population–food race underway, with dire consequences for the imprudently prolific, whether families or nations. Malthus was, and is, known for little else.

Since then, Malthus's worries have of course been attended to, though belatedly and by vice rather than prudence. There was also a massive technological fix in the form of the agricultural and industrial revolutions, shifting the terms of debate on poverty and development away from resource constraints. Remarkable and sustained advances in incomes, education, and, in this century, health were achieved, even if not universal or unalloyed.

So, should Malthus therefore be retired, along with his opponents such as Godwin and Owen, with gratitude or disdain, but in either case with acknowledgment that the issue is all but dead—a piece of intellectual history rather than a continuing controversy? As with most important thinkers, the answer is no. A good part of the work retains current relevance, both where it seems on target and where it is blinkered. I shall sample

from both, discussing Malthus on the state and society, on distribution, and on nature.

Malthus on the state and society has, I think, fared well. The primitive population–food contrast of the *First Essay* matured, in the later editions, into nuanced discussion of how economic and demographic outcomes are influenced by social organization and government. A secure legal order ensuring civil and political liberty and a fairly minimalist state (public education favored, social security à la Condorcet not) was Malthus's recipe for prosperity, backed by his observations on comparative development. This is what he wrote in *Principles of Political Economy* (1820, Ch. IV, Sect. 2 [WS 5, p. 184]):

> No people can be much accustomed to form plans for the future, who do not feel assured that their industrious exertions, while fair and honourable, will be allowed to have free scope; and that the property which they either possess or may acquire, will be secured to them by a known code of just laws impartially administered. But it has been found by experience, that civil liberty cannot be permanently secured without political liberty. Consequently, political liberty becomes almost equally essential. . . .

The sentiment is a familiar one in English and Scottish political economy of the time and, after a lengthy period of statist backsliding, has reemerged in neoconservative garb. The individual planning, perhaps more than Malthus foresaw, was to encompass fertility.

But do we conclude, on the basis of such passages, that Malthus was an early Thatcherite, all but declaring that there is no such thing as society? Emma Rothschild (1995: 711), for one, would seem to believe so, casting him as one who took a "flint-hearted view of economic life, in which men and women are surrounded by incentives, and inspired by fear"—in contrast to the proto–welfare state views of Turgot, Condorcet, even Adam Smith. Yet how fair is this comparison? The tenth stage of human development, as set out in Condorcet's *Esquisse,* was a frankly utopian vision of perfected society and morality. Drafted in hiding from the Jacobin Terror, it exhibited, as Malthus drily put it, "a singular instance of the attachment of a man to principles, which every day's experience was so fatally for himself contradicting" (*First Essay,* Ch. 8 [WS 1, p. 54]). Condorcet's ideas about social insurance are novel and impressive, but they are just that: ideas; what we actually have at the time, and for long after, are parish relief and the poor house. Governments early on can remedy the Dickensian extremes, but welfare state capability and affordability come much later in the course of development.

In the case of Adam Smith, the "moral sentiments" that balance his views on the nature and causes of the wealth of nations (with men and women inspired by greed rather than fear) are presented in a separate and

far less read work. Malthus should perhaps have written something kinder and gentler of his own as an offset: he does not seem in principle opposed to accumulation of social capital and a rich community life, provided that a core of individual responsibility is preserved. And by all accounts, for what it is worth, he was a most amiable person. The last chapter (Book IV, Ch. XIV) of the later editions of the *Essay* is guardedly optimistic, foreseeing a "gradual and progressive improvement in human society" (WS 3, p. 575). It ends:

> The partial good which seems to be attainable is worthy of all our exertions; is sufficient to direct our efforts, and animate our prospects. And although we cannot expect that the virtue and happiness of mankind will keep pace with the brilliant career of physical discovery; yet, if we are not wanting to ourselves, we may confidently indulge the hope that, to no unimportant extent, they will be influenced by its progress and will partake in its success. (WS 3, p. 576)

In a prosperous society population growth could, of course, be afforded. Indeed, it was to be welcomed—filling up the world's empty spaces with industrious souls. It is no small irony that modern supporters of birth control, concerned not with good government but with state-run family planning programs, invoke Malthus as a shorthand rationale for their work—or did so prior to the Cairo reformulation of their task. The methods of contraception they purveyed, and that Malthus condemned, had long since been described as neo-Malthusian.

Malthus of Malthusianism is the other and better-known side of this coin. Misery, once the *First Essay*'s simplicities are set aside, is bound up with misgovernment, a principal index of which is, or was, falling population. In the Ottoman Empire, for instance, the government's "tyranny, its feebleness, its bad laws and worse administration of them, together with the consequent insecurity of property, throw such obstacles in the way of agriculture that the means of subsistence are necessarily decreasing yearly, and with them, of course, the number of people" (*Essay* 1826 ed., Book 1, Ch. 10 [WS 2, p. 110]). Overgovernment, undergovernment (relinquishing authority to tax-farmers or to a mafia, for instance), sanctioned rent-seeking, and sheer incompetence all have a part to play, often in unholy conjunction. Modern accounts that echo Malthus's diagnoses in one or other respect include Mancur Olson's *Rise and Decline of Nations* (1982) and Eric Jones's *Growth Recurring* (1988). The *Essay* transposed to the present would have to allow for the fact that longevity now is such as to virtually rule out an actual diminution of population unless through sharply diminished fertility. With that proviso, it would find plenty of contemporary case materials of impoverished states and predatory regimes to replace the accounts of Persia, Hindustan, and Grand Tartary. The failed states of Robert Kaplan's anti-travelogue *The Ends of the Earth* (1996) are cases in point. In contrast,

notwithstanding their current difficulties, the East Asian countries now charged with poor governance and bad policies got a lot of things right, not least in their major achievements in social development and population stabilization.

Appraising Malthus on distribution is a more controversial task. Here too one must distinguish (as many critics willfully do not) between cool discussion of how the world works and airy rhetoric on how it ought to work. Take, as a notorious instance, the passage on "nature's feast" that appeared in the second (1803) edition of the *Essay*.

> A man who is born into a world already possessed, if he cannot get subsistence from his parents on whom he had a just demand, and if the society do not want his labour, has no claims of *right* to the smallest portion of food, and, in fact, has no business to be where he is. At nature's mighty feast there is no vacant cover for him. . . . If [the] guests get up and make room for him, other intruders immediately appear demanding the same favour. The report of a provision for all that come, fills the hall with numerous claimants. The order and harmony of the feast is disturbed, the plenty that before reigned is changed into scarcity; and the happiness of the guests is destroyed by the spectacle of misery and dependence in every part of the hall, and by the clamorous importunity of those, who are justly enraged at not finding the provision which they had been taught to expect. (*Essay*, Book IV, Ch. VI, 1803 edition only [WS 3, pp. 697–698])

Malthus was probably well advised to drop the passage from later editions, though his 1830 "Summary View" has a less inflammatory statement of the same sentiment: "[T]here is no modification of the law of property, having still for its object the increase of human happiness, which must not be defeated by the concession of a right of full support to all that might be born" (WS 4, p. 238).

Central here is the distinction between rights and performance. A declaration of a right may be satisfying and could even have some strategic utility in the long term, but as a practical matter it gets us precisely nowhere. As Malthus puts it: "The grand objection to the language used respecting the *right of the poor to support* is that, as a matter of fact, we do not perform what we promise . . ." (Summary View 1830 [WS 4, p. 238n]). The promiscuous multiplication and thus cheapening of human rights over the last half-century (a "right to development," a "right to paid maternity leave," a "right to enjoyment of the highest attainable standard of physical and mental health"—see UN 1995) would have attracted his withering scorn. He would substitute a dispassionate analysis of practice, with the aim of identifying better ways to achieve an agreed-upon societal good.

Thus we should read nature's feast not as a moral fable about equity and exclusion but as a kernel of insight about the realities of distribution, at least where there is no supervening authority. It is a forerunner of the

familiar "tragedy of the commons." Indeed, in the age of migration its applicability is more intra- than inter-temporal. In prosperous modern societies the claimants at the door who disturb the order and harmony of the feast are not so much the children of the "disadvantaged" (whose fertility may not be much higher than that of the rich) as the would-be economic refugees and asylum seekers metaphorically—and sometimes literally—at the border. Entry is sternly rationed, in part with an eye to the signals that any more liberal practice would give to potential further claimants. The same egalitarian-minded liberal who decries the local gated community takes for granted the need for gates at the level of the state. (The European Union, a supra-state gated community, is not conceptually any different.)

It is possible to mount a thoroughgoing opposition to this truncation of liberalism at national frontiers. Julian Simon, for instance, did so. Simon (1989: 347–348) espoused minimal restriction on international migration. He pointed to the economic benefits held to follow from greater factor mobility (Malthus did so on a smaller scale—opposing the restraints on settlement that parishes imposed to avoid having to support destitute settlers), but most likely he would have been for mobility anyway. In some respects, as Allen Kelley has remarked, Simon was a modern Godwin. However, Simon also acknowledged the political infeasibility of open borders; his fallback position, shared by some Chicago economists, was to call for the auctioning of immigrant visas—see Simon (1990: 289–294).

Malthus-as-political-realist extended to his views on charity, notably on the Poor Laws, for which he was also excoriated. Here too there is a modern-day resonance: "ending welfare as we know it," the call for "workfare," even the concerns expressed over possible pronatalist effects of particular designs of family assistance. Again, there is an international dimension as well: an inviting current target for attack in the vein of Malthus would be the institutionalization of humanitarian assistance as a self-interested, self-protective enterprise (see Maren 1997). A modern Malthus might find much to say about international development, along the lines, perhaps, of Peter Bauer or Deepak Lal. Here, for instance, is Lal (1991—see also Lal and Myint 1996) on contemporary anti-poverty programs:

> [G]iven the unavoidable "bureaucratic failure" encountered by most direct methods of poverty alleviation, an unsurprising finding of many empirical studies of countries with the most widespread welfare systems is that, these programmes far from eliminating absolute poverty have often tended to institutionalize it.

Malthus would find many kindred spirits among present-day political scientists and international economists, if not among demographers and the foreign-aid community.

Turn now to Malthus on nature. Unsurprisingly, Malthus was no environmentalist. He fits squarely into the tradition of arrogance toward the natural world that Lynn White (1967), in a classic article, saw as a Judeo-Christian hallmark—of Nature as there to be conquered by Man. (Subsequent work has found similar destructiveness in some other traditions, indeed even among indigenous peoples.) Environmental degradation might appear in a modern *Essay*, but as an economic rather than an aesthetic or ethical matter and probably as a byproduct of government corruption or folly. J. S. Mill, only a few decades later, presents a quite different case in his eloquent plea that improvident breeding should cease before it threatens to destroy the "spontaneous activity of nature," with "every hedgerow or superfluous tree rooted out . . . in the name of improved agriculture" (Mill 1848, Book IV, Ch. 6). Mill claimed to fully accept Malthus's views on population, but that chapter, while it has echoes of the landed gentleman inspecting his estate, moves the population debate onto the significant new ground of aesthetics and environmental amenity.

There is a different route of progress in environmental ethics that is measured by expanding not the range of human preferences but the scope of the moral community—of those entities warranting moral consideration. Extension to the whole human population, through opposition to slavery, was straightforward enough even in Malthus's day. Extension to the higher nonhuman species would not have occurred to Malthus—it does not, by and large, to modern demographers—although it had occurred to Jeremy Bentham a generation earlier and it is now a commonplace in the environmentalist literature. (Bentham, however, considerably diluted the import of this ethical innovation by a stance on human welfare that proposed weighting per capita wellbeing by population numbers—an extreme populationist position that Derek Parfit [1984] terms "repugnant.")

As these comments suggest, Malthus's alleged failings often permit substantive rejoinders in his defense. However, two major items common to many bills of particulars are less easily countered: his inattention to the early stirrings of the industrial revolution and the intrusion of moralistic strictures into a supposedly empirical treatise. His consequent blindness to the technological possibilities that were opening and his misjudgment of the readiness of people to embrace the "vice" of contraception were rather massive errors. On both matters, Condorcet was right—as has repeatedly been pointed out. Over 1820–1992, by Angus Maddison's estimates, population grew threefold in Western Europe, around fivefold in the world as a whole; in the same period the European and world economies grew 40-fold (Maddison 1995: 20). Prescience is of course a useful attribute in a writer on the human condition, and moralisms often turn out to be time-bound and somewhat arbitrary in retrospect. (Malthus's moralisms on vice are no quainter than the moral distinction some would still seek to draw between natural and artificial birth control.) But dismally failed predictions by emi-

nent thinkers can be found mere decades in the past. We can frankly acknowledge that Malthus got these bits wrong.

What might be the comparable oversights of a 1998 *Essay*? We still tend to be linear thinkers, concerned more, for instance, with a steady global warming trend of a few degrees in a century than with much nearer-term possibilities of a climate thrown sharply out of kilter (Holling 1986), or concerned more with slow advances in disability-free life years than with threats of a global pandemic from transplanted viruses or prions (Lederberg 1988). *Technological* oversights today are likely to be on a much larger scale than Malthus's: much of the present world population, after all, is living in conditions that would not look so strange to him, but *our* visions of 2198 hold virtually no information content. One need only note the radical indeterminacy of a future in which the human genome is likely to be in play along with the human environment—with eugenics, once disgraced, re-emerging as an exercise of parental interest in a competitive environment.

To what degree *institutional* design is in flux is harder to gauge: many present-day issues of governance and administration are also no different from those Malthus described. Perhaps this reflects constancies of rules of social organization and collective action. The hazards of institutional expectations that go against such rules are illustrated by the fate of another document recording a significant anniversary in 1998—a sesquicentenary rather than a bicentenary: the Communist Manifesto. But the emerging needs for global-level institutional innovation, stimulated by new environmental crises and old political ones, may be generating a truly new situation. Changing population relativities may be doing so too: a world population in 2100, according to the UN's regional breakdown, that will be 56 percent Asian, 25 percent African, 9 percent Latin American, 6 percent European, and 4 percent North American.

Two billion (possibly 4 billion) additional inhabitants have to be accommodated on the planet over the next several decades, most of them in poor countries; at the same time, vigorous efforts will be underway to bring average consumption up to a level of at least moderate prosperity, without a wholesale despoliation of the environment or dislodgment of global ecosystems. Utopian visions are not of much help in these demanding tasks. A solid empirical stance and a clear-eyed, skeptical assessment of institutional possibilities seem to be the main hope for negotiating a route forward. Malthus, impelled into print by a disbelief in human perfectibility, would make a dour companion—but an invaluable one.

Note

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Julian Simon and the Population Growth Debate

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AMONG ECONOMISTS, for the last 20 years Julian Simon was among the most prominent analysts of the relationship between population and development as well as the most prolific commentator on issues of public policy concerning population growth. In these roles he strove to demonstrate that the dominant conventional wisdom that held demographic expansion a menace to human welfare was wrong and to convince us that policies deliberately seeking to slow population growth were mistaken. Simon's contribution to the population debate, like his inimitable style of argument, was engaging, entertaining, and infuriating, but often also illuminating and profound, and always challenging. Sadly Julian Simon died on 8 February 1998 at the age of 65. This note was originally designed as a review of his book, *The Ultimate Resource 2* (Simon 1996). In view of his untimely death, I will discuss his contributions to the debate on population growth in a broader frame of reference.

In his review of *The Ultimate Resource* (1981), Samuel Preston wrote that Julian Simon "fights his battle in the arena of public opinion, and he scores heavily" (Preston 1982: 174). With *The Ultimate Resource 2*, Simon continued the fight with an augmented arsenal but with the same basic strategy. As Simon pointed out, he, unlike Malthus, had remained true to his initial argument. But its consistency over time notwithstanding, how persuasive is Simon's message?

The postwar population debate

Dennis Hodgson and Susan Cotts Watkins (1997) have argued that the post–World War II debate on the consequences of population growth may be divided into four distinct periods. In the first period, 1945–65, the neo-Malthusian view gained dominance, and the cause of concern shifted from

population size to population growth rates. Coale and Hoover (1958) published their influential book providing the intellectual justification for policies and programs seeking to slow rapid population growth. In the second period, 1965–74, opponents of population growth became more outspoken, with many demographers and others calling for solutions "beyond family planning," such as government-imposed disincentives on childbearing, paying people to be sterilized, and even making bearing a third child illegal and requiring an abortion to terminate all such pregnancies (Hodgson and Watkins 1997: 484). Julian Simon entered the fray during the third period, 1974–85, characterized by a "significant demotion for fertility control on the international agenda of needed policy interventions" (ibid.: 489); and he battled on during the fourth period, 1985 until today, when the neo-Malthusians increased their strength internationally but saw it wane domestically, in part because of the impact of work by Simon and other "revisionist" economists.

Like many other students of population, Simon, some years before writing *The Ultimate Resource*, had believed that rapid population growth was a major threat to the world's economic development.[1] His 1977 book, *The Economics of Population Growth*, was intended as a "contribution to understanding and combatting that problem" (p. xxi) and an attempt to bring balance to the debate by also discussing the benefits of population growth, which, he justifiably felt, had been almost ignored thus far in that debate.[2] In that book, Simon carefully outlined the distinction between the short-run economic consequences of population growth, which, he agreed, were largely negative, and the long-run effects, which, he argued, were largely positive. Within each time perspective, he also distinguished effects that were direct and those operating through indirect mechanisms. His methodology established him as a "revisionist" and led the way for later evaluations of the consequences of population growth; his conclusions established him as a population optimist, a polar opposite of doomsday views about demographic growth, such as those articulated by his frequent sparring partner Paul Ehrlich.[3]

On what was this optimism based? Largely on the results of a simulation model of population growth and economic development, Simon concluded that "*positive* population growth produces considerably better economic performance in the long run (120 to 180 years) than does a *stationary* population, though in the short run (60 years), the stationary population performs slightly better. A *declining* population does very badly in the long run" (Simon 1977: 305; emphasis in original).[4] However, Simon thought that the experience of developing countries was likely to vary. In countries such as India, the short-run negative effects of population growth were more severe and the long-run benefits would be slower in appearing. Thus, the argument for reducing population growth in these countries held more force.

Simon concluded that his model and the empirical evidence he reported refuted Malthus and modern-day computerized Malthusian models. I think his claim is overstated. In reviews of his model, Warren Sanderson (1980) and I (Ahlburg 1987) noted a number of questionable features that are critical to the support of his optimistic findings. For example, social overhead capital (better roads and communications, economies of scale, improved government organization, and health benefits) are assumed to follow directly and costlessly from population growth. Social overhead capital then increases output. A doubling of the population would not just double production but increase output by an additional 20 percent. However, in a simulation with no increase in social overhead capital as a result of population growth, the model produces a monotonic inverse relationship between the birth rate and economic performance. The finding of a positive impact of population growth is also very sensitive to the large effect on investment of a small difference in industrial output and the dependency effect of children.[5] To paraphrase Simon, his findings were persuasive enough to cause one to distrust the Malthusian theorizing that is the basis of almost all academic strictures about the ill effects of population growth (Simon 1977: xxii) but not so persuasive as to lead one to reject Malthusianism out of hand.

Simon's 1977 book was also breaking new ground in the economics literature, as it went beyond purely economic considerations to include a discussion of the inherent value of human life. Simon argued that a birth had value in itself: except in rare cases, life is worthwhile at least to those living it. Because of differences placed on the value of an additional life, Simon concluded that "within the ranges of common values and economic judgments, it is *not possible* to draw any conclusions about whether an increase of population is good or bad from an economic point of view" (Simon 1977: 478; emphasis in original). Consideration of ethical issues played almost no part in the debate among most economists, demographers, and biologists but formed an important part of the larger debate among feminists and others.[6]

Julian Simon is often thought of as being out of step with mainstream thinking on population issues, a lone voice. This is not quite accurate, however. Questioning of the assumptions of the neo-Malthusians was becoming increasingly common over the years. At the World Population Conference in Bucharest in 1974, many third world leaders challenged the neo-Malthusian position. The World Population Plan of Action declared, "Of all things in the world, people are the most precious. . . . Mankind's future can be made infinitely bright" (*Population and Development Review* 1975: 166–167). The Indian delegation proposed that "development is the best contraceptive," a view that emerged as the rallying cry of the conference. Support for family planning programs was based on human rights rather than on economic considerations. Although the developing-country delegates at the 1984 population conference in Mexico City expressed

concern over the negative consequences of population growth, the document that emerged from the conference was largely a refinement of the one at Bucharest (Demeny 1985: 101).

The World Bank's *World Development Report* (1984), an ambitious study of economic–demographic interactions, was described by Colin Clark (1985: 120) as "Malthusianism in retreat." The Report found that moderate population growth could stimulate demand, encourage technological innovation, reduce investment risks, and, in sparsely populated countries, shorten the time needed to reap the benefits of economies of scale in transport, communications, social services, and production. It nonetheless concluded that, on balance, rapid population growth hampered economic development. Like Simon, the Report's authors did not consider population pressures on natural resources and food a significant problem. Unlike Simon, however, they concluded that population growth adversely affects the formation of human capital.

The National Research Council's (1986) report, another landmark study on the economics of population growth, was more scholarly in tone and content than the Bank's report but reached a similar conclusion: on balance, slower population growth would be beneficial to economic development of less developed countries. The NRC report found little cause for concern in the impact of population growth on nonrenewable resources, on pollution, on savings and investment, and on city growth and urbanization. Concern was expressed in the areas of renewable resources and the health and education of children.

Thus, Simon was more a part of mainstream thinking than is commonly realized. His methodology was the dominant "revisionist" methodology. Where he differed was in his judgment that the long-run positive impacts outweighed the short-run negative impacts of population growth. His popular books, especially the best-selling *The Ultimate Resource* and its sequel *The Ultimate Resource 2* and his numerous polemical writings, best accessible in the collection *Population Matters* (Simon 1990), brought wider exposure and influence to his ideas while also generating passionate opposition to them.[7]

Recent work on the impact of population growth

Work continues on many of the themes that occupied Julian Simon. Some recent findings lead to a less optimistic conclusion than he reached, others find little or no reason for concern over population growth.

Many studies in the new growth theory literature find a negative association between population growth and per capita income growth in international cross-section regressions. Meticulous work by Allen Kelley and Robert Schmidt (1996) shows persuasively that the positive and negative

effects of population growth probably offset each other in the 1960s and 1970s. However, for the 1980s they found a net negative association between population growth and economic growth. They offer several explanations: savings rates may have been more adversely affected by population growth in the 1980s than in earlier decades; returns to existing technologies in agriculture may have diminished; and environmental degradation undoubtedly caused a decline in the quality of some agricultural land. They found, further, that while the direct negative impacts of population growth are partially countered by positive impacts that increase with the level of economic development, these positive effects diminish over time. If Simon were correct, we would instead expect these positive effects to increase over time. Kelley and Schmidt caution that the results for the 1980s do not necessarily hold for the 1990s and beyond. But others may read their work as suggesting that the revisionist ground is shifting and that less optimism concerning the economic effects of population growth is warranted.

A new literature on the effects of population growth on savings is also emerging, much of it focusing on East Asia. Jeffrey Williamson and Matthew Higgins (1997) found that the early and rapid demographic transition accounted for much of the higher savings rate that played a critical role in the economic growth of East Asia. They suggest that other developing countries are likely to experience the same beneficial effect of fertility decline. They go so far as to conclude that "Coale and Hoover were right." Related work by Ronald Lee, Andrew Mason, and Timothy Miller (1997) shows that mortality and fertility changes can have different effects on savings and that demographic transition initially results in increases in savings followed by decreases. Declines in both mortality and fertility contribute to the changes in savings.

Population growth and the environment

Simon's arguments predicting a rosy environmental future are based on extrapolation of observations from the past. His opponents believe that such extrapolations are unwarranted because of the possible consequences of nonlinearities and discontinuities in the relevant relationships. They assert that if the future imitates the present, we will encounter resource and environmental discontinuities that will produce a future very different from what extrapolation suggests. Simon did not see this as a problem. He felt that the signals given by the negative impacts of population growth will be clear and early, and behavior will respond to them well before catastrophe strikes. This view certainly reflects Simon's belief in the responsiveness of markets to changes in prices. In many developing countries, however, markets are imperfect or do not exist at all, as is the case with common-property resources. How then will market signals avert disaster?

In a review of *The Ultimate Resource* published in this journal in 1982, Peter Timmer argued that because of structural changes in the relationship between population, resources, and knowledge, the future may be quite different from the past. Most economic models, including Simon's, assume linearity and continuity. Yet, many natural scientists argue that non-linearities, discontinuities, and nonreversibilities are present in the environment. Warren Sanderson has developed an ingenious collapsible economic–demographic–environmental model called Wonderland that incorporates such features. None of Simon's signals of distress materializes in this model before disaster strikes. Sanderson shows that, with non-linearity, relatively large changes in some variables can happen over short periods of time. Thus, as Sanderson (1995) has noted, an unfaltering belief in continuity can lead to the faulty belief that the future will be very much like the past. If the world is like the environmentalists claim it is, with nonlinearities, discontinuities, and nonreversibilities, then we would receive no warning of impending doom.

People: The ultimate resource

Julian Simon's fundamental and unchanged message is that people are the ultimate resource: "skilled, spirited, and hopeful people." A larger population influences the production of knowledge by creating more minds to generate new ideas (the supply side) and more consumers to drive up prices and create the financial incentives for the creation of new knowledge (the demand side). This creation of knowledge ultimately makes us wealthier and solves the problems that population growth and rising income may cause.[8]

The minds do not need to be Einsteins, they can belong to people who hang drywall in Illinois or invent wave machines so that one can surf in the Arizona desert. But one wonders how the new minds produced by population growth are converted into the skilled, spirited, and hopeful people who will solve the kinds of problems that cause neo-Malthusians to fret.

In an Afternote to Chapter 26 of *The Ultimate Resource 2*, Simon outlines his ideas on the creation and use of productive knowledge. He distinguishes between two types of knowledge—"spontaneous" and "incentive-responsive." The former is the familiar exogenous technological change that falls like manna from heaven (or from more minds). The latter is produced in response to factor scarcities that result in price changes that motivate an innovative response, that is, induced technological change. Population growth generates the first type of knowledge by increasing the supply of minds and the second by increasing both demand and supply.

Simon's discussion of knowledge creation is not fully satisfactory and we are left with an act of faith: "If the past two hundred years brought a great deal of new knowledge relative to all the centuries before that time, . . . why should one believe that the next century or millennium or seven bil-

lion years will not bring forth knowledge that will greatly enhance human life? To do so is to reject all of human experience" (1996: 390). But extrapolation is a dangerous game, a fact of which demographers are particularly well aware. It does not take a billion years but only centuries for even very low rates of population growth to generate colossal numbers of human beings. Richard Easterlin (1996) has surveyed the literature on the growth of knowledge and notes that no mention (apart from Simon) is made of population size. Indeed, Easterlin argues that causality is the reverse of that asserted by Simon: population growth is a result, not a cause, of the revolution in public health knowledge that led to the mortality revolution.[9] And while it is possible that knowledge will indeed be created as Simon assumes, one would feel much more comfortable if we had some insight into how knowledge is created—how the raw material of human beings is transformed into Simon's skilled, spirited, and hopeful resource.

One mechanism for imparting skill, spirit, and hope is education, but Simon does not outline a mechanism by which population growth can promote education. All we are offered in Chapter 27 of *The Ultimate Resource 2* is the conclusion that "the negative effect [of population growth on education] is nowhere near as great as the simple Malthusian theory would suggest, and in general the effect does not seem to be large if it exists at all" (Simon 1996: 397). And that "the effects are so small that it is safe to assert that allowing parents to have as many children as they desire will not drag down economic development by reducing the educational level" (ibid.).[10]

A recent, comprehensive survey of the empirical literature by Allen Kelley (1996: 110) reached a more guarded conclusion: "Evidence on the impact of family size on educational outcomes is mixed, showing no convincingly consistent and strong impact, one way or the other."[11]

Food to feed us all

Recent trends in the production and consumption of major food grains could easily be taken as evidence that one should not be excessively concerned about the capacity of the world's farmers to meet future demands for food. Julian Simon has been among those persuasively making this argument. Here too, however, recent work suggests caution. Future increases in demand are likely to be considerable, and the sources of growth in supply (land and agricultural productivity) are less secure than in the past. Vernon Ruttan, hardly a pessimist, has surveyed the links between population and food. He found that farmers are experiencing difficulty in raising yield ceilings for the cereal crops that have had rapid yield gains in the past (Ruttan 1996). The incremental response to increased fertilizer use has declined and expansion of irrigation has become more costly. The institutional capacity to respond to these concerns is limited even in those countries with the most effective agricultural research and extension systems. These prob-

lems are serious because advances in conventional agricultural technology will remain the primary source of growth in crop and animal production over the foreseeable future.

Ruttan concludes that in the absence of increases in the quantity and quality of agricultural land and renewed investment in agricultural research and technologies, it is doubtful whether sustained growth in agricultural production will be sufficient to meet the increasing demand for food generated by the rapid growth of population and income. Achieving the required advances in productivity will necessitate large increases and improvements in physical and institutional infrastructure and in the health and education of rural people, and a substantial expansion of agricultural research and technology. John Bongaarts (1996: 499) reached a similarly guarded conclusion: "It is therefore likely that serious and persistent global food shortages can be avoided, provided governments vigorously pursue efforts to improve economic policies and facilitate the dissemination of new technology and investment in research and human resources."

Conclusion

So, at the end of the day, where does Julian Simon stand in the debate on the impacts of population growth? Economics does not *conclusively* show that a greater number of people implies slower economic development or a lower standard of living. However, I think that the bulk of the evidence still points to the conclusion reached in a recent study prepared for the Australian Government: "[A] slowing of rapid population growth is *likely* to be advantageous for economic development, health, food availability, housing, poverty, the environment, and possibly education, especially in poor, agrarian societies facing pressure on land and resources" (Ahlburg, Kelley, and Mason 1996: 10; emphasis added). Yet Julian Simon made a valuable contribution to the population growth debate. He forced us to think harder about the issues and to consider the long-run positive consequences of population growth as well as the short-run negative impacts. And he made it clear that foregoing a birth entails a loss, so if we misjudge the effects of population growth, seeing it only as a peril, there is a cost to pay if we place value on human life.

Notes

The author thanks Allen Kelley for comments.

1 The exceptions include Ester Boserup (1965), who argued that faster population growth induced positive changes in agricultural practices; Simon Kuznets (1968), who suggested that faster population growth produces faster technological change; and Harold Barnett and Chandler Morse (1963), who found that increased demand for resources induced a larger supply of them. In addition, work by Kuznets (1973) and Easterlin (1967) failed to find negative associa-

tions between population growth and economic development.

2 *The Economics of Population Growth* is Simon's main book-length contribution to population studies, although he will probably be remembered for the more popular and polemical books *The Ultimate Resource* and its sequel *The Ultimate Resource 2.* His other notable contributions to population economics address growth theory applied to more developed countries (Simon 1986) and the issue of immigration (Simon 1989). For a collection of his essays on population and development see Simon (1991).

