

Chapter 2

Fertility Decline in the Muslim World, c. 1975–c. 2005: A Veritable Sea-Change, Still Curiously Unnoticed

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Abstract There remains a widely perceived notion that “Muslim” societies are especially resistant to embarking upon the path of demographic and familial change that has transformed population profiles in Europe, North America, and other “more developed” areas. In reality, however, fertility levels are falling dramatically for countries and sub-national populations throughout the Ummah – and traditional marriage patterns and living arrangements are undergoing tremendous change. This brief chapter will highlight some of these changes, examine some of their correlates and possible determinants, and speculate about some of their implications.

2.1 Introduction

There remains a widely perceived notion – still commonly held within intellectual, academic, and policy circles in the West and elsewhere – that “Muslim” societies are especially resistant to embarking upon the path of demographic and familial change that has transformed population profiles in Europe, North America, and other “more developed” areas (UN terminology). But such notions speak to a bygone era; they are utterly uninformed by the important new demographic realities that reflect today’s life patterns within the Arab world, and the greater Islamic world as well.

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Throughout *the Ummah*, fertility levels are falling dramatically for countries and sub-national populations – and traditional marriage patterns and living arrangements are undergoing tremendous change. This brief chapter will highlight some of these changes, examine some of their correlates and possible determinants, and speculate about some of their implications.

2.2 The Size and Distribution of the Global Muslim Population

There is some inescapable imprecision to any estimates of the size and distribution of the world's population of adherents to Islam (the *Ummah*) – an uncertainty that turns in part on questions about the current size of some Muslim majority areas (i.e. Afghanistan, where as one US reference source puts it, “no comprehensive census based upon systematically sound methods has ever been taken”¹), and in part on the intrinsic difficulties in determining the depth of a nominal believer's religious faith, but more centrally on the crucial fact that many government statistical authorities do not collect information on the religious profession of their national populations. For example: while the United States maintains one of the world's most extensive and developed national statistical systems, the American government expressly forbids the US Census Bureau from surveying the American public about religious affiliation; the same is true in much of the EU, in the Russian Federation, and in other parts of the “more developed regions” with otherwise advanced data-gathering capabilities.

Nevertheless, on the basis of local population census returns that do cover religion, demographic and health survey (DHS) reports where religious preference is included, and other allied data-sources, it is possible to piece together a reasonably accurate impression of the current size and distribution of the world's Muslim population.

Two separate efforts to estimate the size and spread of the *Ummah* result in reasonably consistent pictures of the current worldwide Muslim demography profile. The first, prepared by Dr. Todd M. Johnson of Gordon-Conwell Theological Seminary under the aegis of the World Christian Database,² comes up with an estimate of 1.42 billion Muslims worldwide for the year 2005; by that reckoning, Muslims would account for about 22% of the total world population. The second, prepared by a team of researchers for the Pew Forum on Religion and Public Life,³ placed the total global Muslim population circa 2009, a few years later, at roughly

¹ Peter R. Blood, ed. *Afghanistan: A Country Study*. Washington: GPO for the Library of Congress, 2001; available electronically at <http://countrystudies.us/afghanistan/36.htm>. Though this source dates from 2001, Afghanistan has not as yet been able to undertake a comprehensive and reliable national population count.

² World Christian Database, Available electronically at <http://www.worldchristiandatabase.org/>.

³ *Mapping The Global Muslim Population: A Report on the Size and Distribution of the World's Muslim Population, October 2009*, Washington, DC: Pew Center on Religion and Public Life, 2009, available electronically at <http://pewforum.org/Mapping-the-Global-Muslim-Population.aspx>.

1.57 billion, which would have been approximately 23% of the estimated human population at the time.

Although upwards of one fifth of the world's population today is thus estimated to be Muslim, a much smaller share of the population of the “more developed regions” adheres to Islam: perhaps just over 3% of that grouping (that is to say, around 40 million out of its total of 1.2 billion people). Thus the proportion of the world's Muslims living in the less developed regions is not only overwhelming, but disproportionate: well over one fourth of the population of the less developed regions – something close to 26–27% – would be Muslim to go by these numbers.

Most of the world's Muslim population inhabits a tropical and semitropical expanse that stretches across Africa and Asia from the Atlantic shores of Mauritania and Morocco to the Pacific archipelagos of Indonesia and the Philippines. The great preponderance of the world's Muslims live in Muslim-majority countries – 73% according to the World Christian Database, nearly 80% according to the Pew Forum study (which lists 49 countries and territories in Asia, Africa and Europe that it identifies as Muslim-majority). Another tenth of the *Ummah* (roughly 160 million people as of 2009) lives within India, where Muslims are a religious minority. In all, eight countries today account for over 60% of the world's Muslim population: Indonesia, Pakistan, India, Bangladesh, Egypt, Nigeria, Iran and Turkey. Note that only one of these eight is an Arab society in the Middle East.

2.3 Dimensions of Fertility Decline in Muslim-Majority Countries, c. 1975–c. 2005

Since the overwhelming majority of today's Muslims live in Muslim-majority countries, and since those same countries are typically overwhelmingly Muslim (by the Pew study's estimate, 43 of those 49 countries and places are over two-thirds Muslim, 40 of them over 90% Muslim), we can use national-level data on fertility for Muslim-majority countries as a fairly serviceable proxy for examining changes in fertility patterns for the Muslim world community. For our purposes, the advantage here is that a number of authoritative institutions – most importantly, the United Nations Population Division (UNPD)⁴ and the United States Census Bureau (USCB)⁵ – regularly estimate and project population trends for all the countries in the world.

