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On the Democratic and Demographic Transitions

Seminar (text)

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Accounting for the emergence and spread of modern systems of democracy is a central concern of political science. In a paper published in 1959 Seymour Martin Lipset articulated a case that has been the subject of much subsequent research. It is that economic development, including various factors it subsumes—especially the attainment of higher living standards, but also industrialization, the spread of education, and urbanization—is the most important general force informing the transition to stable democratic politics.

Of course, many non-economic considerations—like the nature of pre-existing political institutions, cultural orientation, the degree of social homogeneity, and various external influences—also affect the position of countries with respect to democracy. And there has been much debate as to the ways in which economic growth may promote democratization (e.g. see Rueschemeyer, Stephens and Stephens 1992). Moreover, some analysts do not find that economic growth is advantageous for the establishment of democracy (e.g. see Londregan and Poole 1996; Przeworski and Limongi 1997; Acemoglu et al. 2008). Indeed, research using similar data and methods sometimes comes to rather different judgments on the issue (e.g. see Przeworski et al. 2000; Epstein et al. 2006). Nevertheless, most studies do conclude that countries with higher per capita incomes are more likely to be democratic (e.g. see Barro, 1999; Feng and Zak 1999; Epstein et al. 2006). And in reaching this result they chime with a large body of more qualitative work which sees economic development as important to the emergence and consolidation of democracy (e.g. see Dahl 1989; Huntington 1991; Diamond 1992; Geddes 1999).

The present paper will not challenge the view that economic growth supports the transition to democratic politics, other things equal. Indeed, it uses evidence consistent with this position as something of a benchmark. However, the paper does maintain that there is another major societal phenomenon that plays at least as important a role in democratization. This is the demographic transition—a phenomenon that, despite the similarity of name, has largely been neglected in previous research.

The processes of the demographic transition, and their implications for democracy, are outlined further below. However, the present argument relates chiefly to what might be termed the 'second half' of the demographic transition. This is the period during which the birth rate falls from high to low levels—producing both a fall in the population growth rate and a very long period of population aging. Key ideas informing the present case are that (i) population growth weakens the basis of traditional autocratic regimes, but as growth slows so this often strengthens the basis for the creation of democracy, (ii) fertility decline releases women from lives dominated by household affairs, gradually putting them on a more equal basis with respect to men—changes that underpinned the extension of voting rights to women in the past, and (iii) population aging means that societies move from having young age structures—with many children—to having old age structures—with few children and more adults—and societies that are more adult in composition are more likely to press for democracy. In what follows the median (i.e. central) age of a population will be used to gauge the extent to which it has progressed through the demographic transition. Fertility decline, slowing population growth, and population aging are so closely related that no attempt is made to differentiate their separate influences here. Nevertheless, taken together these demographic processes comprise a major force behind the appearance and consolidation of democracy.

Clearly, this paper is concerned with fundamental processes that unfold over long periods of time and which influence political change in *underlying* rather than in proximate ways. It should also be clear that we will be concerned with the practical realization of modern democracy, rather than with its existence as an idea (elements of which have been around in European societies, and their offshoots in North America, for at least two centuries). Furthermore, in what follows it is impossible to avoid the problem of what 'democracy' is, and how its level in a population is to be gauged. That the dependent variable of interest is so

difficult to conceptualize and measure inevitably restricts what can be gleaned from the analysis of quantitative data.

The paper has three main parts. The first introduces the demographic transition and discusses why its constituent processes might be expected to influence the movement to democratic politics. The second considers issues of data and approach. It also examines the relationship between demographic and democratic change in Europe and North America through time, and how variation with respect to the demographic transition may help to explain international variation with respect to democracy in recent decades. The paper's final section briefly discusses some of the implications of the argument.

The demographic transition and its significance for democracy

There are as many variants of the demographic transition as there are societies (e.g. see Chesnais 2001). Nevertheless, the highly stylized version shown in Figure 1 is helpful.[1] Mortality decline—as reflected by the fall in the death rate—is almost always the first process to occur. It produces a rise in the rate of natural increase—essentially, the rate of population growth. This happens because there is usually a delay before fertility—as reflected by the birth rate—begins to fall. The onset of fertility decline heralds the start of what we will term the 'second half' of this transition. And fertility decline has two main demographic effects. First, it initiates a fall in the rate of population growth (i.e. natural increase) back towards the relatively low level that previously prevailed (see Figure 1). Second, it causes the age structure (i.e. composition) of a population to get much older. It is often thought that population aging is caused by mortality decline. In the present context, however, this effect is negligible. Indeed, as we will see, a population's median age often falls initially because of mortality decline—i.e. the population becomes somewhat younger. In fact, fertility decline is the main cause of population aging (Coale 1964). But because this aging represents cumulative change in a society's overall composition, it is important to appreciate that it is a process that takes many decades to unfold.

There was considerable variation in the demographic characteristics of 'pre-transitional' societies (Chesnais 2001; Livi-Bacci 2001). However, life expectancy was always very short by modern standards—typically in the range 20-35 years. Infectious diseases accounted for most deaths, and epidemics were common. Women experienced a relatively large number of births during the course of their reproductive lives—usually somewhere between five and seven. And high fertility ensured that the age structure of pre-transitional societies was young. Indeed, it was frequently the case that over half of the total population would be aged under 20 years.

There has been, and there remains, considerable variation of experience with respect to the demographic transition. Certain European societies—including their offshoots—led the way. There are signs of mortality decline from the second half of the eighteenth century. And birth rates began to fall in many countries towards the end of the nineteenth century (sometimes earlier). By the final decades of the twentieth century the demographic transition was largely complete in Europe and North America.[2] Latin American countries experienced limited mortality decline during the nineteenth century. However, for the region as a whole, fertility only began to fall from around the 1960s. In Asia a few countries experienced mortality decline in the first half of the twentieth century, but progress became substantial almost everywhere in the decades after World War II. That said, fertility declines in Asia were often delayed until the 1970s—although once underway they have often been swift. Finally, Africa was the last world region to come to this transition. In most of sub-Saharan Africa significant mortality decline did not happen until after World War II, and it has generally been slow. Moreover, many African countries did not experience falling birth rates until the 1990s, or even later (United Nations 2009).

