Cultural Change, Slow and Fast: The Distinctive Trajectory of Norms Governing Gender Equality and Sexual Orientation

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This article builds on research demonstrating that high levels of economic and physical security are conducive to a shift from materialist to postmaterialist values—and that this shift tends to make people more favorable to important social changes. This article updates this research, demonstrating that: (1) These value changes occur with exceptionally large time lags between the onset of the conditions conducive to them, and the societal changes they produce—as previous work implies but does not demonstrate. The evidence suggests that there was a time lag of forty to fifty years between when Western societies first attained high levels of economic and physical security after World War II, and related societal changes such as legalization of same-sex marriage. (2) A distinctive set of "individual-choice norms," dealing with acceptance of gender equality, divorce, abortion, and homosexuality, is moving on a different trajectory from other cultural changes. These norms are closely linked with human fertility rates and require severe self-repression. (3) Although basic values normally change at the pace of intergenerational population replacement, the shift from pro-fertility norms to individual-choice norms is now moving much faster, having reached a tipping point where conformist pressures have reversed polarity and are now accelerating changes they once resisted. We test these claims against data from eighty countries containing most of the world's population, surveyed from 1981 to 2014.

Introduction

For most of recorded history, nearly all societies instilled norms limiting women to the roles of wife and mother, and stigmatizing homosexuality and any other sexual behavior not linked with reproduction (Nolan and Lenski 2015). High levels of economic and physical security bring growing acceptance of gender

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equality, homosexuality, and other behaviors discouraged by agrarian societies, which require high fertility rates to maintain their populations. During the past century these cultural norms have been changing slowly in high-income societies, mainly through intergenerational population replacement—but this process recently reached a threshold at which rapid cultural change began, leading to major societal-level changes such as growing numbers of women holding positions of authority and the legalization of same-sex marriage.

This article builds on research by Inglehart (1971, 1977, 1990, 1997), Norris and Inglehart (2004), and Inglehart and Welzel (2005) demonstrating that high levels of economic and physical security are conducive to a shift from materialist to postmaterialist values that has contributed to major societal-level changes. This article updates this research, demonstrating that:

1. These value changes occur with a very long time lag between the onset of the conditions that lead to them and the societal changes they produce—as Inglehart (1971, 1977) implies but does not demonstrate. Evidence presented here indicates that there was a time lag of forty to fifty years between when Western societies first attained high levels of economic and physical security after World War II, and such relevant societal changes as legalization of same-sex marriage.
2. One set of norms shows distinctive behavior: acceptance of gender equality, divorce, abortion, and homosexuality is now moving much faster than other cultural changes such as secularization and the postmaterialist shift.
3. Although basic values normally move at the pace of intergenerational population replacement, the shift from pro-fertility norms to individual-choice norms has reached a tipping point at which the new norms are now perceived to be socially dominant. Accordingly, conformist pressures have reversed polarity and are now accelerating changes they once resisted.

Theory and Hypotheses

Our analysis deals with two related phenomena: a hypothesized value shift, and the *speed* with which this shift is moving. We hypothesize that the publics of high-income societies are experiencing an intergenerational shift from "pro-fertility norms" (emphasizing traditional gender roles and stigmatizing any sexual behavior not linked with reproduction) to "individual-choice norms" (supporting gender equality and tolerance of nontraditional behavior such as homosexuality)—*and* that this shift is currently moving with exceptional speed, transforming the politics of gender and sexual orientation in high-income societies. Our central research question is "Why are traditional norms governing gender equality and sexual orientation now changing swiftly?" Our dependent variable is a society's mean level of individual-choice norms.

Our work parallels earlier research by Lesthaeghe and Surkyn (1988) and Van de Kaa (2001) demonstrating that an intergenerational shift from materialist to postmaterialist values led to lower human fertility rates in Western Europe. This article seeks to explain another, more recent phenomenon—an

intergenerational value shift that moved slowly for decades but is now transforming legislation concerning gender equality and tolerance of homosexuals. Our work supports earlier findings that intergenerational value changes are bringing greater support for gender equality (Inglehart and Norris 2003) but go beyond this work, arguing that these changes are closely linked with rising tolerance of homosexuality and other nontraditional sexual behavior, and that they are now moving much more swiftly than before. England (2010) and Ridgeway (2011) have argued convincingly that economic and technological changes do not automatically bring rising gender equality in the workplace, for persisting gender stereotypes tend to devalue any type of work that is done mainly by women. Our hypotheses imply that after long delays, these cultural stereotypes are finally disappearing in high-income societies (though not in the world as a whole)—and are now doing so with unprecedented speed.