The UNPD provides estimates and projections for period “total fertility rates” (births per woman per lifetime) for over 190 countries and territories across the planet for both the late 1970s and the 2005/2010 period. Using these data, we can

⁴ United Nations Population Division, *World Population Prospects: The 2010 Revision*, available electronically at http://esa.un.org/unpd/wpp/unpp/panel_population.htm.

⁵ United States Bureau of the Census, *International Data Base*, available electronically at <http://www.census.gov/population/international/data/idb/informationGateway.php>.

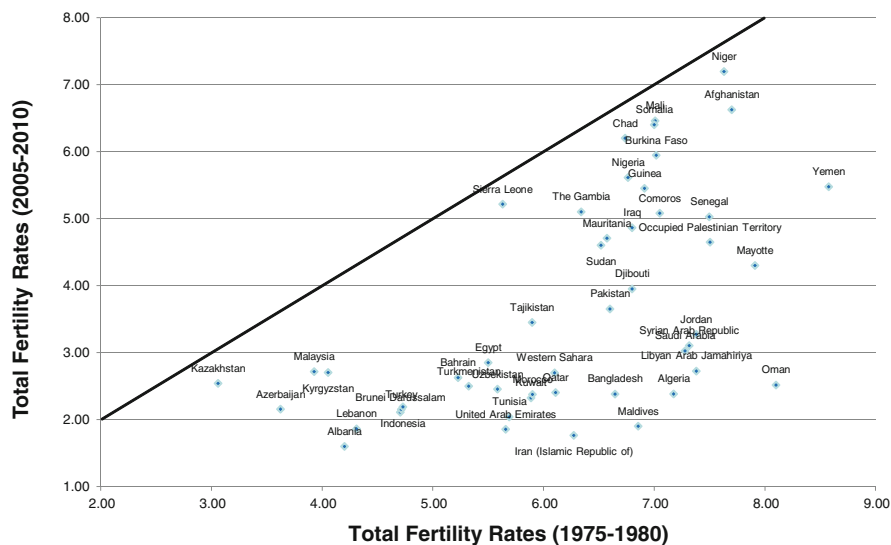


Fig. 2.1 Total fertility rates in the Muslim world, 1975–1980, vs. 2005–2010 (Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2010 revision, http://esa.un.org/unpd/wpp/unppp/panel_population.htm, November 16, 2011)

appraise the magnitude of fertility declines in 48 of the world's 49 identified Muslim-majority countries and territories.⁶

One way of considering the changes in fertility in these countries is to plot a 45-degree line across a chart and to compare fertility levels from three decades ago on one axis against recent fertility levels on the other axis – a country whose fertility level remains unchanged over time will remain exactly on this plotted line. If the fertility levels of the earlier time are plotted on the x-axis and the more current fertility levels on the y-axis, any country whose fertility level rises over time will be above the plotted line, whereas a country experiencing fertility decline will be located below the plotted line; the distance of these data points from the plotted line indicates the magnitude of a country's absolute drop in fertility over these decades.

The results from for this exposition of data are displayed in Fig. 2.1. As may be seen, according to UNPD estimates and projections, all 48 Muslim-majority

⁶ The UNPD does not offer estimates for Kosovo – and while the USCB does calculate current demographic trends for that country, its estimates do not extend back to the 1970s. Note that the UNPD calculates period TFRs rather than cohort TFRs – that is to say “snap-shot” or synthetic estimates of fertility as if a woman completed her childbearing on the schedules for women of all childbearing ages at that time, rather than actual completed childbearing patterns for women from given birth years or cohorts. While there can be important differences between period and cohort estimates of TFR, this matter will not detain us here.

countries and territories witnessed fertility decline over the three decades under consideration. To be sure: for some high- or extremely-high-fertility venues in sub-Saharan Africa, where TFRs in the 6–8 range prevailed in the late 1970s, declines are believed to have been marginal (think of Sierra Leone, Mali, Somalia and Niger). In some other places, where a fertility transition had already brought TFRs down around 3 by the late 1970s, subsequent absolute declines also appear to have been somewhat limited (think of Kazakhstan). In most of the rest of the Muslim-majority countries and territories, however, significant or dramatic reductions in fertility have been registered – and in many of these places, the drops in question have been truly extraordinary.

With respect to absolute changes in TFRs, the population-weighted average for the grouping as a whole amounted to a drop of 2.6 births per woman between 1975/1980 and 2005/2010 – a markedly larger absolute decline than for either the world as a whole (–1.3) or the less developed regions as a whole (–2.2) during those same years. Fully 18 of these Muslim-majority places saw TFRs fall by 3 or more over those 30 years – with 9 of them by 4 births per woman or more! In Oman, TFRs plummeted by an astonishing 5.6 births per woman during those 30 years: an average pace of nearly 1.9 births per woman every decade.

As for relative or proportional fertility declines: here again the record is striking. The population-weighted average for the Muslim-majority areas as a whole was –41% over these three decades: by any historical benchmark, an exceptionally rapid tempo of sustained fertility decline. In aggregate, the proportional decline in fertility for Muslim-majority areas was again greater than for the world as a whole over that same period (–33%) or for the less developed regions as whole (–34%). Fully 22 Muslim-majority countries and territories were estimated to have undergone fertility declines of 50% or more during those three decades – 10 of them by 60% or more. For both Iran and the Maldives, the declines in total fertility rates over those 30 years were estimated to exceed 70%.