Table 1 summarizes current demographic circumstances in the world regions used here. [3] All regions—and almost all countries—are now in the 'second half' of this transition. That is, they have experienced a big fall in the death rate—reflecting an increase in life expectancy. And they have also experienced some fall in the birth rate—reflecting varying degrees of fertility decline. Except for Africa, average life expectancy is now close to, or higher than, 70 years. Yet even Africa has seen considerable mortality decline. The regions vary more with respect to their fertility—and therefore their birth rates and rates of natural increase—than with respect to their mortality. Thus in 2005-10 African women were still having an average of about 4.6 births each. But in Asia and Latin America the figure had fallen to under 2.5, and therefore these regions had lower birth rates and rates of population growth. Europe and North America have low rates of natural increase—indeed, slightly negative in the case of Europe. The median ages in Table 1 provide a good measure of how far the regions have moved through the transition. Thus in Africa, with its still high (though falling) fertility, about half of the population was aged under 20 years in 2010. But in Europe—where fertility started to fall towards the end of the nineteenth century—half of the population was aged over 40 years in 2010.

In concluding this sketch, it should be noted that the demographic transitions of European societies (and their offshoots) were relatively gradual affairs. For example, countries seldom experienced rates of natural increase that were much above 1 percent per year for any length of time. However, the later transitions in Latin America, Asia, and Africa have usually involved considerably higher growth rates—of at least 2 percent. The transformation of life and society that the demographic transition represents should also be stressed. Thus people's lives become much longer and more secure, and women have two children, perhaps—rather than five, six, or seven. All countries can now be thought of in relation to the second half of this transition. In particular, they vary in terms of the timing and speed of fertility decline, and therefore the extent to which their populations have aged. A country's age structure is an important consideration in itself, but it also reflects the degree of progress through the transition. Initially the median age of a population can fall slightly because of mortality decline, but it then rises substantially—as the birth rate falls to and then remains at low levels. [4]

We are now in a position to consider the consequences of these processes for the emergence of modern democracy. It is obviously the case that when the demographic transition began to stir in some European societies roughly two centuries ago, virtually all states everywhere were autocratic in nature. We deal with the demographic processes in the order in which they occur (see Figure 1) and conclude with some remarks on urbanization—which, while being closely related to economic development, is also a demographic process.

Mortality decline

In itself, mortality decline is almost certainly conducive to the development of democracy—although the population growth it generates may well have destabilizing political effects (see below). Nevertheless, it is difficult to envisage the emergence of modern democratic systems, let alone their consolidation, in circumstances where average life expectancy is only 20-35 years. If, as many argue (e.g. Lipset 1959), release from poverty facilitates intelligent political engagement then so, most surely, does release from disease and sudden death. Mortality decline leads people to become healthier and more confident in terms of their own existence. The process may go largely unnoticed by people themselves, but it almost certainly means that they become increasingly concerned with their own, and their children's, long-term future, and they may save and invest more accordingly—including with respect to education. These developments are likely to mean that greater thought is gradually given to matters of justice and equity in society. The effect is almost certainly diffuse. But a healthier citizenry is probably one more able to concern itself with the questioning of autocratic rule.

The influence of life expectancy on democratization is hard to demonstrate using contemporary international data (e.g. see Barro 1999). This may be partly because mortality decline has been so very pervasive. Moreover, the facilitating effect of mortality decline for democracy is probably greater at lower levels of life expectancy than at higher levels.[5] It is true that a degree of democracy has occasionally occurred in conditions of low life expectancy. India in the years after 1947 is an—extremely rare—example. However, even in India there was some prior mortality decline, and in this case of democratization external influences played a major role.[6] Of course, it is possible that, once attained, democracy benefits health and mortality to some degree (Waldmann 1995; Franco, Álvarez-Dardet and Ruiz 2004). And the attainment of a high life expectancy certainly does not guarantee democratic rule. Nevertheless, some decline in mortality has invariably preceded the establishment of democracy.

Population increase

Mortality decline raises the rate of natural increase—leading to what is essentially a long period of de-stabilization (Figure 1). This probably has more complex implications for democratization. In particular, population growth can test the management capacities of any state—for example, in terms of administration and taxation—irrespective of whether it is autocratic or democratic (Goldstone 2003).[7] Therefore, during the first half of the demographic transition the rising rate of natural increase is likely to raise challenges for regimes that are largely autocratic in nature. However, as the rate of natural increase falls so these challenges are likely to reduce. Again, slower population growth does not ensure that democracy is established. But if other processes are also working in this direction then the conditions for this to happen are likely to be improved. For instance, the basis for establishing a consensus for rule by elected representatives in proportion to the number of people is likely to be facilitated by slower population growth.

The destabilizing effect of population growth on political systems should vary directly with the rate of natural increase (other things equal). Therefore it seems likely that this effect was appreciably weaker in European societies in the past than it has been in developing countries in more recent times. In this context, and usually in relation to issues of national security, there is a substantial body of research which argues plausibly that rapid growth in the number of young adults—so-called 'youth bulges'—can pose major problems in terms of employment provision and socio-political stability (e.g. see Weiner and Russell 2001, Urdal 2004, Cincotta, Engelman and Anastasion 2003, Leahy et al. 2007, Cincotta 2008, Doces 2009). While this research focuses on growth in the number of young men in particular, it also points to the role of young population age structures in weakening the basis for political order and democratic rule (see below).