3 Allen Kelley (n.d.) defines "revisionism" as the methodological perspective used to study the impact of population growth, not as the assessment of the direction of the impact. The revisionist weighs both the short-run and long-run impacts of population growth (both direct and indirect) and incorporates the feedbacks within economic, political, and social systems. In contrast, "traditionalists" emphasize short-run impacts and downplay the ability of the economic system to adjust. Kelley convincingly argues that the earliest revisionist studies were the 1953 and 1973 United Nations Reports and the 1971 National Academy of Sciences study. All were moderately pessimistic about the impacts of rapid population growth; however, the "Executive Summary" of the 1971 NAS study was solidly "traditionalist" and strongly pessimistic. It is the conclusions set out in the Executive Summary rather than the study itself that is best remembered.

4 For more developed countries, the positive long-run effects of population growth, namely on knowledge, economies of scale, and natural resources, emerged after only 30 to 80 years into the simulation. Simon was not alone in his conclusion that the impact of population growth was positive. In a study of population and economic growth in 46 countries from 1961–63 to 1971–73, Colin Clark (1978: 147) found that "rates of population growth up to three percent per year seem to be increasingly beneficial from a point of view of improving rates of growth of real product per head, less favourable above the three percent per year."

5 Preston (1982) questioned Simon's use of parameters from mortality-driven growth as a basis for his fertility-driven effects, and McNicoll (1984) argued that Simon's long-run perspective was inconsistent with his implicit assumption of no institutional change.

6 See Hodgson and Watkins (1997) and Mason (1996).

7 For a convenient listing of references to Simon's work on population–economic interactions, see Simon (1996: 683–684).

8 Simon has often been criticized for a naive belief that more people automatically create the solutions to problems that they cause in the short run. This is not his view. Simon states clearly that "human imagination can flourish only if the economic and political system gives individuals the freedom to exercise their talents and take advantage of opportunities. So another crucial element in the economics of resource and population is the extent to which the political-legal-economic system provides personal freedom from government coercion" (Simon 1996: 408). Recent work in development economics has provided empirical support for the argument that political and legal institutions exert an important influence on the rate of economic growth. It seems reasonable that these institutions would also moderate or amplify the effect of population growth.

9 Easterlin (1996: 90–91) also points out that the mortality revolution can have "compensating effects" that increase income per capita. The success of innovations in public health can promote attitudes that are more favorable to innovation in general, and they can decrease morbidity and thus enhance productivity. The implication is that correlations between population growth and economic development may be spurious because they are both results of the mortality revolution.

10 In his Epilogue, Simon points out that the connection between population and production of knowledge holds at a constant level of income (Simon 1996: 598). This is a partial effect, however. Population also affects income, so the effect of population on the production of knowledge is an empirical issue. The negative short-run impact of population on income may outweigh the positive effects he emphasizes.

11 Cynthia Lloyd (1994) suggests an explanation for the inconsistent findings of the impact of family size on education. She argues that the effect depends upon the level of socioeconomic development, the role of the state, the cultural milieu of the family, and the phase of the demographic transition.

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Divergence of Marriage Patterns in Quebec and Elsewhere in Canada

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CANADA VIEWS ITSELF as a pluralistic, multicultural society that consists of many distinct groups. However, the social and ideological differences between Quebec and non-Quebec Canada have been consistently greater than the differences between the non-Quebec provinces themselves (Beaujot and McQuillan 1982; Lipset 1990; Ornstein 1986), a situation that has prompted the study of Quebec as a whole society, rather than of just the French Canadian ethnic group[1] (e.g., Fournier 1990; Laczko 1995; Whyte 1992). While containing only one-quarter of Canada's population, Quebec has had a strong influence over Canadian demographic history since the Conquest[2] and subsequent transfer of sovereignty in 1763 (Le Bourdais and Marcil-Gratton 1996).

This phenomenon can be seen in Quebec's influence over Canadian marriage rates. While there has been a general convergence in provincial marriage rates over the last 70 years (Balakrishnan and Wu 1992), Canadian patterns of marriage and family formation have been changing; marriage is becoming less prevalent and is occurring later in life (Burch and Madan 1986; Dumas and Péron 1992). Within the last 20 years the declines in marriage rates and prevalence have been much more pronounced for Quebec than for the rest of Canada. The total first marriage rate for Quebec women (age 15–49) in 1994 was only 373 per thousand, compared with 608 per thousand for women in the rest of Canada (Dumas and Bélanger 1994). Comparable figures in 1985 were 515 and 682, respectively (Dumas 1990). The rapid retreat from marriage in Quebec has caused declining Canadian marriage rates to be more pronounced than those of its North American neighbor. While the crude marriage rate in

the United States fell from 9.9 per thousand population in 1987 to 9.1 in 1994, Canada's plummeted from 7.1 to 5.4 during the same period (United Nations 1992, 1995). While the marriage boom of the 1940s and 1950s is atypical in historical perspective (Dumas and Péron 1992; Oppenheimer 1997), the recent trend toward later and fewer marriages is not simply a continuation of a long-term process. The continuation of marriage as an institution is in crisis, particularly in Quebec.

The well-publicized substantial differences between Quebec and non-Quebec marital patterns are largely unexplained. Additionally, the North American retreat from marriage is typically abstracted from related changes in union behavior, and the shift toward cohabitation is often ignored (e.g., in Bennett, Bloom, and Craig 1989; Goldscheider and Waite 1986; for a recent exception see Dumas and Bélanger 1997). In the study of Canadian family formation this is particularly crucial because of the prevalence of cohabitational relationships.[3] Data from the 1996 Canadian Census indicate that 12 percent of current Canadian unions are cohabitations, while in Quebec cohabiting unions account for nearly one-quarter (24 percent) of all unions. Further, cohabitation is more prevalent among the younger population, with one out of every six Canadians aged 25 to 29 (17 percent) cohabiting in 1996 (Canadian Census).

Unlike the US black/white experience, there have been virtually no studies of the diverging Quebec/non-Quebec marital patterns, and no empirical work has been conducted to establish regional estimates of the impact of variables on family formation. This article is a first attempt to fill this gap in the research on Canadian marital patterns, and as such is broad in its approach. We explore the underlying influences behind the differences in Quebec and non-Quebec marriage patterns by asking whether the significant differences in marriage rates between Quebec and non-Quebec Canada can be explained by differences in other socioeconomic and demographic factors. To address this question, we first establish whether there are regional differences in the determinants of marriage and examine the change in the effect of region on marriage with and without holding these determinants constant. Second, to explore the possibility that the process of marriage differs between the two regions, we determine whether the effects of the determinants vary between Quebec and non-Quebec Canada. Our study takes advantage of recent data to identify and evaluate the importance of factors that may account for the rapidly developing regional differences by means of discrete-time event history analyses.

Ideational theory and regional differentials in marriage

This study is guided by the European Fertility Project, in which geographic patterns of fertility were commonly observed regardless of the socioeco-

nomic conditions within each European region (Coale and Watkins 1986). Standard measures of the costs and utility of children, as suggested by economic models, were found to be insufficient in explaining regional variations in fertility. Anderson (1986), Lesthaeghe and Wilson (1986), and Livi-Bacci (1986) concluded that European fertility behavior was related to cultural, as well as socioeconomic, interpretations of fertility. Because cultural construction involves the entire social group, new interpretations grew within the context of general cultural markers, such as ethnicity, language, and religion. These cultural markers, in turn, corresponded closely with Europe's regional boundaries. Thus, region, as a proxy for numerous cultural factors, was itself identified as contributing significantly to an explanation of the regional variations in fertility decline.

Ideational theory links culture to demographic behavior through societal value systems (Lesthaeghe 1980, 1983, 1998; Lesthaeghe and Meekers 1986; Lesthaeghe and Surkyn 1988). Societies place values on social acts, rewarding acts that benefit others and punishing those that are detrimental (Preston 1986). The set of values attached to social acts forms the society's value system, which ultimately determines individuals' long-term access to societal resources and is reflected in the society's institutional arrangements. Childbearing is a social act in that children grow up and eventually become independent members of the society. As such, most societies have created institutional arrangements through which the reproductive process is regulated in order to maximize social welfare in the long run (Lesthaeghe 1980). In traditional societies, the regulation of the right to reproduce constitutes an appropriation of women's labor resources by those who form the ruling group, legitimating such control through ancestral or religious codes with appeals to a "natural order" (Lesthaeghe 1983). In Canadian society, marriage has traditionally been the method used to control sexual unions and reproduction and to assign the fiscal and socializing responsibility for children.

Ideational theory views changes in both the normative code (value system) and systems of social control as essential to family change. While socioeconomic shifts, urbanization, and industrialization account for some of the erosion of the old control system, the concurrent diversification of the moral code toward greater tolerance and individual choice is also related to changes in behavior. Changes in values and behavior occur in a reciprocal fashion; if general patterns begin to diverge from the value system, that system collapses due to a lack of widespread acceptance and enforcement. When individuals see the value system weaken, they change their own behavior accordingly. The instigators or "forerunners" (Livi-Bacci 1986) of cultural innovation are typically the intellectual elites who are able to decode the ideational system and push for greater societal perfection through criticism of the existing order[4] (Bourdieu 1979). Behavior patterns then spread down the social stratification scale as the lower strata

adopt the new behaviors through imitation (Lesthaeghe 1998; Lesthaeghe and Surkyn 1988).

In Western societies the growth of secular individualism, or "the pursuit of personal goals devoid of references to a cohesive and overarching religious or philosophical construct" (Lesthaeghe 1983: 415), and the subsequent changes in ideational systems are heavily implicated in changes in family formation. The changes in family structure and formation associated with modernization (van de Kaa's [1987] "second demographic transition") reflect individuals defining both their own goals and the means of achieving them in accordance with new ideational systems, juxtaposed with the moral code of the past and traditional forms of control.

Regional variations in demographic behavior may therefore be related to cultural factors. Cultural settings influence the onset and spread of new behaviors independently from socioeconomic conditions, providing the context in which decisions regarding behavior are made. Cultural interpretations and ideas regarding the family may diffuse more quickly within culturally homogenous populations (Retherford 1979; Retherford and Palmore 1983). Further, the lag period between structural changes and demographic behavior can be shortened by intragroup communication. Socioeconomic boundaries within cultures are therefore less restrictive than boundaries between cultures. As a result, behavior patterns are more likely to mirror geographic maps than to reflect broader socioeconomic changes (Bongaarts and Watkins 1996; Montgomery and Casterline 1993; Watkins 1986).

We use ideational theory as the guiding framework for our analysis. Ideational theory, with an economic model nested within it, may serve as an effective tool for examining regional differences in marriage. Canada is an ideal setting in which to apply ideational theory, as Quebec/non-Quebec dualism continues to be one of the country's most distinctive features. Ideational theory suggests that factors identified by standard economic models (e.g., Becker 1981; Hutchens 1979; Oppenheimer 1988) will be insufficient in explaining regional differentials in marriage rates, and that region itself (as a proxy for cultural setting and normative code) will be a significant determinant in the marriage process. The role of marriage in regulating reproduction may have been rejected within Quebec more quickly than in the rest of Canada. It is also possible that cohabitation has been more rapidly accepted as an alternative union form within Quebec. These ideological changes provide the context within which standard economic cost/benefit evaluations are taken into consideration.

Methods and variables

The data used in this study were obtained from the tenth cycle of the General Social Survey (GSS-95), conducted by Statistics Canada in 1995. To study a broad range of aspects of family life, a nationally representative

sample of 10,749 people aged 15 and older were interviewed by telephone. The interviews collected detailed information regarding family and marital histories (including both legal marriages and cohabiting relationships), children, family origins, work interruptions, and values and attitudes pertaining to family life. The overall response rate was 81 percent. Residents of the Yukon and the Northwest Territories, those living on Indian reserves, and full-time institutionalized residents were not included. We examine the transition to first marriage among women respondents, excluding left-censored cases (i.e., the 0.2 percent of Canadian women who married before the age of 15). Our exclusive focus on women is in keeping with prior research on marriage.[5] With these restrictions, the study sample is based on 5,902 women. Further information on GSS-95 is provided elsewhere (Statistics Canada 1997).

Explanatory variables

In addition to region we consider three further aspects of the Canadian dualism that may serve as cultural markers: religion, the Quiet Revolution (see below), and premarital cohabitation. Table 1 provides definitions and descriptive statistics for the independent variables used in the analyses. Because the study sample is based on a person-year file in which the observations per woman depend on the timing of marriage, differences in regional means for the covariates are a function of survival as well as regional variation in attributes. For this reason, descriptive statistics for the time-invariant variables reflect the weighted population rather than the study sample. Regional differences in the time-variant variables are based on the person-year sample.

In order to control for a time effect on the likelihood of marriage, measures of both the respondent's person-year record age (from age 15) and age square are included in the analyses to fit a quadratic function of time (Allison 1984). A Quebec region dummy indicator is also included as our first cultural marker, as suggested by the European Fertility Project and ideational theory.

Religion. Previous research confirms that religious affiliation affects attitudes toward family issues and gender roles (Preston and Richards 1975; Thornton, Axinn, and Hill 1992; Wu and Baer 1996). Specifically, Catholics tend to marry later and are more likely never to marry (Mosher, Williams, and Johnson 1992; Sander 1993). The Roman Catholic Church has declared marriage to be a sacrament, sanctioned sexual expression only in marriage, and forbidden remarriage following divorce and the use of artificial means of contraception (Thornton, Axinn, and Hill 1992). For these reasons, Catholics may need to search more intensively for partners because of the higher costs of a poor choice (Michael and Tuma 1985).

TABLE 1   **Definitions and descriptive statistics for independent variables used in the analyses**

Variable	Quebec		Outside Quebec	
	Mean[a]	S.D.	Mean[a]	S.D.
Time effect				
Age in years				
Respondent's person-year record age (starting from age 15)	8.14***	6.45	7.10	5.61
Age square	107.77***	173.92	81.89	129.69
Personal characteristics				
Foreign born				
Born outside Canada (1=yes, 0=no)	0.11***	0.31	0.26	0.44
Education				
Highest level of education (in 6 categories, 1=elementary school or less, ..., 6=bachelor's degree or higher)	3.52***	1.56	3.82	1.48
Premarital child				
Time-variant variable indicating presence of a premarital child (including birth and adopted children, 1=yes, 0=no)	0.10***	0.29	0.07	0.26
Pregnant				
Time-variant variable indicating pregnancy during the year (1=yes, 0=no)	0.03	0.16	0.03	0.16
Family background				
Intact family				
Respondent always lived with both parents (until age 15, 1=yes, 0=no)	0.88***	0.32	0.82	0.38
Mother's education				
Mother's highest level of education (in 6 categories, 1=elementary school or less, ..., 6=bachelor's degree or higher)	2.22***	1.49	2.72	1.44
Father's education				
Father's highest level of education (in 6 categories, 1=elementary school or less, ..., 6=bachelor's degree or higher)	2.32***	1.58	2.78	1.56
Number of siblings				
Number of siblings respondent grew up with	4.58***	3.56	3.32	2.58
Competing roles				
Enrollment status				
Time-variant variable indicating whether the respondent was a student at the start of the year (1=yes, 0=no)	0.49***	0.50	0.61	0.49
Employment status				
Time-variant variable indicating whether the respondent was employed without interruption during the year (1=yes, 0=no)	0.48***	0.50	0.42	0.49

TABLE 1 (continued)

Variable	Quebec		Outside Quebec	
	Mean[a]	S.D.	Mean[a]	S.D.
Religion				
(Coded as three dummy variables, 1=yes, 0=no)				
Catholic	0.86***	0.35	0.32	0.46
Protestant	0.05***	0.22	0.43	0.50
Other	0.02***	0.15	0.04	0.20
None (reference category)	0.07***	0.26	0.21	0.41
Pre–Quiet Revolution				
Respondent born before 1945 (1=yes, 0=no)	0.34***	0.48	0.33	0.47
Premarital cohabitation				
Time-variant variable indicating whether the respondent had previously cohabited	0.29***	0.45	0.18	0.38
Quebec region				
Province of residence is Quebec (1=yes, 0=no)	Mean = 0.25, S.D. = 0.43			
N (unweighted)	5,902			

***significant difference in means (p<0.001, two-tailed t-test).   S.D. = standard deviation.
[a]Means for time-invariant variables are based on weighted data; time-variant variables are based on person-year records.

The Quebec population identifies primarily with Catholicism; the GSS-95 indicates that 86 percent of Québécoise women consider themselves to be Catholic. Outside of Quebec, however, Catholicism is much less prevalent; only 32 percent of non-Quebec women identify with Catholicism (see Table 1). Economic search theory predicts that Quebec's substantially higher proportion of Catholics is a factor in that region's lower nuptiality.

In addition, religion also may function as a cultural marker. Religion may be uniquely important in Quebec. When the British took over Quebec in 1763, they left only one major institution in the hands of the *habitants* (people of French descent in Canada)—the Catholic Church. In 1774, the Quebec Act was passed, whereby the British government legitimated the power of the Catholic Church and strengthened its institutional base by allowing Catholics into official positions. The Church was further granted institutional hegemony by requiring that all publications in Quebec be approved by the Church, ensuring its control over the transmission of ideas (Denis 1993; Hughes 1943). The Catholic Church also exerted a strong influence on morality, forming a large part of Québécois personalities and imbuing them with an unquestioned system of values (Young and Dickinson 1988). The Church enjoyed control over Quebec well into the twentieth century, retaining a strong influence over women's reproductive and domestic activities and controlling all education until after World War II, teach-

ing that acceptable roles for women were either wife/mother or nun, and that women should value family life above all else (Krull 1996; Young and Dickinson 1988).

The Quiet Revolution. Until the late 1950s, Quebec continued to be characterized as a rural traditional society (Guindon 1988; Hughes 1943). Despite industrialization during World War II, the people retained a preindustrial mentality (Rocher 1973). Growing conflict between the old guard and the more liberal younger population erupted, however, with the election of Jean Lesage and the Liberal party in 1960. The political, institutional, administrative, and ideological structures of Quebec were no longer compatible with the values of the population. The years between 1960 and 1966 are commonly referred to in Quebec as the Quiet Revolution, a time of "*rattrapage*," or "catching up," driven by the desire to keep up with the rest of modernizing North America. During these years, the Quebec government modernized the political, economic, and educational infrastructures, thus transforming the province from a religious, rural, agrarian-based society to an urban industrial metropolis.

Despite the many institutional and political reforms of the Quiet Revolution, it was chiefly characterized "by changes of mentality, attitudes, and value" (Rocher 1979: 240), and was "a mental liberation, a development of critical attitude" (Rioux 1971: 75). With the Quiet Revolution came a change in ideology, from traditionalism and patriarchy to individualism, secularism, and gender equality (Caldwell and Fournier 1987; Krull and Trovato 1994). Before the Revolution, Quebec society's values and attitudes toward women's roles and family formation were heavily influenced by the authority of existing institutions. With the rise in competing institutions, such as agencies for educational reform and feminist groups, the authority of traditional institutions weakened, and people grew increasingly independent of traditional forms of social control (Krull 1996). The Quiet Revolution, led by the Francophone new middle class and bureaucratic elites who desired a modern society (Clark 1975; Guindon 1978; Rocher 1979), corresponds closely with the model of social change presented by ideational theory.

The effects of the Quiet Revolution may extend to perceptions of marriage in Quebec society. People growing up during and after this influential time may have developed substantially different attitudes toward marriage, partially contributing to Quebec's noteworthy decrease in marriages after the 1970s. We include a rough indicator of the Quiet Revolution's effect on marital behavior as our third cultural marker. We measure the Revolution's effect by whether the respondent was born in 1945 or later. People born in 1945 or later would have been exposed to the ideologies of the Quiet Revolution at least in their early teens, during the ages when

marriage issues typically become relevant. People born before 1945 may already have developed strong opinions about family and marriage before the Revolution took place. Therefore, if Quebec's declining marriage rate can be attributed at least in part to the Quiet Revolution, then it is expected that people born before 1945 have a higher probability of marrying.

Cohabitation. The path to family formation in Canada increasingly involves cohabitation[6] (Burch and Madan 1986; Dumas and Péron 1992; Wu and Balakrishnan 1995). Over the past 25 years there have been substantial changes in premarital sexual behavior and a liberalization of attitudes toward it (Bumpass 1990; Thornton 1988). Studies have documented that the proportion of first marriages preceded by cohabitation has been rapidly increasing since the late 1960s (Bumpass 1990; Dumas and Péron 1992). In the United States, because most cohabitors plan to marry their partners (Brown and Booth 1996), cohabitation has been seen as a transitional stage in which partners "try out" marriage by living together before making a long-term commitment (Bumpass 1990; Thornton 1988). However, either the situation is different in Canada or rapid changes have occurred in the role of cohabitation. While the GSS-95 indicates that 38 percent of married people aged 18–29 previously cohabited (up one percentage point from 1990), further research suggests that Canadian cohabitors are reluctant to marry their partners (Wu 1997).[7] Canadian cohabitation may not be so much a change in the courtship process as a substitute for marriage, especially in Quebec, where 32 percent of couples with children where the woman is under age 35 are cohabiting (compared to 17 percent outside of Quebec). Both figures are up 7 percentage points from 1990 (Belliveau, Oderkirk, and Silver 1994), indicative of the rapid changes taking place.

Cohabitation has been shown to delay entry into marriage, especially for women, for a variety of reasons: (1) The desire to learn more about a partner and reduce uncertainty in mate selection extends the "trial" time. (2) People are not actively engaged in the marriage market. (3) If the cohabitation fails, then time has been lost. (4) The cohabiting experience changes individuals' attitudes toward marriage. (5) It takes time to experience cohabitation (Oppenheimer 1988; Wu 1997).

Whether cohabitation delays or substitutes for marriage, it may contribute to the diverging Canadian marital patterns. Cohabitations represented 24 percent of all unions in Quebec in 1996 compared to 10 percent elsewhere in Canada (Canadian Census). This sizable difference between Quebec and non-Quebec cohabitations is a recent phenomenon, emerging in the early 1980s (Belliveau, Oderkirk, and Silver 1994), potentially hastening Quebec's marital decline compared to the rest of Canada. Because the decision to cohabit reflects an individual's value system, we consider cohabitation as our fourth cultural marker.

We next consider variables, suggested by economic search theory, as controls to eliminate potentially confounding effects. They are also valuable in the comparison of their effects between Quebec and non-Quebec Canada.

Personal characteristics. The first of these variables refers to personal factors that may affect either the gains or costs of marriage. Immigration status may lead foreign-born individuals to have different marriage rates because of the disruptive effects of migration on the life cycle (Carlson 1985). Foreign-born individuals may have a cultural background that is difficult to match in Canadian marriage markets; this could be associated with a decreased probability of marriage resulting from increased search costs.

Educational attainment may also affect women's marital experiences. Women with higher educational attainment may set higher standards for an acceptable mate. Furthermore, educational attainment may be a proxy for skill level or career aspirations; thus women with higher education may possess the resources either to engage in a prolonged search while delaying marriage, or to forgo marriage because of increased ability to support themselves (Goldscheider and Waite 1986).

The effects of a premarital child on marital behavior are unclear a priori. A premarital child may decrease the desirability or attractiveness of marriage (Bennett, Bloom, and Miller 1995). Lichter et al. (1992) theorize that caring for a child may also impose time constraints on search behavior and restrict other social interaction. On the other hand, single mothers may find marriage increasingly attractive because of the substantial financial disadvantage in its absence, or because of the sense of urgency a premarital child may provoke. Further, prospective husbands may be attracted by instant parenthood, whether or not the child or children are biologically their own.

Some Canadian studies have examined the effects of premarital children on marital behavior without also considering the effects of pregnancy itself (e.g., Rao 1990). In these cases, the effects of premarital children may actually serve as a proxy for the effects of pregnancy. The social sanctions against unwed motherhood and "shotgun" marriages may be stronger during pregnancy than after the child has been born, spurring on marriage.

Family background. The second category reflects family-of-origin background characteristics that may affect both the costs and gains of marriage. Parental marital disruption may lead to personal apprehension about marital success and negative attitudes toward marriage as an institution (Blechman 1982), or it may weaken the normative prescriptions to marry, decreasing the likelihood of marriage.

Parental socioeconomic status may influence the criteria of acceptability for a mate; thus high parental education may encourage a longer search to locate an appropriate partner. Alternatively, a poor family back-

ground may encourage marriage as a means of escaping an unproductive family environment (Michael and Tuma 1985). Studies typically examine only the effects of mother's education on women's marital patterns (e.g., Bennett, Bloom, and Miller 1995; Landale and Forste 1991; Lichter et al. 1992), but in Quebec fathers are substantially more involved in childrearing than they are elsewhere in Canada, and there is less separation between the roles of mothers and fathers. For these reasons, measures of both mother's and father's educational attainment are included.

Siblings may comprise a network that pools and exchanges economic resources (Bennett, Bloom, and Craig 1989), which could either help finance a prolonged search for a mate or offer greater security than an unsatisfactory match, effectively decreasing marriage rates in either case. Conversely, siblings may spur on marriage by granting access to larger marriage markets or providing examples or encouragement to marry.[8]

Competing roles. Finally, economic search models suggest that roles that compete or conflict with the marital role will lower the probability of marriage. Marriage conflicts with school enrollment, for example, by interrupting women's education and hindering the transition to a stable career outside the home (Hogan 1978; Marini 1978; Thornton, Axinn, and Teachman 1995).

Expectations regarding the effects of employment are less clear. Employment may hinder marriage, as the work role competes for allocated time (Hogan 1978), and economic independence may subsidize searching in the marriage market while reducing the economic penalties associated with nonmarriage. However, employment may also facilitate marriage by providing the resources needed for creating and sustaining an independent household, for forming an appealing image, and for leisure activities that expand the boundaries of the marriage market (Oppenheimer 1988). Furthermore, work provides a desirable marriage market setting and social networks (Santow and Bracher 1994), and men desire women with jobs (Goldscheider and Waite 1986), potentially increasing marriage among the employed. Quebec has traditionally had a higher level of unemployment than the rest of Canada (Denis 1993), which, in light of the latter hypothesis, may contribute to Quebec's lower marriage rate.

There are significant regional differences on all covariates excluding the pregnancy indicator. Table 1 suggests that Québécoise women marry later (based on the greater mean person-year record age) and that, although they more often come from intact families, they have relatively disadvantaged backgrounds compared to other Canadian women, as suggested by a higher mean number of siblings and lower levels of parental and personal education. The study sample also indicates that Québécoise women spend less time in school and have more stable labor force participation than other Canadian women.

Statistical analysis

Our analyses are based on discrete-time event history methods, which use multiple one-year observations (person-years) representing each respondent's life experiences. The person-year file, constructed from the retrospective data contained within the GSS-95, allows us to examine the transition to first marriage during the ages at which marriages are typically formed (15–40). Each woman contributes person-years to the analysis from age 15 until age at first marriage, until age 41, or until censored by the interview (i.e., she did not marry before the interview, and the interview occurred before she reached age 41). Ignoring censored cases would result in biased estimates of the independent variable effects (Allison 1984; Yamaguchi 1991). Because the unit of analysis is the person-year, each woman can contribute multiple observations to the study, resulting in a study sample of 58,431 person-years. Using person-years, rather than women, as the unit of analysis increases the number of cases, but still provides appropriate estimates of standard errors and tests of statistical significance (Petersen 1986, 1991).

The dependent variable in this analysis measures whether or not the respondent entered a marriage during the year (i.e., between time t and time $t + 1$), given that the respondent had never been married before the beginning of the year (i.e., time t). The dependent variables in this analysis can only have values of zero (did not marry) or one (married), and thus all equations are estimated using logistic regression, a maximum likelihood technique appropriate in such situations (Maddala 1983). Logistic models estimate the log-odds that a value of the independent variable is associated with the dependent variable, all else being equal. Odds ratios can be calculated from logistic models by taking the anti-log (e^{β}) of the parameter estimates. A simple transformation, $100(e^{\beta}-1)$, can be interpreted as the percentage change (reduction or increase) in the odds of marriage for a one unit increase in a given independent variable, holding the other variables constant (Long 1997: 81). All multivariate analyses are based on unweighted sample data.

Results

While there have been persistent differences in Quebec/non-Quebec marriage rates throughout the century, Quebec's rapid retreat from marriage since the early 1970s has created a substantial divergence in Canadian marriage patterns, as seen in Figure 1. Figure 2 presents the cumulative probability of entry into first marriage by region, for women aged 15 through 40, based on the sample of women from the GSS-95 and calculated using standard life-table techniques (e.g., Namboodiri and Suchindran 1987). It

FIGURE 1   Crude marriage rates: Quebec and outside Quebec, 1921–95
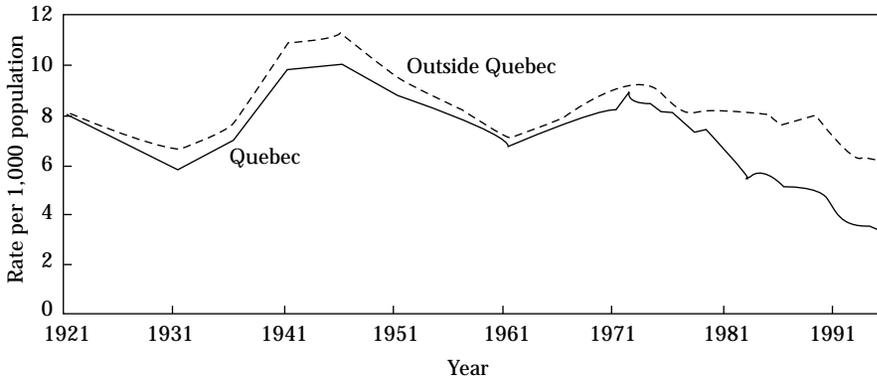
NOTE: Rates prior to 1971 are based on five-year intervals.
SOURCES: Dumas (1990); Dumas and Bélanger (1996).