Given the differences in timing for the onset of sustained fertility declines in different settings around the world, it is possible that these summary figures might present a biased picture. It is possible to imagine, for example, that dramatic fertility declines might have taken place in other regions at earlier dates, with fertility declines tapering off during these years when the declines in the Muslim-majority areas were so manifestly dynamic: if that were the case, we would end up exaggerating the robustness of these Islamic fertility declines in comparison to other parts of the world. Yet while this is a theoretical possibility, empirical results do not corroborate such a contingency.

Tables 2.1 and 2.2 make the point. These examine the UNPD's estimates and projections of fertility patterns available for all countries and territories for the entirety of the postwar era (1950–2010). It then isolates the “top ten” fertility declines, as measured by both absolute and proportional change in TFRs, registered over any 20-year period. This approach will eliminate any “timing bias” from our selection of 1975/1980–2005/2010 as the period for which to analyze fertility declines.

Table 2.1 The ten biggest declines in total fertility rates (births per woman) in the postwar era: most rapid 20-year Total Fertility Rate decline in absolute terms

Major area, region, country or area	Time period	Absolute decline
Oman	1985–1990 to 2005–2010	–5.33
Maldives	1985–1990 to 2005–2010	–4.91
Kuwait	1970–1975 to 1990–1995	–4.70
Iran (Islamic Republic of)	1980–1985 to 2000–2005	–4.57
Singapore	1955–1960 to 1975–1980	–4.50
Algeria	1975–1980 to 1995–2000	–4.29
Mongolia	1970–1975 to 1990–1995	–4.20
Libyan Arab Jamahiriya	1980–1985 to 2000–2005	–4.18
Vietnam	1970–1975 to 1990–1995	–3.92
Mauritius	1960–1965 to 1980–1985	–3.89

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. World population prospects: The 2010 revision. Available at http://esa.un.org/unpd/wpp/unpp/panel_population.htm. Accessed 16 Nov 2011.

Table 2.2 The 10 biggest declines in total fertility rates (births per woman) in the postwar era: most rapid 20-year Total Fertility Rate relative to the starting year

Major area, region, country or area	Time period	% change
China, Macao SAR	1955–1960 to 1975–1980	–0.72
Maldives	1985–1990 to 2005–2010	–0.72
Singapore	1955–1960 to 1975–1980	–0.71
Iran (Islamic Republic of)	1980–1985 to 2000–2005	–0.70
Kuwait	1970–1975 to 1990–1995	–0.68
Oman	1985–1990 to 2005–2010	–0.68
Republic of Korea	1965–1970 to 1985–1990	–0.66
Mongolia	1980–1985 to 2000–2005	–0.63
Vietnam	1975–1980 to 1995–2000	–0.63
Mauritius	1960–1965 to 1980–1985	–0.63

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat. World population prospects: The 2010 revision. Available at http://esa.un.org/unpd/wpp/unpp/panel_population.htm. Accessed 16 Nov 2011.

As may be seen in Table 2.1, six of the ten largest absolute declines in fertility for a two-decade period yet recorded in the postwar era (and by extension, we may suppose, ever to take place under orderly conditions in human history) have occurred in Muslim-majority countries. The four very largest of these absolute declines, furthermore, all happened in Muslim-majority countries – each of these entailing a decline of over 4.5 births per woman in just 20 years. (The world record-breaker here, Oman, is estimated to have seen its TFR fall by over 5.3 births per woman over just the last two decades: a drop of over 2.6 births per woman per decade.) Notably, four of the ten greatest fertility declines ever recorded in a 20 year period took place in the Arab world (Algeria, Libya, Kuwait and Oman); adding in Iran, we see that five of these “top ten” unfolded in the greater Middle East. No other region of the world – not highly dynamic Southeast Asia, or even rapidly modernizing East Asia – comes close to this showing.

Table 2.2 offers a separate but largely congruent reading, ranking the “top ten” historical fertility declines during any 20 year period by country in terms of proportional rather than absolute drops in TFRs. By this metric, “only” four of the top ten fertility drops to date have occurred in Muslim-majority countries – and “only” two of the top four were Muslim-majority areas (Iran and the Maldives Islands). What may be especially noteworthy here, nonetheless, is that places like Kuwait, Oman, and Iran all effected fertility declines over two-thirds in just 20 years – and that this pace of change exceeded the tempo of fertility decline in almost all of the Pacific Rim societies; the BRIC economies; and the other non-Muslim emerging market economies.

2.4 Modern Muslim Fertility Patterns in a Western Mirror: Some Comparisons with the United States

Given the extraordinary – indeed, as we have just seen, often historically unprecedented – fertility declines that a number of Muslim-majority populations have sustained over the past generation, it is now the case that a substantial share of the *Ummah* is accounted for by countries and territories with childbearing patterns comparable to those contemporary affluent Western non-Muslim populations. The low fertility levels for the Muslim-majority societies in question, it should be noted, have generally been achieved on substantially lower levels of income, education, urbanization, modern contraception utilization, and the like than those that characterize the more developed regions with which their fertility levels currently correspond today.

We can highlight this point by comparing fertility in today’s Muslim-majority populations with that of the United States. America of course is not a “typical” OECD country in terms of its fertility level (quite the contrary, there is an unsettled argument among demographers today as to whether the US exhibits “demographic exceptionalism”⁷) – but as the leading developed society, comparisons with the United States can place Muslim-majority fertility patterns in a sort of “developmentalist” perspective.