Fertility decline

As noted, the start of the fall in the birth rate marks the start of the fall in the rate of natural increase and the start of population aging. However, it also heralds the onset of a revolution in women's lives. Illustrative calculations suggest that when birth and death rates are high—as in European societies in the late eighteenth century—women might spend 70 percent of their adult lives in the bearing and rearing of children. But in the conditions that prevail in these societies today the figure is very much lower—around 15 percent (Lee 2003). There is little doubt that fertility decline has underlain the increasing movement of women out of the domestic domain into formal employment, and their growing independence with respect to men (Davis and van den Oever 1982).

In the societies of northwestern Europe and North America that led in the development of modern representative democracy, it was clearly the case that voting and related rights were usually extended to women *after* they were extended to men. With few exceptions, in these

societies women only began to gain equal voting rights in the 1920s and 1930s. This was when conditions of low fertility (i.e. around two births per woman) began to be achieved. And there is little doubt that fertility decline and its socio-economic concomitants—especially the increased participation of women in the labor force—underpinned the demand for, and the realization of the female franchise (Garrard, Tolz and White 2000).[8] From the last decades of the nineteenth century onwards, there was also a fairly close association between the movement for female suffrage and the campaign to promote birth control. Because of these developments the concept of democracy has changed. It is now incontestable that democracy involves equal suffrage for women and men (Munck and Verkuilen 2002: 11).

Population aging

Perhaps because it is slow, the potential contribution of population aging to the widening basis of political power in society, and the gradual emergence of modern democratic systems, is a subject that is very seldom intimated—let alone discussed.[9] For example, in accounting for the rise of democracy in Europe and North America in the late nineteenth and twentieth centuries population aging goes unseen and is therefore unremarked. In contrast, urbanization, which is much more visible, receives a great deal of attention (see below).

It is important to note that by 'population aging' here we are *not* primarily concerned with a rise in the proportion of people living at higher ages (e.g. 65 years and above). Aging involving these ages only becomes appreciable at a late stage in the demographic transition. Instead, we are chiefly concerned with the preceding long-term shift in age structure—i.e. the reduction in the proportion of children and adolescents in society, and the corresponding rise in the proportion of people in the prime adult—and working—years (e.g. ages 20-64). This shift is due to fertility decline. It corresponds to a rise in the median age of a society from about 20 years (or less) to around 40 years.

The basic idea linking population aging with democratization is simple: adults are more likely to want a say in political affairs, and they have greater capacity to bring this about. It therefore seems reasonable to suggest that the redistribution of political power away from ruling elites and towards the middle and working classes in Europe and North America in the late nineteenth and twentieth centuries was partly because these classes were becoming increasingly adult—increasingly mature—in terms of their age composition. In fact, although it is virtually never mentioned, the role of population aging can be seen as implicit in much of the discussion of democratization in the past.[10]

Urbanization

Like aging, urbanization involves a long-term shift in population structure—from being mainly rural to being mainly urban. This change depends upon mortality decline. In particular, it is the control of infectious diseases in urban areas that, with rural to urban migration, enables a country's urban population to grow faster than its rural population. Urbanization is included in this discussion because, as well as reflecting economic growth, it is closely related to the demographic transition (e.g. see de Vries 1990). For example, despite differences in how 'urban' areas are defined, regions that are more advanced in terms of the demographic transition tend to be more urban (see Table 1).

Moreover, political theorists have often seen urbanization as relevant to democratization (see Acemoglu and Robinson 2001). In this context Lipset cites Laski's statement that 'organized democracy is the product of urban life' (1959: 78). And Barrington Moore asserted famously that 'a vigorous and independent class of town dwellers has been an indispensable element in the growth of parliamentary democracy. No bourgeois, no democracy' (1967: 418). On the other hand, with reference to the experience of developing countries, Huntington (1968) notes that urbanization can have disruptive as well as stabilizing political effects.

In fact, arguments can be assembled on both sides. Thus urban areas are certainly the places where the middle and working classes come into being. And the political demands of these expanding classes must certainly be addressed in some way, eventually. There is little doubt that such developments have been important in the emergence of democracy in many countries in the past (Rueschemeyer, Stephens and Stephens 1992). On the other hand, towns with rapidly growing numbers of poor and illiterate people can be very receptive to popular autocratic rule. In this context, it is important to recall that the rates of natural increase experienced by developing countries in recent decades have been much higher than those experienced in European populations historically. Therefore, the urban growth rates experienced by developing countries have also been considerably higher. This may help to explain why research on contemporary data does not always find that urbanization contributes to democratization (e.g. see Barro 1999, Epstein et al. 2006). Because political activity is normally centered in urban areas does not necessarily mean that urbanization itself benefits the growth of democracy.

To conclude this section, there are strong reasons to think that, in the long run, and in underlying ways, the processes of the demographic transition have an important influence on the transition to democratic politics. Population increase, including urban growth, may have de-stabilizing effects on pre-existing autocratic regimes; and population increase may also hamper the development of the conditions required for the establishment of stable democracy—at least for a time, and especially if rapid. Nevertheless, at a later stage, a declining rate of population growth may enhance the chances of political stability—which may work to the benefit of democracy. Furthermore, mortality decline, fertility decline, and population aging all seem likely to fuel the demand for a more equal distribution of political power in society—while not guaranteeing its realization. This takes us to a consideration of relevant evidence.

Data and analysis

Democracy is a difficult concept. Different analysts conceive of it in different ways. And—as we have already implied—what it is thought to entail has tended to change with time (Inkeles 1991). Most measures of democracy have been developed with reference to the political status of countries during recent decades. But the phenomenon's recent history has been heavily influenced by earlier developments. Accordingly, here we will be concerned both with the long-run emergence of modern democratic systems in Europe and North America, and with their more recent distribution in the world.

Two main datasets provide national measures of democracy from the nineteenth century through to the modern day—those of Tatu Vanhanen (2003, 2009) and the Polity IV project (see Marshall and Jaggers 2009). Therefore it is these two datasets that have been used in this work. However, in presenting results greater weight is given to those derived—with one important adjustment (see below)—from the index of democratization (ID) developed by Vanhanen. This dataset is preferred here mainly because it is felt to be more objective and direct in terms of its empirical grounding.