FIGURE 2   Cumulative probability of first marriage: Canadian women by age and region
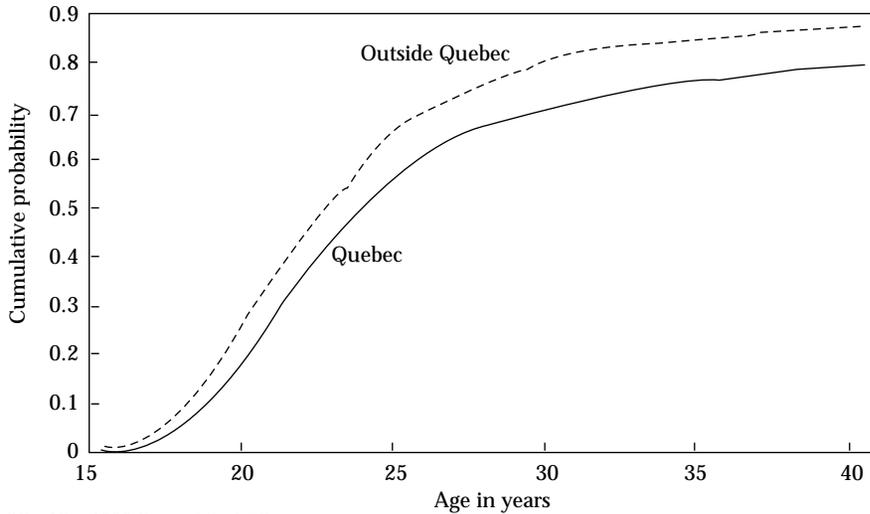
SOURCE: 1995 General Social Survey.

is clear that the cumulative probability of marriage varies by region. In an analysis not reported here, the curves were found to be significantly different ($p < .001$). By age 20, fewer than 25 percent of women in Quebec had married, compared to more than 30 percent of their non-Quebec counterparts. By age 30 the divergence had widened, as approximately 70 percent and 80 percent of women had married in the respective regions. Roughly 80 percent of women in Quebec had entered first marriage by age 40, while the comparable figure for women outside Quebec is nearly 90 percent. Over-

TABLE 2   Logistic coefficients for regression of transition to first marriage: Canadian women ages 15–40

Independent variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Time effect						
Age in years[a]	0.355***	0.294***	0.295***	0.294***	0.312***	0.312***
Age square[a]	–0.015***	–0.013***	–0.013***	–0.013***	–0.013***	–0.013***
Quebec region (yes)	–0.285***	–0.442***	–0.380***	–0.445***	–0.266***	–0.227***
Personal characteristics						
Foreign born (yes)		0.046	0.048	0.014	–0.086†	–0.095*
Education		–0.058***	–0.061***	–0.030*	–0.047***	–0.044**
Premarital child[a] (yes)		–0.373***	–0.372***	–0.266***	0.158*	0.172**
Pregnant [a] (yes)		1.382***	1.388***	1.431***	1.683***	1.690***
Family background						
Intact family (yes)		0.120*	0.101*	0.095†	–0.020	–0.027
Mother's education		–0.057***	–0.053***	–0.039**	–0.019	–0.015
Father's education		–0.026†	–0.024†	–0.018	–0.032*	–0.031*
Number of siblings		0.015**	0.016**	0.007	0.002	0.002
Competing roles						
Enrollment status[a] (yes)		–0.713***	–0.716***	–0.692***	–0.653***	–0.650***
Employment status[a] (yes)		–0.030	–0.022	0.011	0.107**	0.113**
Religion						
Catholic (yes)			0.187***			0.018
Protestant (yes)			0.356***			0.118*
Other (yes)			0.065			0.111
None[b]						
Pre–Quiet Revolution (yes)				0.448***		0.078*
Premarital cohabitation[a] (yes)					–2.574***	–2.538***
Intercept	–3.938***	–3.025***	–3.283***	–3.327***	–2.992***	–3.114***
Model chi-squire	1303.25	2383.82	2436.65	2533.73	3967.90	3983.39
(d.f.)	(3)	(25)	(28)	(26)	(26)	(30)

***p< 0.001   **p < 0.01   *p < 0.05 † p < 0.10 (two-tailed test)   (d.f.) = degrees of freedom.
[a]Time-variant variables.
[b]Reference cateogory.

all, Figure 2 illustrates that the regional differences implied by Figure 1 are of both substantive and statistical significance.

The logistic models in Table 2 also indicate regional differentials in the likelihood of entry into marriage. Six models are summarized in the table. Model 1 shows the effect of region on marriage, controlling only for age. It answers the fundamental question: do marriage rates differ significantly for Quebec and non-Quebec women? The model indicates that the odds of marriage for women in the Quebec region are 25 percent lower ($100[e^{-0.285}-1]$) at any age than for women in the rest of Canada.

The remaining models in Table 2 shed light on the mechanisms producing the regional differentials in marital behavior. Model 2 controls for personal and family background variables, which have previously been shown to vary by region (Table 1). The remaining models build on Model 2 by adding cultural markers. Once premarital cohabitation is controlled for (in Model 5), the effect of a premarital child changes from negative to positive. This suggests that the negative effect of premarital children on marriage identified by previous research may be due to a lack of controls for cohabiting (as in, e.g., Bennett, Bloom, and Miller 1995). Many premarital children live in cohabiting unions, and it may be the strong negative influence of cohabitation that is actually being reflected in these studies. Additionally, the influence of mother's education becomes insignificant when controlling for premarital cohabitation, while father's education becomes increasingly relevant. The initially significant effects of intact family structure and number of siblings also become insignificant after other factors are controlled. Model 6 includes the full set of predictors and results in the largest model chi-square. As predicted by ideational theory, region continues to have a significant effect on marriage after controlling for all other factors, with the odds of Québécoise women marrying remaining 20 percent lower than odds for non-Quebec women.

Regional differences

Table 3 presents the logistic coefficients for the regression of transition to first marriage by region, to permit a direct comparison of factors affecting marriage in Quebec and non-Quebec Canada. Overall, the model provides a substantially better fit for non-Quebec Canada, as reflected in the model chi-square values. For both regions there is a significant time effect, which, as might be expected, increases the odds of marriage at a decreasing rate. We begin our discussion with a focus on Quebec, thereafter turning to non-Quebec Canada.

Measures of personal and family background characteristics are found to have limited influence on the marital process in Quebec. Neither immigrant status nor educational attainment has any significant impact on the likelihood of marriage. Contrary to much of the literature on premarital children (e.g., Bennett, Bloom, and Miller 1995; Landale 1994), the presence of a child significantly increases the likelihood of first marriage. Québécoise mothers are nearly 30 percent more likely to enter first marriage than women without children. The effect of a premarital pregnancy is even stronger. Consistent with the literature on the effects of pregnancy (e.g., Goldscheider and Waite 1986; Landale 1994; Santow and Bracher 1994; Sørensen and Sørensen 1986), pregnant women are more than four times as likely to marry as women who are not expecting a child. Contrary

TABLE 3   Logistic coefficients for regression of transition to first marriage: Canadian women ages 15–40 by region

Independent variable	Quebec	Outside Quebec
Time effect		
Age[a]	0.249***	0.360***
Age square[a]	–0.009***	–0.016***
Personal characteristics		
Foreign born (yes)	–0.072	–0.115*
Education	0.024	–0.075***
Premarital child[a] (yes)	0.254*	0.107
Pregnant[a] (yes)	1.615***	1.709***
Family background		
Intact family (yes)	0.015	–0.054
Mother's education	–0.018	–0.008
Father's education	0.004	–0.047**
Number of siblings	0.001	0.009
Competing roles		
Enrollment status[a] (yes)	–0.774***	–0.624***
Employment status[a] (yes)	–0.048	0.170***
Religion		
Catholic (yes)	0.191	–0.018
Protestant (yes)	0.388*	0.073
Other (yes)	0.191	0.094
None[b]		
Pre–Quiet Revolution (yes)	–0.090	0.162***
Premarital cohabitation[a] (yes)	–3.131***	–2.264***
Intercept	–3.453***	–3.146***
Model chi-square	1231.78	2828.96
(d.f.)	(29)	(29)

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$ (two-tailed test)   (d.f.) = degrees of freedom.
[a]Time-variant variables.
[b]Reference category.

to much of the literature (e.g., Lichter et al. 1992; Manning 1993; Michael and Tuma 1985; Santow and Bracher 1994), family background does not have a significant effect either way on the likelihood of marriage in Quebec.

      Current school enrollment has a strong negative effect on the likelihood of marriage, as has been identified previously (Blossfeld and Huinink 1991; Goldscheider and Waite 1986; Hoem 1986; Thornton, Axinn, and Teachman, 1995). Current school enrollment decreases the odds of marriage for women by 54 percent. Contrary to research indicating that employment affects women's propensity to marry (e.g., Bennett, Bloom, and

Craig 1989; Cherlin 1980; Goldscheider and Waite 1986; Lichter et al. 1992; Oppenheimer 1994), we find no evidence that employment has a significant impact on women's marriage in Quebec.

Turning to our cultural markers, in contrast to expectation and previous research (e.g., Michael and Tuma 1985; Thornton, Axinn, and Hill 1992), religion plays only a minor role in the Quebec marriage process. Only Protestants have a significantly greater propensity to marry. The odds of Protestants marrying are 47 percent greater than for people who do not identify with any religion. As only 5 percent of Quebec women are Protestants, the substantive effect of religious affiliation in Quebec appears to be minimal. Also contrary to expectation, the Quiet Revolution measure indicates a positive (though insignificant) effect on Quebec women's marriage.

Premarital cohabitation is the only cultural marker apart from region that affects Quebec marriage as expected. Cohabitation has by far the strongest influence on Quebec marriage (p < 0.001), as some of the literature would suggest (Oppenheimer 1994; Wu 1997), with the odds of cohabitors marrying being only 4 percent of the odds for non-cohabiting couples.

In contrast to Quebec, factor effects are generally more significant and in the expected directions for non-Quebec Canada. Measures of personal and family background characteristics are somewhat more important outside Quebec. Consistent with the literature on nativity (e.g., Carter and Glick 1970; Hogan 1978), foreign-born individuals are less likely to marry. Lackzo's (1995) suggestion that the effects of education differ between Quebec and non-Quebec Canada is supported here. Consistent with the literature on educational attainment (e.g., Bennett, Bloom, and Craig 1989; Goldscheider and Waite 1986; Marini 1978), education also has a significant negative influence on marriage. Unlike their Québécoise counterparts, mothers outside Quebec are not significantly more likely to marry, although the effects of pregnancy are positive and significant. Of the family background measures, only father's education has a significant negative effect on women's marriage.

Both competing roles are significant outside Quebec, although employment appears to complement marriage, not compete with it. School enrollment has a slightly weaker negative effect on marriage outside Quebec, lowering the odds of marriage by 46 percent. Employment has a positive effect in non-Quebec Canada, with employment increasing the odds of marriage by nearly 20 percent.

As to our cultural markers, religion apparently has no significant effect on marriage outside Quebec when other factors are controlled. People who grew up before Quebec's Quiet Revolution appear to have higher odds of marriage than those born later, even after controlling for other factors. Finally, as in Quebec, premarital cohabitation has the largest impact on marriage. Cohabiting women outside Quebec are more likely to marry than

their Québécoise counterparts, but are still only 10 percent as likely to marry as are non-cohabiting women.

Regional importance of marriage

In accordance with ideational theory, economic factors are insufficient, but nonredundant, in an explanation of regional marriage patterns. We find only modest declines in the effect of region after controlling for a wide range of background and other characteristics (Table 2). We cannot explain Quebec's lower marriage rate as being a function of the factors commonly used to explain the transition to first marriage. Ideational theory suggests that declining marriage rates indicate that Quebec residents place a different value on marriage. It may be that people in Quebec still want to live together in long-term relationships, but wish to forgo the rituals associated with legal marriage, as has been suggested by Le Bourdais and Marcil-Gratton (1996).

Table 4 presents the ranked importance of marriage for both Quebec and non-Quebec Canada, taken from the GSS-95 data. The percentages shown reflect the weighted responses of unmarried women ages 15 to 40 in 1995. A chi-square test of statistical independence suggests the relationship between region and importance is significant. Over 65 percent of unmarried Québécoise women reported marriage to be "not very important" or "not at all important" to their life happiness, while similar responses were obtained from only 37 percent of women elsewhere in Canada.

Table 5 summarizes the results of uncontrolled and controlled ordinary least squares regressions of the effect of region on importance of marriage, to examine whether the differences in ranked importance can be

TABLE 4   Importance of marriage for life happiness: Unmarried Canadian women ages 15–40 by region, 1995

	Quebec[a]	Outside Quebec[a]
Very important	12.0	23.2
Important	21.2	35.3
Not very important	51.3	32.2
Not at all important	14.5	4.6
Do not know	1.0	4.7
Total	100.0	100.0
N[b]	450	904
Chi-square = 124.4, d.f. = 4, p < .001		

NOTE: Responses are based on the question "In order for you to be happy in life, is it very important, important, not very important, or not at all important to be married?"
[a]Weighted percentages.
[b]Unweighted sample sizes.
SOURCE: 1995 General Social Survey.

TABLE 5   Ordinary least squares regression results for the importance of marriage: Impact of region, never-married Canadian women ages 15–40, 1995

	Intercept	ß	S.E.	Adjusted R²	N
Quebec (yes)[a]	3.350	–0.796***	0.074	0.079	1,354
Quebec (yes)[b]	3.939	–0.633***	0.083	0.183	1,354

*** p < .001   S.E. = standard error.
[a]No controls.
[b]Controlling for age, ever cohabited, education, mother's education, current enrollment, employed during the previous year, income, income missing, religion, church attendance, foreign born, intact family, happy childhood, motherhood, and number of siblings.

explained by other factors. The uncontrolled estimate of Quebec's regional influence on ranked importance is significant and negative. When controls are added, the change in measured impact of region is small. Clearly Québécoise women do not place as much emphasis on marriage as other Canadians. However, this does not imply that Quebec women value long-term relationships any less. Rather, the 1995 GSS indicates that when asked to rank the importance of a lasting relationship for life happiness, 94 percent of unmarried women aged 15–40 in Quebec said it was important or very important, while only 84 percent of women outside Quebec ranked it as highly. Clearly the rejection of marriage in Quebec does not reflect a rejection of a long-term relationship, only of the traditional nuptial route to union formation.

Discussion

This study has sought to identify factors influencing the divergence of Canadian marital patterns. After identifying significant differences between the propensity to marry in Quebec and non-Quebec Canada, we attempted to explain these differences as a consequence of differing socioeconomic and demographic factors. While there was some indication that the process of marriage differs between the two regions, as reflected in differing socioeconomic factors, additional cultural markers such as cohabitation and region itself (as a broad proxy for ideational systems) consistently affected marriage. Further analysis revealed that although more unmarried women in Quebec than elsewhere in Canada felt lasting relationships are important, they were, in accordance with ideational theory, less inclined to report the same for marriage.

The regional models presented had a substantially better fit for non-Quebec Canada, although the importance of several factors is underscored in both regions. Of primary importance in this study is the role of cohabitation in the marital process. As expected, cohabitation is strongly negatively associated with marriage in both Quebec and non-Quebec Canada.

It may be that cohabitation simply delays marriage because it takes time to experience, or because while in a cohabiting relationship one does not usually search in the marriage market (Oppenheimer 1994).

It may also be that there is less pressure to formalize cohabiting unions than other relationships, particularly in Quebec, where the prevalence of cohabitation is substantially higher and the depressive effect on likelihood of marriage associated with it is stronger. Ideational theory suggests that this reflects the weakening of marriage as a system of social control. The rejection of marriage in this capacity occurred more rapidly in Quebec than across Canada as a whole, as illustrated in the 1996 Census by the higher proportion of children within cohabiting couples in Quebec (31 percent of all children under the age of six) than nationally (14 percent). This divergence is consistent with ideational theory, as intragroup communication and culturally homogenous populations facilitate ideological transmission, while the barriers between Quebec and non-Quebec cultures hinder ideological diffusion.

Additionally, the findings suggest that women's economic independence (Burch and Matthews 1987) has contributed to declines in Canadian marriage rates. In both Quebec and non-Quebec Canada, schooling appears to be a major factor delaying first marriage. Enrollment itself is more important than actual level of educational attainment, perhaps because the student role extends the period during which women are not viewed, or do not view themselves, as fully eligible for marriage. While the increasing duration of women's enrollment may contribute to delayed marriage, it does not explain the recent regional divergence in marital trends.

The negative effect of educational attainment experienced by women outside Quebec further supports the negative impact of women's economic independence on marriage in non-Quebec Canada. In Becker's (1981) model, the increased ability of women to support themselves reduces the returns to marriage. Women may choose to "buy out" of marriage and retain the privacy and independence they might lose within "traditional" marriage.

The differing regional effects of education may also reflect different attitudes toward gender roles. It may be that the traditional ideal of marital hypergamy, in which a woman marries a partner of higher socioeconomic status, persists for the most part in Canada. In this situation, higher education would make a marital search more difficult by providing a smaller pool of potential partners with an equal or superior education. Quebec residents are more supportive of egalitarian gender roles than non-Quebec residents, which perhaps indicates that such traditional ideals no longer exist in that province. This finding does not help account for the diverging regional trends, however.

That educational enrollment has a stronger negative effect in Quebec, and that employment status does not improve the likelihood of marriage

within Quebec as it does outside Quebec, may best be interpreted as indicating that Quebec residents place greater emphasis on self-development and economic stability (Baer and Curtis 1984; Murphy 1981). Québécoise women may be less likely than other Canadians to sacrifice their work and school careers for marriage, possibly because of their traditionally lower levels of economic advantage. Outside Quebec, the positive attributes of employment, such as providing the ability to support an independent household or to "afford" to marry a man who is unlikely to be a sole financial provider but who is desirable in other respects, may outweigh the perceived risks marriage introduces. This circumstance does not negatively affect marriage, however. Conversely, because the effect of employment is significant and positive outside Quebec, economic independence may increase marriage in some cases by making women more attractive partners, or by providing the necessary resources to realize a preference for marriage. This effect may be limited to women with relatively lower education, however, as the negative effects of greater educational attainment outweigh the positive effects of employment.

There are additional important regional differences in the effect of socioeconomic factors, although none contributes greatly to an explanation of the regional divergence. Foreign-born women living outside Quebec are less likely to marry than those living in Quebec. Immigrants outside Quebec may be faced with a more heterogenous population, resulting in more difficult marital searches. However, this does not reconcile the diverging regional marriage patterns, as there would need to be a strong negative effect within Quebec to compensate for its proportionately small intake of immigrants.

Premarital children positively affect the likelihood of marriage within Quebec, but not outside the region. The positive effect within Quebec may be due to government offers of tax breaks, subsidized day care, interest-free home loans, and baby bonuses for families with children that are not offered to the same extent by other provinces. It is also likely that these children are being reared by both partners in Quebec (due to the high prevalence of cohabitation), while in the rest of Canada these children may live in lone-parent households.[9] As expected, pregnancy has a strong positive influence on the likelihood of marriage in Canada. This relationship may be spurious, however, in that pregnancy could reflect well-advanced courtships or engaged couples who would eventually marry in any event.

This research also indicates the weakening role of Catholicism, and religion in general, in determining the marriage process. With the exception of Quebec Protestants, religious affiliation plays an insignificant role in Canadian women's marriage. We did not observe the theorized negative effect of Catholicism in Quebec. The Catholic Church's ability to demand particular attitudes and behaviors from its members is apparently

declining. This finding supports Guindon's (1978: 231) claim that "Catholicism as a set of values and as a set of practices collapsed" in Quebec during the 1960s. The rejection of Catholicism may also explain Quebec's more rapid decline in marriage. The cost of adhering to the Catholic value system forbidding the use of the newer and better contraceptive technologies of the early 1960s increased, and adherence became increasingly inappropriate in the eyes of Quebec women. In 1971, 75 percent of Quebec women under the age of 35 disagreed with the Church ban on contraception (Beaujot 1978). Québécois behavior clearly departed from the Catholic value system, as the crude birth rate fell from 29 per thousand population in 1959 (Dominion Bureau of Statistics 1965) to 13.5 in 1972 (Dumas 1994), further eroding this system in the process. The social value of confining sex to marriage was reduced with changes in contraception, and sex became more of a private act than a social one. The ban on contraception did not apply to Protestants, hence the subsequent questioning of religious values may not have happened. Outside Quebec, Protestants are the largest religious group, thus the spread of secular individualism may have been slower outside Quebec.

Our measure of the Quiet Revolution did not contribute to an explanation of regional divergence. Individuals born after 1945 have a lower probability of marriage outside Quebec, but not in Quebec as was originally anticipated. Perhaps the Quiet Revolution does not affect marriage when we control for other factors because it was indeed a time of "catching up," and any effect associated with the Revolution may actually be attributable to those other factors. For example, during the Quiet Revolution, public disaffection with the Catholic Church became widespread, and the Church saw much of its power replaced by institutional secularization (Belleau 1997; Bibby 1987; Bothwell 1995; Guindon 1990; Moreux 1969). Additionally, the Quiet Revolution was partly an effort to improve Quebec's economic position in Canada, and resulted in better employment and other socioeconomic opportunities for Quebec citizens. Further, the fact that the Quiet Revolution indicator was significant outside Quebec suggests that the measure also encompasses the movements of protest and change that occurred throughout North America during the 1960s. Consequently, more-precise indicators must be used to accurately assess the ideological impact of the Quiet Revolution.

In summary, after controlling for economic and social factors, region continues to affect the likelihood of marriage. Ideational theory suggests that this may reflect the distinct historical processes and social conditions of Quebec and non-Quebec Canada. Region may function as a proxy for aspects of the cultural ideological systems not accounted for by our other cultural markers. We have established that the differences between Quebec and non-Quebec marriage patterns are not simply a consequence of

differences in social or demographic characteristics; Quebec union formation should be seen as a cultural form that is valid on its own terms. Nevertheless, we are still largely unable to address the specific cultural attributes contributing to these regional differences. Data identifying more deep-seated cultural properties than those available in the GSS-95 must be used in future research, perhaps requiring research designs other than analyses of sample-survey data.

It seems that Quebec's substantial cohabiting population also accounts for some of the regional divergence in the likelihood of marriage. The high prevalence and relative stability of nonmarital cohabitation in Quebec clearly affect legal marriage patterns. Questions we hope to address in future research include why cohabitation is more likely in Quebec, and whether cohabitation merely delays marriage or acts instead as a replacement for legal unions. Indeed, identification of differences in cohabitation entry, stability, and dissolution may provide a deeper understanding of the differences in conjugal union formation between Quebec and the rest of Canada, with implications for differences in union formation across societies.

Notes

1 About 80 percent of Quebec's population is French. Other areas of Canada are substantially more culturally heterogeneous. People of British origin comprise the majority, although there have been repeated waves of immigrants over time, such as Ukrainians and Southern Europeans. Further, over the last 20 years there has been a strong influx of immigrants from less developed countries (particularly from Asia), who together have contributed to a rapidly changing cultural landscape.

2 The first European settlers to Canada were French, arriving at the Gulf of St. Lawrence in 1534. Quebec was founded in 1608 and remained under French control until 1763. While there were strong administrative and economic ties between Quebec and France until that time, most Quebec residents were by then Canadian-born, often for several generations. Quebec fell to the British in 1759, and sovereignty was transferred from France to England by the Treaty of Paris four years later.

3 In Canada, cohabitations are also referred to as common-law unions; the French term is "*union libre*" (free union/marriage). This linguistic difference—law versus freedom from law—reflects the cultural differences between Quebec and elsewhere in Canada. (We thank an anonymous reviewer for raising this point.)

4 An anonymous reviewer suggested that intellectual elites may simply be seeking greater access to self-gratification.

5 We do not suggest that men play an insignificant role in the marital process. Indeed, marriage has historically been contingent on young men's ability to establish independent households. Recent research confirms that men's economic circumstances are related to marital timing (e.g., Oppenheimer, Kalmijn, and Lim 1997; Raley 1996). However, data limitations and our placement of marriage in a context of reproductive regulation further favor a woman-oriented approach. As our focus is on women only, results should be interpreted as such, as Ca-

nadian men's marital processes may differ appreciably.

6 Cohabitation is defined in the GSS-95 as "having a sexual relationship while sharing the same usual address."

7 Wu (1997) argues that cohabitors are reluctant to enter into a marital relationship because they are a select group of individu-

als who have less conventional views of marriage and less commitment to the institution of marriage.

8 We thank an anonymous reviewer for this suggestion.

9 We thank an anonymous reviewer for this suggestion.

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Diffusion of Education in Six World Regions, 1960–90

ANNABABETTE WILS
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POPULATION GROWTH, the status of women, and labor force skills are three issues that are central to the process of development, even in the absence of universal agreement on the nature of their influence. As E. F. Schumacher observed, "[D]evelopment does not start with goods; it starts with people and their education, organisation and discipline. Without these three, all resources remain latent, untapped, potential. . . . Here lies the reason why development cannot be an act of creation, why it cannot be ordered, bought, comprehensively planned: why it requires a process of evolution. Education does not 'jump'" (1973: 159).

Education has been found to be related to fertility and hence population growth; to the status of women; and to labor force skills (United Nations 1995). Therefore, it is important to understand the dynamics of education diffusion through populations during development. In particular, to what extent are increases in education related to the recent unanticipated fertility declines in many countries (United Nations 1996)? The following analysis provides tools to understand changes in education.

The focus is on gender inequality in education. We found that at low levels of school enrollment and adult education, a large inequality exists between male and female educational achievements. Global data show that over time, as the level of enrollment increases, the enrollment of girls tends to catch up with that of boys. In countries where the average level of adult education is higher, the gender gap in education is smaller.

Large school enrollment differences between world regions have persisted. Not surprisingly, those regions with high education levels are also those that are more developed or industrialized and those where fertility levels are lowest. An arrangement of the regions' school enrollment rate trends by school level—primary, secondary, tertiary—shows that histori-

cally there has been a clear pattern of education transition: first, global primary education is attained, followed by secondary education, and, only with a great lag, by tertiary education.

The data used in this study are from publications by United Nations bodies, namely UNESCO and UNDP. These organizations generally compile national data. There may be inconsistencies and mistakes in these statistics. We use them as they are published, with the caveat that, while they represent a standard collected by well-respected international bodies, they are not perfect.

Education increase in six world regions, 1960–90

In this section, we review historical data on adult education levels in industrialized and developing countries and identify general patterns of school enrollment and adult education achievement. This is done separately for six world regions using data covering the past three decades from 1960 to 1990. We begin with an overview of adult literacy and education by average years of schooling in 1990 and continue with a discussion of enrollment statistics. Both measures are correlated to male–female education differentials.

Adult education achievement and male–female education differentials, 1990

Industrialized countries have achieved nearly universal literacy, an average of 10–13 completed years of schooling among adults, and equal education attainment for men and women at all levels of schooling. At the other extreme, some countries in Africa (e.g., Burkina Faso, Niger) still had adult illiteracy rates as high as 85 percent in 1990 (UNESCO 1994), with a large gender gap. Some of these countries have made continually increasing outlays for schooling, but it takes some years before these result in adult literacy. Sub-Saharan Africa, the Arab States, and Southern Asia share similar literacy rates around 60 percent for men; literacy rates for women in these regions are 30–40 percent (UNESCO 1993). In Latin America and the Caribbean, adult literacy was almost universal in 1990, with only a small adult education gender gap. Eastern Asia had almost universal literacy for men, but only 72 percent for women. UNESCO data show that 20 percent of the world's population aged 15 years and older were illiterate in 1995. It is particularly noteworthy that almost two-thirds of illiterate adults—64 percent—are women, which translates into approximately 565 million illiterate women worldwide.

Figure 1 shows literacy rates for men and women in six world regions. The regions are arranged in descending order of the gap between

male and female levels of literacy. In all regions, female literacy is below that of men. Moreover, it is easy to see that in those regions where overall literacy is low, the gap between male and female literacy is highest. At the top of the figure, the bars show the absolute percentage point difference between male literacy and female literacy. In regions where female literacy (and male literacy) is higher, the difference between males and females is smaller.

A similar pattern is found in the typical relationship between average years of adult education and the gender gap in adult education. The scatter-

FIGURE 1   Literacy rates by sex and literacy gender gap in six world regions, adults aged 15 years and older, 1990
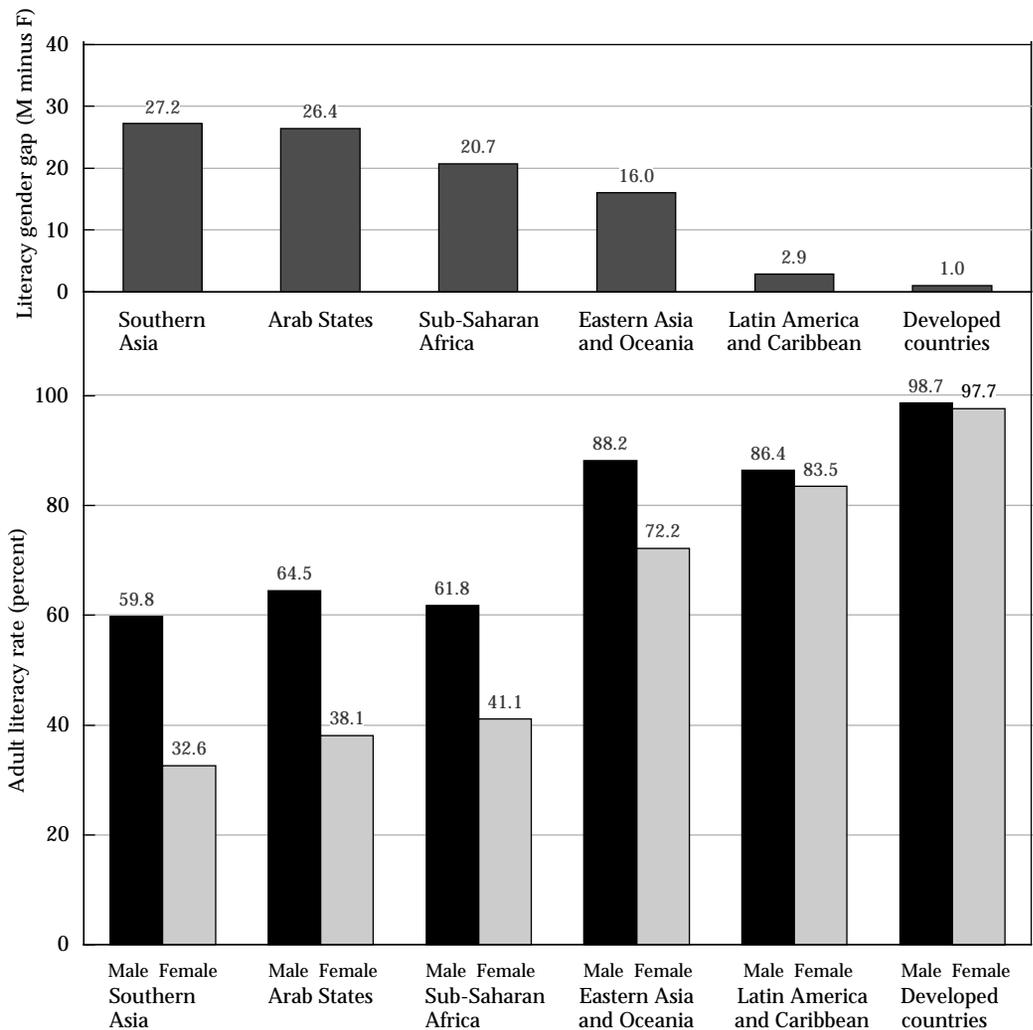

SOURCE: UNESCO (1994).

gram in Figure 2 represents the average number of years of education by country in 1990 for the adult population as a whole on the x-axis, and the ratio of female-to-male years of education on the y-axis. Where the average level of schooling of the adult population is low, the gender gap for education between men and women is largest. At the lowest average levels of schooling of 1–3 years, women in 85 percent of the countries have less than half the average schooling of men (Botswana is an outlier). At medium levels of schooling, or 3–7 years, women exceed 50 percent of the male education level. At high levels of schooling of over 8 years, males and females tend to have received the same number of years of schooling, except in Korea, which is the second outlier. This indicates that in any given country education for women rises at a later time than for men, but eventually does catch up.

