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# Demographic Transitions and Modernity

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## Key Words

birthrate, population, governmentality, rationality

## Abstract

Much contemporary anthropology is concerned with the origin, character, and consequences of late modernity. Surprisingly absent in this literature is the importance of population size, structure, and process. In particular, the demographic transition—or historical change from a high to a low equilibrium of birth and death rates—is an important component of modernity that deserves greater anthropological engagement. This review outlines demographic transition and transition theory, then discusses two ways in which transition intersects with literatures on modernity: through individual rationality and governmentality. Confronting both the material of population and the theories about it has the potential to significantly reconfigure anthropologies of the present.

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**Demographic transition:** a historically specific change from high to low rates of fertility and mortality that many human populations have undergone since 1750

**Theories of demographic transition (TDT):** set of related theories regarding the causes and mechanisms of the historical decline of fertility and mortality, usually focused on modernization as a primary driver

**Modernization:** a general term used in theories of transition to refer collectively and loosely to rising urbanization, industrialization, individualism, and secularism

**Total fertility rate (TFR):** the number of children that a woman would bear if she survived through the ages of childbearing and gave birth at the age-specific rates of the time period

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## INTRODUCTION

Cultural and social anthropologists have paid scant attention to population size, structure, and dynamics, particularly in recent years.<sup>1</sup> New work on risk, aggregation, statistics, and population as a discursive formation has made this absence more problematic. Through a discussion of demographic transition, I argue that a real understanding of population dynamics not only enriches and alters our understanding of modernity, but also offers a compelling argument against methodological individualism in social science. Thus, an anthropology of the present will benefit from a deeper engagement with the material of population and with demographic theory.

The term demographic transition has two primary meanings. It refers first to the historically specific change from high to low rates of fertility and mortality that many human populations have undergone since 1750, and second to a set of theories regarding the causes and mechanisms behind that change (e.g., Caldwell 1976, Coale 1973, Davis 1963, Jones et al. 1997, Kirk 1996, Notestein 1945). I distinguish between the empirical change and the theories about its causes by using the term demographic transition to indicate the first definition and the term theories of demographic transition (TDT) to indicate the second one.<sup>2</sup> Nearly all these theories treat demographic transition as a consequence of modernity under some guise, although they differ in attributing particular causal force to changing modes of production; rising aspirations of consumption; increasing secularization and individualism; or changing conceptions of sex, gender, and family. Central to most TDT is the concept of individual choice, often formulated with the assumptions of ra-

tional choice theory. Some TDT also treat the declining vital rates as causes of further social, political, or economic change (e.g., Binion 2000, Van Krieken 1997, Zhao 1996; c.f. Reisman 2002).

Theories of demographic transition have generally presupposed that the move from high to low vital rates is both a one-time event in the history of a given population and an inevitable one. These assumptions are partly the product of the theory's proximal origin in early post-WWII demography in the United States, when scholars with backgrounds in engineering and agricultural science turned their attention to population change. They sought, and therefore found, the same principle of unilineal progress that their contemporaries had identified in technology, governmental form, and human development: As societies developed and modernized, their populations would invariably undergo transition. Over the past 60 years, however, it has become abundantly clear that there is no coherent, comparable metric of societies' modernity. Whether, how, and how well proxy measures of modernity or development predict vital rates remain open, and hotly contested, empirical questions. There is wide agreement among population scholars that transition is associated with modernization or modernity, but little agreement about how or why.

## DEMOGRAPHIC TRANSITIONS IN HISTORY

The decline of demographic rates over the past 250 years represents one of the most dramatic changes in known human experience (Flinn 1981, Gillis et al. 1992, Heuveline 1999, Lee 2003). In the early eighteenth century, cohort life expectancy was approximately 30 years in most European countries, meaning that half of all people died by that age, mostly in infancy. The cohort total fertility rate (TFR), which can be loosely understood as the average number of births per woman, was greater than 8.5. Starting in France, and then across the continent, mortality and fertility fell precipitously over the next

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<sup>1</sup>A generation ago this was far less true. See Cowgill 1975, Hall 1972, Hammel et al. 1979, Handwerker 1983, Howell 1979, and review in Howell 1986.