Vanhanen's ID is the product of two variables. The first, C, pertains to the extent to which there is political *competition* in a society. This is reflected by the proportion of electoral votes that goes to parties other than the largest one. The second, P, pertains to the degree to which there is political *participation*. This is reflected mainly by voter turnout, expressed as a proportion of the total population—although there is also an allowance for the taking of referendums (see Vanhanen 2003: 59-63). Vanhanen restricts the upper limit of both proportions at 0.7. Therefore the value of ID (i.e. ID=P*C*100) ranges between zero and a possible (and unattained) maximum of 49. Like all measures of democracy, the ID has its

problems. For example, it has been criticized because it neglects the degree to which government offices are actually filled by elections, and because it may be biased where party systems are highly fragmented (e.g. see Munck and Verkuilen 2002, Gates et al. 2006). The ID shares the problem of other democracy measures in that it can fluctuate considerably in unstable political conditions, but this tendency may be enhanced by the 'thin' nature of the index.

That said, the ID has some important strengths. Thus, in contrast to most other measures, it is relatively—although not entirely—free of subjective evaluation. It is fairly straightforward, and reasonably transparent in terms of the data on which it is based. It involves a continuous rather than an ordinal scale. And, unlike the indicators provided by the Polity IV project, it gives considerable weight to the extent to which people actually participate in elections. One consequence of this is that if women gain equal voting rights to men, then the value of ID doubles (other things equal). However, perhaps the ID's most important strength is that it attempts to capture what many would see as democracy's two most essential attributes— namely the degree to which there are meaningful elections, and the extent to which people are actively involved.

However, there is a difficulty with the ID that must be addressed. It is that political participation is gauged with reference to the *total* rather than the adult population of a country. That is, age structural variation is unaccounted for in the calculation of P. So for any given level of voter turnout, the value of ID will be biased downwards in a society with a young age structure—a feature that is acknowledged to exaggerate differences in democracy between developed and developing countries (Vanhanen 2000: 255). However, because in the present work the median age of a population is being used to reflect the degree to which the population has progressed through the demographic transition, it is important that any effect of age structure on the dependent variable of interest—here the index of democratization—is removed. Fortunately, this can be accomplished using estimates of median ages and age structure provided by the United Nations (2009). These estimates reveal an extremely tight relationship between a country's median age and the proportion of its people that are aged 20 years and over (taken here to roughly represent those eligible to vote in a democracy).[11] In a country with a very young median age this proportion is only about 40 percent, but in one with a high median age it is about 80 percent. Therefore, given an estimate of the median age, the value of ID can be divided by an estimate of the proportion of the population that is of voting age. This has the effect of raising the value of ID much more in a society with a young age structure than an old one. The adjustment has been made in all cases where estimates of ID are used here. It results in what we will henceforth refer to as an *age-adjusted* index of democratization—or AID.

The Polity IV project also provides political scores for many different populations from the nineteenth century onwards (Marshall and Jaggers 2009). But in the present context at least, these measures—which are expressed in whole numbers ranging from 0 to 10—are less satisfactory indicators of democracy. Thus several different scores are provided—in particular, relating to the levels of democracy (Democ) and autocracy (Autoc) in a population at any one time—and it not readily apparent which are the most appropriate to use, either alone or in combination.[12] The indicators have also been criticized on the grounds that they: derive too much from subjective evaluations of institutional structures; focus unduly on the executive branch of government; and, give little weight to the extent of actual political participation through voting (e.g. see Munck and Verkuilen 2002). Switzerland provides an illustration of some of these problems. It enters the dataset in 1848 with the most favorable values of '10' for Democ and '0' for Autoc, which then remain constant thereafter. Yet Swiss women only got equal voting rights to men in federal elections in 1971. Nevertheless, despite these problems, in what follows summary results based on the Democ score are also included.[13] This is done mainly to show that a population's progress through the demographic transition appears to be a

significant factor influencing its chances of democracy irrespective of which measure of democracy is used.

As we have noted, much of the following discussion relates to very large world regions. One reason for this is that political change within individual countries is often abrupt. This is especially true for countries that are in what might be termed an intermediate stage with respect to the democratic transition. In addition, the level of democratization is still very low in most developing countries—and this also informs the use of very large regions. Finally, a regional approach is justified because countries can rarely, if ever, be treated as independent units in relation to democratization. This was true in the past—consider the experience of the United States, France and Britain, for example—and it may be even more true today.

The following work uses data for the 108 countries which had populations of 5 million or more in 2005. Of these countries, 24 are in Europe, 17 in Latin America, 30 in Asia, and 34 in Africa. Except for North America—which is represented here by the United States, with ninety percent of the region's population—the regional measures of democracy presented below have been obtained by weighting the available national measures according to population size.[14] This was done chiefly because other variables used in the analysis—in particular, relating to urbanization and median age—also pertain to whole regional populations.[15] Of course, the further back in time one goes, the smaller is the number of countries for which measures of democracy are available. But this issue really only arose in relation to the construction of series for Europe for the period before 1950. Moreover, the problem was not great, and it was reduced further by the use of measures for appropriate 'forerunner' countries.[16]

According to Vanhanen's estimates of ID, there was very little democracy in Latin America during the first half of the twentieth century. Therefore consideration of this region begins in 1950. The same applies to Asia, where the experience of colonialism means that the analysis could not be undertaken for earlier times. This was even more true for Africa, where the data examined begin in 1960.[17] The estimates of urbanization used here have mostly been produced within the United Nations system (see United Nations 2008; also Grauman 1977). These figures should also be interpreted with care—since they reflect different definitions of 'urban' areas. However, this is less of a problem when considering the trend in urbanization within a region over time. The estimates of real GDP per capita employed are those provided by Maddison (2009).