There is a rough geographical distribution to the countries included. Most of the countries in the low education/high gender gap area are in Africa; most of the countries in the medium education/medium gender gap are in Asia and Latin America; and most of the high education/no gender gap countries are in Europe and North America. This itself may be related to the level of development.

FIGURE 2   Average number of years of schooling for all adults by the ratio of female-to-male education by country in 1990
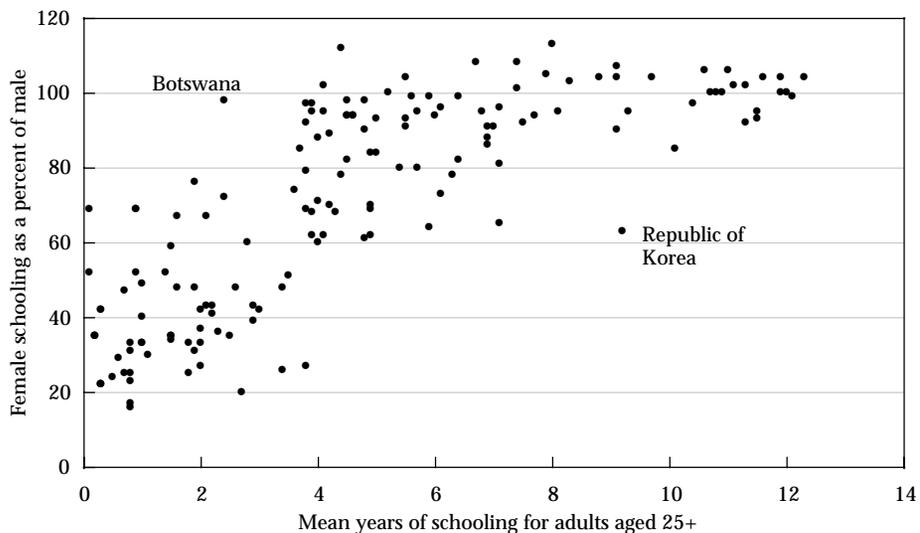

SOURCE: All developing and developed countries included in UNDP (1994).

Global enrollment ratios, 1960–90

School enrollment has increased significantly in all major world regions at almost all education levels and for both boys and girls. This achievement places humanity in a position never before seen in history. Yet, there remain great regional and gender differentials.

Figure 3 shows the enrollment rates in the six regions from 1960 to 1990, for ages 6–23 years for both sexes. To some extent, the average enrollment rates of 6–23-year-olds are a reflection of age structure; however, this effect is not large enough to substantively alter the conclusions drawn from the data. The figure is arranged in order of female school enrollment in 1960, from lowest to highest.

FIGURE 3   Total enrollment rates for ages 6–23 years by sex and enrollment gender gap in six world regions, 1960–90
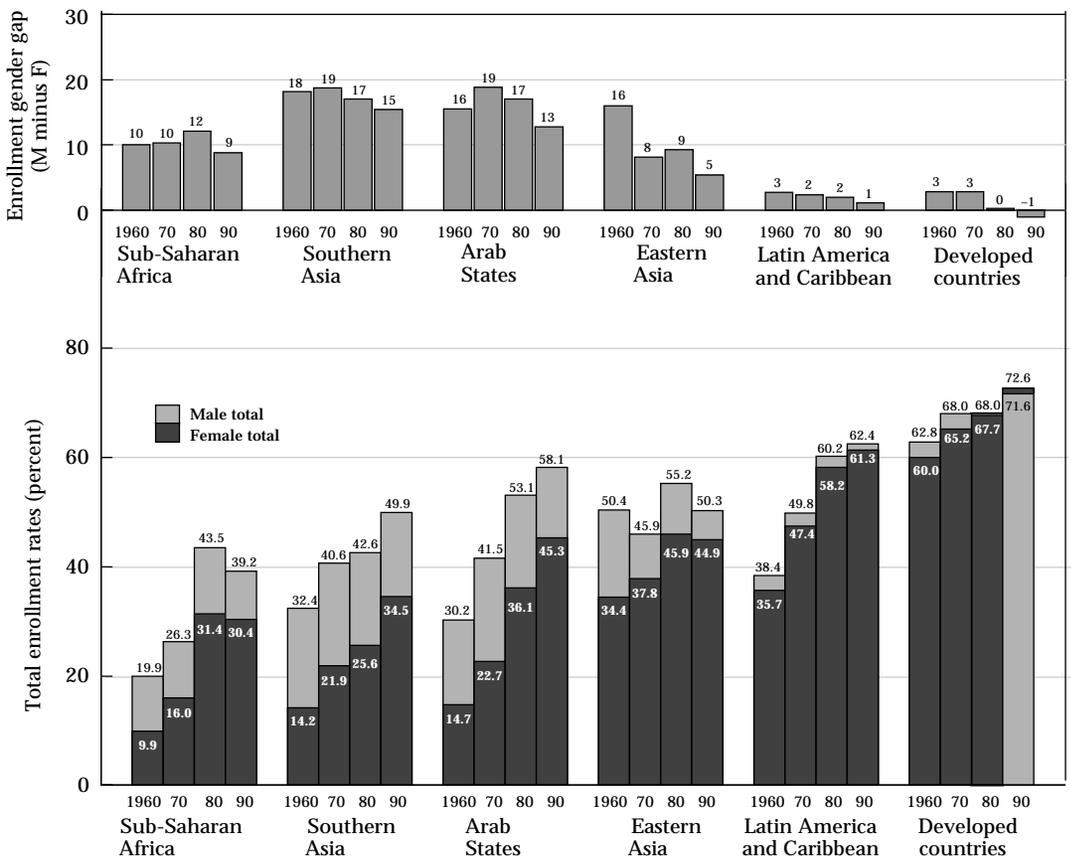
SOURCE: UNESCO (1993).

In sub-Saharan Africa, enrollment rates were the lowest of all regions discussed here. The rate of increase was high from 1970 to 1980: in that decade, enrollment almost doubled—from 26 percent for men and 16 percent for women enrolled in 1970 to 44 and 31 percent respectively in 1980.[1] Then, from 1980 to 1990, there was a reversal of the enrollment trend. The gender gap in school enrollment in sub-Saharan Africa has remained nearly unchanged over the three decades, at around 10 percentage points in favor of male enrollment.

In Southern Asia and the Arab States, the increase in total enrollment has been steady since the 1960s for both sexes. In Southern Asia the increase was from 32 percent for men and 14 percent for women in 1960 to 50 and 35 percent respectively in 1990. In the Arab States, the corresponding increases were from 30 to 58 percent for males, and 15 to 45 percent for females. In both of these regions the percentage point difference between male and female enrollment was very large in 1960 and 1970—around 15–20 percentage points—but had declined a few percentage points by 1990. Overall, females are slowly catching up to males in school enrollment rates.

The data for Eastern Asia are perplexing. In 1960, total enrollment rates for men were higher than they were ten years later, and another decline occurred between 1980 and 1990. This may be because the region contains countries with very different rates of population growth and enrollment that, taken together, produce no clear pattern. The net result is that male enrollment levels in 1990 were the same as they were in 1960. Female enrollment improved more consistently over time. These trends resulted in a declining difference between male and female enrollment rates, from 16 percentage points in 1960 to 5 in 1990.

The highest enrollment rates and largest increases in developing countries were found in Latin America and the Caribbean. In 1960, less than 40 percent of males and females aged 6–23 were enrolled in school, while by 1990 the enrollment rate exceeded 60 percent. A 60 percent enrollment in the age group 6–23 translates into very high average years of school attainment among adults, roughly 8–10 years, depending on the age distribution of the population and enrollment rates. Latin America has been exceptional in that throughout the period, the gender gap has been only 3 percentage points or less.

The enrollment rates in developed countries started at 63 percent for men and 60 percent for women in 1960, and increased slowly to 72 percent for men and 73 percent for women in 1990. There is virtually universal primary and secondary education in the developed countries, and the fact that enrollment rates are less than complete means that not all people study until the age of 23. In developed countries in 1990, there was on average a one percentage point school enrollment gender gap in favor of female pupils.

These empirical observations show that during the past 30 years, in all regions of the developing world, men had higher enrollment rates than women. The data also show, however, that the female-to-male ratios in enrollment rates decreased in all world regions throughout the observation period. In general, the female-to-male ratios in enrollment were higher in countries with a higher enrollment rate. In regions and periods where the enrollment rates exceeded 60 percent (principally Latin America and the Caribbean and the developed countries) the gender gap in enrollment had essentially disappeared.

Enrollment rates by schooling level

Enrollment rate increases have not been universal at all ages. Generally, there has been an increase, but some regions and some age groups have experienced stagnation and declines. Analysis of enrollment rates by age and region shows changes in the gender gap over time in different age categories, and also an overall enrollment increase.

Figure 4 shows the enrollment of males and females in age groups 6–11, 12–17, and 18–23 years between 1960 and 1990 for our six world regions. The three age groups correspond approximately to the three consecutive schooling levels: primary, secondary, and tertiary. We use this terminology in the rest of this section, although we are aware that it is only an approximation.

The figure shows that the increases in enrollment in all regions and at all three education levels were fairly consistent. The two exceptions are declines in secondary education in Eastern Asia[2] and recent declines in primary and secondary enrollment in sub-Saharan Africa. At consecutively higher levels of education in each region, the ratios of male-to-female enrollment rates are consecutively lower. In almost every region and for almost every level of education, the enrollment rates of males exceed those of females. However, at all three education levels in all regions shown here, the male-to-female enrollment ratios decreased significantly. The largest decreases in the ratio are in tertiary education: for example, from a ratio of 4.92 men to one woman in the Arab States in 1960 to 1.62 in 1990.

What is the relationship between school levels, enrollment rates, and the male-to-female enrollment ratio at each level? Figure 5 shows the enrollment rates of males on the x-axis, and the male-to-female enrollment ratio on the y-axis, in a scattergram. The circles indicate primary-level schooling; the squares secondary; and the triangles tertiary. All data points for the six regions and the four time points (1960, 1970, 1980, and 1990) are included. The figure shows that at higher levels of male enrollment, the male-to-female enrollment ratio declines to unity. Unity in male-to-female enrollment ratios is achieved at much lower levels of enrollment for tertiary education than for primary education; secondary education is

FIGURE 4   Enrollment rates by sex and age group and male-to-female enrollment ratios by age group in six world regions, 1960–90
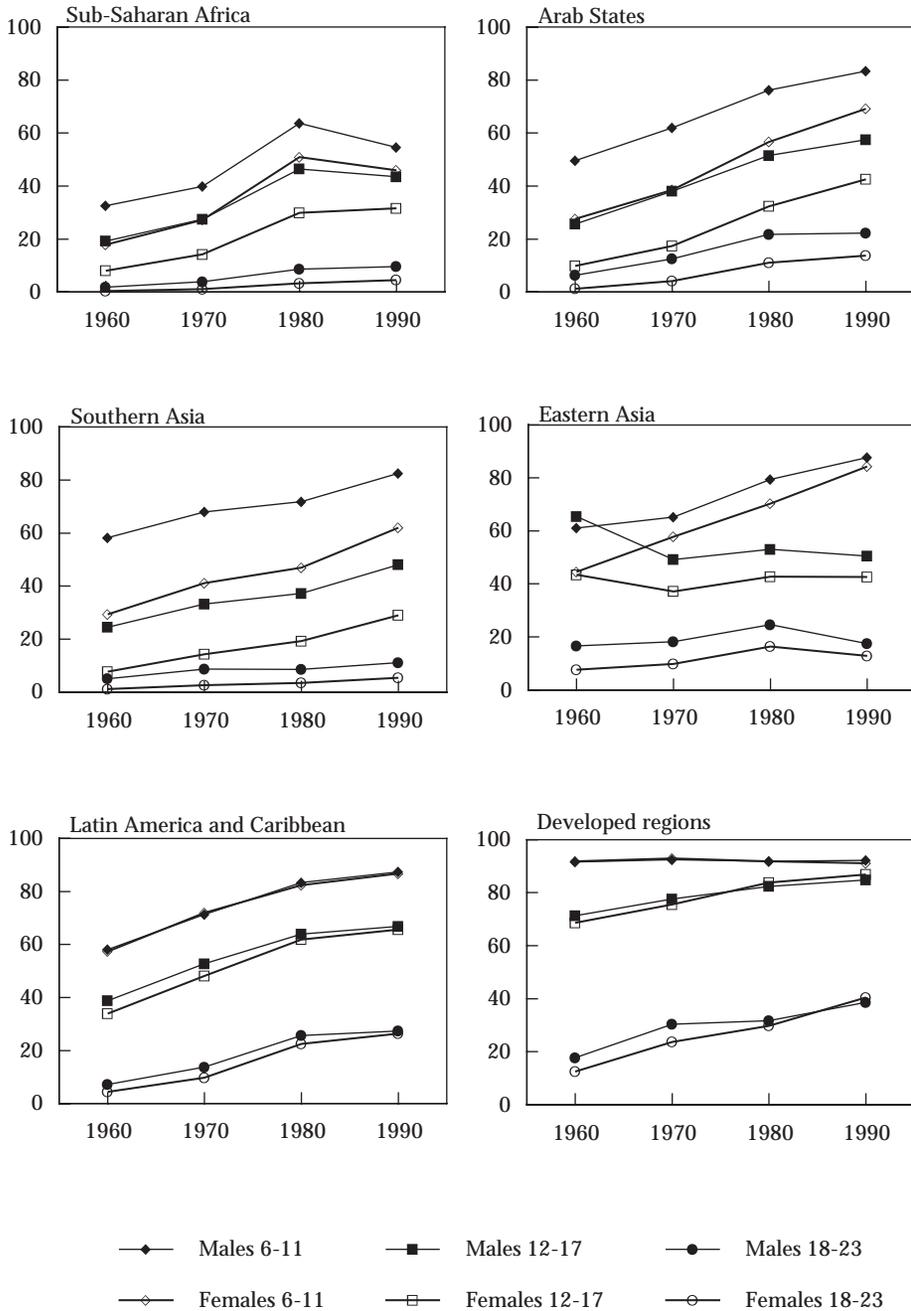
SOURCE: UNESCO (1993).

**FIGURE 5   Primary, secondary, and tertiary male enrollment rates
cross-tabulated with male-to-female enrollment ratios: Data points
for six world regions in 1960, 1970, 1980, and 1990**
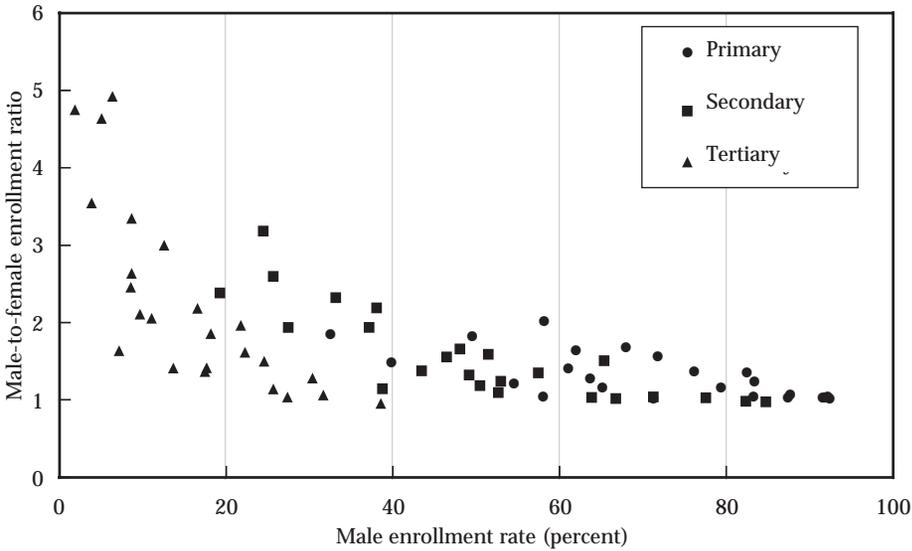
SOURCE: UNESCO (1993).

intermediary. Unity in male-to-female enrollment ratios in tertiary educa-
tion is achieved for tertiary enrollment ratios of 20–40 percent. In secondary
and primary education, these unity levels are achieved only at male enroll-
ment rates exceeding 60 percent.

A second experimental arrangement of the data, in Figure 6, shows
what we may loosely term an "education transition." The arrangement has
been made as follows. Each region's male school enrollment rates from
Figure 4 are taken as a block of three lines. These groups of three lines are
then arranged on Figure 6 such that the points for enrollment in each of
the three education levels in 1960 are aligned on the horizontal axis. Thus,
although each line represents 30 years of change, its placement on the hori-
zontal axis represents hypothetical time.

The figure shows the six solid lines for primary education forming a
loose grouping along the top of the figure. The lowest point is at around 30
percent male enrollment, and the highest is almost universal enrollment.
The dashed lines for secondary education form a loose group below the
lines for primary education. Their rise looks equally steep, but the group-
ing is more chaotic. Universal secondary education was not achieved in
any of the world regions in the historical period discussed. Far below the
secondary education lines lie the dotted lines for tertiary education. Ter-

**FIGURE 6   Change in male primary, secondary, and tertiary
enrollment rates, 1960–90, for six world regions: Data for each
region arranged by lining up the primary education level in 1960
along the x-axis**
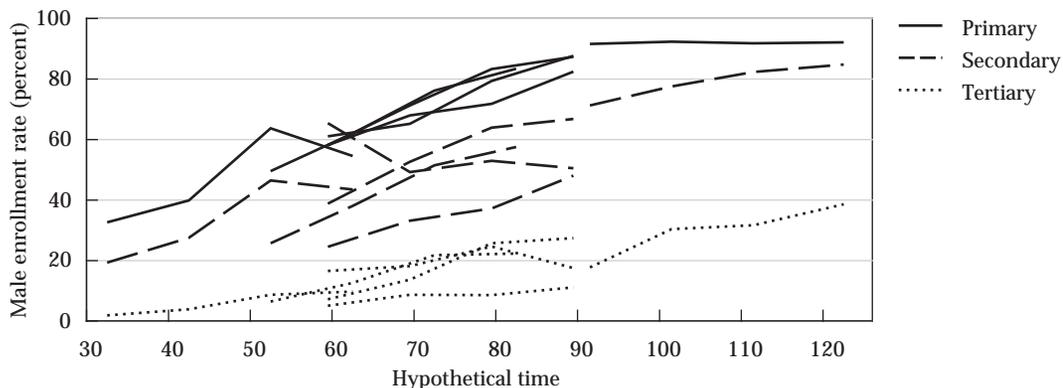
SOURCE: UNESCO (1993).

tiary education has remained at a low, constant level in those regions with
the lowest primary and secondary enrollment rates, even while the latter
are rising.

One could use this figure to calculate how many years, in terms of
education, some regions are "behind" or "ahead" compared with others.
To attach hard numbers to such an exercise would not be wise, however,
as there may be unexpected accelerations or delays in enrollment rate in-
creases in regions that presently have low levels of school enrollment.

Although the growth rates of enrollment in primary school are simi-
lar in the regions shown, they are very different from region to region for
secondary and tertiary education. Figure 7 shows that the variation in
growth rates depends on the proportion of persons enrolled. Along the hori-
zontal axis is the percent of males enrolled in school at the end of a ten-
year period; along the vertical axis is the average annual growth rate in
enrollment during that ten-year period. The shaded part of the figure in-
corporates the area that encloses 90 percent of the data points. At high
levels of enrollment, the growth rates are low and similar—from 0 to 2
percent annually; at low levels of enrollment, the growth rates are highly
variable—from negative values to 6 percent in the data shown. Studies of
diffusion processes in geography show that the adoption (or growth) rates
(in this case, adoption of school enrollment) vary greatly at various stages
of diffusion, but they gradually decline toward zero when adoption ap-
proaches unity (see, e.g., Haggett 1983). The convergence of growth rates
to zero at ranges where the enrollment rate approaches unity indicates a
typical such tapering. However, the diversity of growth rates at low levels
of enrollment leaves us uncertain as to how quickly adoption of school

FIGURE 7   Male enrollment rates in primary, secondary, and tertiary education cross-tabulated with enrollment rate growth: Data points for six world regions in 1960, 1970, 1980, and 1990
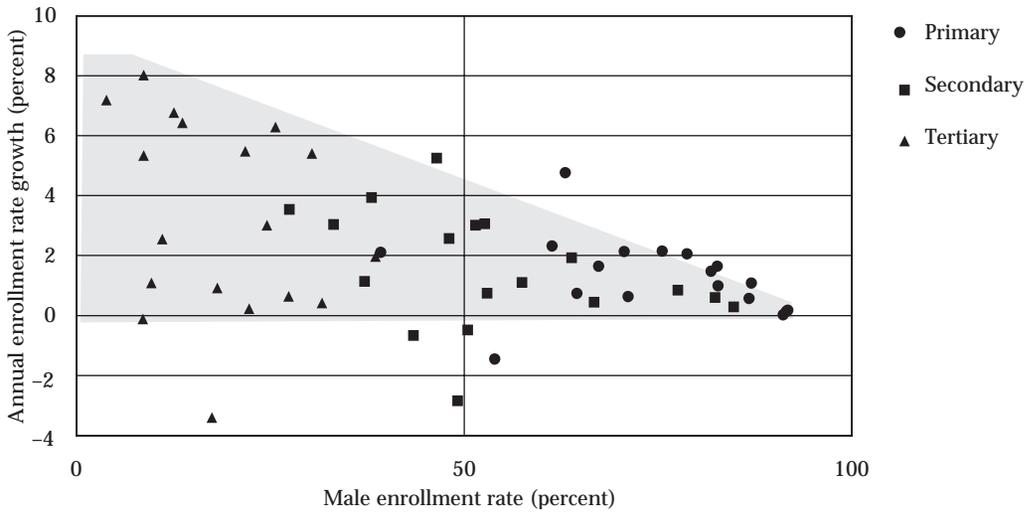
SOURCE: UNESCO (1993).

enrollment will approach unity. On average, the increases of enrollment rates are higher at lower levels of enrollment.

Conclusions

In this note, we have shown that enrollment rates in school, with minor exceptions, grew consistently in all six world regions from 1960 to 1990. Southern Asia, the Arab States, and Latin America are all approaching universal primary education, and secondary education increased rapidly over the observation period. There are worrying trends in sub-Saharan Africa, where primary and secondary enrollment rates declined from 1980 to 1990. Perhaps in recent years, which have witnessed considerable changes in Africa, this trend has been reversed.

There is a gap between male and female enrollment. The gender gap is negatively correlated with enrollment rates in general, that is, it is larger the lower the enrollment rates. At high levels of enrollment, however, the male-to-female ratio of enrollment approaches unity. It does so at enrollment levels beyond 60 percent for primary and secondary education, and at levels of 20–40 percent for tertiary education.

A rough pattern of "education transition" is found, which can last about the length of a human lifetime. The loose pattern of this "transition" is such that primary education increases to unity first, followed by second-

ary education. Tertiary education remains below unity even toward the end of the "transition." The adoption (or growth) rates of school enrollment vary greatly at lower enrollment rates and converge toward zero in a continuous manner as universal enrollment is approached.

These findings lead to two ambiguous conclusions on the future of global education. First, the increases in education were consistent in the period 1960–90, and we can hope that this trend will accelerate. Some of the highest growth rates of education are found in regions with the lowest enrollment rates. In spite of these achievements, the education differences between world regions remain extremely large. Extrapolating past growth rates for enrollment into the future suggests that it will take multiple generations for global education levels to converge. Thus, although all regions may increase their chances of modern development as adult education achievements climb, global differences will persist for many years to come.

Second, where enrollment rates have risen, the gender gap between male and female education attainment has declined toward zero. As with the general increase in education, however, this convergence appears to be a slow process. There are very few countries with low adult education achievements *and* a small gender gap.

Notes

1 This and later discrepancies with the gender gap percentage points in Figure 1 are due to rounding.

2 The decline in Eastern Asian enrollment rates for the age groups 12–17 and 18–23 is probably due to the same effects as the unclear pattern of total enrollment in the period 1960–90, namely the heterogeneous mix of countries.

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Mancur Olson on the Key to Economic Development

How economically relevant decisions are affected by human institutions and how group size affects such decisions are crucial questions in the search for a better understanding of economic–demographic interactions. Answering such questions correctly has far-reaching implications also for the formulation of sound population policies. Mancur Olson's seminal contributions to the economic literature, and in particular his most influential book, The Logic of Collective Action *(1965), address central issues in the theory of public choice and should be studied by anyone interested in population dynamics and population policy. Yet there are only rare passages in Olson's writings that treat population questions, as they are conventionally understood, directly. With his untimely death, at the age of 66, on 19 February 1998, Olson's oeuvre is now complete. An item in his voluminous bibliography in which he focuses explicitly on the significance of population in affecting economic development was prepared for IUSSP's 1989 New Delhi international population conference, for the session on "Public choice and population policy," organized by the editor of* PDR. *This contribution, titled "*The key to economic development,*" is reproduced below in full. It originally appeared on pages 203–214 of Volume 3 of the proceedings of the New Delhi conference.*

Poverty and prosperity are normally marked by boundaries. These boundaries are also the borders of countries. The familiar exchange-rate comparisons of per capita incomes often overstate international differences in standards of living, but even the best available purchasing-power-parity statistics give the richest countries per capita incomes 10 and 20 times as great as the poorest countries (Summers and Heston, 1988: 1–24). The statistics also suggest that migrants from poor to rich countries normally ob-

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tain great increases in wage rates, and the persistence of the migration con-
firms that these increases are not statistical illusions. I shall show in this
paper that the coincidences of the demarcations of poverty and prosperity
with national borders, and the experiences of migrants crossing these bor-
ders, offer insights for both economists and demographers, and indeed for
anyone who is anxious to alleviate poverty and hasten the progress of the
less developed countries.

I

I begin with the most elemental idea in the study of population—the idea,
evident at least implicitly even in Malthus, of diminishing returns of labour.
With a given technology, fixed amounts of land and other natural resources,
and unchanged stocks of capital goods, additional applications of labour must
after some point yield diminishing increments of output. It is widely under-
stood that any rational concern about overpopulation in the long run must
rest overwhelmingly upon the law of diminishing returns: if there were no
diminishing returns, the extra labour ultimately generated by population
growth would increase output in proportion. Even any inescapable problems
of pollution can properly be subsumed under the law of diminishing returns,
since they entail diminishing returns to nature's capacity to absorb wastes.
Since later parts of the paper will suggest that the impact of diminishing re-
turns is often overwhelmed by other factors, it is important to emphasise that
nothing here will question the truth of the law of diminishing returns.

Let us consider international differences in per capita incomes and
the historical patterns of international migration with diminishing returns
in mind. It will be convenient to focus on just two units, with all the de-
veloped world in one unit and all the less developed world in another, or
alternatively on a pair of real countries, such as Mexico and the United
States. Though I shall ultimately justify the conclusions in ordinary lan-
guage, it will be helpful to begin with an elementary figure drawn from
the work of Hamilton and Whalley (1984: 61–75) and Bhagwati (1984:
678–701). I depict the two units in Figure 1, with size of the horizontal
axis giving the combined population of both; if all of the population were
in the poor area or country and none in the rich, we would be at the ex-
treme left at point L and if conversely they were all in the rich area we
would be at H. The vertical axes measure the addition to output from an
additional worker in dollars. The diminishing return to labour in the rich
area as migrants move in that direction is reflected in the downward slop-
ing marginal product of labour or labour-demand curve D_h as we move to
the right. Since the proportion of the population in the poor country in-
creases as we move right, the D_1 curve reflecting its marginal product of
labour decreases as we move in that direction and increases as migrants
move from the poor to the rich area.

FIGURE 1
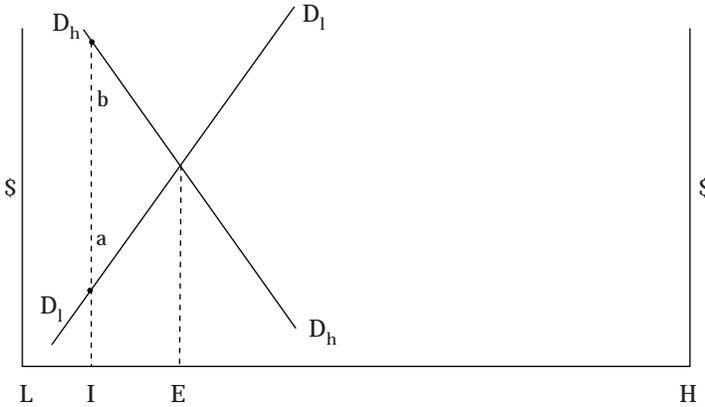
It follows directly from the colossal differences in the per capita income that migration from poor to rich countries greatly increases total income: world income obviously goes up by the difference between the wage the migrant worker receives in the rich country and what he earned in the poor country, or by amount ab in Figure 1. Hamilton and Whalley's imaginative and extensive calculations suggest that, under a variety of reasonable assumptions, world income would increase colossally from free immigration to the rich countries, and could easily more than double! Moreover, because the initial migrants (those near initial point I on Figure 1) bring larger gains in world income than those who migrate after diminishing returns have greatly reduced the wage differential (near point E), the larger part of these gains will be realised with only a fraction of the immigration needed to equalize world wage rates. Migration also is marvellously egalitarian, since it raises the wage rates of the migrants and also those who remain behind in the poor countries: the same measure—letting the free market determine where labour locates—that increases efficiency also greatly reduces world inequality.

Obviously, free immigration across national borders is not now politically feasible. It does not follow, because the combined income of Bangladesh and Japan would probably more than double from free immigration from the former to the latter, that the Japanese would permit this immigration. Indeed, I shall later argue that there are some neglected disadvantages of totally unrestricted migration from poor to rich countries. Nonetheless, it is clear that demographers and students of economic development should give much more attention to migration and the distribution of population across jurisdictions. The gains from migration from poor to rich countries are so colossal that this migration cannot be prevented by any measures that are acceptable to the sensibilities of modern democracies, as the large illegal immigration from Latin America to the US demonstrates.

II

The magnitude of the wage increases received by those who migrate from poor countries to rich countries demolishes one common theory of economic development. Many believe that the high incomes of the population in rich countries are due to cultural (or racial) traits that make the individuals in these cultural groups adept at responding to the economic opportunities; rich countries are rich because they have the 'protestant ethic' or other cultural traits that make them hard workers, frugal savers, and imaginative entrepreneurs, and poor countries are poor because most people in those countries lack these traits. The international wage differentials do not rule out cultural differences in individual responses to economic opportunities, nor do they exclude the possibility that cultural norms could affect national political attitudes and economic policies in ways that in turn affected the level of productivity.