Figure 2.6 underscores the similarity between contemporary fertility levels in so much of the *Ummah* and those of the United States. It contraposes UNPD estimates or projections of fertility for diverse Muslim-majority countries and territories for the 2005/2010 period against those of the US states and the District of Columbia for the year 2007. As may be seen, TFRs in a great many Muslim-majority populations

⁷ Cf. Ron J. Lesthaeghe and Lisa Neidert, “The Second Demographic Transition in the United States: Exception or Textbook Example?” *Population and Development Review* vol. 32, no. 3 (September 2006): 669–98; Nicholas Eberstadt, Born in the USA: America’s Demographic Exceptionalism”, *The American Interest* (May/June 2007), available electronically at <http://www.the-american-interest.com/article.cfm?piece=272>.

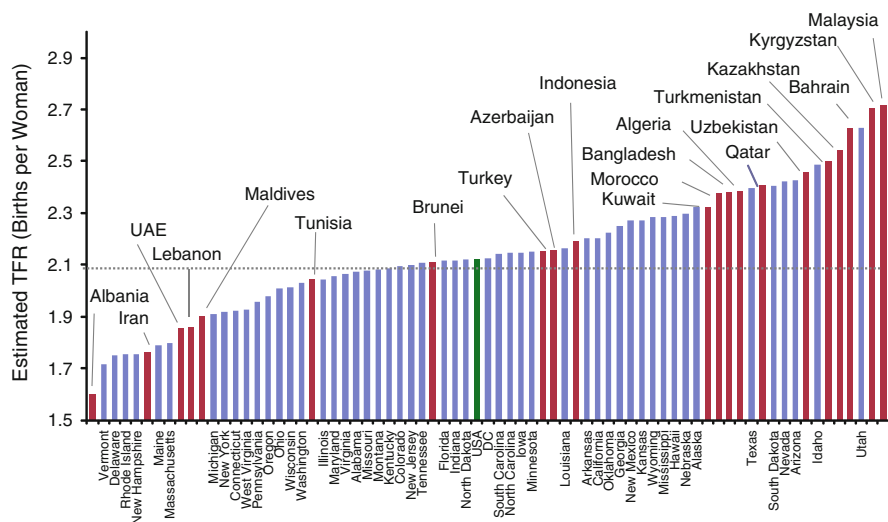


Fig. 2.2 Total fertility rates in United States and selected Muslim-majority countries, c. 2007. Note: Muslim-majority TFRs as reported by the UNPD for 2005–2010 period (Sources: US TFR source (2007 data): National Vital Statistics, Volume 58, Number 24, May 24, 2010, http://www.cdc.gov/nchs/data/nvsr/nvsr58_24.pdf; Muslim-majority country TFR source (2005–2010 data): Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2010 revision)

look quite “American” these days. To go by UNPD figures, for example, Algeria, Bangladesh and Morocco all have fertility levels corresponding to the state of Texas, while Indonesia’s is almost identical to Arkansas’. Turkey and Azerbaijan, for their part, are on par with Louisiana, while Tunisia’s TFR looks like Illinois’. Lebanon’s fertility level is lower than New York state’s. As for Iran, its fertility level today is comparable with those of the New England states, the region in America with the lowest fertility. No state in the contemporary USA, however, has a fertility level as low as Albania’s (Fig. 2.2).

All in all, according to these UNPD figures, 21 Muslim-majority populations would seem to have fertility levels these days that would be unexceptional for states in the USA (with the possible exception of Albania, whose fertility level might arguably look too *low* to be truly “American”.) As of 2009, these 21 countries and territories encompassed a total estimated population of almost 750 million persons: which is to say, very nearly half of the total population of the *Ummah*. These numbers, remember, exclude hundreds of millions of Muslims in countries where Islam is not the predominant religion. Taking this into account, it could be that a majority of the world’s Muslims already live in countries where their fertility levels would look entirely unexceptional in an American mirror.

To be sure – just as fertility varies among the 50 United States of America, so it differs by region in many predominantly Muslim societies. But such geographic differences further emphasize the extent to which fertility levels for a great portion

of the *Ummah* has come to correspond with levels taken for granted nowadays in more-developed, non-Islamic Western societies.

Let us take the example of Turkey. For the period 2000–2003, according to Turkey's most recent DHS, the country's overall TFR was 2.23. That average, however, was strongly influenced by the distinctively high fertility levels of eastern Turkey (a largely Kurdish region), where a TFR of 3.65 was recorded.⁸ In much of Turkey, TFRs of 1.9 or less prevailed. Istanbul's TFR, for instance, was less than 1.9 – which is to say, it would have been equivalent to the corresponding level for France in those same years. Placed in an American perspective, eastern Turkey's fertility levels are off the scale – but for Turkey as a whole, fertility levels are comparable to Hawaii, and even for comparatively fecund south Turkey, fertility levels are just about the same as in Nebraska. For their part, if north Turkey, west Turkey, central Turkey and Istanbul were part of the US, they would qualify as low-fertility states. Only 6 of America's 50 states, for example, had lower fertility than Istanbul.