For we not only claim that an intergenerational shift toward individual-choice norms is occurring, but that it is now moving with exceptional speed. Deep-rooted cultural norms usually change at the glacial pace of intergenerational population replacement. When the conditions shaping a society's youngest birth cohort's pre-adult years differ greatly from those shaping older cohorts, intergenerational value change occurs, with a time lag of many decades between the emergence of favorable societal conditions and the time when a society has adopted new values. But this process can reach a tipping point, at which prevailing opinion is perceived as being favorable to the new norms. Conformist pressures then reverse polarity. The shift from pro-fertility norms to individual-choice norms recently reached this point in high-income countries. Instead of resisting individual-choice norms, conformist pressures are now supporting them, bringing exceptionally rapid change. Although deep-seated norms limiting women's roles and stigmatizing homosexuality persisted from biblical times to the twentieth century (Inglehart 1997), the World Values Survey and European Values Study (henceforth, the Values Surveys) now show rapidly growing support for gender equality and tolerance of gays and lesbians.

Cultural Evolution and the Shift to Individual-Choice Norms

Thousands of societies have existed, most of which are now extinct. They instilled a variety of norms concerning gender equality and reproductive behavior. Some agrarian societies encouraged producing large numbers of children, while others emphasized higher investment in fewer children. But all preindustrial societies that survived for long encouraged much higher human fertility rates than do today's high-income societies. Preindustrial societies faced high infant mortality rates and low life expectancies, making it necessary to produce large numbers of children in order to replace the population. Even Western European societies (which emphasized higher investment in fewer children) produced six to eight children per woman (Broadberry and O'Rourke 2010). In contemporary Western European societies, the figures range from 1.2 to 1.9 children. In agrarian societies, having many children was economically beneficial—but as industrialization advanced, it became an economic liability.

Not all preindustrial societies emphasized high fertility rates. Some societies, such as the Shakers, inculcated celibacy—but these societies have disappeared. Virtually all societies that survive as independent nations today inculcated norms encouraging high fertility rates (Inglehart 1997). Accordingly, the public of every low-income or lower-middle-income society included in the Values Surveys—without a single exception—places relatively strong emphasis on pro-fertility norms. These norms encourage women to cede leadership roles to men and devote themselves to bearing and raising children. They also stigmatize sexual behavior not linked with reproduction, such as homosexuality, abortion, divorce, contraception, or masturbation.

Gender equality began to emerge much earlier than tolerance of homosexuality, partly because women comprised half of the population, while homosexuals were a small minority that generally concealed their orientation. In some countries, the daughters or widows of kings could inherit the throne. Because negligible numbers of women were involved, this had virtually no impact on the society's human fertility level, making it compatible with traditional pro-fertility norms. In developed countries, women's suffrage movements emerged in the nineteenth century, and women gradually won the right to vote in the twentieth century, while homosexuality was still criminal. Women's suffrage was a major advance, but allowing women to vote every few years had little impact on fertility rates. A relatively rapid erosion of traditional pro-fertility norms emerged in Western democracies during the 1960s and 1970s when the postwar birth cohorts first became politically relevant. In recent decades both gender equality and emancipation of homosexuals reached a tipping point at which they began moving far more rapidly than ever before. The driving force behind these changes is spelled out by evolutionary modernization theory.

Evolutionary Modernization Theory

Evolutionary modernization theory argues that the degree to which people experience threats to their survival has pervasive effects on their society's cultural norms. Working independently, and often without awareness of converging findings from other disciplines, political scientists, anthropologists, psychologists, demographers, and evolutionary biologists have developed strikingly similar theories of cultural and institutional change: they all emphasize the importance of security from survival threats, such as starvation, war, and disease, in shaping a society's cultural norms and institutions.