Yet migrants from countries where the per capita incomes are only a tiny fraction of US levels earn, even promptly after their arrival, wages that are only about two-fifths less than native workers of comparable demographic characteristics and years of schooling (Borjas, 1987, 531–53; Clague, 1988). This shows that cultural differences in the market responses of individuals in different cultural or racial groups cannot possibly be the main source of the vast international differences in economic development. The Mexican who crosses the Rio Grande is not thereby baptised with the protestant ethic, nor is the Turkish guest worker when he arrives in West Germany. Yet immediately, before the cultural accumulations of generations could be changed, the Mexican and the Turk start earning wage rates that are often a considerable multiple of what they could make at home. The huge increase in wages that characteristically occurs when people from any poor country are able to join the work force of a rich country shows that the cultural and racial traits of the peoples in a great variety of poor countries are not incompatible with vastly higher levels of productivity in those countries. The conspicuous differences in the rate of economic progress between areas of the same cultural inheritance (such as Hong Kong, Taiwan, or West Germany, on the one hand, and mainland China or East Germany, on the other) also show that confucian and protestant ethics are far from sufficient to explain international differences in economic development.

III

We can get a fresh perspective on the population problem and even begin to uncover the key to economic development, by asking how well migration and the great differences in per capita incomes across countries are explained by diminishing returns. Conceivably the very great differences in per capita incomes across countries are due to different ratios of popula-

tion to land and other natural resources. Indeed, it is often taken for granted that the great differences in standards of living are due largely to the fact that the poor countries are overpopulated. Thus we must ask, how can we get evidence on whether this is in fact the case?

One way to get evidence is by looking at how migration changes relative wage levels in poor and rich countries. If it is overpopulation and thus diminishing returns to natural resources that explains the differences in per capita incomes, then significant migration from poor to rich countries will substantially reduce the income differentials, since it obviously reduces the population-to-resource ratio in the country of emigration and also raises it in the country of immigration.

The European country that has historically experienced the highest proportion of out-migration is Ireland, and so, if the overpopulation/diminishing returns factor is decisive, it ought to have enjoyed an exceptionally rapid growth of per capita income and the tendency for the out-migration to cease. But Ireland has not revealed any such pattern. Remarkably, the Irish level of per capita income, after a great many generations of migration to Britain and to other countries as well, is still only about five-eighths of the British level and much less than half of the level in the United States. And a century and a half after the Irish potato famine the out-migration to Great Britain and elsewhere is still continuing, even though the population of Ireland now is little more than 3 million people and its only moderately larger neighbour Britain has nearly 20 times as many people. In Britain, the United States, and many other countries, immigrants from Ireland and their descendants tend to earn as much as other peoples. Clearly, something besides diminishing returns is at work.

Now let us look at European immigration to the United States over nearly four centuries. Over this long period there has been a huge migration across the Atlantic, so the US population is now not far below that of Western Europe. If the law of diminishing returns were not only true, but also the larger part of the story, we should have seen a gradual reduction of the per capita income differential between the United States and Europe, or a gradual reduction that ceased when the United States started severely to restrict immigration from Europe shortly after World War I. In fact, it is difficult to find the traces of this vast migration on relative per capita income levels of the United States and the countries of emigration. In 1910 and 1920 the US had a bigger lead in per capita income over many countries in Europe than it had in the early nineteenth century. In 1870 Britain's per capita income was at least as great as that in the United States, but on the eve of World War I, after the US had accepted vast amounts of net immigration and Britain had not, the US was way ahead in per capita income. Many continental European countries that did not appreciably narrow the gap in per capita incomes with the United States in the nineteenth century, when they experienced a large migration to the US, did nearly

close that gap in the years after 1945, when they had relatively little emi-
gration to the US, and when they were taking on a significant flow of mi-
grants and guest workers from the South. Similarly, from the end of World
War II until the construction of the Berlin wall there was a considerable
flow of population from East to West Germany, but this flow did not at all
equalise income levels, and indeed (contrary to what arguments about
population pressure would lead us to expect) the East German per capita
economic performance has fallen far short of the West German after the
wall largely stopped the migration.

Now consider the irrepressible flow of documented and undocumented
migration from Latin America to the United States. Though the informa-
tion on undocumented immigration is poor, it appears that a substantial
proportion of each cohort of Mexicans ends up working temporarily or
permanently in the US. If overpopulation and diminishing returns were
the main explanation of the difference in per capita incomes between
Mexico and the US, these differences should have diminished, and dimin-
ished most notably in the years when migration was greatest. Though over
some periods the per capita incomes of Mexicans have increased faster than
those of Americans, these periods do not seem to be explained by the ex-
tent of migration; in some periods, like the last ten years, when migration
has apparently been very large, the gap in per capita income between
Mexico and the US has widened.

Perhaps in some cases the lines in Figure 1 would cross when there
was little population left in a poor country. Or conceivably in special cases
they would not cross at all: even the person who turned the lights out in
the country would have had a lower wage there than those of comparable
skill in a richer country.

IV

Ideally, to determine the importance of diminishing returns to land and
other natural resources on per capita income, one should have a good in-
dex of the natural resource endowments of each county. Such an index
should be adjusted periodically to take account of changes in international
prices, so that the value of a nation's resources index would be adjusted
when the price of the resources in which it was relatively well endowed
went up or down. Regretfully, for lack of such an adjusted index, we must
here simply examine density of population.

Even a casual inspection of population densities tells us that many of
the most densely settled countries also have high per capita incomes, and
that many poor countries are sparsely settled. Argentina, once one of the
higher per capita income countries but no longer a developed country, has
only 11 persons per sq. km.; Brazil has 16; Kenya, 25; and Zaire, 13. India,

like most of the irrigated societies of Asia, is a relatively densely settled country, with 233 people per sq. km. But high-income West Germany, with 246 people per sq. km., is more densely settled than India. Belgium and Japan have half again more population density than India, with 322 and 325 people per sq. km., and the Netherlands have still more density with 357. Mexico, which most of us think of as subject to heavy population pressure, has only 41 people per sq. km. There are even very densely settled countries that continue to absorb migrants when the migrants can sneak through the controls. The population of Singapore is 4,185 per sq. km., that of Hong Kong, over 5,000 persons per sq. km. (United Nations, 1986). These two densely settled little fragments of land also have per capita incomes five or ten times as high as many developing countries. Apparently, the density of settlement cannot explain international differences in per capita income, at least in any straightforward way.

V

One reason why the ratio of natural resources to population does not appear to offer a good explanation of current levels of per capita income is that many kinds of manufacture and services need not be closely tied to natural resources. The minerals and energy needed for manufacture and the often negligible materials needed for the production of services can be imported, albeit at extra cost, from other countries. The extent to which economic activity can be separated from deposits of raw materials and arable land has probably increased over time, as transportation technologies have improved and as products that have a greater value in relation to their weight, such as most services and manufactured goods like computers and airplanes, have become more important. London and Zurich are not great banking centres because of fertile land, and 'silicon valley' is not important for the manufacture of computers because of deposits of silicon.

Even casual observation suggests that most modern manufacturing and service exports are not closely tied to natural resources. Western Europe does not now have a high ratio of natural resources to population, but it is very important in the export of manufactures and services. Japan has relatively little natural resources per capita, but it is a great exporter of manufactures. And certainly the striking successes in manufactures of Hong Kong and Singapore cannot be explained by their natural resources.

VI

There are, of course, also diminishing returns when the amount of labour combined with a given stock of capital goods is increased, and this means that we must not focus only on the ratio of labour to natural resources. We must

also ask, first, whether the great differences in per capita incomes across countries are mainly explained by different amounts of capital per worker, and second, what explains any differences in the capital stock per worker?

If the vast differences in real wages across countries are to be explained mainly in terms of differences in the ratio of capital stock to workers, these differences would presumably have to be very great. One would suppose that differences in real wages of 10 to 20 times between the least developed and the most developed countries would probably be explained in terms of the ratio of the capital stock per worker only if these ratios also varied by something like 10 to 20 times. It is logically possible that the production function that depicts the relationship between capital, labour, and output is characterised by strange kinks. But, as far as I know, no one has observed sharp corners in production functions that would make small differences in the amount of capital per worker generate the huge differences in real wages across countries.

Even if there were such kinks, the marginal product or rate of return to capital would still have to be several times as high in the poorest as in the richest countries, if the ratio of capital to workers were to explain the vast international differences in real wages. If we replace the total world labour supply given along the horizontal axis of Figure 1 with the total stock of capital, and assume that the quantity of labour in the developed and undeveloped countries remains fixed, the rates of return to capital should be roughly of the same order of magnitude as the differences in real wages. Since, on this capital-per-worker hypothesis, the developing countries have the relatively smallest amounts of capital, the rate of return to capital should be perhaps 10 to 20 times as great in the least developed as in the most developed countries.

This, in turn, would imply, if other things were equal, that there would be extraordinary pressures for capital to migrate from the developed to the developing countries. Capital ought, on this hypothesis, to be trying as hard to move from the United States to Mexico as labour is to move from Mexico to the United States! Capital ought to be migrating from Switzerland and West Germany to the developing countries as ardently as labour is trying to migrate in the reverse direction. Certainly this is not what we observe. Many people in developing countries clearly are trying to shift their capital, even at the risk of criminal sanctions, to the developed countries. But if in fact capital was earning a much higher return in poor than in rich countries, why wouldn't the owners of capital shift their investments to the poor countries to reap these higher returns? Indeed, if other factors that the capital-stock-per-worker argument leaves out were not operating, the migration of capital would equalise *both* the return to capital and the real wage of labour across countries. This obviously has not happened, and in many less developed countries it is not even beginning to happen.

VII

The population-to-resources and population-to-capital factors fail to explain the historical as well as the cross-country variation in economic development. In a book on *The Rise and Decline of Nations* (1982) I have examined the most striking examples of economic growth and of stagnation since the end of the Middle Ages as well as the most dramatic cross-national variations since World War II. Whether one looks at the commercial revolutions in Britain and France in the sixteenth century, the Golden Age of Holland in the seventeenth century, the industrial revolution in Great Britain in the late eighteenth and early nineteenth centuries, the take-offs of the German and Japanese economies in the second half of the nineteenth century, the German, Japanese, and Italian economic miracles after World War II, the growth of the six original members of the European Economic Community in the 1960s, or the post-1960 growth of the 'gang of four' countries on the Pacific Rim, there is no evidence that changes in the population-to-natural-resources ratios caused the growth. On the contrary, there were sometimes unfavourable changes in population-to-resources ratios, as with the increase in population growth in Britain during the industrial revolution or the migration of labour into West Germany during its economic miracle. The rapid growth of the US and the other areas of original British settlement in the nineteenth century was correlated with apparently favourable ratios of population to natural resources, but there were similarly favourable ratios in Latin America without sustained development. Though there was rapid accumulation of capital and imports of foreign capital during the periods of rapid economic growth, these increases in the capital stock appear to be the consequences of changes in institutions and policies and of the process of growth itself rather than an independent explanation of the development.

If diminishing returns fails to explain either current or historical patterns of development, what does? Since this is a question I have considered carefully elsewhere (Olson, 1982, 1987, 1988), it would require inappropriate repetition to deal with it here, and the limitation on the length of these papers makes this impossible in any case. In a very broad taxonomic sense, however, the process of elimination among plausible candidates that we have already been through tells us a little something about the general category in which the most powerful explanations of economic development fall. We saw earlier that the huge increases in productivity and wages that characterise those who happen to be able to migrate from poor to rich countries implies that cultural or racial differences in the capacity of individuals to take advantage of economic opportunities cannot explain most of the great differences in per capita incomes across countries. The fact that some poor countries grow astonishingly rapidly when

many other countries with the *same* access to international markets and modern technologies fail to develop shows that the international economic order cannot be sufficient to explain economic development.

If natural resource endowments, exogenous differences in capital stocks, cultural differences in individual responses to economic incentives and the features of the international system are not sufficient to explain economic development, it would by elimination seem that, broadly speaking, the institutions and policies of countries would have to be important. And the systematic examination of the matter in the previously cited writings indicates that this is indeed the case. The institutions and policies that are required cannot be adequately described in terms of the familiar ideological labels, but the classes of institutions and policies that have been associated with all of the most striking examples of economic development are nonetheless clear, as is the logic of the process that makes them work.

Glances on each side of the meandering rivers, arbitrary lines, or forbidding walls that constitute national borders rarely reveal any vast differences in resources per capita or in human capacities. But the borders, when they mark lines of greatly different per capita incomes, always delineate substantially different institutions and economic policies; the Rio Grande river and the Berlin wall do not divide areas of greatly different natural resource endowments per capita, but they do mark domains with substantially different institutions and policies. Countless thousands of life histories reveal that even the same individuals produce much more on one side of the border than on the other. How could this be explained without reference to the differences in institutions and policies?

VIII

We must nonetheless avoid monocausal explanation. The law of diminishing returns is still true, even though its impacts are often overwhelmed by variations in institutions and policies. Note the *reductio ad absurdum* argument of some nineteenth century writers: if the law of diminishing returns were not true, the whole world could, with the application of sufficient labour, be fed from a flower pot. This reminds us that, if the ratio of population to resources were to become sufficiently unfavourable, diminishing returns would then overwhelm all other factors. Moreover, *given* the institutions and policies that have prevailed, the unexpectedly huge increases in population after World War II (Demeny, 1989000000) have considerably curtailed the growth of per capita incomes.

Still, for most developing countries today, improvements in institutions and economic policies can have more impact on per capita income than fertility-repressing policies. The vast gains in income and reduced inequality that would result from having a larger part of the world's popula-

tion in jurisdictions with more efficient arrangements also deserve more attention. Often the upper bound on such migration is not given by diminishing returns but by political factors. If the migration from countries with poorer to those with better institutions and policies were to become so overwhelming that it altered the civic culture of the latter, then the popular preconceptions that partly determine institutions and policies would tend to change in ways that eliminated the gains from the migration.

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On the Biodemography of
Aging: A Review Essay*

S. Jay Olshansky

Human aging is a subject of interest to everyone. Although scientists have known for some time that most forms of life age in a predictable way with the passage of time, the mechanisms involved in regulating the metronome of aging or senescence have remained largely a mystery. Actuaries and demographers have developed sophisticated mathematical tools to characterize the dying-out process of humans. Evolutionary biologists have worked almost exclusively with nonhuman species to test hypotheses on why senescence occurs. Researchers from the biological sciences are attempting to understand the mechanisms involved in the aging process, and physicians and other health care workers have sought to identify methods for altering the course of aging and treating its consequences. As readers of this excellent new volume will discover, the emergence of the biodemography of aging is much like the effort in physics to create a unified theory. This is an exciting time for those studying various elements of the aging process—with biodemography representing an important new development that should attract scientists and students from all of the scientific disciplines involved in research on aging.

What is the origin of the term biodemography and what are the scientific antecedents to research in this emerging field? Does the theoretical and empirical research in this volume follow from biodemography's historical roots, or does this book signal the birth of a new discipline? One might think these would be the first questions asked and answered in the first book ever written on biodemography. Surprisingly enough, a definition of biodemography is nowhere to be found, and the fascinating history from which modern biodemography arose is essentially ignored. As a re-

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*A review of Kenneth W. Wachter and Caleb E. Finch (eds.), *Between Zeus and the Salmon: The Biodemography of Longevity.* Washington, DC: National Academy Press, 1997. viii + 285 p. $39.00.

sult, the uninitiated might be led to the mistaken belief that the term origi-
nated with these authors. Despite these omissions, demographer Kenneth
Wachter and molecular biologist Caleb Finch (in the opening and ending
chapters, respectively) do explore the central questions at the core of
biodemography—which are appropriately captured by the graphic title, *Be-
tween Zeus and the Salmon*. Zeus, the principal (immortal) god of the Greek
pantheon, and salmon, genetically programmed to die shortly after they re-
produce, represent the extremes that bound the study of aging and longevity.

I will first define the concept of biodemography of aging and present
a brief history of the discipline so the reader can see how this volume fol-
lows from biodemography's colorful roots. Both of these pieces of back-
ground information will be used as a gauge for evaluating the
"biodemographic content" of the individual chapters.

The origin of the biodemography of aging

Although scientists from a variety of disciplines study just about every con-
ceivable aspect of aging, only a handful of truly big questions have emerged.
Why do we age—or perhaps more appropriately, why are we not immor-
tal? How do we age—that is, what are the biological mechanisms that lead
a fertilized egg through gestation to organisms that experience growth, de-
velopment, reproduction, and accumulated damage to the components of
cells, tissues, organs, and organ systems that in turn lead to the changes
we see in the mirror and ultimately to death? The third big question is
When do we age—that is, why do aging and death occur when they do in
various species and what explains the great variation in ages at death among
individual members of the same species?

The Why question has been the focus of research in the fields of evo-
lutionary biology and genetics for over a century. This rich literature is a
major force behind the development of biodemography (e.g., Charlesworth
1994; Kirkwood 1977; Medawar 1952; Rose 1991; Weismann 1891; Will-
iams 1957). The How question has been the preoccupation of scientists
from a variety of disciplines including genetics, medicine, epidemiology,
and molecular biology (e.g., Finch 1990). Much of the focus of modern
medicine has been on efforts to understand what fails in living organisms
and how to prevent or delay these changes and treat them once they oc-
cur. The How question is a critical element in the puzzle of aging—viewed
by the public as vitally important because the scientists and physicians who
address this question deal on a day-to-day basis with the practical applica-
tion of biomedicine in the war against diseases. Manipulation of the aging
process, if it comes to pass, will derive from researchers addressing the How
question. The When question has been addressed mostly by actuaries, demog-
raphers, and epidemiologists whose focus has been on empirical observations
of the timing of death and the diseases and disorders of aging that precede it.

Biodemography is an explicit effort to answer the When question of mortality for individuals and populations by moving beyond purely empirical efforts toward a combination of traditional demographic analysis with theoretical and experimental elements from evolutionary biology, ecology, genetics, molecular biology, anthropology, and other scientific disciplines involved in research on aging. The focus of most biodemographic research published so far has been on the theoretical and mathematical attributes of mortality and the biological basis for age patterns of death in populations. However, as this volume illustrates, the biodemography of aging should be defined broadly to include the study of all attributes of a species' life history and the social/behavioral impact of that history on aging and longevity, including such attributes as fertility, menopause, and intergenerational transfers.

Benjamin Gompertz, a nineteenth-century English actuary, is the intellectual father of biodemography. Gompertz was the first to speculate on the presence of what he referred to as the "law of mortality" (Gompertz 1820, 1825, 1862, 1872).[1] Although Gompertz did not have the benefit of evolutionary theory, he nevertheless inquired whether there was a biological basis for the regularity he observed in the life tables of humans.

The tradition of incorporating biology into the analysis of life tables has a long history in actuarial research following Gompertz's lead. Makeham (1867: 335), for example, predicted that Gompertz's "law of mortality" should be particularly well-suited for describing mortality from diseases whose intensity depends "upon the gradual diminution of the vital power." Brownlee (1919) mentioned the "biology of a life table," and Greenwood (1928) inquired whether a life table reflected underlying biological processes or was simply a useful working tool for actuaries. Biologically comparable points within the lifespan were used by Pearl (1921, 1922) and Pearl and Miner (1935) as a scaling device in the first scientific effort to reveal a "fundamental law of mortality" that extended beyond humans to other species. Stimulated by Gompertz's formula for a "law of mortality," various other forms of biodemography surfaced during the twentieth century, including those based on biochemistry (Brody 1924; Brownlee 1919; Greenwood 1928; Loeb and Northrop 1916) and on efforts to perform interspecies comparisons of age patterns of mortality (e.g., Deevey 1947; Finch and Pike 1996). Later, physiologically based models were established on the experimental use of senescence accelerators (e.g., Brues and Sacher 1952; Failla 1958; Lorenz 1950; Mildvan and Strehler 1960; Sacher 1956; Sacher and Trucco 1962; Szilard 1959), studies were conducted of age patterns of mortality at older ages for nonhuman species (e.g., Brooks, Lithgow, and Johnson 1994; Carey et al. 1992; Curtsinger et al. 1992), and life history models were introduced from the fields of ecology and evolutionary biology (e.g., Orzack and Tuljapurkar 1989; Tuljapurkar 1990).

To my knowledge, the term "biodemographic" first appeared in the scientific literature in an article by the influential ecologist G. Evelyn

Hutchinson (1948). Hutchinson suggested that variation in the size of populations of humans and other species is influenced, in a circular causal loop, by physical characteristics of the environments within which species reside—with notable examples including prey–predator and host–parasite relationships. The term itself and the philosophical basis for it surfaced again some 40 years later with the birth of modern biodemography in a book published by Gavrilov and Gavrilova (1991)[2] and a series of articles published by Weiss and colleagues (e.g., see Connor, Weiss, and Weeks 1993; Weiss 1989, 1990; Weiss, Ferrell, and Hanis 1984). I think of these two bodies of work as the rebirth of biodemography because they were heavily influenced by the Gompertz/Pearl "law of mortality" paradigm that linked age patterns of mortality, interspecies comparisons of death rates, and biological explanations for why such patterns exist.

The biodemographic content of the present volume

Between Zeus and the Salmon is organized into three main sections that are preceded by an Introduction and followed by a discussion of data for the future and a summary chapter. The Introduction by Kenneth Wachter is an excellent overview of the importance of an interdisciplinary perspective on aging and the logic behind the formation of modern biodemography. It is here that the reader is first exposed to important reminders for all scientists involved in interdisciplinary research on aging—including the fact that today we are not studying humans within the relevant evolutionary environment, and that scientists are only beginning to understand the great plasticity in the aging process.

The first main section—The Empirical Demography of Survival—contains chapters by demographers James Vaupel and John Wilmoth that strike me as inappropriate to this book because neither is informed by biology (either theoretically or empirically). Vaupel makes two unsupported arguments—the first is what he describes as a new discovery that the Gompertz formula fails to portray mortality dynamics in older regions of the lifespan, and the second is that misguided conventional wisdom implies that death rates at older ages are intractable. These arguments are inappropriately portrayed as lying at the heart of biodemography, yet they recur in several other chapters in the book portrayed as conventional wisdom.

According to Vaupel (p. 17), "Various subsequent researchers [following Gompertz], especially in biology and gerontology, have viewed Gompertz' observation as a law that describes the process of senescence in almost all multicellular animals at all ages after the onset of reproduction." He continues, "Until recently, it was impossible to determine whether this exponential rise continued to advanced ages." This is a puzzling observa-

tion since Gompertz himself, as well as numerous other scientists of the nineteenth and twentieth centuries, stated explicitly that his equation did not apply, and in fact was never intended to apply, to older regions of the lifespan. For example, both Gompertz (1825, 1872) and Makeham (1867) recognized that the rise in human mortality decelerates at older ages. Makeham (1867: 346) stated that for humans "the rapidity of the increase in the death rate decelerated beyond age 75." Brownlee (1919: 58) asked whether it is "possible that a kind of Indian summer occurs after the age of 85 years is passed, and that conditions improve as regards length of life on the grounds either of greater care being taken, or that the second child-hood relieves nervous strain and thus permits some recuperative effect?" Perks (1932: 15) identified a "curious peak in the rate of increase in q_x round about age 80" and observed that "the graduated curve [of mortal-ity] starts to decline in the neighborhood of age 84" (p. 30). More recently, Strehler (1960: 311) argued that one of the four distinct phases of the hu-man mortality curve was "a period of departure from the Gompertzian re-lationship at great ages so that mortality rises more slowly than anticipated after age 85–90." Mildvan and Strehler (1960: 224) extended this to other species by noting that "at extremely advanced age, the mortality rate curves of several species rise at a rate progressively lower than exponential."

Given this historical record documenting decelerating mortality at older ages for humans and other species, Vaupel's statement that "[m]ortality decelerations came as a surprise, indeed as a shock, to many biologists and gerontologists" (p. 25) makes no sense. This false line of reasoning has led others in the scientific community (e.g., Barinaga 1992) as well as authors in this volume to speculate on the so-called failure of the Gompertz model. For example, Michael Rose (p. 104) suggests that because Gompertzian models of mortality fail to account for plateaus in old-age mortality, "con-ventional demographic models are in need of repair." Yet based on his own analysis Rose concludes appropriately that the Gompertz equation works well for the majority of the age range of species but begins to fail at ex-treme old ages when few individuals remain alive—the same conclusion that Gompertz came to in the nineteenth century.

Vaupel's second argument, that mortality at older ages is intractable, reappears variously in the book as "an ethos of limit theories" (Wachter, p. 6) and a "limited-life-span hypothesis" (Wilmoth, p. 48). This argument can be traced back to a single article by Fries (1980), but has inappropri-ately been attributed to others, this author included (e.g., Olshansky, Carnes, and Cassel 1990). Demonstrating that death rates have been declining at older ages in many countries (e.g., Kannisto et al. 1994; Wilmoth and Lundström 1996), seemingly overturns an article of "conventional wisdom." For example, Vaupel argues in this volume and elsewhere that "demogra-phers conjectured that mortality at advanced ages was intractable" (1997a)

and that "there is one and only one cause of death at older ages. And that is old age. And nothing can be done about old age" (1997b).[3] Vaupel then extended this line of reasoning to make the following assertion: "The belief that old-age mortality is intractable remains deeply held by many people. Because of its implications for social, health, and research policy, the belief is pernicious. Because the belief is so prevalent, forecasts of the growth of the elderly population are too low, expenditures on life-saving health-care for the elderly are too low, and expenditures for biomedical research on the deadly illnesses of old age are too low" (1997b).

There are three problems with this line of reasoning. First and foremost, it leads the reader down a false path to "conventional wisdom" about old-age mortality that does not exist. Although my colleagues and I have been aligned with the ethos of limit theories, it is hardly pessimistic to suggest (a) that most of the rise in life expectancy in modern times is attributed to declining old-age mortality (Olshansky and Ault 1986), and (b) that it is plausible to expect death rates from all causes combined to decline by 50 percent at every age within the twenty-first century (Olshansky, Carnes, and Cassel 1990). The second problem is that some other authors in this volume accepted Vaupel's idea of "conventional wisdom," which in turn influenced the content of their articles. Finally, there are policy implications associated with this line of reasoning that, as Vaupel suggests, have a direct bearing on projections of the future size of the elderly population and expenditures associated with health care and biomedical research.

The only remaining problem I have with this book also appears in the chapter by Vaupel. The discussion of evolutionary theories of senescence would ordinarily have contributed to the biodemographic content of this chapter, but these well-known theories were incorrectly interpreted to mean that "the age-trajectory of mortality should shoot up at postreproductive ages" (p. 18) and that a "black hole of bad alleles . . . should preclude survival much past this [postreproductive] age" (p. 32). Although arguments developed by the evolutionary biologists Peter Medawar (1952) and George Williams (1957) suggest that some inherited lethal diseases should appear within and near the end of the reproductive window of a species, there is no biological basis to assume that selection operates with the precision of a time bomb, nor did either author attempt to extend this view to age patterns of mortality in populations as implied by Vaupel. Later in this volume Linda Partridge effectively dismisses Vaupel's suggestion that a black hole of genetic diseases exists at the end of the reproductive window, stating that "evolutionary theories of aging do not necessarily predict Gompertzian-type increases in postreproductive mortality rates. Nor does the mutation-accumulation theory necessarily predict catastrophic increases in mortality when reproduction ceases" (p. 84). These problems of interpretation in the first chapter could have been avoided through a more careful reading of the historical literature on Gompertzian mortality dynamics

and evolutionary theories of senescence and the contemporary literature on old-age mortality among humans.

Problems with his chapter aside, Vaupel provides a well-written discussion of bio-reliability theory, stressing that the failure times of living organisms and man-made mechanical devices follow comparable paths and that much can be gained by exploring the common design features and failure rates of living and manufactured machines. A more comprehensive presentation of bio-reliability theory upon which this discussion is based was published by Gavrilov and Gavrilova (1991).

The second main section of the book—Evolutionary Theory and Senescence—contains four articles that make significant contributions to the literature. Biologist/demographer Shripad Tuljapurkar boldly formulates an alternative theory of senescence based on the concept of evolutionary equilibrium for a species' life history. Tuljapurkar explains to the reader the rationale behind his theory, setting the stage for a valuable series of testable research hypotheses at the end of the chapter. The traditional view of evolutionary theory is presented in clear language in the subsequent two chapters by evolutionary biologists Linda Partridge and Michael Rose. Particularly interesting is Partridge's use of the reasoning of evolutionary biology to develop a predictive theory of how age-specific death rates might vary as a function of different environments and age compositions. Partridge discusses the importance of distinguishing between external and intrinsic forces that influence vital rates and the difficulty in doing so, but she omits reference to published efforts to make these distinctions (Gage 1991), including the one biodemographic study in which empirical observations were based on partitioning total mortality into its intrinsic and extrinsic components in order to perform interspecies comparisons of age-specific death rates (Carnes, Olshansky, and Grahn 1996). Rose provides a summary of the evolutionary theory of senescence and the experimental evidence linking the force of natural selection to fecundity and longevity. In the end, he teases us with the suggestion that his recent work with colleagues has led to steps toward a theory that explains plateaus in death rates among the oldest-old, but then fails to deliver even a hint of this new development.

The last chapter in this section, by geneticists Thomas Johnson and David Shook, is one of the highlights of the book. The authors carefully explain the language and the methods of determining the genetics of lifespan and life expectancy. This well-crafted essay describes how the genetic study of lifespan is conducted and provides a condensed summary of relevant genetic studies of longevity, either ongoing or completed (with an emphasis on research conducted at the authors' laboratory). Their section on issues in evolutionary theory and demography that can be addressed by identifying genes associated with longevous phenotypes is particularly insightful—pointing the way to numerous testable hypotheses for biodemo-

graphers. The premise is that "gerontogenes" exist—a phenotype for lon-gevity made possible by the presence of genes that promote survival. Johnson and Shook's chapter exemplifies successful biodemography that combines theoretical and empirical approaches to aging and longevity from more than one discipline.

The third main section of the book, on The Elderly in Nature, elabo-rates an intriguing new line of argument that the elderly may play an im-portant role in the population dynamics (including reproduction as well as aging and longevity) of some species. Entomologists James Carey and Catherine Greunfelder suggest that contrary to traditional evolutionary theory, under some conditions the elderly do contribute to a population's fitness. Because the "[l]ife span of animals is not an orderly unfolding of precisely timed events from fertilization to death" (p. 128), the definition of the elderly is nebulous at best. Carey and Greunfelder develop the theo-retical and empirical foundation (using a surprisingly large number of case studies) for their argument that the elderly of many species may contrib-ute more to reproductive fitness than is currently believed. Not only will this work influence traditional thinking on the evolutionary theory of se-nescence, but it appropriately forces both demographers and gerontolo-gists to consider the behavioral ecology of the role of the elderly.