The median age is a particularly important variable in what follows. This is not only because it reflects the extent of progress through the demographic transition, and the degree to which women are released from frequent childbearing, but also because a society's age structure is viewed as having direct implications for the chances of democracy in itself. The estimates of median age presented below are taken or derived from United Nations sources (United Nations 1956, 2009). They are almost always based on census data, and they are certainly robust compared to the various other measures that are used (i.e. of democracy, urbanization, and income). Of the 108 countries, in 2005 Uganda had the lowest median age at 15.3 years, and Japan had the highest at 43.1. These figures represent the extremes experienced by human populations hitherto. It should be recalled that mortality decline—especially as it relates to young children—often produces an initial period during which the median age of a population falls (e.g. Uganda's median age in 1950 was 18.2 years). Moreover, Japan had passed through the demographic transition in 2005. Its population will get still older in the future, but for present purposes that is to go 'beyond' the demographic transition.[18]

Lastly in this discussion of data and approach, Table 2 gives the correlation coefficients between the median age and the other demographic measures for the 108 countries used here. Median age is positively associated with life expectancy and urbanization, and negatively associated with the level of fertility and the rate of natural increase.[19] Because fertility decline causes both a fall in the rate of natural increase and population aging, the relationships

between median age and these two variables are especially close. A country with a median age of 40 years is certainly very near the end of the demographic transition. It has definitely experienced fertility decline, and it must have a low rate of natural increase. It must also have experienced mortality decline (or its fertility would not have fallen in the first place). Recall that most countries today are undergoing (or have undergone) a fall in birth rate, and therefore they vary with respect to the 'second half' of this transition. To illustrate what is involved, in 2005 the average median age of the ten youngest countries was 16.4 years. The corresponding average life expectancy and total fertility figures were 48 years and 6.5 births. The average rate of natural increase was 3 percent—signifying very rapid population growth. In contrast, the median age of the ten oldest countries was 40.9 years. The average life expectancy and fertility figures were 79 years and 1.4 births respectively. The average rate of natural increase was -0.03 percent—i.e. slightly negative.

We are now in a position to consider the relationship between the democratic and demographic transitions—starting with Europe and North America. Vanhanen's dataset suggests that there was virtually no democracy anywhere in the world in the first half of the nineteenth century. Indeed, only France (7.4) and the United States (6.8) have ID values much above zero in 1850. Accordingly, the present consideration of democratization in Europe begins at that time—when an age-adjusted index of democratization (AID) can be calculated on the basis of ID values for twelve countries.

Democratization in Europe

Table 3 gives the AID, urbanization, median age, and real per capita GDP estimates assembled for Europe for the period 1850-2005. For purposes of reference, each AID value is accompanied by the corresponding value of ID. Notice that in the early decades—i.e. when the population was still fairly young—the calculation of AID involves a large adjustment of ID in percentage terms. However, the scale of the adjustment declines as the population gets older with time. It should also be noted that the trend in the median ages shown for 1850-1940 is derived from age data for 15 countries that are mostly located in western Europe, and that the median ages have then been pro-rated upwards to make some allowance for the lack of data for countries in eastern Europe. In short, an element of *bricolage* was unavoidable in compiling the series in Table 3.

As one would expect, the trends of democracy, urbanization, median age, and per capita GDP in Europe over the period 1850-2005 were generally upward (see Table 3). Notice, however, that there appears to have been a small but consistent fall in the region's median age in the decades before 1890—probably reflecting improvements in mortality. The AID values suggest that there was a major rise in democracy between about 1890 and 1930. The events of the 1930s and 1940s then produced an abrupt decline, but with recovery occurring by around 1950. The next significant feature is a sharp increase in the level of democracy between about 1985 and 1995, reflecting the collapse of communism in eastern Europe. This was followed by a modest decline in democracy in the period to 2005—mainly due to adverse developments in Russia.

Figure 2 compares the AID measures of democracy with the corresponding values of the median age and the log of per capita GDP. Notice that both plots include the very low level of democracy for 1940. The correlation coefficients given suggest that the relationship between democracy and median age is closer than that between democracy and per capita GDP. It is notable that although there was considerable per capita GDP growth between about 1950 and 1985, there was little change in the level of democracy. The plot of AID against the level of urbanization (not shown) has a similar form to that for per capita GDP. That is, there was considerable urbanization in Europe between 1950 and 1985, but little change in democracy. The element of similarity between the economic growth and urbanization plots is probably because economic growth influences the trend in urbanization over time. Moreover, the

indications are that urbanization is less closely associated with the level of democracy than is the level of per capita GDP.[20]

Table 4 gives the results of a multiple regression using the measures of AID, urbanization, median age and per capita income in Table 3. The coefficient for median age is highly significant (nearly at the 1 percent level). The suggestion, then, is that population aging and associated change (e.g. relating to the position of women) had at least as much to do with Europe's democratization as either its economic development or its urbanization (neither of which are statistically significant).

The initial rise in democracy in Europe between about 1890 and 1930 merits further comment. Exactly when it began is hard to say—a case can be made for the 1870-80 decade or the one before (see Table 3). However, comparison of the ID values for 1890 and 1930 for the 17 countries for which estimates for both years are available reveals that the rise is almost entirely attributable to substantial advances in eight countries which are mostly located in northwestern Europe—namely Austria, Belgium, Britain, Denmark, Germany, Netherlands, Sweden and Switzerland (see Table 5). In contrast, the level of ID remained close to zero in the remaining countries which are mostly located in southern and eastern Europe.[21]

In this context, it is notable that the onset of fertility decline in northwestern Europe often occurred in the 1870s and 1880s—i.e. several decades earlier than elsewhere in Europe (Chesnais 2001). Table 5 contains the median ages in 1890 and 1930 of the eight countries that experienced major increases in democracy between these years. Their average (un-weighted) median age rose from 23.9 to 29.3 years. In contrast, even in 1950 the median age of eastern Europe's population was 26.4 years (United Nations 2009). In fact, Table 5 gives the median age and AID values for all countries for which estimates of both measures can be made for both 1890 and 1930. Using these data, Figure 3 plots the relationship between the change in median age and the change in AID. Again, there are tentative signs of a degree of correspondence in the timing of the demographic and democratic transitions within Europe (the relationship is significant at the 5 percent level).