<sup>2</sup>Szreter (1993) argues that there are four distinct meanings of the term demographic transition. In this review, I conflate what he calls a theory, a historical model, and a prescriptive model, considering all three TDT.

200 years. By 1960, European life expectancy approached 70 years and the TFR for the continent lay between 2 and 3. European-descended populations in North America and Australia underwent parallel changes. Populations across Latin America and Asia have undergone equivalent, but far more rapid, changes in the twentieth century. Wherever it occurs, this empirical reduction in rates of fertility and mortality is called demographic transition.

A demographic transition is a special kind of change in vital rates—a movement from one demographic equilibrium to another. Before transition, fertility and mortality rates are high but approximately balanced so that populations neither grow nor shrink. During transition, populations grow considerably. After transition, the vital rates are again in equilibrium, with population growth rates near zero. Thus, two different rates of demographic metabolism (Ryder 1964) both produce negligible rates of population growth. Because equilibria are central to the concept of demographic transition, most TDT incorporate homeostatic mechanisms, that is, processes that function to synchronize birth and death rates (Lee 1987, Reher 1999, Teitelbaum & Winter 1988). These homeostatic mechanisms may take a variety of forms from Malthusian checks (Coleman & Schofield 1986, Malthus 1960) to what Davis (1963) called multiphasic response.

Demographic transitions imply dramatic changes in many domains, including the economy, disease environment, and household organization. For example, the changes in overall levels of mortality are associated with changes in its character: Infant and child deaths, and deaths due to infectious causes, decline most as death becomes concentrated in a narrow band of older ages. Thus, an epidemiologic transition is integrally related to the demographic one (Omran 1977). Lower infant mortality means that children are more likely to survive to adulthood, but this effect can be overwhelmed by a decline in birthrates. Falling fertility rates almost always result in a decline in the number of siblings for any given child and therefore a decline in the numbers of aunts, uncles,

and cousins a generation later.<sup>3</sup> Such declines also yield a decrease in the variation of sibling set size. As a whole, falling rates of birth and death mean far less uncertainty about when and how death will come and about the number of children one will parent. Slower demographic metabolism at the population level means greater predictability for the individual: a longer and clearer horizon for the life plans central to Giddens's theory of the modern self (1991).

## THEORIES OF DEMOGRAPHIC TRANSITION

The first theories of transition assumed that mortality rates would fall before fertility rates (**Figure 1**). This figure shows an idealization of the demographic transition after Notestein (1945) and Thompson (1929), rather than the trajectory of any specific population. Note in particular that the x-axis is labeled modernization, but could just as well be labeled development, or even time. As Ferguson (2006, p. 178) has argued, the concept of modernity conflates time and status, and this argument applies to TDT as much as to modernization theories in political science or sociology. Modernization is an essential causal force in nearly all theories of TDT (see Goldscheider 1971); however, most theories give surprisingly short shrift to what modernization means. Some scholars lump together “growing individualism and rising levels of popular aspirations,” urbanization, and the fact that “the family lost many of its functions to the factory, the school, and commercial enterprises” (Notestein 1945, p. 40; see also Coale 1973, pp. 64–65). Others, mostly for practical reasons in a quantitative analysis, take gross national product (GNP), proportion urbanized, women's literacy, secularization, or another single variable as a proxy for whatever it is about modernity that matters. Not only do