On a related theme, evolutionary biologist Steven Austad examines a phenomenon that is now common among humans but that occurs rarely among animals living in the wild—female menopause. Now that mam-mals have been reared and followed in captivity for some time, it is evi-dent that menopause is manifest in females when survival is extended be-yond the ages normally experienced in the wild. Austad explores "forced" menopause, examines the few species for which postreproductive survival is relatively common (implying that in these cases it occurs as a result of natural selection rather than increased longevity), and presents several hy-potheses for the potentially adaptive value of menopause for the few spe-cies (e.g., pilot whales and killer whales) in which it occurs naturally. My attention was caught by an account of the intergenerational transfer of "wealth" among bannertail kanagroo rats as a function of the age of the parents. Austad uses language that evokes remarkable similarities to hu-man behavior—"eviction of young from resources controlled by the eld-erly," "bequeathing resources to young," and "relinquishing resources to offspring." This discussion of how and why menopause occurs and how postreproductive survival can influence the behavior of the young of dif-ferent species is biodemography at its best.

The third article to address the role of the elderly was written by econo-mist Ronald Lee. He makes a persuasive argument that contrary to the current view, the prevalence of postreproductive human females in preagricultural female populations may be as high as 10–30 percent—im-plying that menopause may be a product of evolutionary intent rather than

neglect. Lee explores the economic flow of resources and knowledge between generations as a basis for explaining the utility of a postreproductive population. This discussion is remarkably similar to Austad's presentation of the flow of resources between generations of bannertail kanagroo rats; both authors see an emerging theory of the ecology of resource transfers across generations in various species, including humans. The link between longevity and intergenerational transfers is a fascinating area that should draw the attention of both students and funding agencies.

In the remaining chapter in this section, the anthropologist Hillard Kaplan sets forth an interesting hypothesis about the evolution of life history traits that include a postreproductive period and an extended human lifespan. He speculates that the long lifespan, extended period of juvenile dependence, and support of reproduction by older postreproductive individuals are interrelated outcomes of a feeding strategy unique to humans. This article is a valuable resource for readers interested in the life history attributes of hunter-gatherer populations.

The chapter by the epidemiologist Robert Wallace focuses on the data contained in population surveys sponsored by the National Institute on Aging that may be used for genetic studies of disease in humans. Wallace follows his informative summary of this material with a description of various ways such data may be used to evaluate biodemographic issues of aging and longevity. Publication of a comprehensive summary of databases available for all species that permitted genetic analyses would be useful.

In the final chapter Caleb Finch observes that the modern rise in life expectancy in humans is not unexpected given the plasticity found in the evolution of life histories that influence the longevity of species. Not only is there a broad range of survival opportunities across and between species, but the fact that most postreproductive survival is not a direct product of natural selection implies that senescence can be manipulated through environmental parameters. Just how much humans can modify the process of senescence without intervening in the genetic blueprint of life has yet to be determined, as Finch notes, but observed changes in human survival fall within the range of the expected plasticity in the aging process. As Finch's (1990) treatise did at length, this chapter provides in brief a background on the plasticity of senescence from various biological levels of organization, from genes to populations.

Conclusion

I like many things about this book and object to only a few. The chapters are written almost exclusively by scientists who, while well known within their own disciplines, have also been instrumental in developing and extending the field of the biodemography of aging. The common thread of evolutionary biology appears within most chapters, with implications for

aging and longevity then evaluated through various attributes of the life history. I particularly appreciate the fact that most of the authors were careful to explain the language of their discipline. Overall this volume is a valuable contribution to the literature.

The problems with this volume are as follows. First, there is an overemphasis in several of the biologically oriented chapters on explaining decelerating mortality at older ages among humans and other species and the rise in the number of centenarians among humans in modern times. To be sure, both are interesting phenomena. However, they are largely irrelevant in genetically heterogeneous populations like humans where the majority of any birth cohort contains neither the genotype nor the practical means to survive as long as the population's longevity outliers. At this point the interest in centenarians should be at the level of identifying alleles that favor such extreme longevity, as Finch suggests in his chapter. An understanding of postreproductive survival in humans requires a focus on the vast majority who die between the ages of 60 and 100 and on the alleles that influence their deaths rather than on the small segment of every birth cohort with the potential to survive to extreme old age. The other main problems in the book, already discussed at length, concern the purported failure of the Gompertz model to portray old-age mortality, and the erroneous impression that a conventional wisdom exists suggesting that old-age mortality in humans is intractable.

Despite these criticisms, I give this book my strongest endorsement—it is essential reading for anyone interested in biodemography and the study of aging and longevity in humans and other species. With few exceptions, every chapter is well-crafted and uses language that students and scientists from a variety of disciplines can understand and appreciate. *Between Zeus and the Salmon* should invigorate both the science and the funding of modern biodemography.

Notes

1 For a detailed discussion of the historical search for the "law of mortality" beginning with the work of Gompertz through the present, see Olshansky and Carnes (1997).

2 An earlier version of this book was published in Russian in 1986.

3 This quote was attributed to the gerontologist Leonard Hayflick. According to Hayflick (personal communication), the quote attributed to him is not only false, but he does not believe what the quotation states. In addition, Vaupel (1997a) then went on to attribute the following line of reasoning to us (e.g., Olshansky, Carnes, and Cassel 1990): ". . . the view that mortality at older ages is intractable leads to the conclusion that health-care resources and biomedical research should not be wasted on hopeless attempts to prolong the lives of the elderly." This is not only a false attribution, but my colleagues and I do not believe what the quotation states.

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GORDON CONWAY
The Doubly Green Revolution: Food for All in the Twenty-first Century
London: Penguin Books, 1997. xv + 335 p. £9.99.

The achievement of the first "green revolution" was to deliver increases in food production that have more than kept pace with the growth of demand arising out of population and income growth in most areas of the developing world over the last two generations. The sources of the growth in agricultural production were increases in the area irrigated, more-intensive use of fertilizer and plant protection chemicals, and the development of new crop varieties capable of responding to higher levels of inputs and management. The effect of the first green revolution is that food has been made available to the world's consumers on increasingly favorable terms.

These gains notwithstanding, the impact on demand from slower population growth will be offset by new demands, particularly for animal protein, resulting from greater affluence. But the sources of growth in agricultural production for the future are not as apparent as they were in the early 1960s. The new biotechnologies emerging from university and corporate laboratories have not yet succeeded in raising yield ceilings. Rather, they are making it easier, and in some cases less expensive, for farmers to push yields closer to the levels already achieved by plant breeders working within the older Mendelian paradigm.

Gordon Conway, an agricultural ecologist and now President of the Rockefeller Foundation, calls for a new, "doubly green revolution" that will do more than simply respond to aggregate food demand. The higher crop yields made possible by the first green revolution technologies were most readily achieved in areas with more robust soil. Conway calls for technologies that will enhance the productivity and the incomes of farmers living in poor resource areas.

The intensive agricultural production associated with the first green revolution has generated negative spillovers on human health and on the environment. The health effects include pesticide poisoning and increased nitrates in drinking water. Environmental effects include increased salinization of irrigated lands, the contribution of nitrous oxides and methane to global climate change, and the resurgence of pests and pathogens resistant to available methods of control. Some of these spillovers have had a depressing effect on agricultural production.

Conway also calls for a second green revolution that will provide greater benefits to the poor. This is an exceedingly difficult challenge. The urban poor have clearly benefited from the first green revolution. The real price of food grains has declined by half over the last several decades. In those areas where agricultural production has expanded most rapidly, the rural poor have also benefited. Both the days worked per year and the average daily wage rates have risen. In the geographic areas bypassed by the green revolution, farmers have not only failed to realize the gains from higher yields; they have seen the prices realized for their traditional varieties decline.

It is in these areas that it will be most difficult to meet Conway's challenge. Even with advances in technology, it is unlikely that these areas will be able to compete in the market with the more robust areas in the production of food grains. Some of these areas do have the potential to become important producers of

nonconventional or alternative crops. Production of temperate-region fruits and vegetables has expanded rapidly in Northern India, in parts of Central America, and in a few places in Africa. But this expansion has depended on the high income elasticity of demand for such products associated with growth in either domestic or international markets. The demand for nonconventional agricultural commodities and for the growing number of workers who cannot be accommodated in many low-potential agricultural areas will depend on rapid growth of income and employment in urban-industrial areas.

Conway does not directly confront perhaps the most difficult contemporary development problem, namely why sub-Saharan Africa has largely been bypassed by the first green revolution. Important beginnings were made in both East and West Africa in the 1960s, but promising developments in the institutional infrastructure needed to generate agricultural growth have not been sustained. It will be difficult to have a doubly green revolution in this region until the capacity of the institutions that generate and diffuse new knowledge and new technology is strengthened.

Gordon Conway has produced an exceedingly useful book. There are a few details about which I might like to argue. But for anyone who wants to understand agricultural development in poor countries during the era of the first green revolution and the challenges to sustainable agricultural development over the next several decades, this book is the place to start. The more than 100 figures and tables that accompany the text, supplemented by illustrative "boxes," are particularly useful. One hopes that the publisher will make this book available also on the American market.

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JOHN PULLEN AND TREVOR HUGHES PARRY (EDS.)
T. R. Malthus: The Unpublished Papers in the Collection of Kanto Gakuen University,
Vol. I.
Cambridge, England: University Press for the Royal Economic Society, 1997. xxiv + 140 p. $54.95.

When Robert Malthus, a great-grandson of Thomas Robert Malthus's older brother, Sydenham, died in 1972, his belongings included what an auctioneer described merely as a "Box of Old Documents." These were in fact a sizable number of letters from, to, or about T. R. Malthus, an amazing addition to the sparse personal data concerning one of the founders of modern demography. Patricia James, author of the painstakingly researched biography of Malthus, undertook a search for a suitable repository for the remarkable find, and eventually it was purchased by Kanto Gakuen University in Yokohama, Japan. There the original handwritten documents are maintained under special conditions designed to preserve them in-

definitely. In this book and a projected second volume, the whole is to be offered to Malthus scholars everywhere.

The first batch of letters, dating from when Malthus was 13 to 18 years old, pertain mostly to his activities at various schools. His father not only kept close track of Robert's progress but told his son why he had chosen the books he regularly sent him. Robert's letters to his father had the salutation "Dear Sir" and ended with "your dutiful and affectionate Son, Robt Malthus." One letter to his mother began with "Dear —," for, as Robert explained, he was unable to choose between "Dear Mother," "Dear Madam," and "Honoured Madam."

Robert loved "fighting for fighting's sake"; he was an excellent shot; his spelling was so poor that his father thought a mild reprimand appropriate: "I am rather surprised (not surprized) that a Grecian & an Algebraist, & otherwise very agreeable (not agreable) shou'd have so little intelligence (not intellegence) as to spell wine *whine.*" On the other hand, he was not only reading Thucydides, Horace, and Cicero, but beginning the gentlemanly practice of larding his own letters with quotations in Latin. His study of mathematics was already aimed at the ability to understand "some of Sir Isaac Newton's Principia."

The next letters are from the years when Malthus was at Cambridge, ending with his father's congratulations on Robert's election to a fellowship at Jesus College. There was much to-do back and forth about money, Robert's assurances that he was careful about spending it, his father's acknowledgment that family funds were short. Robert had acquired an interest in weather, which he began to analyze with an almost professional competence. Five letters refer to Robert's ague, several to an attack of rheumatism. One letter from his father speculated on where Robert's bent for mathematics might lead him—"a surveyor, a mechanick, a navigator, a financier, a natural philosopher, an astronomer, & a meer speculative *algebraist.*" Demographer could hardly have been included, for the word had not yet been coined.

Parental advice on what to read and how to prepare oneself for life stopped well short of ethical issues. Remarkably, there is nothing in this exchange on honor, sex, religion, or any other facet of morals. In one letter Robert remarked that he had investigated how he might take religious orders. "The Bishops had it so entirely in their power to ordain whom they pleased" that Robert thought, by pulling a few strings, he stood a chance. The entire passage relates only to a young man seeking a financial preferment; and, when he got it, for two centuries commentators drew the obvious, and mistaken, conclusion that it denoted a religious underpinning to "Rev." Malthus's scholarship.

Several letters in a later section comment on details of the 1798 *Essay on Population.* One questioned the theological implications of the last two chapters, which Malthus decided to omit from the 1803 edition. Another asked whether a "greater length of life" could be equated with a "greater degree of healthiness"—a question that many others have put since then as longevity continued to rise. Pierre Prévost announced, in French, his intention to proceed with a translation of the *Essay*'s fifth edition. Bewick Bridge, a mathematician and formerly a colleague at East India College, sent several letters apparently in response to questions about passages Malthus wanted to include in a revised edition of the *Essay.* There were ex-

changes with R. J. Wilmot-Horton on emigration, with Francis Horner and Francis Jeffrey on bullion, with Robert Grant on the East India College, and with two unnamed correspondents on details of economic theory.

The excitement over this find is reflected in the meticulous editing by John Pullen and Trevor Hughes Parry. Every person mentioned is concisely identified, every gap in the manuscript is duly noted. The editors fussed over whether to change punctuation and grammar to modern usage. Each "misspelling" is marked with an asterisk. But it is a bit pedantic to denote variations between *-or* and *-our*, between *physic* and *physick,* as errors. As David Crystal remarks in *The Cambridge Encyclopedia of the English Language,* "there are a remarkable number of alternative spellings in Standard English." For example, from one random page of an unabridged dictionary, there were 32 items out of 95 with alternative spellings. And this example pertained to current usage, rather than to the many shifts over the century and a half since these documents were written.

Like everyone else who ever tried to dig up details of Malthus's life from the meager record, I found the discovery of this "Box of Old Documents" exciting. Yet in the end, what does it come to? There is little more to tell of Robert Malthus than Patricia James has proffered in her biography; in truth, he was not a remarkable or very interesting person except for his mind, whose intellectual biography is readily available in his publications.

Carmel, California   William Petersen

Pál Péter Tóth and Emil Valkovics (eds.)
Demography of Contemporary Hungarian Society (Trans. by Judit Zinner)
Highland Lakes, NJ: Atlantic Research and Publications, 1996. vii + 282 p. $36.00.

This volume, one of a series in "Atlantic Studies on Society in Change," contains 11 chapters by leading demographers in Hungary. It offers unique insights from scholars in a country at the heart of Europe and in the midst of momentous social transformation. The editors set a mournful tone in the preface, detailing recent declines in fertility to below replacement, rising adult mortality, population aging, and absolute declines in population size (in every year since 1981). A more detailed sketch of demographic trends since 1960, contributed by the late Rudolf Andorka, accepts conventional explanations for fertility decline and concludes that rising mortality is probably linked to the impact of totalitarianism in generating stress in daily life and providing inadequate access to proper health care. The pessimism of the preface finds an echo here, as Andorka points out the unfavorable implications of shrinking population and population aging from several angles. Magdolna Csernák summarizes specifics of falling first marriage rates, rising cohabitation, and rising divorce in the past half-century. She takes a less pessimistic tone, however, interpreting these trends as convergence toward Western European patterns. Ferenc Kamarás contrasts what he sees as partially successful pronatalist efforts in the state socialist period with the demographic contraction

that has characterized the decade since the collapse. Károly Miltényi reinforces the pessimism in his discussion of economic activity and the concomitant funding of pension systems, concluding that "if we want to avoid the further dramatic deterioration of this problem, a strong and efficient pro-natalist population policy is needed" (p. 96).

Péter Józan's analysis of mortality patterns is of a piece with the general tone of the book, first summarizing the deterioration reflected in mortality statistics since the mid-1960s and then focusing on the exceptionally dire mortality among Hungarian men in their late working ages. However, his Table 8 on male age-specific death rates shows plainly that at younger working ages (particularly between ages 30 and 40 years) the startling increases observed in the 1970s and 1980s have been replaced by a leveling-off or even improvements for much of the 1990s. This raises new questions about how the lives of these younger workers may have changed in the past decade.

Tóth's study of migration statistics for Hungary also contributes valuable data to a subject of considerable concern to policymakers throughout Europe, while László Hablicsek presents the twentieth-century demographic patterns of Hungary in the context of broader demographic transition theory, repeating the warning that Hungary must adopt comprehensive pronatalist policies to offset the demographic contraction and aging now clearly in store. László Cseh-Szombathy's speculative psychological discourse eschews data in favor of exploring ideas such as those of Philippe Ariès on the emotional and economic significance of children in interpreting trends in marriage and childbearing. He concludes that there is no solid evidence that such ideas have spread widely in Hungary, and that in fact traditional family forms may prove adaptable to whatever new social structures are emerging. This may be taken as further leaning toward the pronatalist sentiments pervading the volume as a whole. Marietta Pongrácz and Edit Molnár are more directly pronatalist. Even though they note that outside of the developing world "only Romania and the black population of the United States exceeded Hungary in adolescent fertility" (p. 211), they conclude that tolerance toward adolescent mothers is needed. Valkovics closes the volume with an algebraically dense chapter, extending his previous work on decomposition of summary mortality measures, in this case exploring the ways one can account for the contributions made by various causes of death to changes in summary measures of life expectancy.

How, then, do Hungarian demographers see their country? The answer is a near-unanimous despondency in the face of the aforementioned demographic phenomena, and a pervasive sense of economic and social crisis. The urgency with which many of the contributors call for energetic pronatalist population policies testifies not to the practicality or proven effectiveness of such measures, but rather to the deep dissatisfaction with which these scholars contemplate the demographic future in this European state. Given the traditional acuity and accuracy of Hungarian demography, the tenor of this book should send a tremor of anxiety through the community of population scholars concerning the future of Central Europe.

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ELWOOD CARLSON

William Petersen
Ethnicity Counts
New Brunswick, NJ and London: Transaction Publishers, 1997. 331 p. $49.95.

The title of this book is a play on words that encapsulates the volume's principal point: that ethnicity "counts"—it is of importance—but that numerical "counts" of ethnic categories are fundamentally flawed. Put another way: the kinds of classifications by ethnicity and race undertaken by statistical and census authorities are both important and impossible to get right.

For most of us, the concepts of ethnicity, nationality, national origin, religion, linguistic group, nation, tribe, caste, race, and related terms together form a complex and mystifying muddle. William Petersen walks his reader incisively through the etymological origins of these terms and explores their subsequent transformations and blurrings.

Consider two key examples of the ambiguities involved: the word *ethnic* derives via Latin from the Greek *ethnikos*, the adjective derived from *ethnos*—which means a nation or race. Yet as originally used in English, *ethnic* meant heathen or pagan, that is, neither Christian nor Jewish. Meanwhile, *nation* derives via French from the Latin *natus* and *natio*, denoting birth. Over time, the meanings of both *ethnic* and *nation* broadened from their biological origins to assume connotations more cultural and political. By 1980, the editors of the *Harvard Encyclopedia of American Ethnic Groups* listed the following attributes as attaching to their subject:

> common geographic origin
> migratory status
> race
> language or dialect
> religious faith or faiths
> ties that transcend kinship, neighborhood, and community boundaries
> shared traditions, values, and symbols
> shared literature, folklore, and music
> food preferences
> settlement and employment patterns
> special interests in regard to politics in the homeland and in the United States
> participation in institutions that specifically maintain the group
> an internal sense of distinctiveness
> an external perception of distinctiveness.

Petersen spends much of his book dealing with the oddities of ethnic classifications and politics in two of the largest democracies: the United States and India. Both countries have had at least several centuries of experience with sharply differentiated schemes of social classification along lines of race and ethnicity. In the United States, the existence of slavery and the discriminatory Jim Crow practices that followed its abolition embodied the American racial paradigm of black and white, a dimension that continues as a deep and sensitive chasm in American society. In India, the Hindu social order known in English as "caste" was described by Kingsley Davis in 1951 as "the most thorough attempt known in history to introduce absolute inequality as the guiding principle in social relations," and by Philip Mason (writing in the 1960s) as "a differentiation between people more extreme and explicit than is to be found even in the plantation slavery of the Southern United States or in South Africa today" (quoted p. 260).

Both the United States and India have pursued compensatory public policies intended to rectify the negative effects of their historical practices, but Petersen in general agrees with the conclusions of Thomas Sowell's 1990 volume *Preferential Policies: An International Perspective*, which he summarizes as follows:

> Programs instituted as temporary expedients to benefit the most depressed classes spread to others and remain as fixtures hard to displace. The group for whom the program was initiated does not profit from it nearly so much as others. . . . The incentives to rise in the social scale by work is [sic] undercut as the context shifts from economic worth to political activism. Whatever interethnic hostility that exists becomes more impassioned. (p. 63)

But Petersen is at his most interesting when he dissects the sometimes surprising origins of the ethnic categories that are now routine fare in American public discourse. According to some accounts, he reports, the term "Hispanic" emerged from conservative political circles with the intention of countering emerging nationalism among Chicanos and Puerto Ricans. He quotes one analyst's conclusion that Richard Nixon embraced the term as "a conscious effort . . . to build a historically European Spanish-based and Spanish-dominated group rather than a regional 'Latin' group or a regional 'American' group" (p. 121) and notes that Left intellectuals have often rejected the term "Hispanic" in favor of "Latino" for this reason.

The Census Bureau's efforts to count "Hispanics" are a tale of woe. The 1950 and 1960 counts based on a set of Spanish surnames, resulted in very large errors: up to 63 percent false positives and 69 percent false negatives. in 1970, when the census asked respondents to identify themselves as "Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish origin," some 1.5 million so identified themselves. But only 600,000 did so in the 1969 and 1971 Current Population Surveys. The Bureau concluded that this huge disparity was due to many persons interpreting "Central or South American" to mean "Central or Southern *United States*." In 1980, in response to political pressure, the census required all respondents to answer a separate "Spanish/Hispanic" question, but serious errors continued. In the summary words of one expert, writing in 1985: "Perhaps no demographic estimates vary so wildly as those for the Hispanic population, ranging from 16.5 million to 30 million in 1985. Some researchers claim that Hispanics already outnumber blacks (they don't); others that the Hispanic population is growing by 6 or 7 percent a year (it isn't)."

The official US category "Asian and Pacific Islander" is described by Petersen as a "bizarre amalgam." "It is as though the pre-1914 immigrants were lumped together as 'European Americans'" (pp. 137–138). Within the Asian category, the reported number of children ever born per 1,000 women ranged from 1,651 for the Japanese to 6,215 for the Hmong; per capita annual income from about $25,000 for the Chinese to about $2,700 for the Hmong. In Petersen's appraisal: "No one can be reasonably identified merely as an Asian American" (p. 138).

Petersen's review of the history of efforts to enumerate American Indians concludes that "the statistics are so ill based that they are virtually worthless" (p. 112). The numbers have fluctuated widely, driven it appears both by vacillations in general government policies toward the Indian population and by changes in census

questions and procedures. The 1990 census reported an increase of 38 percent from a decade earlier, but the Census Bureau itself reported in 1992 that "8 percent of the 1.8 million people who identified themselves as American Indians then said they belonged to these tribes: Haitian, Polish, African American, Hispanic, or Arab" (p. 111).

Ethnicity Counts provides a sobering reality test for data on ethnicity that have increasingly become central to controversial public policies relating to apportionment, voting, employment, and admission to universities. Readers interested in such issues—from any and all political perspectives—would be well advised to read this book before citing any numerical data in support of their cause.

Alfred P. Sloan Foundation   MICHAEL S. TEITELBAUM
New York

SHORT REVIEWS

by Ann E. Biddlecom, John Bongaarts, Martin Brockerhoff, Susan Greenhalgh, Carol E. Kaufman, Geoffrey McNicoll

PAUL DEMENY AND GEOFFREY MCNICOLL (EDS.)
The Earthscan Reader in Population and Development (US edition title: *The Reader in Population and Development*)
London: Earthscan Publications; New York: St. Martin's Press, 1998. x + 363 p. $65.00; $26.95 (pbk.)

Thirty-two selections from the population and development literature are grouped in five sections: dynamics of transition; individuals and families; societies and states; resources and the environment; futures. Most of the authors would be familiar names to readers of *PDR*—Becker, Ben-Porath, Blake, Bongaarts, Boserup, Cain, Caldwell, Daly, Davis, Feeney, Folbre, Kuznets, Lee, McNeill, Preston, Ryder, T. W. Schultz, Sen, and Spengler. Others are from further afield: Harold Barnett, Hedley Bull, F. A. Hayek, A. O. Hirschman, Fred Hoyle, Joshua Lederberg. The material is nontechnical, though much of it is quite closely written, and would be appropriate for undergraduate use. It might also bring back into currency some significant writings that have dropped out of sight. The majority of items included date from the last two decades; the earliest is from 1955. There is a general introduction and introductions to each of the sections. Chapter bibliographies; name and subject indexes.

ROGER JEFFERY AND PATRICIA JEFFERY
Population, Gender and Politics: Demographic Change in Rural North India
Cambridge: Cambridge University Press, 1997. xvi + 278 p. $59.95; $19.95 (pbk.).

In this timely study of rural Uttar Pradesh, sociologists Roger Jeffery and Patricia Jeffery examine competing explanations for fertility decline in India. Focusing on two castes—the Hindu Jats and the Muslim Sheikhs—they seek to discover why the Jats have reduced their childbearing while the Sheikhs have not. Drawing on their extensive field experience in North India (they have authored four books on gender and population in the region) and an impressive body of new data gathered by the authors in 1990–91, they find that none of the hypotheses suggested by the demographic literature—economic rationality, gender relationships, or religion—accounts for the intercaste differences in demography. Elaborating ideas developed in the anthropological literature, they find that the differing positions of the two caste groupings in the local political economy were crucial. While the Jats' access to well-paying jobs and to government officials guaranteed them security through institutional means, the Muslim Sheikhs' marginal positions in a Hindu-dominated society left them few options but to rely on children to secure their families' future. This well-substantiated conclusion underscores the importance of larger political economic processes that lie outside the scope of conventional demographic research. What is timely about this study is its concern to better conceptualize and, ultimately, to challenge, the core tenets of the Cairo consensus on the necessary connection between women's empowerment and fertility decline. While strongly advocating improvements in women's lives for their own sake, the authors contend that the Cairo view neglects the culturally conditioned content of schooling and the meaning of education in women's lives. Dishearteningly, in the castes studied, schooling for girls led to neither the empowerment of women nor fertility decline. All women, whether educated or not, were subject to a set of patriarchal constraints that limited their access to important resources. More generally, the Jefferys argue, the discourse on empowerment implies that women are both victims (because powerless) and villains (because of their excessive childbearing), and thus appropriate targets for further interventions that may harm as much as help them. Moreover, the Cairo language, like the language of demography, relies on an individualistic discourse that neglects the larger structural inequalities that shape women's lives and demographic regimes alike. "Girls' schooling can lead to women's empowerment," the authors conclude, "only when class, community and gender politics are changed to make this possible" (pp. 255–256). A model microstudy whose policy implications reach far beyond the borders of Uttar Pradesh. Essential reading for students of microdemography, population policy, and, of course, gender and reproduction in India. Substantial bibliography, index.—S.G.

ELIZABETH LIAGIN WITH INFORMATION PROJECT FOR AFRICA
Excessive Force: Power, Politics, and Population Control
Washington, DC: Information Project For Africa, Inc., 1996. viii + 348 p. $13.00 (pbk.).

This book asserts that today's population programs have "assumed the characteristics and magnitude of the most aggressive political warfare campaigns of the

1950s—complete with the clandestine establishment of 'indigenous' fronts, secret payments to affect political decisions, recruitment of 'in-place' agents, infiltration of academia, systematic intimidation of opponents, falsely attributed communications, penetration of the news media, threats, targets, and ultimatums." The accusatory tone, set in the introduction, pervades the book. The authors argue that population growth in the Southern hemisphere is a source of political power, one that threatens the hegemony of Western countries. To extinguish the looming danger, the authors continue, the US government has formulated systematic and insidious strategies that impose population control programs on third world countries, especially in Africa. The authors weave their arguments with inflammatory assertions as much as with excerpts from various documents and reports. In the former case, the authors merely assert their own agenda; in the latter case, they provide little context by which to evaluate the evidence. Indeed, the reader should note the dates of the references; citations from the 1940s onward are sprinkled throughout the text, but the authors make little effort to temporally order developments in the population field or in donor activities, or to pair them with quotes from the relevant time period. The book targets USAID and World Bank programs and policies, and in academia it considers the case of Johns Hopkins University's links with universities in Nigeria. Over half the book is consumed by two appendixes. One duplicates the "OPTIONS for Population Policy I" final report, a multi-million-dollar project carried out by the Futures Group under USAID contract. The other is a database describing USAID-funded population policy development projects (up to the end of 1993). Perhaps these appendixes will be a useful resource for others undertaking a serious evaluation of the sometimes controversial role of the US government in population policies and programs around the globe.—C.E.K.

PETER LLOYD-SHERLOCK
Old Age and Urban Poverty in the Developing World: The Shanty Towns of Buenos Aires
London: Macmillan Press; New York: St. Martin's Press, 1997. xv + 261 p. $75.00.

In this slim book, Peter Lloyd-Sherlock conveys a wide range of information related to old age and poverty in developing countries, and in the *villas miserias* of Buenos Aires in particular. A concise opening chapter decries the absence of population aging issues in the 1994 ICPD Agenda while emphasizing that the demography of aging is relevant to all developing countries. In Kenya, for example, the proportion of population aged 60 years and older is projected to increase from just 5 percent in 1995 to 6 percent in 2025, but the size of this population will triple to more than 3 million persons during these three decades. Lloyd-Sherlock argues that increased demands on the state to provide for the welfare of elderly persons, combined with persistent high fertility and over-abundant entrants into the labor force, will heighten resource competition and intergenerational conflict in most poor countries. In two subsequent chapters, the author fairly critiques the traditional government welfarist approach toward the elderly—which in Argentina has been inefficient, mismanaged, inegalitarian, and fragmented—as well as neoliberal strategies of privatization, which typically overlook the needs of the poorest *villeros,*

or elderly persons in poverty. He concludes that the rapid modernization of many countries in recent decades has had an unfavorable effect on the social relations of the elderly, and that solutions to old-age poverty must combine institutional responses such as social security systems and pensions with problem-specific approaches based on assessment of the economic (rather than institutional) needs of elderly persons.

The second half of the book reports on a detailed case study of three shantytowns of Buenos Aires. In one poor neighborhood, basic needs of the elderly were achieved through strong grassroots organization and widespread participation, and by focusing on socioeconomic problems rather than improvements in physical infrastructure. Requisites for success in improving welfare appear to include outside help—from social workers, the Church, or political parties—so as to improve contact with the "outside world," security of tenure and safe housing, manifest economic benefits for the elderly to facilitate and maintain their participation in popular programs, and strong involvement of women, who tend to participate more than men in neighborhood initiatives.—M.B.

MARGARET LOCK AND PATRICIA A. KAUFERT (EDS.)
Pragmatic Women and Body Politics
Cambridge: Cambridge University Press, 1998. xii + 364 p. $64.95; $22.95 (pbk.).