Finally in this discussion of democratization in Europe, population-weighted Democ scores were calculated for 1850-2005 (i.e. corresponding to the AID values given in Table 3). The Democ indicator implies a much earlier emergence of democracy than the values of AID (and ID). Indeed, by 1910 the average Democ score for Europe already exceeds 5 out of 10. The tendency of the Polity dataset to suggest a comparatively early appearance of democracy is well known, and in part it probably reflects the fact that the Democ indicator involves an assessment of political institutions as opposed, for example, to the extent of people's actual participation in politics (e.g. see Vanhanen 2003; Moon et al. 2006). However, be that as it may, it will suffice to note here that the Democ scores for Europe are less closely associated with urbanization, median age, and per capita GDP than are the values of AID. Table 4 gives the results produced when Democ is used as the dependent variable in the multiple regression. As can be seen, the variance explained is appreciably less. Median age is not associated with the level of Democ. However, it should also be noted that the log of per capita GDP is only just significant at the 10 percent level.

Democratization in North America

Turning to North America, Table 6 provides estimates of AID, urbanization, median age, and per capita GDP for the United States for the same period. In this case fairly consistent time series are readily available—the only significant adjustment required involved making the urbanization figures for 1850-1940 consistent with those for 1950 and later years.[22] As can be seen, the AID (and ID) measures suggest that the level of democracy in the US has generally been much higher than in Europe. In this context, of course, the development of democracy in the United States was closely related to the experience of societies in northwestern Europe,

rather than to that of Europe as a whole. The AID measures also indicate that, again, the period between about 1890 and 1930 was particularly significant—the value of AID doubles between these two years (see Table 6). It is notable too that, with some fluctuation, the basic level of democracy in the US after 1930 seems to have remained relatively unchanged for most of the twentieth century. Thus the AID values for 1975 and 1985 are both comparable to the figure for 1930. The shift in 1995 towards a still higher level of democracy reflects the increasing use of state referendums.

Figure 4 provides plots of the relationship between the value of AID and both the median age and the log of per capita GDP in the United States. As in the case of Europe, the association with median age is slightly stronger than that with per capita income. Again, the relationship between AID and urbanization (not shown) is weaker than that involving median age and, again, it bears some resemblance to that shown for per capita GDP.

Table 7 summarizes the results from the multiple regression. Notice that this exercise is only conducted with AID as the dependent variable. This is because the Polity IV dataset scores the US very highly on democracy at all times—for example, the Democ indicator is 9 in 1850, and 10 in all years after 1870. As with the corresponding regression for Europe, Table 7 shows that the median age of the US population is strongly and positively associated with the level of democracy and, again, the relationship is highly significant statistically. Also as with Europe, there is no suggestion of an association between the level of AID and either the level of urbanization or per capita GDP.

Democratization in the developing regions

As we have intimated, there is little reason to attempt a similar analysis for Latin America, Asia and Africa for before 1950. The level of democracy was very rare low, and in any case the requisite data are generally lacking.[23] Nevertheless, for these three developing regions Table 8 provides values of AID (and ID) and estimates of the median ages during recent decades.[24] As can be seen, each of these regions has experienced an increase in democracy. Moreover, when an allowance is made for age structure, the levels of democracy prevailing are raised appreciably relative to those of Europe and North America. That said, while there has evidently been progress, the average values of AID in Asia and Africa in 2005 were still fairly low. Indeed, the AID values for these two regions in that year were broadly comparable to those applying in Europe around 1930, and in the United States around 1880-1900 (see Tables 3 and 6). The adjustment for age structure makes an especially large difference in the case of Africa—essentially, it means that the ID is doubled in order to obtain the value of AID. Notice, however, that Africa's population was no older in 2005 than it was in 1950 (see Table 8). Population aging is unlikely to have had any influence on the limited degree of democratization that seems to have occurred in Africa since about 1990.

The estimates in Table 8 also underscore that population aging is very recent in Asia and Latin America. As in Africa, both of these regions experienced an initial fall in the median age of their populations. A sustained trend towards population aging in Asia and Latin America only began after 1970-75—although it was not until about 1985-90 that the median ages exceeded those holding in 1950. That said, the aging process that is now underway in these two regions is much faster than that experienced in Europe and North America in the past. Thus between 1985 and 2005 the median ages of both Asia and Latin America increased by more than five years. But while democratization in Asia has been comparatively slow, Latin America experienced an unprecedented surge in democracy during the 1980s. This affected most of the region's countries. And it happened at a time of economic crisis—indeed, falling per caoita incomes may have helped to stimulate political change. The surge meant that by 1990 the value of AID for Latin America was approaching that of Europe (see Tables 3 and 8).

In summary, it would be surprising if there was clear evidence linking population aging with democratization in these three regions. Thus there has been virtually no aging in Africa; and in Asia and Latin America the process is new. Moreover, as was intimated at the outset of this paper, many factors affect a society's progress with respect to democracy—not least external influences (which may be particularly relevant in relation to experience in Latin America). Nevertheless, using the figures in Table 8, Figure 5 shows how the values of AID for these regions have moved with respect to estimates of the median age. The general direction of change in both measures is plain. That said, the surge in democracy in Latin America stands out clearly—as it does if comparisons are made with respect to measures of urbanization and per capita GDP. The surge happened at a time when the region's population, although getting older, was still very young. There is little here to connect it with population aging. Nevertheless it is worth remarking that, as in Figures 2 and 4, variation in AID since 1950 in these three regions is more closely associated with variation in median age than with variation in either the level of urbanization or per capita GDP. And the same conclusion applies if Democ scores are used to represent the level of democracy.[25]

International variation in democracy

We can also examine recent variation in democracy at the country level. Table 9 presents the results obtained from multiple regression analysis using estimates of urbanization, median age, and per capita income as independent variables for the 108 countries (the number of observations being smaller in earlier years).