Consider next the case of Iran. As we have seen, over the past generation Iran has registered one of the most rapid and pronounced fertility declines ever recorded in human history. By the year 2000, according to Iran's DHS of that same year, the TFR for the country as a whole had dropped to 2.0, below the national replacement level of 2.1.⁹ But there were also great regional variations within Iran, with some areas (such as the largely Baluchi province of Sistan and Baluchestan in the east and the largely Kurdish West Azarbaijan province in the west) well above replacement, and much of the rest of the country far below replacement. Note in particular that Tehran and Isfahan reported fertility levels lower than any state in the USA. With a TFR of 1.4, indeed, Tehran's fertility level in 2000 would have been below the average for the EU-27 for the year 2002 (TFR 1.45), well below year 2000 fertility in such places as Portugal (1.54) and Sweden (1.54), and only slightly higher than for such famously low-fertility European countries as Italy (1.26) and Germany (1.38).¹⁰

Admittedly, our use of the USA as a comparator for fertility levels in Muslim-majority areas perforce excludes the tremendous swath of the present-day *Ummah* where fertility levels are (at least for now) higher than in present-day America. The point of our selection, however, is to emphasize just how very much of the *Ummah* can be included in such a comparison nowadays. This is a very new development: 30 years earlier, barely any Muslim-majority country or territory would have

⁸ Sutay Yavuz, "Fertility Transition and The Progression to a Third Birth in Turkey," (Presentation, Institute of Population Studies, Hacettepe University). 2005; available at <http://www.demogr.mpg.de/papers/working/wp-2005-028.pdf>, accessed November 23, 2011.

⁹ Farzaneh Roudi-Fahimi, "Iran's Family Planning Program: Responding to a Nation's Needs," MENA Policy Brief, Population Reference Bureau, June 2002. Available at <http://www.prb.org/Publications/PolicyBriefs/IransFamilyPlanningProgram.aspx>, accessed November 23, 2011.

¹⁰ Eurostat, "Fertility Indicators" available electronically at http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=demo_find&lang=en; accessed November 18, 2011.

registered fertility levels low enough to permit approximate comparison to corresponding fertility levels in *any* US state. As of 1977, period TFRs for Utah, always America's most fertile state, were just under 3.6, while according to UNPD estimates the very lowest TFRs in the late 1970s for any Muslim-majority populations would have been for Kazakhstan (3.1) and Azerbaijan (3.6).¹¹ Thus in just 30 years, the total population of Muslim-majority areas whose fertility levels could be reflected in a contemporaneous American mirror has thus risen from under 20 million to nearly three quarters of a billion. By any benchmark, this qualifies as a remarkable change.

Furthermore, indications suggest that the change has progressed still further since the 2005 period. Whereas the UNPD offers only 5-year-span estimates and projections for fertility levels, USCB provides annual figures. According to these numbers, the total fertility rate for Saudi Arabia in 2011 would be 2.31 – a lower level than recorded recently for such US states as South Dakota and Idaho. At projected TFRs of 2.96 and 2.97, respectively, Libya's and Egypt's fertility levels for 2011 would be roughly on par with fertility of America's large domestic Hispanic population with a TFR of 2.91 as of 2008¹²). Even places like Pakistan (USCB projected TFR for 2011: 3.17) and the West Bank of Palestine (3.05) would, in this assessment, appear to be rapidly approaching the day where their fertility levels could be comparable to levels displayed by geographic regions or broad national ethnic groups within the United States today. Put another way: unbeknownst of informed circles in the international community, and very often even in the countries in question, fertility levels for Muslim-majority populations around the world are coming to look more and more "American".

2.5 Socio-economic Trends and Fertility Changes in Muslim-Majority Societies: Correlates and Possible Determinants

How is the extraordinary demographic transformation described in the previous pages to be accounted for? Typically, demographers and other social scientists in our era attempt to explain fertility changes in terms of the socioeconomic trends that drive (or at least accompany) them. We can presume to examine some of the correspondences between socioeconomic trends and fertility change through

¹¹ Utah's 1977 TFR derived from Barry Nangle, Ph.D., *Utah's Vital Statistics Births and Deaths 1997*, Utah Department of Public Health, Office of Public Health Data, Technical Report no. 202, November 20, 1998; available electronically at http://health.utah.gov/vitalrecords/pub_vs/ia97/ibx97alc.pdf; Muslim-majority country TFR estimates from "World Population Prospects: The 2010 Revision", *loc. Cit.*

¹² *Statistical Abstract of the United States 2012*, Table 83, <http://www.census.gov/compendia/statab/2012/tables/12s0083.pdf>.

analysis at the national level for Muslim-majority states, given the wealth of national-level socioeconomic statistics that have been collected by government statistical authorities, the United Nations, the World Bank, and other agencies and institutions.

We know, of course, that the 49 Muslim-majority countries and territories for which the UNPD provides demographic estimates encompass a rich diversity of national histories, cultures, languages, and specific traditions. But if we analyze this collectivity as a single group – in other words, as if there were something distinctive about Muslim-majority countries per se – we can conduct a preliminary inventory of readily apparent broad socioeconomic associations with fertility change for this, the lion's share of the population of the contemporary *Ummah*.

A century of social science research has detailed the historical and international associations between fertility decline and socioeconomic modernization (as represented by increasing income levels, educational attainment, urbanization, public health conditions, and the like). Those associations, not surprisingly, are immediately evident in simple cross-country correlations between national fertility levels and these respective socioeconomic variables, using data for the all less developed regions *circa* 2005 (highlighting Muslim-majority countries and territories in these graphics).

For the less developed regions as a whole, fertility levels tend to decline across countries with greater urbanization, per capita income, female literacy, utilization of modern contraceptive methods, and infant survival prospects – with associations between this fertility change and those different socioeconomic variables lowest for urbanization and highest for infant mortality (simple r-squares from 0.33 to 0.75). For female literacy, modern contraceptive use, per capita income, and infant mortality, the simple coefficients of determination (r-squares) for fertility levels all exceed 60% for countries in the less developed regions.