"[I]n the twentieth century," this book begins, "women have experienced an increasing appropriation of their bodies as a site for medical practice, particularly in connection with pregnancy, childbirth, and the end of menstruation" (p. 1). This collection of essays examines the body politics surrounding that exercise of "biopower," Foucault's term for the diffuse, knowledge-based forms of power focusing on the individual body (at the microlevel) and on the population as a whole (at the macrolevel). Drawing on in-depth anthropological research in countries from Japan to the Sudan to the United States, the papers by 13 anthropologists, two epidemiologists, and one historian problematize the question of women's resistance to the power of biomedicine and public health to "colonize" their bodies and lives. While there have been many studies of women's resistance to the medical control of their bodies, this book is distinctive in its effort to move beyond black-and-white portraits of oppressive providers and victimized women to view women's agency in the context of their everyday lives and their positions in larger structures of inequality. The conclusion is that women's responses to medicalization are complex, ambiguous, and, above all, pragmatic, reflecting the perceived impact of medical interventions on their daily lives. While the issue of body politics may seem less than compelling to readers of this journal, questions of whether women accept medical and public health interventions, and why, should be central to the Cairo agenda of enhancing women's health and wellbeing. Indeed, the focus on power in this and other books in the traditions of feminist and anthropological research challenges students of population policy accustomed to thinking of medical interventions as an ultimate good to question that assumption and to listen to women's own multivocal perspectives on the benefits—and drawbacks—of having their bodies brought under the medical gaze. Chapter-end references, index.—S.G.

GWENDOLYN MIKELL (ED.)
African Feminism: The Politics of Survival in Sub-Saharan Africa
Philadelphia, PA: University of Pennsylvania Press, 1997. xv + 361 p. $39.95; $19.95 (pbk.).

This edited volume rests on the argument that African feminism has a very different focus from Western feminism: it is concerned with issues of economic survival while Western feminism is mainly concerned with variation and choice within sexuality and debates about the female body and patriarchy. With this in mind, structural adjustment policies and the collapse of national economies in many African states provide a useful stage upon which to examine forms of discrimination against African women and women's efforts for change. Case studies of ten African states are presented, many of them by anthropologists, although the disciplines of history, geography, political science, and sociology are also represented. The studies address topics that highlight the relationship between state action and women's relative economic and political power. They also illustrate how two African cultural models influence women's attempts to achieve gender equity: for example, through identification with the goals of the lineage rather than individual goals (the corporate group model) or the instrumental benefits of belonging to a single-sex occupational or social organization (the dual-sex organization model). Topics explored include changes in family law under varying legal systems, the consequences for women's work of land-settlement policies and fuel crises, state control and transformation of women's occupational opportunities, health care decisionmaking and public health communication efforts, and women's political involvement at the grassroots and national levels.

The quality of the scholarship is uneven: some case studies draw on multiple sources of data, detailed descriptions of the setting, precise examples, and rigorous analysis of evidence; others are grounded in assertions and are descriptive rather than analytical. The editor (and also author of one case study) begins the volume with a discussion of African feminism and the influence of African cultural patterns and the state. The case studies are discussed together in the last chapter. One can conclude from this volume that economic crises within African states have pushed many more African women to fight for legal, political, and economic change than would have done so otherwise. Implicit in most of the studies is the argument that women bear the brunt of support for dependent children, and as a result they are driven by a strong and acceptable justification within African cultural paradigms—the children's welfare—to push for changes that grant gender equity in rights, representation, and economic power. The volume provides a useful if not consistent set of illustrations of the motivations and manifestations of African feminism. Index.—A.E.B.

T. PAUL SCHULTZ (ED.)
Economic Demography
Cheltenham, U.K.: Edward Elgar, 1998. 2 vols. (562, 621 p.) $420.00.

Forty articles, most from major economics journals, are reproduced in these two large volumes. Sections, each with three to five items, cover: returns to human capital; economic aspects of health and nutrition; neoclassical household models; bargaining approaches to the family; life-cycle models of fertility and labor force

participation; quantity–quality tradeoffs in children; gender gaps in human capital; cohort size effects on earnings; preindustrial demographic equilibria; economic–demographic interactions in low-income countries; and life-cycle savings. The authors include many of the household names of the field: Becker, Fogel, Fuchs, Griliches, Lee, Mincer, Modigliani, Rosenzweig, Welch, Wolpin, and the editor himself. The material is heavily technical, both in theory and econometrics. This is economic demography seen, as the editor puts it, "as an extension of labour, consumption and production microeconomics applied to individuals and the elusive combination called families," but with different choices of exogenous and endogenous variables. The earliest item is from 1965 (Becker's "Allocation of time"), with most of them dating from the 1980s and 1990s. The applications are split about evenly between developed and developing countries. The editorial role is almost wholly that of categorization and selection: the introduction is incisive but extremely brief. The selections are photographically reproduced from the original publications, with a detectable though slight loss of resolution. The work appears in the Elgar series International Library of Critical Writings in Economics, with 87 titles already published (many, like this, in two volumes, some in three) and another 50 or so promised. Earlier titles noted in this journal are *The Economics of Ageing* (*PDR* 22: 170); *The Economics of the Family* (*PDR* 23: 438); and *The Economics of Population: Key Modern Writings* (in this issue). Name index in each volume.—G.McN.

JULIAN L. SIMON (ED.)
The Economics of Population: Classic Writings
New Brunswick, NJ: Transaction Publishers, 1998. xxiii + 225 p. $34.95.

As its editorship might lead one to expect, this collection is a mixture of the solid and the idiosyncratic. It is explicitly designed to be an historical complement to the two-volume selection of "key modern writings" in the Elgar series that the late Julian Simon also edited (noted below). The present book consists of 27 short extracts, prefaced by a somewhat casually drafted introduction. It begins with Graunt and Petty, then moves on to Malthus—Americanized as "Thomas R."—and Godwin. A so-called second wave of writers (the metaphor is unexplained) encompasses A. H. Everett, Simon Gray, Engels, Henry George, H. C. Carey, J. S. Mill, and Charles Fourier. With characteristic insouciance, Simon remarks that "not much of note happened" in population thought between the mid-nineteenth century and the 1960s, except for "a brief double flip-flop" by Keynes. However, space is found for Cannan, Robbins, Hansen, and Simmel as well as three extracts to demonstrate the Keynesian acrobatics. Jevons's account of how the nearing exhaustion of British coal presages the end of that nation's manufacturing supremacy conveys Simon's view of the illusory nature of resource constraints. A piece from von Thünen on urban clustering is more of an outlier. Several of the items have also appeared in the Archives department of this journal. The material has been retyped, making for a cleanly designed volume.

Julian Simon died in February of this year. As his death is noted on the book's jacket, the publisher is presumably to be blamed for the lack of an index and the

inexcusable absence of any formal listing of sources and dates for the extracts (though the provenance of some of them can be discovered from a close reading of the Introduction).—G.McN.

JULIAN L. SIMON (ED.)
The Economics of Population: Key Modern Writings
Cheltenham, U.K.: Edward Elgar, 1997. 2 vols. (533, 555 p.) $350.00.

Modern writings on population economics, by Julian Simon's definition, begin with Kuznets, Becker, and Easterlin in the 1960s. A few predecessors also warrant being called modern—Colin Clark and T. W. Schultz, for instance. Fifty-five articles and book chapters by these and later writers are photographically reproduced in the two volumes. Volume I has a lengthy catch-all section on "general consequences of population" and shorter, more specific sections on food and natural resources. Volume II covers effects of population density, "modern formal theory" (much of it Simon's own modeling of endogenous technical change), and, fully half of it, determinants of population growth. Most of the authors are economists but there are also some other social scientists, among them Chayanov, Dorothy Thomas, David McClelland, Frank Lorimer, and John Caldwell. Virtually all the items reflect the editor's strong empirical orientation. It is not clear how the scope of this work was distinguished from the parallel Elgar volumes on economic demography edited by T. P. Schultz (reviewed above). Simon has staked out a larger territory, with greater temporal depth (much greater if his companion volume of historical readings is taken into account); Schultz pays more attention to methodological innovation and statistical finesse. Simon is also more emphatic on what the correct thinking is on the substantive issues. He nonetheless has sought for balance by including "a few pieces of work that have been very influential but that, in light of later work, can be seen to be fundamentally wrong." An excerpt from the 1958 Coale and Hoover study is meant as such a concession; so probably is James Meade on Mauritius and Paul Samuelson on the optimum growth rate of population. Name index in each volume.—G.McN.

UNITED NATIONS ENVIRONMENT PROGRAMME
Global Environment Outlook
New York: Oxford University Press, 1997. viii + 264 p. $25.95.

This is the first in a new series of *Global Environment Outlook* reports produced by the United Nations Environment Programme in collaboration with 20 environmental organizations worldwide. Its format and style are similar to those of the familiar *World Development Report* from the World Bank and the *Human Development Report* from UNDP. This review of the state of the world's environment is intended to provide guidance for international and national environmental policy formulation by identifying major environmental trends and concerns, together with their causes, consequences, and societal responses. The main conclusion is that despite significant progress in a number of areas, the pace at which the world is

moving to address environmental problems is too slow and the sense of urgency that prevailed in the early 1990s around the time of the Rio conference is now lacking. In the absence of adequate environmental responses, renewable resource constraints and continued degradation of natural resources are expected to contribute increasingly to food insecurity and conflict situations.

The report's central sections present regional perspectives on issues related to land; forests; biodiversity; water, marine, and coastal resources; atmosphere; and urban and industrial environments. Underlying causes are divided into social (primarily demographic), economic, institutional, and environmental; the discussion of policy responses focuses on legislation, economic incentives, institutions, and public participation and education. From this discussion, four priority areas for action emerge: (1) The demand for *energy* is expected to continue to grow rapidly in all regions. Development of renewable energy resources and greater energy efficiency are considered essential to minimize the adverse impact of rising energy consumption, in particular global climate change. (2) The development of new *technologies* is needed to insure more-effective use of natural resources, less waste, and fewer pollutant byproducts in industry, agriculture, transportation, and infrastructure development. (3) In several regions lack of *water* poses a threat to human and ecosystem health, and is an impediment to development of agriculture and industry. Progress can be made by limiting pollution of available water resources and by introducing water pricing to minimize waste and increase efficiency. (4) Effective decisionmaking and environmental policy formulation, implementation, and evaluation require current *data* on key environmental trends and their impacts. Unfortunately this information is often lacking, of poor quality, or out of date.

This comprehensive, worldwide coverage of environmental issues overlooks few topics. The most notable omission is a discussion of population policies. The key role of rapid population growth in exacerbating most environmental problems is recognized in the sections dealing with the developing world, but the range of socioeconomic, health, and family planning policies to slow future population growth as adopted at the 1994 Cairo conference are not mentioned. The report is concise and highly informative and should appeal to a wide readership. A statistical appendix with country data on environmental variables will be published in separate companion reports.—J.B.

UNICEF
The State of the World's Children 1998
New York: Oxford University Press, 1998. 131 p. US$12.95 (pbk.).

After two previous annual editions devoted to children in war and child labor, UNICEF's *The State of the World's Children 1998* returns to a more conventional health issue, with a focus on "the silent emergency" of malnutrition. This choice of topic appears motivated by ongoing famines in places such as North Korea and Central Africa, but also by important research findings in recent years: 55 percent of the 12 million annual deaths of children under age five are attributable to malnutrition; children who are not breastfed have an 8 point lower IQ, on average, than

breastfed children; Bangladesh and India forfeited a total of $18 billion in 1995 due to vitamin and mineral deficiencies; and so on. In addition to summarizing this literature, the UNICEF volume proposes a complex framework of immediate and underlying causes of malnutrition (p. 24), one that moves beyond the familiar cycle of inadequate dietary intake and illness to emphasize the influence of household food security, the provision of health services, parental care practices, and political and legal institutions. Aspects of this model are critical to a broader understanding of the topic, even though the model in totality is not conducive to testing through research. A useful contribution of this volume is a summary of new ways to measure malnutrition, which include "dark adaptometry" (examining the constriction of the eye pupil under illumination) to detect vitamin A deficiency at an early age, use of "dipsticks" to reduce the cost of urine sampling for iodine deficiency, and computerized anemia surveys. Sadly, the national and regional statistics on nutrition provided at the end of the book are clearly incomplete as compared to indicators of health, education, economy, women's status, and other development concerns.—M.B.

STEPHEN A. VOSTI AND THOMAS REARDON (EDS.)
Sustainability, Growth, and Poverty Alleviation: A Policy and Agroecological Perspective
Baltimore and London: Johns Hopkins University Press, 1997. xxii + 407 p. $55.00.

Agricultural growth, poverty alleviation, and conservation of the natural resource base ("sustainability"), the three principal goals of agricultural development, are interrelated and sometimes in conflict. This highly instructive collection assembled by the International Food Policy Research Institute explores those interrelations and examines how they are influenced by technologies and institutions. Its aims are to understand the conditions under which the three goals can be jointly attained and to find compatible policies to do so. Twelve chapters, the first half of the book, discuss the generic issues involved in the "critical triangle of links" and some of the forces acting on them (population growth, climate change, interest rates, trade policy). The second half focuses on the intricate problems of policy incompatibility in particular environmental and institutional settings, identified by broad region and agroecological zone (humid and subhumid tropics, arid and semiarid tropics, and tropical highlands). These chapters contain documented case materials and proposals for policy improvement—or for policy research that might lead to it.

Population appears in the foreground in the contribution by Michael Lipton, which looks at its effects on resource degradation, starting from the perhaps arguable proposition that "there is a surprising amount of academic agreement about the causes and effects of population growth in poor countries." Chapters of related interest include Joachim von Braun on nutrition and health as manifestations of rural poverty and an elaborate analysis by the editors of links between environmental degradation and poverty. Vernon Ruttan writes on the concept of sustainability. He lists eight definitions, the best known of them being the Brundtland

Commission's (meeting present needs without compromising the ability of future generations to meet their own), which he sees as "almost devoid of operational significance." Environmental spillovers from agricultural intensification (soil erosion, pollution, species loss, and so on) are deemed the main sustainability issue. The editors similarly take a position distinct from that of environmentalists, asserting in their conclusion that the object of sustainability should be "not agriculture or forests per se but rural families' livelihoods." Ruttan's own final comment might sum up the views of a number of contributors: "Mankind is far from being able to design adequate technological or institutional responses to issues of achieving sustainable growth in agricultural production." The volume derives from a 1991 conference organized by IFPRI and the Deutsche Stiftung für internationale Entwicklung, but the chapters have been substantially revised and updated. Consolidated bibliography, index.—G.McN.

THE WORLD BANK
Confronting AIDS: Public Priorities in a Global Epidemic
New York: Oxford University Press, 1997. xxv + 353 p. $30.00.

By the end of 1996 about 23 million people worldwide were infected with HIV, the virus that causes AIDS, and 6 million had already died. Although the epidemic has peaked in most developed countries, more than 90 percent of all infections now occur in developing countries, especially in sub-Saharan Africa and Asia. In some African cities over 20 percent of the adult population is infected, and since no effective cure exists nearly all of these individuals are likely to die in the near future. The response from many governments to this public health problem has been weak.

This book draws on insights from epidemiology, public health, and economics to determine how societies in general and governments in particular should respond. It identifies the most cost-effective policies for slowing the epidemic and it distinguishes activities appropriately initiated by governments from those that can be undertaken by households and the private sector, including nongovernmental organizations. Responses deserving support from donor governments and the international community are also identified. Since an affordable cure or vaccine is not likely to become available in the near future, efforts to inhibit the epidemic have to focus on changing behaviors that spread HIV (e.g., sexual relations with multiple partners, unprotected sex, needle sharing among injecting drug users). Evidence from several countries indicates that when these behaviors are changed the epidemic can be reversed.

Policymakers, development specialists, public health personnel, and others in a position to influence the public response to the AIDS epidemic should find this highly readable and comprehensive report of interest.—J.B.

Kofi Anan on Africa's Development Problems

In September 1997 the United Nations Security Council requested UN Secretary-General Kofi Anan to prepare a report on the sources of conflict in Africa and measures to address them. His report, entitled "The causes of conflict and the promotion of durable peace and sustainable development in Africa," was presented in April 1998. It is notable for the unusually frank terms in which it discusses the origins of Africa's political and economic problems and characterizes the present situation. The conditions for sustained economic growth that it sets out emphasize good government, a favorable investment climate, attention to social justice, and reduction of dependency on foreign assistance. The report is also notable for nowhere mentioning rapid population growth or high fertility, factors that would once have routinely entered a discussion of development issues. On both measures, Africa increasingly appears as an outlier among world regions. Following the line of the Cairo population conference, fertility is perhaps taken as subsumed in concerns expressed for literacy, health care, and women's status.

The excerpts reproduced below comprise Section II: The Sources of Conflict (§7–15); part of Section IV: Building a Durable Peace and Promoting Economic Growth (§71 and §79–92); and Section V: Summoning the Necessary Political Will (§104–106). The report, dated 13 April 1998, is issued as General Assembly document A/52/871 and Security Council document S/1998/318.

The sources of conflict

Africa is a vast and varied continent. African countries have different histories and geographical conditions, different stages of economic development, different sets of public policies and different patterns of internal and international interaction. The sources of conflict in Africa reflect this diversity and complexity. Some sources are purely internal, some reflect the dynamics of a particular subregion, and some have important international dimensions. Despite these differences the sources of conflict in Africa are linked by a number of common themes and experiences.

A. Historical legacies

At the Congress of Berlin in 1885, the colonial Powers partitioned Africa into territorial units. Kingdoms, States and communities in Africa were arbitrarily divided; unrelated areas and peoples were just as arbitrarily joined together. In the 1960s, the newly independent African States inherited those colonial boundaries, together with the challenge that legacy posed to their territorial integrity and to their attempts to achieve national unity. The challenge was compounded by the fact that the framework of colonial laws and institutions which some new States inherited had been designed to

exploit local divisions, not overcome them. Understandably, therefore, the simultaneous tasks of State-building and nation-building preoccupied many of the newly independent States, and were given new momentum by the events that followed the outbreak of secessionist fighting in the Congo. Too often, however, the necessary building of national unity was pursued through the heavy centralization of political and economic power and the suppression of political pluralism. Predictably, political monopolies often led to corruption, nepotism, complacency and the abuse of power. The era of serious conflict over State boundaries in Africa has largely passed, aided by the 1963 decision of the Organization of African Unity (OAU) to accept the boundaries which African States had inherited from colonial authorities. However, the challenge of forging a genuine national identity from among disparate and often competing communities has remained.

The character of the commercial relations instituted by colonialism also created long-term distortions in the political economy of Africa. Transportation networks and related physical infrastructure were designed to satisfy the needs of trade with the metropolitan country, not to support the balanced growth of an indigenous economy. In addition to frequently imposing unfavourable terms of trade, economic activities that were strongly skewed towards extractive industries and primary commodities for export stimulated little demand for steady and widespread improvements in the skills and educational levels of the workforce. The consequences of this pattern of production and exchange spilled over into the post-independence State. As political competition was not rooted in viable national economic systems, in many instances the prevailing structure of incentives favoured capturing the institutional remnants of the colonial economy for factional advantage.

During the cold war the ideological confrontation between East and West placed a premium on maintaining order and stability among friendly States and allies, though super-Power rivalries in Angola and elsewhere also fuelled some of Africa's longest and most deadly conflicts. Across Africa, undemocratic and oppressive regimes were supported and sustained by the competing super-Powers in the name of their broader goals but, when the cold war ended, Africa was suddenly left to fend for itself. Without external economic and political support, few African regimes could sustain the economic lifestyles to which they had become accustomed, or maintain the permanent hold on political power which they had come to expect. As a growing number of States found themselves internally beset by unrest and violent conflict, the world searched for a new global security framework.

For a brief period following the end of the cold war, the international community was eager to exercise its newly acquired capacity for collective decision-making. Beginning in the early 1990s, the Security Council launched a series of ambitious peacekeeping and peacemaking initiatives in Africa and elsewhere. Despite a number of important successes, the inability of the United Nations to restore peace to Somalia soured international support for conflict intervention and precipitated a rapid retreat by the international community from peacekeeping worldwide. An early and direct consequence of this retreat was the failure of the international community, including the United Nations, to intervene to prevent genocide in Rwanda. That failure has had especially profound consequences in Africa. Throughout the continent, the perception of near indifference on the part of the international community has left a poisonous legacy that continues to undermine confidence in the Organization.

B. Internal factors

More than three decades after African countries gained their independence, there is a growing recognition among Africans themselves that the continent must look beyond its colonial past for the causes of current conflicts. Today more than ever, Africa must look at itself. The nature of political power in many African States, together with the real and perceived consequences of capturing and maintaining power, is a key source of conflict across the continent. It is frequently the case that political victory assumes a "winner-takes-all" form with respect to wealth and resources, patronage, and the prestige and prerogatives of office. A communal sense of advantage or disadvantage

is often closely linked to this phenomenon, which is heightened in many cases by reliance on centralized and highly personalized forms of governance. Where there is insufficient accountability of leaders, lack of transparency in regimes, inadequate checks and balances, non-adherence to the rule of law, absence of peaceful means to change or replace leadership, or lack of respect for human rights, political control becomes excessively important, and the stakes become dangerously high. This situation is exacerbated when, as is often the case in Africa, the State is the major provider of employment and political parties are largely either regionally or ethnically based. In such circumstances, the multi-ethnic character of most African States makes conflict even more likely, leading to an often violent politicization of ethnicity. In extreme cases, rival communities may perceive that their security, perhaps their very survival, can be ensured only through control of State power. Conflict in such cases becomes virtually inevitable.

C. External factors

During the cold war, external efforts to bolster or undermine African Governments were a familiar feature of super-Power competition. With the end of the cold war, external intervention has diminished but has not disappeared. In the competition for oil and other precious resources in Africa, interests external to Africa continue to play a large and sometimes decisive role, both in suppressing conflict and in sustaining it. Foreign interventions are not limited, however, to sources beyond Africa. Neighbouring States, inevitably affected by conflicts taking place within other States, may also have other significant interests, not all of them necessarily benign. While African peacekeeping and mediation efforts have become more prominent in recent years, the role that African Governments play in supporting, sometimes even instigating, conflicts in neighbouring countries must be candidly acknowledged.

D. Economic motives

Despite the devastation that armed conflicts bring, there are many who profit from chaos and lack of accountability, and who may have little or no interest in stopping a conflict and much interest in prolonging it. Very high on the list of those who profit from conflict in Africa are international arms merchants. Also high on the list, usually, are the protagonists themselves. In Liberia, the control and exploitation of diamonds, timber and other raw materials was one of the principal objectives of the warring factions. Control over those resources financed the various factions and gave them the means to sustain the conflict. Clearly, many of the protagonists had a strong financial interest in seeing the conflict prolonged. The same can be said of Angola, where protracted difficulties in the peace process owed much to the importance of control over the exploitation of the country's lucrative diamond fields. In Sierra Leone, the chance to plunder natural resources and loot Central Bank reserves was a key motivation of those who seized power from the elected Government in May 1997.

E. Particular situations

In addition to the broader sources of conflict in Africa that have been identified, a number of other factors are especially important in particular situations and subregions. In Central Africa, they include the competition for scarce land and water resources in densely populated areas. In Rwanda, for example, multiple waves of displacement have resulted in situations where several families often claim rights to the same piece of land. In African communities where oil is extracted, conflict has often arisen over local complaints that the community does not adequately reap the benefit of such resources, or suffers excessively from the degradation of the natural environment. In North Africa, the tensions between strongly opposing visions of society and the State are serious sources of actual and potential conflict in some States.

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Building a durable peace and promoting economic growth

A. Good governance

The difficult relations between State and society in Africa owe much to the authoritar-

ian legacy of colonial governance. Because there was little need to seek political legitimacy, the colonial State did not encourage representation or participation. The result was often social and political fragmentation, and a sometimes weak and dependent civil society. A number of African States have continued to rely on centralized and highly personalized forms of government and some have also fallen into a pattern of corruption, ethnically based decisions and human rights abuses. Notwithstanding the holding of multiparty elections in a majority of African countries, much more must be done to provide an environment in which individuals feel protected, civil society is able to flourish, and Government carries out its responsibilities effectively and transparently, with adequate institutional mechanisms to ensure accountability.

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B. Sustainable development

Development is a human right, and the principal long-term objective of all countries in Africa. Development is also central to the prospects for reducing conflict in Africa. A number of African States have made good progress towards sustainable development in recent years, but others continue to struggle. Poor economic performance or inequitable development have resulted in a near-permanent economic crisis for some States, greatly exacerbating internal tensions and greatly diminishing their capacity to respond to those tensions. In many African countries painful structural adjustment programmes have led to a significant reduction in social spending and consequent reductions in the delivery of many of the most basic social services. Especially when this is coupled with a perception that certain groups are not receiving a fair share of diminishing resources, the potential for conflict is evident.

While economic growth does not guarantee stability, satisfaction or social peace, without growth there can be no sustained increase in household or government spending, in private or public capital formation, in health or social welfare. The basic strategy for achieving sustainable development through economic growth is now well estab-

lished. The core components of the strategy include macroeconomic stability and a stable investment environment; integration into the international economy; a reliance on the private sector as the driving force for economic growth; long-term foreign direct investment, especially in support of export-oriented activities; adequate investment in human development areas such as health and education; a fair and reliable legal framework; and the maintenance of basic physical infrastructures. Despite the broad consensus on how development and economic growth should be pursued, however, in Africa it has been difficult to achieve rapid progress, partly because of the failed policies pursued in the past by many African countries and the difficult international economic environment in which they generally must operate.

Creating a positive environment for investment and economic growth

Creating a positive environment for investment. To produce sustained economic growth, African countries must create and maintain an enabling environment for investment. The world economic system is highly competitive and market-based, and Africa has become largely marginalized in recent years in attracting significant inflows of long-term foreign direct investment. The importance of investment in small and medium-sized businesses should also be emphasized as such enterprises are an important source of employment in Africa and contribute significantly to the continent's GDP. If Africa is to participate fully in the global economy, political and economic reform must be carried out. It must include predictable policies, economic deregulation, openness to trade, rationalized tax structures, adequate infrastructure, transparency and accountability, and protection of property rights.

Enacting needed reforms. Many Governments are in the process of successfully implementing necessary reforms, and some already enjoy stronger growth as a result. Others continue to struggle and several have yet to complete the first generation of economic reforms, which include fiscal con-

solidation, privatization and deregulation programmes, trade liberalization, and policies to promote investment in human capital and economic infrastructures. These reforms need to be put in place without delay. They should be accompanied by determined efforts to stamp out corrupt practices and implement other civil service reforms that will improve the ability of government to carry out its functions.

Long-term success can be achieved only if African Governments have the political will not just to enact sound economic policies but also to persevere in their implementation until a solid economic foundation has been established. This will happen only if there is greater public understanding of the measures required, and broad-based political support for those measures. Therefore, I urge the convening of national conventions on economic restructuring and reform in countries where serious adjustment is required, for the purpose of considering and explaining the need and likely ramifications of various aspects of structural adjustment. Those conventions might also suggest modifications warranted by local conditions.

Drawing attention to progress and new opportunities. Where progress is being made it should be acknowledged publicly. Virtually none of the major investment guides includes information on Africa. For my part, I intend to hold, in collaboration with the Secretary-General of OAU, regular meetings with senior business leaders worldwide to discuss with them ways of promoting large-scale long-term investment in growth-promoting sectors in Africa. I intend to focus special attention on multi-country infrastructure projects and projects for the exploitation of shared natural resources, as called for in the Abuja Treaty establishing the African Economic Community. On the basis of those consultations, I will recommend appropriate follow-up actions to be taken by national Governments, the United Nations system and other institutions.

Emphasizing social development

Too often, the majority of those living in the developing world appear to be incidental to development rather than its focus. Ulti-

mately, all development strategies should be measured by the benefit they bring to the majority of citizens, while the value of particular development tactics should be measured by the extent to which they will contribute to that end. Governments should review their priorities and distribution decisions, focusing on basic human needs and placing primary emphasis on reducing poverty. The international community needs to work for social development with all of the tools at its disposal, ensuring that greater sensitivity to social development issues is matched by increased financing for anti-poverty efforts and for social development needs.

Investing in human resources. Just as investment in physical capital is necessary to generate economic growth, so too investment in human resources must be recognized not merely as a by-product of economic growth but as a driving force for development. Investment in human development is an investment in long-term competitiveness, and a necessary component of a stable and progressing society. Education, for example, not only increases employment options and capacities but it also enables individuals to make broader, better and more informed choices in all aspects of life, health and culture. Technical and professional training lays an essential foundation for the acquisition of skills, and for renewing, adapting or changing those skills to better suit the evolving needs of individuals and societies.

Public health priorities. Africa faces an increasingly serious public health crisis, which may also have serious consequences for development. It is the result of the worsening impact of endemic diseases such as malaria, together with the re-emergence of diseases like tuberculosis and poliomyelitis and the continuing devastation caused by the HIV/ AIDS epidemic. Many deaths could be prevented by vaccinations or effective preventive measures, and by investing in improved sanitation and basic health care. In the case of HIV/AIDS, two thirds of the people infected worldwide are in sub-Saharan Africa. New treatments are available that can very substantially reduce the chances of pregnant mothers transmitting the HIV virus to their unborn children, while better education on

how to prevent the transmission of the disease would also have a significant impact. I call for a new focus by Africa and the international community on reducing the mortality rate of treatable and preventable diseases, and urge that consideration also be given to the use of emergency and humanitarian resources for this purpose. I appeal for substantial additional research into new prevention and treatment techniques for diseases such as malaria, which kills millions of people in Africa each year, many of them babies and children. I urge the pharmaceutical industry to work with African countries and the World Health Organization to set a timetable for achieving more affordable access by Africa to life-saving and life-enhancing drugs, including drugs for the treatment of HIV/AIDS.

Focusing on social justice. The eradication of poverty requires development in which access to the benefits of economic progress is as widely available as possible, and not concentrated excessively in certain localities, sectors or groups of the population. Economic growth does not by itself ensure that benefits will be equitably distributed, that the poor and most vulnerable will be protected or that greater equality of opportunity will be pursued. Attention to social justice is vital if development and economic growth are to produce positive results and if society is to develop in a balanced way. If only a small fraction of education resources are spent on primary education while millions remain uneducated and illiterate, and only a small fraction of expenditures on health care go for basic health services and facilities while millions suffer from easily treatable or preventable diseases, development will have little meaning. If social protections are available only to the urban minority, and lack of access overall translates into a practical lack of rights, development can only be a relative term. If economic opportunities are focused exclusively on urban centres while rural life is degraded and destroyed, turmoil and social disintegration will be the price of change. Development and spending priorities need to be broad-based, equitable and inclusive.

Eliminating all forms of discrimination against women. Investing in women's capabilities and empowering them to exercise their choices is a vital and certain way to advance economic and social development. Equality of rights, opportunities and access to resources between men and women are fundamental requirements. Measures must be taken to eliminate all forms of discrimination against women and girls. Institutional barriers that prevent the exercise of equal rights need to be identified and removed through comprehensive policy reform. In some countries married women still remain under the permanent guardianship of their husbands and have no right to manage property. The equalization of laws for men and women, particularly those relating to property, inheritance and divorce, is a pressing need in a number of African countries. I strongly urge all countries that have not done so to ratify the Convention on the Elimination of All Forms of Discrimination against Women, and to do so without reservation.