Thus, Inglehart and others argue that new worldviews have been emerging since the postwar era (Inglehart 1971, 1977, 1990, 1997; Inglehart and Baker 2000; Norris and Inglehart 2004; Inglehart and Welzel 2005; Welzel 2013). This change reflects the crucial difference between growing up perceiving survival as precarious, and growing up feeling that survival can be taken for granted.

Evolutionary modernization theory holds that the survival instinct is universal, but survival is usually precarious: the population of any organism rises to meet the available food supply and is then held constant by starvation, disease,

and predators. Throughout most of history, this principle governed most people's lives.

During the past two centuries, technology and industrialization have enabled production to outpace population growth. Severe scarcity still prevailed well into the twentieth century, but the economic miracles and welfare states that emerged in advanced industrial societies after World War II brought major cultural changes. The postwar birth cohorts in these countries grew up under much more secure conditions than those shaping previous generations. For the first time in history, most people grew up taking it for granted that they would not starve. Those born under these conditions gave high priority to things other than food and physical safety, and were more tolerant of formerly deviant lifestyles.

The best-documented aspect of this process is the shift from "materialist" values that give top priority to economic and physical security, toward a growing emphasis on "postmaterialist" values that give top priority to individual autonomy and self-expression. Time-series data reveal an intergenerational value shift in six Western countries, from a 4:1 preponderance of materialists over postmaterialists in 1970, to a preponderance of postmaterialists over materialists by 2000 (Inglehart 2008). These values are just one component of an even broader shift from traditional to secular-rational values and from survival values to self-expression values that is transforming prevailing norms concerning religion, gender, and tolerance of outgroups (Inglehart and Baker 2000; Norris and Inglehart 2004; Inglehart and Welzel 2005). The rigid cultural norms that characterized agrarian societies are giving way to norms allowing greater individual autonomy and free choice.

Strikingly similar findings have been reported by researchers in other disciplines, from anthropology to biology. Thus, Gelfand et al. (2011) distinguish between "tight" and "loose" cultures, arguing that these qualities are shaped by the ecological and human-made threats the societies historically encountered. These threats increase the need for strong norms and severe punishment of deviant behavior. Tight societies are relatively religious and have autocratic governments that sternly suppress crime and dissent. Testing these predictions against survey data from thirty-three countries, Gelfand et al. find that nations that encountered severe ecological and historical threats have relatively strong norms and low tolerance of deviant behavior: severe existential pressures produce "tight" cultures, while fading pressures lower the need for rigid norms, producing "loose" cultures that are less restricted by religion and more tolerant of deviance.

Thornhill, Fincher, and Murray (2010) present converging evidence that historical vulnerability to infectious disease is linked with collectivist attitudes, xenophobia, and low support for gender equality. Fincher et al. (2008), rated ninety-eight societies on a collectivist-individualist scale, finding that a high threat of disease goes with collectivist attitudes, controlling for wealth and urbanization. Conversely, as the threat from disease diminishes, individualism and tolerance increase.

Western Europe's postwar rapid economic growth and welfare states led to the emergence of a predominantly postmaterialist generation born after 1945,

but this generation began to have political impact only twenty years later, when they reached adulthood—launching the student protests of the late 1960s and 1970s. At that point, there was a huge gap between the values of this first postwar birth cohort and all older cohorts, leading to the student protest slogan "Don't trust anyone over 30!" The student counterculture then constituted a small minority of society—but the twenty-year-olds eventually became thirty-year-olds and then forty-year-olds. As postwar birth cohorts replaced older cohorts in the adult population, their values gradually spread. It took two decades before the post-1945 generation first became politically relevant as student protesters, and additional decades passed before their values became predominant.

Today, Western Europe's social norms are profoundly different from those of 1945. Church attendance has declined dramatically, fertility rates have fallen below the replacement level, and women have won high political office. In 1945, homosexuality was still criminal in most Western European countries; it is now legal in virtually all of them. But there was a time lag of forty to fifty years between the onset of the conditions conducive to these changes and the point where new values became widely accepted.