Clearly, those are very robust associations, considering all the particularities and unique characteristics that necessarily distinguish any country from all others. But just as clearly, these broad associations between fertility change and material measures of modernization or socioeconomic development are not the whole story here. Over a decade and a half ago, a path-breaking study by Lant Pritchett made the persuasive case that *desired fertility levels* (as then expressed by women of childbearing age in DHS surveys) were the single best predictor for actual fertility levels in the less developed regions.¹³ Sure enough: as Fig. 2.3 demonstrates, DHS surveys conducted since that study reveal a 90% association between wanted fertility and actual fertility levels in the 56 less developed countries for which such recent data were available.

This finding still flies in the face of much received opinion in population policy circles. In particular, it seems to challenge the notion that family planning programs, by encouraging the prevalence of modern contraceptive use, may make

¹³ Lant H. Pritchett, "Desired Fertility and the Impact of Population Policies", *Population and Development Review*, vol. 20, no. 1 (March 1994), pp. 1–55.

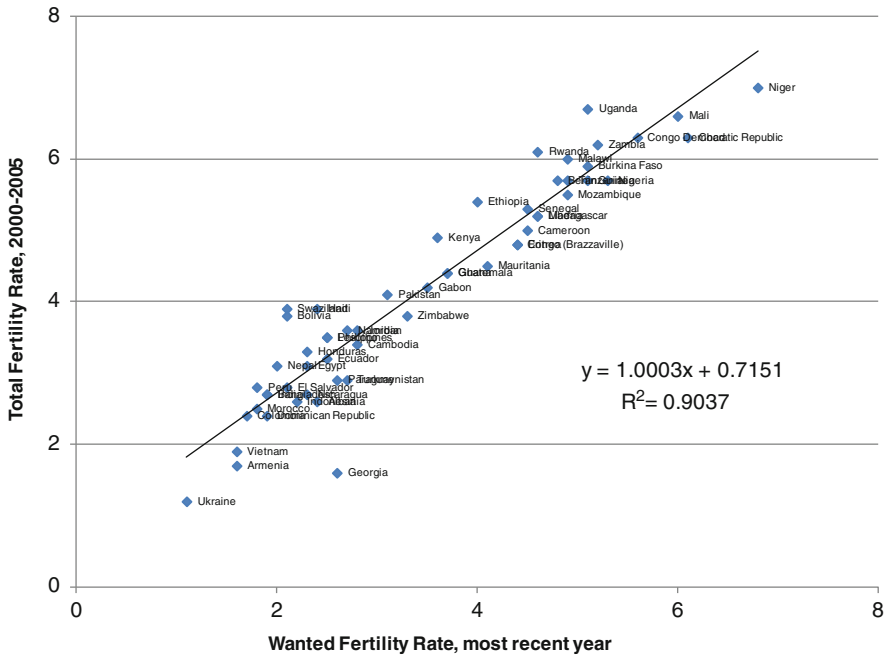


Fig. 2.3 Total fertility rates 2000/2005 vs. Wanted total fertility rates, c. 2000 (Sources: Wanted TFR: Macro International Inc, 2009. MEASURE DHS STATcompiler. <http://www.measuredhs.com>, March 30 2009; TFR: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 revision, <http://esa.un.org/unpp>, Tuesday, June 09, 2009; 1:53:51 PM)

an important independent contribution to reducing fertility levels in developing countries, especially by reducing what is called “excess fertility” or “unwanted fertility”. It has often been difficult to test that proposition in a methodologically sound and rigorous manner, as the aforementioned Pritchett study observed – and as Pritchett argued – methodologically sound investigations generally indicated that the *demographic* impact of family planning programs tended to be marginal. Preliminary analysis of more recent DHS surveys would seem to corroborate Pritchett’s findings. Figure 2.4, for example, shows the correspondence in recent DHS surveys between “excess fertility” (defined here as the difference between actual fertility levels and reported levels of wanted fertility) and the prevalence of modern contraceptive use. As may be seen, there is no observable correspondence whatever between these two factors here.

Socioeconomic factors, to be sure, may well affect the desired family sizes that women of childbearing age report in these DHS surveys – in fact they surely do. But the critical determinant of actual fertility levels in Muslim and non-Muslim societies alike at the end of the day would appear to be attitudinal and volitional, rather than material and mechanistic.

How do the various factors mentioned thus far interact in influencing fertility levels in Muslim-majority countries? We may get a sense of this complex interplay