With AID as the dependent variable, median age is strongly and positively associated with democracy at each point in time (see Table 9). There is some suggestion of a positive relationship between per capita income and the level of democracy in 1970 and 1990. But there is little indication that the level of urbanization is particularly germane. With Democ as the dependent variable, median age is positively associated with democracy in three of the four years (the relationships are significant at the 5 percent level or less). The log of per capita GDP is strongly associated with Democ for the same two years i.e. 1970 and 1990. Again, however, there is no support for the view that urbanization has an influence on the likelihood of democracy.

Lastly, for the 108 countries, Figure 6 shows the relationship between the median age of each population and the corresponding value of AID in 2005. The substantial scatter in the Figure underscores the fact that many non-demographic factors influence the level of democracy in a country. But the scatter also highlights the limitations of AID as a measure of democracy— despite its considerable relative strengths. It should be recalled that the statistical associations between AID and median age presented here arise even though the age-adjustment procedure raises the level of democracy of developing countries relative to the level of developed countries.[26] However, perhaps the most important limitation of AID is that it is a very 'thin' measure of democracy—a characteristic that is both a weakness and a strength.[27]

Nevertheless, Figure 6 suggests that, looking across the countries, an increase in median age of one year is associated with an increase in the value of AID of about one point. Notice that the 108 countries fall into two broad groups. The first group consists of developing countries in Africa, Asia, and Latin America—which all have median ages of less than 33 years. Among these countries that there is little evidence of a relationship between the median age and the value of AID. Quite a few of these countries appear to have achieved a fairly high level of democracy despite their young age. The second group consists of countries with median ages that are more than 35 years. Except for Cuba, these are all developed countries. Notice that there is considerable variation with respect to the value of AID even among these countries that are relatively advanced in demographic terms. Most notably, perhaps, Russia and Belarus have populations with median ages of around 37 years, but both of these countries have low values of AID.

Discussion

It is surprising how little attention has been paid to the relationship between democratic and demographic conditions. After all, a key characteristic of modern democracy is that people eligible to vote can provide proof of their age—a capacity which ultimately depends upon the existence of a birth certificate generated by a system of vital registration. Furthermore, modern democracy is based on the principle that political representatives are elected in proportion to the number of people, and this basic requirement means that there must be some form of enumeration of the population—usually a census.

Against this background, this paper has argued that, at a high level of aggregation and in the long run, there is an important connection between the democratic and demographic transitions. Although many considerations influence a society's status with respect to democracy, the further it has progressed in the demographic transition the more likely it is to be democratic.

This argument finds support whether we consider the historical experience of Europe and North America, or international variation with respect to democracy in more recent times. In general, the relationship shows through despite the considerable difficulties involved in measuring democracy—difficulties that have certainly not been eliminated here. Nevertheless, the statistical associations linking median age with democracy are at least as strong as those linking democracy with per capita GDP. There is as much reason to think that progress through the demographic transition promotes democracy as there is to think that economic development does. Moreover, the theoretical justification for the present case is also relatively firm.

Essentially, the argument is that the changes brought about by the demographic transition are unfavorable to autocracy and conducive to democracy. Some mortality decline is probably necessary—but not sufficient—for the creation of stable democratic conditions. But today this requirement has been met almost everywhere, and through the population growth it generates it raises challenges for any political regime. Fertility decline is crucial in this context. It produces a fall in the rate of natural increase—so enhancing the conditions for political stability. It brings about irreversible alterations in women's lives. And it also causes population aging. The median age of a population is a good summary measure of progress in most of these respects. No country with a low median age—i.e. with high fertility and rapid population growth—can be regarded as being a stable democracy. In contrast, a population with a high median age has experienced fertility decline (and mortality decline). Such a population has a low rate of natural increase; and it is one where adults of both sexes are prominent. Much of the case presented here has essentially been that as the structure of society becomes more composed of adults so autocratic political structures are likely to be challenged and replaced by democratic ones.

It is often said that urbanization promotes democratization. But the present work finds little evidence for such an effect. This applies whether we consider the experience of Europe and North America in the past, or international variation with respect to democracy during recent times. Indeed, the lack of support for this effect in the present analysis is striking. In this connection it is worth reiterating that because the political activity behind democratization often occurs in urban areas does necessarily mean that the process of urbanization itself promotes democracy. Moreover, if urbanization occurs with rapid urban growth then the rapidity of this growth may well have effects which are politically destabilizing.

While all countries that can safely be described as stable modern democracies have passed through most or all of the demographic transition, there are a small number of countries that

have passed through most or all of the demographic transition but have not yet become stable democracies. In this context, Russia, Belarus, and Cuba have been mentioned. Mentioning these countries only serves to underscore that extraneous events often intervene; and that political processes frequently have a powerful dynamic of their own—for example, one that can long delay any transition to democratic politics. Much the same point applies to the rise of fascism in Europe in the 1930s. However, these are not the type of developments that we have attempted to account for here.

Nevertheless, if the argument of this paper has force then it should bode fairly well for the future. We have seen that there have been significant rises in the median ages of populations in recent decades, particularly in Latin America and Asia. These rises have been fairly uniform across countries, and broadly comparable in scale to those experienced in Europe and North America during 1890-1930. Fertility declines, and therefore population aging, are more rapid today than was generally the case in the past. And fertility declines have occurred in many societies where the level of per capita income remains low. In the decades ahead, these developments can be expected to contribute to the growth and consolidation of modern systems of democracy in many countries around the world.