The long time lags between the onset of conditions conducive to deep-rooted cultural changes and the time when they transform society means that current conditions don't explain current cultural changes. The intergenerational shift to individual-choice norms in Western countries has now attained enough momentum that it seems unlikely to be reversed. But Western Europe is currently experiencing economic stagnation, ethnic conflict, and high unemployment, which is often blamed on the unprecedentedly large numbers of immigrants—exacerbated by the fact that many recent immigrants come from Muslim-majority countries. These immigrants are highly visible and resist assimilating to Western cultural norms, and hostility to them is stimulated by pervasive media accounts of Islamic terrorism. Today, women and gays do not seem threatening to many people, but immigrants—especially Muslim immigrants—do. Accordingly, ethnocentric political leaders have recently won unprecedentedly large shares of the vote in national elections, even in traditionally tolerant countries such as Denmark, the Netherlands, and the United States.

Clearly, not all aspects of cultural change are moving on the same trajectory. But in high-income societies, the shift toward individual-choice norms has reached a tipping point where prevailing opinion is favorable to the new norms, producing rapid cultural change. Conversely, in most preindustrial societies, tolerance of homosexuality, abortion, and divorce remains extremely low and conformism inhibits people from expressing tolerance. In Egypt, for example, 99 percent of the public condemned homosexuality in recent surveys: even the homosexuals were condemning homosexuality.

But intergenerational population replacement has gradually made individual-choice norms increasingly acceptable in high-income societies—first among the student subculture and then in society as a whole. A tipping point has been reached where the prevailing outlook shifts from rejection to acceptance of new norms and instead of inhibiting tolerant attitudes, conformism encourages them. As attitudes become more tolerant, gays and lesbians come out. Growing

numbers of people realize that some of the people they know and like are gay, leading them to become more tolerant—encouraging more gays to come out, in a positive feedback loop (Inglehart and Welzel 2005; Andersen and Fetner 2008).

In short, when a society attains high levels of existential security and people grow up taking survival for granted, rapid cultural changes can occur—but this happens with a multi-decade time lag between when secure conditions emerge and new norms predominate.

Hypotheses

Pharr (1988) and Pascoe (2011) have argued persuasively that sexism and homophobia inherently go together. We will test this claim, proposing.

> *Hypothesis 1. People who reject gender equality also tend to reject homosexuality, divorce, and abortion, endorsing traditional pro-fertility norms; conversely, acceptance of gender equality, homosexuality, divorce, and abortion go together in an individual-choice syndrome.*

The world is now experiencing the longest period in recorded history without war between major powers. This, together with unprecedentedly strong economic growth in the postwar era and the emergence of the welfare state, produced conditions under which a large share of those born since 1945 in Western Europe, North America, Japan, Australia, and New Zealand grew up taking survival for granted, bringing intergenerational shifts toward new values (Inglehart 2008). Most societies no longer require high fertility rates, and they have dropped dramatically—especially in high-income societies where life expectancy rates have almost doubled in the past century and infant mortality rates have fallen to one-thirtieth of their 1950 level (Singh and van Dyck 2010). For many years, it has no longer been necessary for women to produce six to eight children in order to replace the population.

But deep-rooted cultural norms change slowly. Virtually all religions that became major world faiths emphasize pro-fertility norms—and they do so vigorously, instilling the belief that violators of these norms will burn in hell for all eternity. It was necessary to make these cultural sanctions severe because pro-fertility norms require repression of strong natural urges. "Thou shalt not commit adultery" goes against deep-rooted desires; requiring women to devote their lives to child-bearing and child-rearing entails major sacrifices; and defining homosexuality as sinful and unnatural imposes repression and self-hatred on gays and lesbians.

These norms are no longer necessary for survival, but deep-rooted cultural norms resist change. Nevertheless, modernization brings high levels of existential security. People grow up taking survival for granted, making them more open to new norms.

> *Hypothesis 2. High levels of existential security are conducive to individual-choice norms. Consequently, the publics of societies with high levels of per capita GDP, high levels of life expectancy, and low*

levels of infant mortality (three key indicators of existential security) will be likeliest to support individual-choice norms.