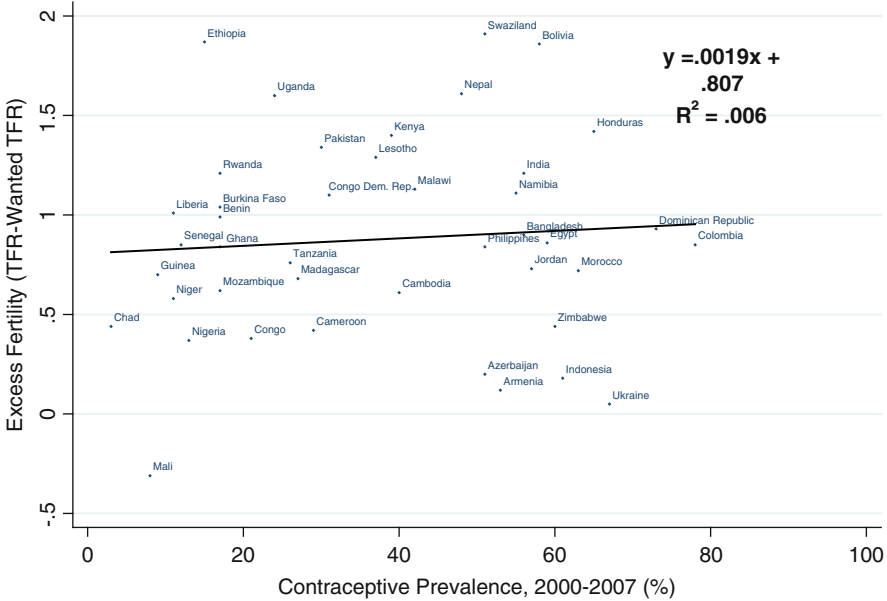


Fig. 2.4 Contraceptive prevalence and “Excess Fertility”, 2000/2007 (Sources: Contraceptive prevalence, 2000–2007: UNICEF “The State of the World’s Children 2009”; Wanted TFR: Macro International Inc, 2009. MEASURE DHS STATcompiler. <http://www.measuredhs.com>, March 30 2009; TFR: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2008 revision, <http://esa.un.org/unpp>, Tuesday, June 09, 2009; 1:53:51 PM)

from the hints offered by an initial multivariate analysis of international fertility difference reported in recent DHS surveys.

The first regression equation in Fig. 2.5 attempts to predict fertility levels in 41 Muslim and non-Muslim less developed countries on the basis of per capita income, literacy rates, prevalence of modern contraceptive use, and desired fertility. Taken together, changes in these four variables can be associated with over 90% of the differences in fertility levels in this sample of countries. However, only two of these variables emerge as statistically significant: desired fertility and per capita income. Interestingly enough, the literacy and contraceptive use variables in this regression were not only statistically insignificant, but each came out with calculated coefficient values not appreciably different from zero.

The second equation adds an additional factor to the regression for predicting fertility levels: a dummy variable for Muslim-majority population. Introducing this variable changes the results in an intriguing way: now per capita income loses its statistical significance (if barely), so that only desired fertility retains its statistical significance out of the original four independent variables from the first equation. But the dummy variable for Muslim-majority in this second equation is statistically

Dependent Variable: Total Fertility Rate		
Explanatory Variables		
Wanted Total Fertility Rates (most recent year)	.718** (6.01)	.773** (6.78)
Ln GDP PPP, 2005 (1990 Geary-Khamis International \$)	-.460* (-2.68)	-.300 (-1.74)
Contraceptive Use (%, married women 15-49)	-.003 (-0.33)	-.000 (-0.02)
Literacy Rate (female 15+, most recent year)	-.002 (-0.50)	-.007 (-1.64)
Muslim Country Dummy Variable		-.426* (-2.47)
R² (unadjusted)	.912	.923
Number of Observations	41	41

*=Significant at 5% **=Significant at 1%

Fig. 2.5 Determinants of total fertility rates: What the regressions equations suggest. Note: t-scores in parenthesis (Sources: Angus Maddison, "Per Capita GDP PPP (in 1990 Geary-Khamis dollars)," Historical statistics for the world economy: 1-2008, AD, Table 3, <http://www.ggd.net/maddison/>, accessed November 21, 2011; MEASURE DHS STATcompiler. <http://www.measuredhs.com>, accessed March 30, 2009)

significant: and perhaps surprisingly, the value of this variable is *negative*. This is to suggest that, at any given level of per capita income, literacy, and contraceptive use, Muslim-majority societies today can be expected to have *fewer* children than their counterparts in non-Muslim societies nowadays!

Why should this be so? "Developmentalist" theories, with their emphasis on the primacy of material and structural transformations, cannot offer much insight into this mystery. Nor would it seem to be explained by what might be called the "contraceptivist" theories favored by those who see family planning policies as a major instrumental factor in eliciting fertility decline in less developed regions.

Figure 2.6 makes this point. Although Muslim-majority countries, as we have seen, apparently tend to have substantially lower fertility levels nowadays than non-Muslim comparators when holding income, literacy, contraceptive use, and desired fertility constant, Muslim-majority countries also tend to have significantly lower levels of modern contraception use than non-Muslim countries at the same income levels. Holding income constant, modern contraception usage was approximately 14 percentage points lower in Muslim than in non-Muslim majority societies in the 1980s, and remained 11 percentage points lower 20 years later. Despite the so much more limited use of modern contraception, the pervasive, dramatic, and in some

Dependent Variable: Contraceptive Prevalence (%)	1980s		2000s	
Explanatory Variables				
Muslim Country (dummy variable)	-15.974** (-2.94)	-13.872** (-2.99)	-10.95* (-2.53)	-10.956** (-3.20)
Log of GDP Per Capita (PPP 1990 International \$)		14.224** (6.02)	This brings in income into the equation. → 14.852** (9.03)	
R ² (unadjusted)	.086	.352	.051	.461
Number of Observations	94	93	120	113

*=Significant at 5% **=Significant at 1%

Explanatory text: Explains how much "less" contraceptive prevalence Muslim countries have, on average.

Fig. 2.6 How “Conservative” are ‘Muslim Societies’? Explaining contraceptive prevalence in the world. Note: t-scores in parenthesis (Source: MEASURE DHS STATcompiler. <http://www.measuredhs.com>, March 30, 2009)

cases historically unprecedented declines in fertility, highlighted earlier in this chapter, took place nonetheless.