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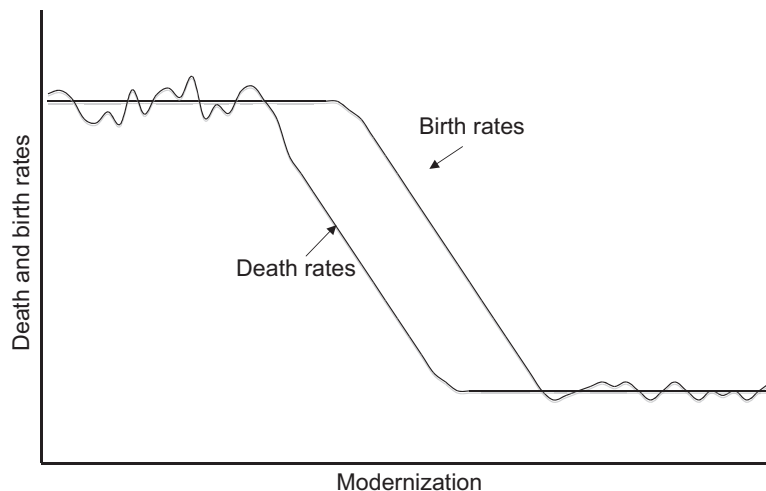
**Demographic metabolism:** turnover within a population through births and deaths. Occurs quickly in pretransition populations and slowly in posttransition ones

**Homeostatic mechanism:** any process or force that functions to synchronize birth and death rates in a population over time

**GNP:** gross national product

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<sup>3</sup>In theory population-level fertility could decline without this consequence if an increasing number of women remained childless. Empirically, however, most of fertility decline results from a reduction in higher-order births.



**Figure 1**

Stylized representation of demographic transition theory adapted from Notestein (1945) and Thompson (1929).

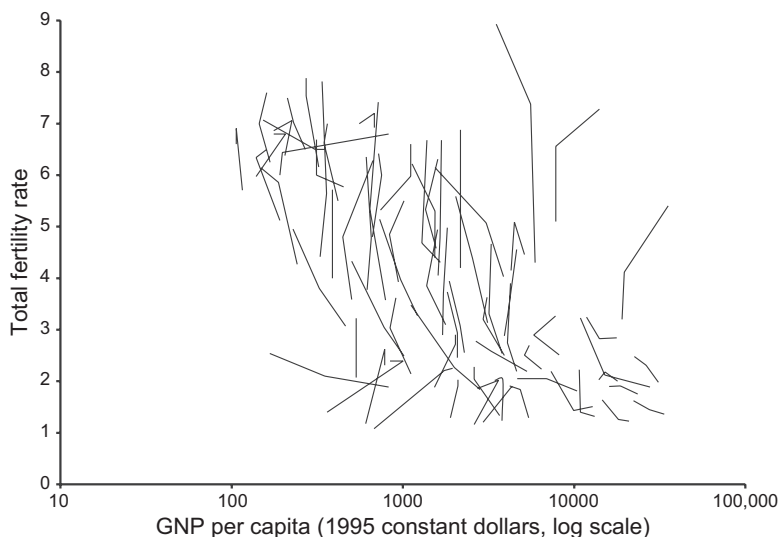
ethnographers stand to benefit from an engagement with population studies, but transition theorists could also learn from anthropological work on modernity.

Even the theories that agree that mortality should fall before fertility offer conflicting causal explanations. Notestein (1945, p. 41) argued that people would naturally deploy the advantages of modernity to reduce death rates, but that fertility rates would be stalled by cultural factors that would only slowly give way. Davis (1963), in contrast, posited that modernization would lead to lower infant death rates, in turn creating a social crisis, particularly around inheritance (see also Macunovich 2000). People would respond to this crisis in varied ways (multiphasic response), including emigration, infanticide, and fertility limitation. In Notestein's depiction, therefore, modernity exerts a direct effect on both mortality and fertility, whereas for Davis fertility decline is an only indirect consequence of modernity, mediated by mortality.