Hypothesis 3. Over the past fifty years, existential security has risen substantially in advanced industrial societies (though not in low-income societies), producing significant differences between the values of younger and older cohorts. As younger cohorts replace older ones in the adult population, we should observe an intergenerational shift from pro-fertility norms to individual-choice norms.

In recent decades, high economic *growth rates* have been negatively correlated with high *levels* of existential security: low-income and middle-income countries have the highest growth rates, but they are below the high-existential-security threshold at which people start adopting individual-choice norms. Consequently, high economic *levels* are a better predictor of increasing support for individual-choice norms than high economic *growth* rates. Change does not begin until a high-security threshold is reached, and the results become manifest still later, as intergenerational population replacement gradually transforms a society. Ultimately, of course, this *does* reflect change, since attaining this threshold reflects many decades of economic growth that brought high levels of existential security. But such long time lags are involved that in the interim (which may be fifty years), a country's *level* of existential security provides a more accurate predictor of change than does its recent economic growth rate—or recent *changes* in life expectancy, infant mortality, and per capita GDP. Consequently, we propose:

Hypothesis 4. A society's level *of security (as measured by its GDP/capita, life expectancy, and infant mortality) will be a stronger predictor of its support for individual-choice norms than its recent* growth *rate. Moreover,*

Hypothesis 5. The strongest predictor of a given society's level of support for individual-choice norms will not be its current *levels of per capita GDP, life expectancy, and infant mortality, but levels that prevailed several decades ago.*

Hypothesis 6. Postmaterialist values emerge among people who have grown up under high levels of existential security. Although postmaterialist values are linked with prosperity, high life expectancy, and low infant mortality, they also tap additional components of existential security, such as security from war and crime. Consequently, in regression analyses postmaterialist values will account for additional variance in support for individual-choice norms.

Hypothesis 7. Because all major world religions traditionally supported pro-fertility norms, people with strong religious beliefs, and societies where religion is strongest, will be least likely to support individual-choice norms.

Inglehart and Welzel (2010) and Welzel (2013) conclude that a society's prevailing outlook is a powerful influence on its citizens' values: analyzing data from scores of countries, they find that one's *society's* mean score on survival/self-expression values is an even stronger predictor of a respondent's values than his/her own social class, religion, age, or gender. Social conformity and perceived majority opinion seem to play important roles in legitimizing individual-choice norms:

> *Hypothesis 8. A society's mean level of support for individual-choice norms will be an even more powerful predictor of an individual's attitude toward individual-choice norms than his/her own income or educational level.*

There is evidence that sexism and homophobia have been declining sharply—but are people really becoming more tolerant or are sexism and homophobia merely becoming socially less acceptable and more subtle? Glick and Fiske (2011) find that purportedly "benevolent" forms of sexism exist along with "hostile" sexism. Similarly, Doan, Loehr, and Miller (2014) find subtle forms of prejudice toward lesbians and gays, even among people who are willing to accept same-sex marriage. The evidence examined here suggests that expressing sexism and homophobia *has* become socially less acceptable. Nevertheless—and partly *because* of this—massive real attitudinal changes are occurring that have important political consequences, encouraging new legislation concerning gender and sexual orientation.

For most of history, same-sex marriage did not exist in large societies. In 2000, it was legalized in the Netherlands, soon followed by many other countries. Similarly, until modern times, women were second-class citizens even in industrialized societies, not winning the right to vote until about 1920 in historically Protestant countries and around 1945 in Catholic countries. The struggle for gender equality began to move more rapidly in the 1960s and 1970s, and has accelerated further since then, with women being elected to top political office in many countries.