Much more research is warranted to glean a greater understanding of the social, economic and other factors involved in the ongoing transformation of fertility levels and family patterns within the *Ummah* today. What we would simply wish to emphasize at this point is the critical role human agency appears to have played in this transformation. “Developmentalist” perspectives cannot explain the great changes underway in many of these countries and territories – in fact, various metrics of socioeconomic modernization serve as much poorer predictors of fertility change for Muslim-majority populations than for non-Muslim populations. Not to put too fine a point on it: proponents of “developmentalism” are confronted by the awkward fact that fertility decline over the past generation has been more rapid in the Arab states than virtually anywhere else on earth – while well informed observers lament the exceptionally poor development record of the Arab countries over that very period.¹⁴

By the same token, contraceptive prevalence has only limited statistical power in explaining fertility differentials for Muslim-majority populations – and can do nothing to explain the highly inconvenient fact that use of modern contraceptives

¹⁴ Cf. United Nations Development Program and Arab Fund for Economic and Social Development, *Arab Human Development Report 2002*. New York: UNDP 2002. <http://www.arab-hdr.org/publications/other/ahdr/ahdr2002e.pdf>, and subsequent editions in this series.

remains much lower among Muslim-majority populations than among non-Muslim societies of similar income level, despite the tremendous fertility declines recorded in the former over the past generation.

Put another way: materialist theories would appear to come up short when pressed to account for the dimensions of fertility change registered in large parts of the *Ummah* over the past generation. An approach that focuses on parental attitudes and desires, their role in affecting behavior that results in achieved family size, and the manner in which attitudes about desired family size can change with or without marked socioeconomic change, may prove more fruitful here.

2.6 Some Implications of Today's Rapid Fertility Declines in the Islamic World

We have made the empirical case in this chapter that a sea-change in fertility levels, and by extension, in attendant patterns of family formation, is now underway in the Islamic world – even if this sea-change remains curiously un-recognized and un-discussed even in the societies it is so rapidly transforming. Why this should be the case is an important question, but one that will not detain us here. Instead, we shall conclude by touching a few of the more obvious implications of these big demographic changes for the years ahead.

1. *Downward Revision of Population Projections:* In its 2000 revisions of *World Population Prospects*, UNPD “medium variant” projections envisioned a population for Yemen of 102 million people; in its 2010 revisions, the 2050 “medium variant” projection for Yemen is 62 million. (USCB projections for Yemen for 2050 as of this writing are even lower: under 48 million.) Unanticipated but extremely rapid fertility declines would likewise militate for downward revisions in the trajectory of future demographic growth in other Muslim-majority areas.
2. *Coming Declines in Working-Age (15–64) Population:* If the current prospect for Muslim-majority countries and territories entails coping with the challenges of finding employment for continuing and even increasing increments of working-age manpower, in the foreseeable future an increasing number of Muslim-majority countries may face the prospect of coping with manpower declines. If current USCB projections prove accurate, Lebanon’s 15–64 cohort would peak in the year 2023 – 20 years from this writing – and would shrink more or less indefinitely thereafter. On the trajectories traced out by current USCB projections, another 13 Muslim-majority countries would also see their conventionally defined working-age populations peak, and begin to decline, before the year 2050.¹⁵ Over the past generation, we should remember,

¹⁵ The other countries would be Algeria, Azerbaijan, Indonesia, Iran, Kazakhstan, Maldives, Morocco, Qatar, Tunisia, Turkey, Turkmenistan, the United Arab Emirates, and Uzbekistan.

demographic authorities for the most part underestimated the pace and scale of fertility decline in Muslim regions – sometimes very seriously. If underestimation is still the characteristic error in fertility projections for these populations, this would mean that manpower declines would commence earlier than envisioned for the countries in question – and that additional countries and territories might experience workforce decline before 2050.

3. *A Wave of “Youthquakes”*: With rapidly declining fertility rates, the arithmetic of population composition makes for inescapable “youthquakes”: temporary, but sometimes very substantial, increases in the fraction of young people (say, aged 15–24 or 20–29) as a proportion of total population. Depending on the social, economic and political context, such “youthquakes” can facilitate rapid economic development – or can instead exacerbate social and political strains. Tunisia passed through such a youthquake some time ago, and Iran is experiencing the tail end of one today; Yemen and Palestine, among other Muslim-majority societies, have yet to deal with theirs.
4. *Rapid Population Aging on Relatively Low Income Levels*: The lower a country’s or territory’s fertility, the more powerful the demographic pressure for population aging over the subsequent generation. With extremely rapid fertility decline – and the descent into sub-replacement fertility – a number of Muslim-majority populations are already set on course for very rapid population aging. Under current USCB, ten Muslim-majority countries – including Indonesia, Iran, Algeria and Morocco – would have higher fractions of their national populations over the age of 65 by the year 2040 than the USA today. Today these same ten places enjoy only a fraction of US per capita income levels: Indonesia’s per capita GDP in 2008 was estimated to be less than a quarter of America’s; Iran’s just one seventh; and for both Morocco and Algeria barely one ninth. Even with highly optimistic assumptions about future economic growth, it is hard to envision how they might attain contemporary OECD income levels – much less contemporary OECD educational profiles or knowledge-generation capabilities – by the time they reach contemporary OECD aging profiles. How these societies will meet the needs of their graying populations on relatively low income levels may prove to be one of the more surprising, and unanticipated, challenges of the fertility revolution now underway in the *Ummah*.

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