The basic outline of TDT as developed by Notestein and Davis corresponds well with microeconomic theories of demographic behavior, in which fertility decline results from the changing costs and benefits of children as

a result of economic development, education, and women's employment (Becker 1991, Easterlin 1975,<sup>4</sup> Easterlin & Crimmins 1985, Leibenstein 1975, Pritchett 1994). The kind of modernity that matters in these microeconomic theories is a material one, grounded in the division of labor and the increased productivity that it affords. In the cross section, microeconomic theories of fertility are supported by evidence: There is a generally negative association between economic development and fertility at the aggregate level (see **Figure 2**). In this figure, each country is represented by a line that connects the values of GNP and fertility at three points in time. The overall shape of the data—sloping downward from left to right—shows the generally negative association between the variables. A similarly negative but weak relationship holds for education and fertility in the aggregate. At the individual level, too,

<sup>4</sup>Easterlin's model differs from the others by focusing not only on the demand for children, but also on their supply and the cost of fertility regulation. It thus makes explicit a characteristic inherent to all these models, namely the extension of the economic concept of demand to something for which there is no market (births, or in Becker's case child services), and which arises as a consequence of action taken for another purpose entirely (see Potts 1997).



**Figure 2**

Fertility in 120 countries as a function of GNP per capita in 1980, 1990, and 2000. (Data from the World Bank International Database.)

income and education are associated with fertility outcomes in nearly every context (Bledsoe et al. 1999, Martin 1995; see discussion in Johnson-Hanks 2006, pp. 4–8). However, TDT that rely on economic modernization have also faced considerable contrary evidence.

Some of this evidence is visible in **Figure 2**: There is substantial variation in fertility rates for different countries with the same GNP per capita. Countries with a gross domestic product (GDP) per capita of ~\$4000 have TFRs ranging from 1.3 to 8.9. Even when the outliers are excluded, the range in fertility at a given level of GNP is more than six children, or more than two-thirds of the range of the complete data. Although there is a negative association between the variables, the predictive power of GDP for fertility is weak. The economic trajectories of specific countries, too, suggest that economic modernization does not adequately explain fertility decline. Patterns of economic growth between 1980 and 2000 do not predict changes in fertility. The paths in some countries do slope downward from left to right, consistent with an economic modernization explanation, but others slope upward, are essentially vertical or horizontal, or make v-shapes with varying orienta-

tions. All these suggest that something other than economic modernization influences fertility decline.

Between the late 1960s and the early 1980s, Coale and his students at Princeton conducted a detailed analysis of demographic transition in Europe (Coale et al. 1979, 1986; Knodel 1974; Lesthaeghe 1977; Livi Bacci 1971, 1977; Teitelbaum 1984; van de Walle 1974). The results of the European Fertility Project dramatically transformed thinking about transition in two ways: It showed that mortality decline did not always precede fertility decline and that speakers of the same language generally experienced fertility transition at the same time, regardless of economic development (but see Brown & Guinnane 2007, Guinnane et al. 1994 for methodological critiques). These findings led to what has been called the diffusionist model, which treats fertility decline as a consequence of the spread of new ideas, largely independent of changes in mortality and economic development (for overviews of the microeconomic-diffusionist debate, see Bulatao & Casterline 2001, Hirschman 1994, Mason 1997, Pollak & Watkins 1993). Watkins exemplifies the diffusionist perspective, writing

"in the end it is individuals who act in the privacy of their bedroom; I propose, however, that even when the couple is literally alone in the bedroom, the echoes of conversations with kin and neighbors influence their actions" (Watkins 1990, p. 242). As a result of the Princeton project, culture, identity, and social interaction all became legitimate objects of analysis in demography. Indeed, many saw them as the key drivers of, or potential obstacles to, fertility decline. For the diffusionists, fertility decline is the product of modern ideas and identities, which circulate through social networks, enhanced by mass media and interventions such as family planning clinics (e.g., Bongaarts & Watkins 1996, Cleland & Wilson 1987, Kincaid 2000, Montgomery & Casterline 1996, Watkins 2000).