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[1] For reasons of explication, the following discussion of demographic transition is highly simplified. For example, distinctions between mortality and the death rate, fertility and the birth rate, and population growth and natural increase, are largely ignored.

[2] However, some population aging was still occurring as a result of preceding fertility declines.

[3] Again, the discussion avoids going into unnecessary detail—such as the impact of HIV/AIDS in slowing mortality decline in Africa, or the role of population age structure in influencing the level and trend of birth and death rates.

[4] Most other demographic measures (e.g. those in Table 1) reflect a single dimension of the demographic transition; moreover, the natural increase rate does not change monotonically with respect to this transition (see Figure 1). The median age can usually be estimated quite accurately from census or survey data, and it is usually relatively unaffected by migration. Crucially, the long-term rise of the median age reflects *cumulative* experience within the transition—indirectly with respect to mortality (since fertility decline does not occur without prior or concurrent mortality decline) and directly with respect to fertility. The median age does not seem to have been used in previous research on democratization.

[5] For example, a rise in life expectancy from, say, 25 to 45 years may have a greater influence than a rise from 55 to 75 years.

[6] Life expectancy in India during 1891-21 was about 24 years, but by 1941-51 it was about 31 years, and rising (Bhat 1987).

[7] For a study of factors that challenge political stability, but which neglects population growth, see Huntington (1968).

[8] Check this reference out. Also, perhaps with reference to Margaret Sanger, support the next sentence in the text.

[9] For partial exceptions to this statement see Wilson (2001), Cincotta, Engelman and Anastasion (2003) and Cincotta (2008). Also relevant is Fukuyama's (1992: xiv) statement that people come to 'demand democratic governments that treat them like adults rather than children.'

[10] Thus Barrington Moore's 'vigorous and independent class of town dwellers' mentioned in the next paragraph were certainly not children. Interestingly, the terms used by political theorists often resemble the nature of corresponding population age structures. Thus in discussing the role of the middle class in the development of democracy Lipset (1959: 83) refers to a shift 'from an elongated pyramid, with a large lower-class base, to a diamond with a growing middle class'. See also Laski's description of oligarchy (1937: 81).

[11] Data for 108 countries (see text below) in 1950 and 2005 revealed very little change in the relationship between the proportion of the population aged 20 years and over (y) and the median age (x). Therefore, the data for both years were used to estimate the relationship: $y=0.4013Ln(x)-0.7015$ ($R^2=0.993$).

[12] Here we have in mind the so-called 'combined' score (i.e. Democ - Autoc), a measure that has been described as both convoluted and having 'virtually no theoretical justification' (Munck and Verkuilen 2002: 25) .

[13] In this context it is important to note that the Democ and Autoc indicators are 'generated merely by giving different weights to the same disaggregate data' (Munck and Verkuilen 2002: 22). The present author has used Democ by itself in previous published work.

[14] Papua New Guinea was excluded from the analysis mainly because Maddison (2009) does not provide estimates of GDP per capita. Although Canada is unrepresented in the measures

for North America, with Australia it is included in the regressions relating to the period since 1950.

[15] Work was also undertaken using un-weighted measures, and it invariably supported the general conclusions drawn here. Notice that the use of un-weighted averages can derive some support on theoretical grounds—in that a country with a small population can nevertheless exert an influence on political developments that is disproportionate to its population size.

[16] For example, the Soviet Union in the case of Russia, North and South Yemen in the case of Yemen, and (apropos Democ scores) Prussia in the case of Germany.

[17] In 1955 ID values are only available for five African countries.

[18] For example, Japan has had fertility below two births per woman since around 1980. The United Nations projects that the country's median age will be about 55 years in 2050.

[19] Notice that the coefficients for urbanization, and to a lesser extent life expectancy in Table 2 are relatively low. It should be recalled that urbanization can be difficult to gauge, and that it is influenced by economic factors. Moreover, progress through the demographic transition does not guarantee a continuous rise in life expectancy—as the experience of countries in the former Soviet Union attests.

[20] The equation corresponding to those in Figure 2 is $y=0.585x-7.352$. The R^2 value is only 0.834, despite the fact that in this case there is no observation for 1940 (interpolated values being excluded).

[21] France and Greece are partial exceptions to this statement (see the ID values in Table 5). The other seven countries are Hungary, Italy, Portugal, Romania, Russia, Spain, and Serbia.

[22] The slight fall in median age shown in Table 6 for the 1950s and 1960s reflects the extended rise in fertility following World War II.

[23] For example, in Vanhanen's dataset only Argentina (6.0) and Cuba (11.3) have ID values in 1940 higher than 5.0; and United Nations (1956) gives age data for only three Latin American countries.

[24] For reasons of space, measures of urbanization and per capita GDP are not given in Table 8. However, they are readily available from estimates in United Nations (2008) and Maddison (2009).

[25] The equations for urbanization and log of per capita GDP corresponding to that in Figure 5 are respectively $y=0.330x+0.035$ ($R^2=0.442$) and $y=9.390x-59.515$ ($R^2=0.413$). Using Democ as the dependent variable, the relationship with median age is: $y=0.508x-7.2311$ ($R^2=0.607$) and the corresponding equations for urbanization and per capita GDP are $y=0.054x+1.117$ ($R^2=0.326$) and $y=1.499x-8.360$ ($R^2=0.296$).

[26] To illustrate, if ID is used as the dependent measure in Figure 6 then the equation becomes $y=1.109x-13.267$ and the R^2 value is 0.574 as opposed to 0.334.

[27] To illustrate, events in Afghanistan during 2004-05 suddenly produce a rise in the value of ID from zero (in all previous years) to 12.0 in 2005. With the age-adjustment, Afghanistan's AID value in 2005 (used in Figure 6) becomes 28.3—a value that is slightly higher than that of Poland (27.8) in the same year.

Seminar (text)