Restructuring international aid

In Africa, long-term international aid programmes have not achieved the development goals for which they were established. Dramatic cuts in assistance to Africa have been registered in recent years. This trend has hurt rather than helped Africa's efforts to implement the difficult economic and political reforms which are now under way across the continent. Appropriate and effective aid levels need to be established. In conjunction with this, development assistance needs to be restructured, focusing on high impact areas and on reducing dependency. Attention should be directed both to the means for transmitting assistance and to its ends. It is worth noting, for example, that because urban water supply is given preference over rural services, less than 20 per cent of aid for water and sanitation services goes to rural areas or to low-cost mass-coverage programmes. Because higher education is given preference over primary schooling, less than 20 per cent of aid expenditures for education go to primary education. Because urban hospitals are given preference over primary health care, only about 30 per cent of aid for health care goes for basic health services and facilities.

The manner in which technical assistance is provided also needs to be critically re-examined. Technical assistance as it was originally conceived was designed to close the technical capacity gap between industrial and developing countries by accelerating the transfer of knowledge, skills and expertise, thereby building national capacity. In some cases this has been done but, in many others, technical assistance has had precisely the opposite effect, reining in rather than unleashing national capacity. It has been observed that today, after more than 40 years of technical assistance programmes, 90 per cent of the $12 billion a year spent on technical assistance is still spent on foreign expertise—despite the fact that national experts are now available in many fields.

In line with the objectives outlined above, I call for an immediate examination of how best to restructure international aid to reduce dependency, promote primary social development objectives such as clean drinking water, basic literacy and health care, and reinforce efforts to make African economies more stable and competitive. First and foremost, I urge all donors to strive to ensure that at least 50 per cent of their aid to Africa is spent in Africa, and to make information on the expenditure of aid funds more easily accessible to the public. Greater aid for infrastructure development in Africa, including road and rail networks, telecommunications capacities, computer systems and port facilities, would leave a tangible mark while generating employment, expertise and revenues in Africa itself.

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Summoning the necessary political will

With sufficient political will—on the part of Africa and on the part of the international community—peace and development in Africa can be given a new momentum. Africa is an ancient continent. Its lands are rich and fertile enough to provide a solid foundation for prosperity. Its people are proud and industrious enough to seize the opportunities that may be presented. I am confident that Africans will not be found wanting, in

stamina, in determination, or in political will. Africa today is striving to make positive change, and in many places these efforts are beginning to bear fruit. In the carnage and tragedy that afflicts some parts of Africa, we must not forget the bright spots or overlook the achievements.

What is needed from Africa. With political will, rhetoric can truly be transformed into reality. Without it, not even the noblest sentiments will have a chance of success. Three areas deserve particular attention. First, Africa must demonstrate the will to rely upon political rather than military responses to problems. Democratic channels for pursuing legitimate interests and expressing dissent must be protected, and political opposition respected and accommodated in constitutional forms. Second, Africa must summon the will to take good governance seriously, ensuring respect for human rights and the rule of law, strengthening democratization, and promoting transparency and capability in public administration. Unless good governance is prized, Africa will not break free of the threat and the reality of conflict that are so evident today. Third, Africa must enact and adhere to the various reforms needed to promote economic growth. Long-term success can be achieved only if African Governments have the political will to enact sound economic policies, and to persevere in their implementation until a solid economic foundation has been established.

What is needed from the international community. Political will is also needed from the international community. Where the international community is committed to making a difference, it has proved that significant and rapid transformation can be achieved. With respect to Africa, the international community must now summon the political will to intervene where it can have an impact, and invest where resources are needed. New sources of funding are required, but so too is a better use of existing resources and the enactment of trade and debt measures that will enable Africa to generate and better reinvest its own resources. Concrete action must be taken, as it is in deeds rather than in declarations that the international community's commitment to

Africa will be measured. Significant progress will require sustained international attention at the highest political levels over a period of years. To maintain the momentum for action in support of Africa, I call upon the Security Council to reconvene at ministerial level on a biennial basis so as to assess efforts undertaken and actions needed. I also urge that consideration be given to the convening of the Security Council at summit level within five years, for this purpose.

ABSTRACTS

Family Ties in Western Europe: Persistent Contrasts

DAVID SVEN REHER

In the Western world it is not difficult to identify areas where families and family ties are relatively "strong" and others where they are relatively "weak." There are regions where traditionally the family group has had priority over the individual, and others where the opposite has tended to happen, with the individual and individual values having priority over everything else. The geography of these family systems suggests that the center and northern part of Europe, together with North American society, has been characterized by relatively weak family links, and the Mediterranean region by strong family ties. There are indications that these differences have deep historical roots and may well have characterized the European family for centuries. There is little to suggest that they are diminishing today in any fundamental manner. The way in which the relationship between the family group and its members manifests itself has implications for the way society itself functions. Politicians and public planners would do well to consider the nature of existing family systems when designing certain social policies.

Communism, Poverty, and Demographic Change in North Vietnam

JOHN BRYANT

North Vietnam has for several decades had moderate mortality and moderate fertility at a very low level of income. This pattern emerged during the communist period of the 1950s to 1970s. The communist-era institutions were the fundamental cause of the economic stagnation, but they were well suited to delivering primary health care, and they encouraged better-off families to limit their childbearing. During the 1980s and 1990s the communist economic institutions disintegrated, and Vietnam's political and economic systems came increasingly to resemble those of its authoritarian capitalist neighbors. Incomes have risen quickly, from a low base, and mortality and fertility have continued to decline. The new institutions have delivered rapid economic growth but are not so well suited to providing primary health care; declining efficiency in the health sector appears, however, to have been offset by increases in available resources. The new institutions, like the old, encourage limited childbearing, and the government has developed an extensive birth control program.

On the Quantum and Tempo of Fertility

JOHN BONGAARTS
GRIFFITH FEENEY

Demographers have known since the 1940s that standard measures of period fertility, such as the widely used total fertility rate, are distorted by changes in the timing of childbearing. Period fertility rates are depressed during years in which women delay childbearing and inflated in years when childbearing is accelerated. This distortion is usually ignored because there has been no generally accepted method correcting for it. This study proposes a method for removing the distortions caused by tempo changes from the total fertility rate. The key assumption of the method is that period effects, rather than cohort effects, are the primary force in fertility change, an assumption supported by past research. An application of the adjustment procedure to fertility trends in United States shows that concern over below-replacement fertility in the past 25 years has been largely misplaced. Without the distortion induced by the rising age at childbearing, the underlying level of fertility was essentially constant at close to two children per woman throughout this period. That conventionally measured fertility in Taiwan was below replacement since the mid-1980s is also largely attributable to tempo effects.

An Old-Age Security Motive for Fertility in the United States?

MICHAEL S. RENDALL
RAISA A. BAHCHIEVA

The old-age security motive for fertility is conventionally associated with developing countries, where the mechanisms of public and private-market provision for the well-being of the elderly are inadequate or uncertain. The present study argues for its continued relevance for developed countries. Examination of the poverty rates among the unmarried elderly in the United States uncovers substantial poverty alleviation through the financial and functional assistance of coresident family members. The period examined is the mid-1980s, immediately after the decline of official elderly poverty rates following successive expansions of the Social Security program. An alternative set of poverty measures assuming no financial or functional assistance by coresident family members, and adjusting for additional household labor resources required by functionally impaired elderly persons, is estimated for the unmarried US elderly population. These measures are then compared to poverty measures based on observed household structure and functional assistance to assess the contribution to poverty alleviation of coresident family members. Almost twice as many unmarried elderly, and three times as many disabled unmarried elderly, would be classified as poor without coresident family economic and functional assistance. The old-age security motive is discussed as a potential explanation for differential fertility according to socioeconomic status, and as a factor to consider with regard to the effects of future changes in social support programs for the elderly.

Malthus for the Twenty-First Century

GEOFFREY MCNICOLL

Should Malthus be retired, the alarms set out in his *Essay on Population* (first published 200 years ago) having been noted and acted upon, even though belatedly and by "vice" rather than prudence? Arguably no: much of his thinking retains current relevance, both where it seems on target and where it is blinkered. Examples are Malthus on the state and society, on distribution, and on nature. Civil and political liberty and a fairly minimalist state (public education favored, social security not) was his recipe for prosperity—still relevant for today's impoverished states and predatory regimes. The notorious 1803 passage on "nature's feast" might find echoes in the present international system. And Malthus's treatment of the exploitation of nature as an economic not an aesthetic or ethical matter has many modern parallels. In an *Essay* transposed to the present, just as Malthus paid little attention to the stirrings of industrial revolution in his time, we may ourselves be blind to the social, technological, and environmental forces that will shape the economic and demographic course of the next century.

Julian Simon and the Population Growth Debate

DENNIS A. AHLBURG

This note discusses Julian Simon's contribution to the population debate. While Simon, who died on 8 February 1998, is best known for his arguments supporting the thesis that the net impact of population growth is positive, his lasting contribution is most likely to be methodological: his championing revisionism in the study of the economic consequences of population change by distinguishing direct and indirect effects and of short-run and long-run impacts. The note also argues that Simon does not convincingly provide the mechanisms by which the main long-run benefits of population growth occur and notes that the weight of current empirical evidence suggests that a slowing of rapid population growth is likely to be advantageous for development, especially in poor, agrarian societies.

Divergence of Marriage Patterns in Quebec and Elsewhere in Canada

MICHAEL S. POLLARD
ZHENG WU

Within the last 20 years the declines in marriage rates and prevalence have been signifi-

cantly greater for Quebec than for the rest of Canada. This analysis examines the divergence of Canadian marriage patterns using ideational theory, which suggests that region itself, as a proxy for cultural setting and normative code, is a significant determinant of the marriage process. The effects of economic factors, in addition to region and other cultural markers, are examined using discrete-time event history methods. The findings suggest that factors identified by standard economic models are insufficient but non-redundant in explaining the regional differentials. There was little decline in the effect of region after controlling for a wide range of background and other characteristics. Further analysis indicates that unmarried Quebec women place less importance on marriage, but greater importance on lasting relationships, than do other unmarried Canadian women, highlighting the role of cohabitation in Canadian union formation.

Diffusion of Education in Six World Regions, 1960–90

Annababette Wils
Anne Goujon

Education has been found to be related to fertility and hence population growth; to the status of women; and to labor force skills. Therefore, education is a central issue for development, and it is important to understand the dynamics of education diffusion throughout populations during development. This note analyzes trends in school enrollment and adult education achievement for six world regions, 1960–90. There has been an enormous global increase in both measures of education. Gaps between male and female enrollment remain, and the gap is larger at lower levels of education. As enrollment rates increase and the average level of adult education rises, the gender gap narrows considerably.

Les liens familiaux en Europe de l'Ouest : les contrastes persistent

David Sven Reher

Dans le monde occidental, il n'est pas difficile de déterminer les endroits où les familles et les liens familiaux sont relativement «forts» et où ils sont relativement «faibles». Il y a des régions où, de façon traditionnelle, le groupe familial a préséance sur l'individu, et d'autres où l'individu et les valeurs individuelles sont prioritaires. La répartition géographique de ces systèmes familiaux semble indiquer que les régions centrale et septentrionale de l'Europe, ainsi que la société nord-américaine, ont joui de liens familiaux relativement faibles, et que la région méditerranéenne, quant à elle, a joui de liens familiaux forts. Tout porte à croire que ces différences ont des racines historiques profondes et pourraient même avoir caractérisé la famille européenne depuis des siècles. Il n'y a guère lieu de croire que ces différences vont s'atténuant. La manière selon laquelle se manifeste la relation entre le groupe familial et ses membres a des implications sur la façon

dont la société elle-même fonctionne. Les hommes politiques et les planificateurs publics auraient intérêt à considérer la nature des systèmes familiaux actuels lorsqu'ils élaborent certaines politiques sociales.

Communisme, pauvreté et changements démographiques au Viêt-Nam du Nord

John Bryant

Depuis plusieurs décennies, le Viêt-Nam du Nord affiche des taux de mortalité et de fécondité modérés, ainsi qu'un niveau de revenu très faible. Cette tendance est apparue sous le régime communiste des années 1950 à 1970. Si les institutions mises en place durant l'ère communiste ont été les causes fondamentales de la stagnation économique, elles ont cependant été adéquates à fournir les soins de santé primaires et à encourager les familles mieux nanties à limiter les naissances. Au cours des années

1980 et 1990, les institutions économiques communistes se sont désintégrées et les systèmes politiques et économiques vietnamiens en sont venus à ressembler à ceux de leurs voisins capitalistes autoritaires. Les revenus ont augmenté rapidement et les taux de mortalité et de fécondité ont continué à diminuer. Les nouvelles institutions ont livré une croissance économique rapide mais ne sont pas aussi bien équipées pour livrer les soins de santé primaires. Cependant, il semble que le rendement décroissant du secteur de la santé ait été compensé par une augmentation des ressources disponibles. Les nouvelles institutions, comme les anciennes, encouragent la limitation des naissances, tandis que la croissance économique a fourni au gouvernement une marge de manœuvre qui lui permet d'élaborer un programme de contrôle des naissances à grande échelle.

Quantum et tempo du taux de fécondité

JOHN BONGAARTS
GRIFFITH FEENEY

Depuis les années 1940, les démographes savent que les mesures type du taux de fécondité du moment, en l'occurrence l'indice synthétique de fécondité qui est utilisé sur une grande échelle, sont déformées à cause des variations du moment choisi pour procréer. Les taux de fécondité du moment baissent pendant les années où les femmes retardent la procréation et s'élèvent pendant les années où la procréation est accélérée. En général, cette distorsion est ignorée parce que, jusqu'à maintenant, il n'existait pas de méthode corrective généralement reconnue. La présente étude propose une méthode qui élimine les distorsions causées par les variations de tempo dans les indices synthétiques de fécondité. L'hypothèse clé de la méthode est la suivante : les effets sur la période, et non les effets sur la cohorte, sont la force principale des variations du taux de fécondité. Cette hypothèse est appuyée par des recherches antérieures. Une application des méthodes de correction aux tendances du taux de fécondité aux États-Unis a révélé que les préoccupations au sujet du taux de fécondité en dessous de la normale des 25 dernières années n'étaient pas justifiées en grande partie. Mise à part la distorsion

qu'avait entraînée l'âge de la procréation à la hausse, le niveau de fécondité sous-jacent était essentiellement constant, à près de deux enfants par femme tout au long de cette période. Que le taux de fécondité évalué de façon conventionnelle ait été en dessous de la normale à Taïwan depuis le milieu des années 1980 est également imputable, en grande partie, à l'effet tempo.

Une justification de la fécondité pour la sécurité pendant la vieillesse aux États-Unis?

MICHAEL S. RENDALL
RAISA A. BAHCHIEVA

De façon traditionnelle, la fécondité en tant que justification pour la sécurité pendant la vieillesse est propre aux pays en voie de développement, où les mécanismes de prestation des marchés public et privé pour le bien-être des personnes âgées sont inadéquats ou incertains. La présente étude insiste sur la pertinence de cette considération qui est toujours valable dans les pays industrialisés. L'étude des taux de pauvreté chez les personnes âgées non mariées aux États-Unis révèle que l'aide financière et fonctionnelle de la part des membres de la famille qui résident avec elles y est pour beaucoup dans l'allégement de la pauvreté. La période à l'étude se situe au milieu des années 1980, immédiatement après la baisse des taux de pauvreté officiels chez les personnes âgées due aux développements successifs du programme de sécurité sociale. On y étudie une série alternative de mesures contre la pauvreté dans le segment de population des aînés qui ne sont pas mariés aux États-Unis, alors qu'il n'y a aucune aide financière ou fonctionnelle de la part de membres de la famille qui résident avec elles et qui s'ajuste lorsque des ressources en main d'œuvre sont disponibles pour les personnes âgées fonctionnellement perturbées. Ces mesures sont ensuite comparées aux mesures utilisées contre la pauvreté en observant une structure de ménage et l'aide fonctionnelle, afin d'évaluer le degré de contribution des membres de la famille qui résident avec la personne âgée envers l'allégement de la pauvreté. Il appert que presque le double des aînés non mariés et trois fois plus de personnes âgées handicapées seraient classées parmi les

pauvres s'ils n'avaient pas l'aide économique et fonctionnelle de membres de famille qui résident avec eux. La considération de la sécurité de la vieillesse est discutée en tant qu'explication éventuelle de la fécondité différentielle selon le statut socio-économique, et en tant que facteur à considérer quant aux effets des changements futurs dans les programmes d'aide sociale aux personnes âgées.

Malthus et le XXIe siècle

GEOFFREY MCNICOLL

Malthus peut-il donc enfin prendre sa retraite? Les inquiétudes qu'il avait soulevées dans *Essay on Population* (publié pour la première fois il y a deux cents ans) ont-elles été prises au sérieux et les mesures nécessaires mises à exécution, même si tardivement, et plutôt par vice que par prudence? Une grande partie de sa réflexion sur l'état et la société, sur la distribution et sur la nature est toujours pertinente aujourd'hui. Sa recette de prospérité—la liberté civile et politique et un état quelque peu minimaliste (favorisant l'éducation publique et non la sécurité sociale)—est toujours appropriée pour les États appauvris et les régimes prédateurs. Le fameux passage sur la corne d'abondance, paru dans l'édition de 1803 de l'*Essay*, pourrait fort bien s'appliquer au système international actuel. En outre, la pensée malthusienne sur l'exploitation de la nature en tant que question économique (et non esthétique ou éthique), comporte plusieurs parallèles modernes. Transposons l'*Essay* de Malthus dans notre monde actuel : tout comme Malthus s'est à peine préoccupé des signes annonciateurs de la révolution industrielle à son époque, peut-être sommes-nous également aveugles aux forces sociales, technologiques et environnementales qui façonneront le cours de l'économie et de la démographie du siècle prochain?

Julian Simon et le débat sur la croissance démographique

DENNIS A. AHLBURG

Le présent article discute de la contribution de Julian Simon au débat démographique. Bien que Simon, qui est mort le 8 février 1998, soit mieux connu pour ses arguments à l'appui de la thèse voulant que les répercussions nettes de la croissance démographique soient positives, sa contribution la plus importante sera sans doute méthodologique : en effet, il défend le révisionnisme dans l'étude des conséquences économiques du mouvement de la population en faisant une distinction entre les effets directs et indirects et entre les répercussions à court terme et à long terme. L'article dénote également que Simon ne fournit pas de façon probante les mécanismes au moyen desquels surviennent les avantages principaux à long terme de la croissance démographique et remarque que le poids de l'évidence empirique actuelle laisse entrevoir qu'un ralentissement de la croissance démographique rapide pourrait fort bien être favorable au développement, particulièrement dans les sociétés pauvres et agraires.

Divergence des tendances de la nuptialité au Québec et dans les autres parties du Canada

MICHAEL S. POLLARD
ZHENG WU

Au cours des 20 dernières années, les diminutions des taux et de la prévalence de nuptialité se sont avérées plus importantes au Québec que dans le reste du Canada. La présente étude se penche sur la divergence des tendances de la nuptialité au Canada et utilise la théorie idéationnelle qui préconise que la région même, en tant qu'indicateur de situation culturelle et de code normatif, est un facteur déterminant du processus de nuptialité. Les effets des facteurs économiques, en plus des marqueurs régionaux et culturels, sont examinés à l'aide des méthodes à temps discret. Les résultats proposent que les facteurs identifiés à l'aide des modèles économiques standards sont insuffisants, quoique non redondants, pour expliquer les différences régionales. On n'a vu qu'une baisse légère de l'effet des régions après le contrôle pour un grand éventail d'arrière-plan et autres caractéristiques. Une analyse plus poussée indique que les femmes québécoises non mariées attachent moins d'importance au mariage qu'en des relations durables, que ne le font les autres femmes canadiennes non mariées, ce qui met en

évidence le rôle de la cohabitation dans la formation des unions chez les Canadiens.

Diffusion de l'éducation dans six régions du globe, de 1960 à 1990

Annababette Wils
Anne Goujon

Il a été prouvé que l'éducation est liée à la fécondité et donc, à la croissance démographique, au statut de la femme et aux compétences de la population active. Pour ces motifs, l'éducation est une question d'actualité en ce qui a trait au développement et il est important de comprendre la dynamique de la diffusion de l'éducation parmi les populations au cours de la période de développement. Le présent article analyse les tendances de l'inscription dans les écoles et le niveau de l'éducation des adultes dans six régions du globe, de 1960 à 1990. Il y a eu une augmentation énorme dans ces deux sphères d'éducation, à l'échelle mondiale. Les écarts entre l'inscription des filles dans les écoles et celles des garçons demeurent, et ils sont plus prononcés dans les niveaux d'éducation inférieurs. Au fur et à mesure que les taux d'inscription et le niveau moyen de l'éducation chez les adultes augmentent, l'écart entre les sexes diminue considérablement.

Vínculos familiares en la Europa occidental: Contrastes persistentes

David Sven Reher

En el mundo occidental no es difícil indentificar regiones donde las familias y los vínculos familiares son relativamente "fuertes" y otros donde éstos son relativamente "débiles". Existen regiones donde tradicionalmente el grupo familiar tenía prioridad sobre el individuo y otros donde ocurría lo contrario, y el individuo y los valores individuales tenían prioridad sobre todo lo demás. La geografía de estos sistemas familiares indica que el centro y el norte de Europa, junto con la sociedad norteamericana, se caracterizaban por tener lazos familiares relativamente débiles, y la franja mediterránea del continente europeo evidenciaba lazos familiares fuertes. Estas diferencias parecen tener hondas raíces históricas, habiendo caracterizado a la familia en Europa desde hace siglos, y en la actualidad hay pocos indicios de cambios estructurales en estas maneras diversas de vivir la familia. La manera en la que se articula la relación entre el grupo familiar y sus miembros tiene implicaciones para la forma en que la sociedad en sí funciona. Los políticos y las administraciones públicas harían bien en considerar la naturaleza de los sistemas familiares existentes a la hora de diseñar ciertas políticas sociales.

Comunismo, pobreza y cambio demográfico en el Viet Nam del Norte

John Bryant

Por varias décadas el Viet Nam del Norte tuvo una mortalidad moderada y una fecundidad moderada a un nivel de ingreso muy bajo. Este patrón surgió durante el período comunista de los años cincuenta a setenta. Las instituciones de la época comunista fueron la causa fundamental del estancamiento económico pero fueron muy adecuadas para la prestación de atención primaria de salud y estimularon a las familias de situación económica mejor a limitar su procreación. Durante las décadas de 1980 y 1990 se desintegraron las instituciones económicas comunistas, y los sistemas políticos y económicos de Viet Nam adquirieron semejanzas con los de sus vecinos con regímenes autoritarios capitalistas. Los ingresos aumentaron rápidamente, desde una base baja, y la mortalidad y fecundidad han seguido descendiendo. Las nuevas instituciones han facilitado el crecimiento

económico rápido pero en cuanto al proveimiento de atención primaria de salud, éstas no se prestan tan bién; sin embargo, una eficacia menor en el sector salud parece ser compensado por aumentos en la disponibilidad de recursos. Las nuevas instituciones, como las antiguas, han promovido una procreación limitada, mientras el crecimiento económico le ha otorgado al gobierno una breve pausa para desarrollar un programa extenso de control de la natalidad.

Sobre los "cuanta" y la distribución en el tiempo o "tempo" de la fecundidad

John Bongaarts
Griffith Feeney

Desde la década de los años 1940 los demógrafos han sabido que las medidas estandard de fecundidad de momento, tales como la ampliamente usada tasa global de fecundidad, son distorsionadas por cambios en la distribución en el tiempo o "tempo" de la procreación. Las tasas de fecundidad de momento son rebajadas durante los años en que las mujeres atrasan su procreación y son infladas en los años que se acelera la procreación. Normalmente se ha ignorado esta distorsión porque no ha habido un método generalmente aceptado para corregirla. Este estudio propone un método para eliminar las distorsiones en las tasas globales de fecundidad causadas por cambios en la distribución en el tiempo. La suposición clave del método es que los efectos de momento más bien que los efectos de cohorte son la fuerza principal en el cambio de fecundidad, una suposición apoyada por investigaciones anteriores. Al aplicarse este procedimiento de ajuste a las tendencias de la fecundidad en los Estados Unidos se muestra que la preocupación que se ha tenido de una fecundidad por debajo del nivel de reemplazo en los últimos 25 años ha sido en gran parte innecesaria. Sin la distorsión inducida por el aumento de edad de la procreación, el nivel de fecundidad subyacente ha sido esencialmente constante permaneciendo en cerca de dos hijos por mujer a través del período. Que la fecundidad medida convencionalmente en Taiwán ha sido más baja que el nivel de reemplazo desde mediados de los años de la

década de 1980 también es atribuible en gran parte a los efectos de la distribución en el tiempo o "tempo".

Seguridad en la vejez ¿Un motivo para fecundidad en los Estados Unidos?

Michael S. Rendall
Raisa A. Bahchieva

La seguridad en la vejez como motivo de fecundidad se asocia tradicionalmente con los países en desarrollo donde los mecanismos tanto públicos como del mercado privado para el proveimiento del bienestar de la vejez son inadecuados o poco seguros. Se sostiene en el presente estudio su continuada pertinencia en los países desarrollados. Un examen de las tasas de pobreza entre los ancianos no casados en los Estados Unidos revela que la pobreza es atenuada considerablemente por la ayuda financiera y funcional de miembros coresidentes de la familia. El período examinado es el de mediados de la década de 1980, inmediatamente después del descenso de las tasas oficiales de pobreza de los ancianos luego de expansiones sucesivas del Programa de Seguridad Social. Un conjunto alternativo de medidas de pobreza—no suponiendo asistencia financiera o funcional por parte de miembros coresidentes de la familia, y ajustando por los recursos adicionales de trabajo de hogar que requiere una persona anciana incapacitada funcionalmente—es estimado para la población anciana no casada de los Estados Unidos. Estas medidas son entonces comparadas con medidas de pobreza basadas en las estructuras del hogar y la asistencia funcional observada para evaluar la contribución a la atenuación de pobreza de los miembros coresidentes de la familia. Casi el doble de los ancianos no casados, y tres veces el número de ancianos no casados inválidos, serían clasificados como pobres sin la ayuda económica y funcional de la familia coresidente. Se presenta el motivo de la seguridad en la vejez como una posible explicación para la fecundidad diferencial según la situación socioeconómica, y como un factor a considerar en cuanto a los efectos de futuros cambios en los programas de apoyo para los ancianos.

Malthus para el siglo veintiuno

GEOFFREY MCNICOLL

¿Habría que jubilar a Malthus, habiéndose ya notado y tomado acción en cuanto a las alarmas que anunció en su *Ensayo Sobre Población* (publicado por primera vez hace 200 años), aun si bien tardíamente y por "vicio" más bien que por prudencia? Discutiblemente no: gran parte de sus ideas siguen teniendo pertinencia actual, tanto donde sus ideas parecen dar en el blanco como donde llevan anteojeras. Ejemplos son Malthus exponiendo sobre el estado y la sociedad, sobre la distribución, y sobre la naturaleza. La libertad civil y política y un estado bastante minimalista (favoreciéndose la educación pública pero no la seguridad social) fueron su receta para la prosperidad —todavía pertinente para los estados empobrecidos de hoy en día y los regímenes depredadores. El trozo notorio de 1803 sobre el "festín de la naturaleza" podría encontrar eco en el sistema internacional actual. Y la interpretación dada por Malthus de la explotación de la naturaleza como un asunto económico y no como asunto estético o ético tiene muchos paralelos modernos. En un *Ensayo* transpuesto al presente, igual como Malthus le dió poca importancia en su tiempo a los inicios de la revolución industrial, nosotros mismos podemos estar ciegos a las fuerzas sociales, tecnológicas y ambientales que forjarán las corrientes económicas y demográficas del siglo próximo.

Julian Simon y el debate del crecimiento poblacional

DENNIS A. AHLBURG

En esta nota se presenta la contribución de Julian Simon al debate de población. Si bien Simon, que falleció el 8 de febrero de 1998, es mejor conocido por argumentos que sostienen la tésis que el impacto neto del crecimiento poblacional es positivo, su contribución más duradera probablemente será la metodológica: su gran esfuerzo en impulsar el revisionismo en el estudio de las consecuencias económicas del cambio de población ha sido distinguir los efectos directos de los indirectos y los impactos a corto plazo de los de largo plazo. En la nota se sostiene también que Simon no provee en forma convincente los mecanismos a través de los cuales los pricipales beneficios a largo plazo del crecimiento poblacional ocurren, y se recalca que gran parte de la evidencia empírica actual sugiere que una reducción del rápido crecimiento poblacional probablemente sea ventajoso para el desarrollo, sobre todo en sociedades agrarias pobres.

Divergencia en los patrones de matrimonios en Quebec y el resto de Canadá

MICHAEL S. POLLARD
ZHENG WU

Dentro de los últimos 20 años los descensos en las tasas matrimoniales y su prevalencia han sido significativamente mayores para Quebec que para el resto de Canadá. Este análisis examina la divergencia de los patrones de matrimonios canadienses usando la teoría ideacional que sugiere que una región en sí mismo, como substitución de un contexto cultural y código normativo, es un determinante importante del proceso matrimonial. Los efectos de los factores económicos, a más de las regiones y otros marcadores culturales, son examinados usando los métodos de historia de acontecimientos cronológicos discretos. Los hallazgos sugieren que los factores identificados por modelos económicos estándard son insuficientes pero no redundantes en la explicación de los diferenciales regionales. Hubo poco descenso en el efecto de región después del control de una gama amplia de antecedentes y de otras características. Un análisis adicional indica que las mujeres no casadas de Quebec le dan menos importancia al matrimonio pero mayor importancia a las relaciones duraderas que lo que le dan otras mujeres no casadas canadienses, destacando la función de la cohabitación en la formación de uniones canadienses.

Difusión de educación en seis regiones mundiales, 1960–90

ANNABABETTE WILS
ANNE GOUJON

Se ha encontrado que la educación está relacionada a la fecundidad y por con-

siguiente al crecimiento de la población; a la situación de la mujer; y a la capacitación de la fuerza laboral. Por lo tanto, la educación es un aspecto central para el desarrollo y es importante comprender la dinámica de la difusión de la educación a través de poblaciones durante el desarrollo. Esta nota analiza las tendencias en las inscripciones escolares y los alcances educacionales de los adultos para seis regiones del mundo para el período 1960–90. Se ha logrado un enorme aumento global en ambas medidas de educación. Aún existen diferencias entre las inscripciones femeninas y masculinas y las diferencias son mayores en los niveles más bajos de educación. A medida que aumentan las tasas de inscripción escolar y el nivel medio de la educación adulta asciende, la brecha entre ambos géneros se reduce considerablemente.

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Click to return to Table of Contents