The post-Princeton body of work provides a potentially fruitful point of contact for ethnographers and linguistic anthropologists. Watkins places the circulation of discourse at the beginning of a causal chain leading from discourse to ideas to individual vital decisions in the bedroom. Both the promise and the potential pitfalls of this view will be evident to anthropologists familiar with the history of diffusion theories in North American anthropology (see Stocking 1982).

Several authors have proposed models of fertility decline that use ideas associated with both the microeconomic and the diffusionist schools. Two are of particular importance. Caldwell's theory of the direction of wealth flows posits that in pretransition societies children are a net economic benefit to their parents, whereas in posttransition societies they are a net cost (1976, 2005). This model is not a strictly microeconomic one, however, because Caldwell argues that the structural change is caused by new values and norms about childhood, consumption, and discipline, particularly as a result of mass primary education (see especially Caldwell 1980).<sup>5</sup> Coale (1973) advo-

cates a model in which fertility fell when child numbers entered into the "calculus of conscious choice," fertility limitation was desirable (as a result of largely economic incentives), and the means of fertility control were available. Building on Coale's three preconditions, Lesthaeghe and his coauthors have argued in a series of papers that couples must be ready, willing, and able to reduce fertility, and that any of these three can serve as a bottleneck and delay decline (see Lesthaeghe & Moors 1994, Lesthaeghe & Neels 2002).

## TRANSITION AND RATIONALITY

The emergence of a new, calculating rationality is often considered one of the hallmarks of modernity (e.g., Weber 1958; see Lash 1999, p. 1). This view is echoed in both microeconomic and diffusionist theories of transition. Microeconomic perspectives on fertility transition assert that the material conditions under which people make reproductive decisions change with modernization, but that the process of decision making is rational before and after transition. That is, pretransition populations have high fertility because individuals in those populations choose to have large families (Pritchett 1994, p. 4). Diffusionists, by contrast, assert that modernity transforms the grounds or process of decision making itself, such as by moving reproduction from the realm of custom to a legitimate object of rational choice (see LeVine et al. 1991, Lesthaeghe 1980).

A key example of the centrality of rationality to theories of transition is Coale's (1973) idea that reproduction, in the form of completed family size, must enter the calculus of conscious choice before fertility will fall. Coale posits that prior to transition, couples did not make conscious choices about child numbers, or even consider doing so (see also van de Walle 1992). Fertility decline in his model relies on a specific form of calculating rationality focused on the number of children conceived in marriage, as opposed to—for example—the timing and spacing of births, marriage postponement, or child attributes. Indeed, nearly all the

<sup>5</sup>Empirical analyses have not generally supported Caldwell's claim. See Lee & Kramer (2002), Stecklov (1997).



existing literature treats fertility decline as equivalent to the emergence of parity-specific fertility control, that is, the limitation of marital fertility once a specific target number of children has been attained (see Carter 1995, p. 84 for a critique).

Insofar as fertility decline is subsumed into parity-specific control and parental rationality, the debate about the causes of fertility decline becomes a debate about the causes of changing reproductive intentions. In a classic paper, Henry (1961, p. 91) writes that fertility “control is said to exist when the behavior of the couple is bound to the number of children already born and is modified when this number reaches the maximum which the couple does not want to exceed.” Similarly, Knodel (1983, table 1) identifies “deliberate stopping with the intent to limit family size” as the *sine qua non* of controlled fertility; that is, fertility falls because couples think about their fertility and choose to limit the number of children they bear: reproduction is the product of reasoned action. Most scholars of fertility transition would thus agree with a recent review that asserts, “fertility decline is a largely rational process” driven by “the desire for smaller families” (Bulatao 2001, p. 11), regardless of whether that desire arises from material conditions or diffusion processes.

Thus, in the standard view described above, people intend to have three children in the same way that they intend to buy breakfast cereal, hire an assistant, or open a window. The conceptual problem with this view is that fertility does not resemble opening a window in any of the relevant ways. People do not necessarily have explicit plans of action in reference to reproduction. The plans that do exist may change before they are accomplished. They may also be vague, underspecified, or relatively unimportant compared with other simultaneous plans. Actions with reproductive consequences also have other, even more important, motivations. People must collaborate with others in the relevant actions. Even when people have clear intentions, biology often thwarts their achievement. At some basic level, reproduction remains partially outside the calculus of conscious

choice, even in posttransition societies. The conceptual problems are echoed by empirical fact: At the individual level, reproductive intentions predict outcomes quite poorly.

A growing number of studies, building on Ryder's and Westoff's pioneering work in the 1970s, examine the relationship between stated fertility intentions and subsequent reproductive outcomes at the individual level (Bankole & Westoff 1998; Campbell & Campbell 1997; De Silva 1992; Jones et al. 1980; Miller & Pasta 1995; Morgan 1981, 1982; Nair & Chow 1980; Quesnel-Vallee & Morgan 2004; Schoen et al. 1999, 2000; Symeonidou 2000; Tan & Tey 1994; Vlassoff 1990; Westoff & Ryder 1977; Williams et al. 1999). The results of these studies are mixed, partly because of varying research methods and partly because of the different socioeconomic contexts in which the studies were conducted. But this literature gives reason to doubt that fertility outcomes are the product of reasoned action oriented to completed family size, even in posttransition populations. For example, Westoff & Ryder (1977) found that in their sample of married, college-educated, fecund, white, American women—arguably the subpopulation most able to achieve their intentions—more than 20% had reproductive experiences within a five-year period that contradicted their stated intentions. Even higher levels of discordance are found in post-transition Taiwan (Nair & Chow 1980).

If posttransition fertility outcomes are not primarily the product of intentional, reasoned action oriented toward child numbers, how should we explain them? A growing body of work argues that reproductive action is oriented by ethics and aspirations in high- and low-fertility populations alike, and that rationality matters only as a culturally meaningful portrayal of reproductive action, and not as an empirical description of it. Bledsoe (2002, Bledsoe et al. 1998) argues that Gambian women orient their reproduction not toward total child numbers, but toward physically and socially appropriate birth timing. Johnson-Hanks (2002) has made a similar argument about the reproductive practices of urban, educated

Cameroonians, emphasizing the importance of women's honor. Fisher (2006) uses life history interviews to make the case that working-class English couples in the first half of the twentieth century reduced their fertility without formulating intended family sizes; fertility fell, she argues, without child numbers entering the calculus of conscious choice. Together, these recent works suggest that fertility transition results from changing conceptions of value, time, and ethics, rather than from the transformation of reproduction from the domain of values to the domain of rational calculation. A study of posttransition fertility thus offers a new perspective on rationality and modernity.

### TRANSITION, MODERNITY, AND GOVERNMENTALITY

Although most TDT treat modernization or modernity as its key cause, these theories offer surprisingly thin discussions of modernity. Equally surprising is how completely the leading theorists of modernity in anthropology ignore demographic change: Changes in vital rates or in population size and structure are almost completely absent from anthropological writings on the modern, the postmodern, the postcolonial, and the contemporary (see Fischer 1999 for a review; partial exceptions include Schneider & Schneider 1996, Setel 1999, Szreter et al. 2004). This is surprising for three reasons. First, demographic changes are empirically some of the most dramatic transformations in the human condition recorded in the past three centuries: that the average person should have one sibling instead of seven, should expect to live into adulthood without experiencing the death of a parent or sibling, should have few enough kin to be able to know each of them, and should be able to plan a life trajectory neither centered on raising children nor colored with the constant risk of death. The emergence of cyberspace, futures options, and new reproductive technologies pales in comparison. Second, demographic changes are closely intertwined with the social, political, and technological changes that do draw considerable research

attention. Imagine, for example, a “regime of the self” as a prudent yet enterprising individual, actively shaping his or her life course through acts of choice,” (Rose & Novas cited in Collier & Ong 2003, p. 423) in a population where life expectancy is below 30: not impossible, but dramatically less likely. Third, there are vibrant literatures at the margins of population processes, both on the discourses of population and biopower/biopolitics (e.g., Agamben 1998; Foucault 1990, 1997, 2004; Greenhalgh 2003; Greenhalgh & Winckler 2005; Hacking 1990; Horn 1994; Krause 2005; Paxson 2004; Rose 1996, 2007) and on birth and death as individual experiences, meaningful symbols, and elements in a political economy (e.g., Clarke 1998, Franklin & Lock 2003, Ginsburg & Rapp 1995, Inhorn 1994, Kaufman & Morgan 2005, Lock 2002, Loizos & Heady 1999, Sargent 1989, Scheper-Hughes 1992, van Hollen 2003). These literatures would be greatly enhanced by direct engagement with the study of population size, structure, and rates of change, that is, with the materiality of population, and not only the discourses about it.

As a primary example, the idea of population plays a central role in Foucault's conceptualization of modern governmentality. In a variety of works, he makes the argument that “one of the great innovations in the techniques of power in the 18th century was the emergence of ‘population’ as an economic and political problem. . . . Governments perceived that they were not dealing simply with subjects, or even with a ‘people,’ but with a ‘population’ (Foucault 1990, p. 25; see also Foucault 1990, p. 139; 1997, pp. 242–44). Indeed, for Foucault, population “is the pivot on which turned the transition from rule based on sovereign authority to a ‘governmentalized’ rule . . . [which is] triangulated around practices of sovereignty-discipline-government and [has] as its essential object the population” (Curtis 2002, p. 506). Building on Foucault, Hacking (1986) treats demographic categorization as a prototypical case of the rise of statistical forms under modern rule, whereby official classifications, such as from the census, enter people's own



understandings of themselves and others, altering the character of social relations. In the past decade, numerous scholars have investigated migration, family planning policies, and public health systems through a Foucauldian lens (e.g., Greene 1999, Inda 2005, Petersen & Bunton 1997).

*Governing China's Population* by Greenhalgh & Winckler (2005), perhaps the most demographically astute of these recent works, argue that the project of population is central to power and politics in post-Mao China, particularly through the one-child policy and its precursors. Indeed, the decline of fertility in China was linked to an explicit program of modernization, making China at once a paradigmatic and exceptional case. Greenhalgh & Winckler gloss Foucault's triangle as "governance over and through government in the conventional sense . . . , governance through 'intermediate' disciplinary institutions, usually run by professionals on the basis of particular expertise . . . , [and] self-governance by individuals of themselves" (Greenhalgh & Winckler 2005, p. 23). This last category is of critical importance with regard to demographic transition. Whereas institutions within and beyond the state clearly influence fertility and mortality rates, births and deaths are, in the end, individual-level events, and their comprehensive analysis must extend to that level. Demographic transition turns on the questions of when and how specific reproductive actors change their behavior.

For Foucault, sovereignty-discipline-government exists as a palimpsest in which self-regulation emerges out of the disciplining of conduct through nonstate institutions, which in turn builds on sovereign power. Each new modality coexists with the earlier ones rather than displacing them (see Moore 2005, especially chapters 2 and 3). The self-monitoring of individual conduct thus emerges out of the ongoing expert administration of populations aimed at optimizing individual and collective life and health. In this view, the emergence of fertility limitation should follow—both temporally and conceptually—the disciplining of reproduction by demographers, public

health experts, and other participants in an institutionalized politics of life. For China, as analyzed by Greenhalgh & Winckler (2005), this explanation may hold, although much of what they describe resembles pure sovereign power more than governmentality as conventionally understood. However, most of the fertility decline in the North Atlantic occurred long before any such formation existed, starting by the 1750s in France and by 1850 in most of the rest of Europe and North America. At the time, governments were strongly pronatalist in discourse, policies were neutral or pronatalist, and the disciplining of reproduction, for example by demographers, had not yet begun. That is, fertility fell through the transformation of individual conduct without the mirroring, monitoring, or reinforcement of the state.

Parish registers, through a technique known as family reconstitution, serve as the primary data source for the period before European state collection of birth records [for details on the method and use of family reconstitution, see Henry & Fleury (1956), Wrigley & Schofield (1989)]. Churches recorded baptisms, marriages, and funerals out of concern for souls rather than as part of the power to make live and let die; we therefore have information about population changes before, and at least partially independent of, the knowledge/power oriented to their control (see Wilke 2004). Based on these sources, it is clear that fertility began falling in specific communities in France by 1750 (Hadeishi 2003) and decline was well established throughout the country by 1790 (Flinn 1981, p. 86; Weir 1994), that is, by the time of the first demographic analyses of the birthrate<sup>6</sup> and more than a century before the liberalization of laws against abortion. What is more, reproductive conduct

<sup>6</sup>Among these earliest publications in France is Laplace (1786). A couple of earlier studies of fertility were published in England (Arbuthnot 1710) and Germany (Süssmilch 1742), arguing that the sex ratio at birth showed evidence of God's providence. Studies of mortality began much earlier, also in England, and were well developed by 1800. For discussions, see Daston (1988), Dupâquier & Dupâquier (1985), and Hacking (1975).

in many European countries was already self-monitored and managed well before the onset of the demographic transition, albeit in relation to the timing rather than the numbers of births (Bengtsson & Dribe 2006, van de Walle & Muhsam 1995; see Friedlander et al. 1999, pp. 508–11 for a review). Similarly, in what would become the United States, fertility decline began around the time of the revolution, before knowledge of the birthrate, before disciplinary institutions that were oriented to its management, and even before the establishment of a state that could authorize such management (Binion 2000, Main 2006). Demographic transition should be a paradigmatic example of biopower, but at least in France and the United States, new kinds of individual self-regulation, visible in birthrates, preceded the relevant forms of knowledge/power by decades. A study of population rates thus alters how we think about discourses of population.

## CONCLUSION

Much of contemporary anthropology seeks to understand the contemporary condition as a product of neoliberalism, modernity, and its aftermath. Although, looking comparatively, no single aspect of modernity seems either necessary or sufficient for demographic transition to occur, the change from high to low rates of fertility and mortality was everywhere intertwined with the emergence of the modern. Transition is not only a consequence of modern institu-

tions and forms of personhood, but also one of their sources. The life plans that play such an important role in Giddens's (1991) theory of the modern self, for example, require a posttransition demographic regime.

Generalizing beyond demographic transition, population size, structure, and dynamics constitute the conditions of possibility for much of social life. Discourses about rates, statistics, and populations matter (see, e.g., Krause 2001, Urla 1993), but actual rates and ratios matter, too. For example, contemporary concerns about European identity and immigration are fueled by the fact that birthrates are below replacement; within a generation, all countries in Europe would likely experience population decline were it not for immigration. The very high sex ratio at birth in China means that many men will be unable to find native-born wives. Rising life expectancy and falling birthrates combine with legal and economic factors to create the social security shortfall. And fertility postponement up against the limits of fecundability generates markets in IVF, donor gametes, and surrogacy. In sum, populations have systematic properties that emerge only at the aggregate level, making them natural objects for anthropological investigation. When so many of the social sciences are gravitating to methodological individualism or reducing the social to an epiphenomenon of brain structure, population dynamics offer an unsailable example of why that path can never be sufficient.

## DISCLOSURE STATEMENT

The author is not aware of any biases that might be perceived as affecting the objectivity of this review.

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