> *Hypothesis 9. Although intergenerational population replacement involves long time lags, cultural change can reach a tipping point at which the new norms are perceived as dominant. Conformist pressures then reverse polarity: instead of retarding the changes linked with intergenerational population replacement, they accelerate them—bringing rapid cultural change.*

> *Hypothesis 10. When new norms become dominant, they are conducive to major societal-level changes, such as adopting gender quotas on political parties' electoral lists, or the legalization of same-sex marriage.*

Data and Methods

We test these hypotheses against data from the Values Surveys, which have carried out seven waves of representative national surveys from 1981 to 2014, in

countries containing almost 90 percent of the world's population, with samples averaging about 1,400 respondents (these countries are listed at the foot of figure A1 in the online appendix). These countries cover the full range of economic development and all major cultural zones. Table 1 is based on data from all eighty countries in which all six items measuring individual-choice norms were asked. Tables 2 and 5 are based on data from all sixty-six countries providing data for individual-choice norms and all predictor variables. Table 3 is based on data from the 73,563 respondents from whom data are available for individual-choice norms and all predictor variables. Table 5 is based on data from all fifty-six countries in which individual-choice norms were measured in at least two surveys at least ten years apart, with data for all predictor variables. The questions analyzed here were asked in identical form in successive waves of the Values Surveys. The data, together with questionnaires and fieldwork information, can be downloaded from http://www.worldvaluessurvey.org/.

Our dependent variable is individual-choice norms. These norms are measured at both the individual level and the societal level. We find similar causal relationships at both levels, but because this article focuses on how cultural change leads to sociopolitical changes, the key analyses are done at the societal level.

Table 1 shows national-level factor analyses that generate two indices: a six-item index based on three items measuring acceptance of gender equality plus three items measuring acceptance of divorce, abortion, and homosexuality; and

Table 1. Principal Component Factor Analysis: Pro-Fertility Norms vs. Individual-Choice Norms

Individual-choice norms 6	Variance explained: 74%
Homosexuality is never justifiable	.90
When jobs are scarce, men have more right to a job than women	.89
Divorce is never justifiable	.89
On the whole, men make better political leaders than women do	.88
Abortion is never justifiable	.80
A university education is more important for a boy than for a girl	.78
Individual-choice norms 3	**Variance explained: 86%**
Divorce is never justifiable	.96
Abortion is never justifiable	.92
Homosexuality is never justifiable	.89

Note: This article uses reversed polarity, so high *positive* scores indicate support for individual-choice norms.
Source: National-level Values Survey data from eighty countries.

Table 2. Predictors of Individual-Choice Norms in 2009: National-Level Regression Analysis (dependent variable is nation's mean score on six-item individual-choice dimension)

Independentvariables	Model 1	Model 2	Model 3
Existential security, 1970 (Life expectancy, infant mortality, GDP/capita in 1970)	.452*** (.046)	.375*** (.055)	.240*** (.061)
Materialist/postmaterialist values	–	.729* (.317)	.816** (.286)
Religiosity (importance of God)	–	–	–.103*** (.027)
Constant	.253*** (.054)	–1.10 (.588)	–.529 (.550)
Adjusted *R*-squared	.623	.649	.716
N	66	66	66

Note: Cell entry is unstandardized regression coefficient. Standard errors in parentheses. Significance levels: *** $p < .001$ ** $p < .01$ * $p < .05$
Source: Latest available data from Values Surveys (median year: 2009); economic and demographic data from World Bank and World Health Organization.

a three-item index based on acceptance of divorce, abortion, and homosexuality.[1] The two indices correlate at .93 and show very similar relationships with key independent variables. We use the broader six-item index in cross-sectional analyses, but use the three-item index in time-series analyses, since it provides a longer time series (the three items measuring gender equality are available only since 1995).

Our key independent variable is an index of existential security, based on factor scores from a principal components analysis of each country's levels of life expectancy, infant mortality, and GDP/capita.[2] They tap a single dimension, showing loadings of .97, –.97, and .90, respectively, in 1960. Reliable cross-national data are available since 1960, enabling us to construct this index at various time points.

This article uses three related multi-item attitudinal indices. **Materialist/postmaterialist values** measure an intergenerational shift from giving top priority to economic and physical security toward greater emphasis on autonomy and free speech. They have been measured in hundreds of surveys since 1970, but subsequent research demonstrates that they are a component of an even broader shift from **survival values to self-expression values** (Inglehart and Baker 2000). This article's dependent variable, **pro-fertility versus individual-choice norms**, is another component of the survival versus self-expression dimension, and accordingly these three indices show national-level intercorrelations ranging from .85 to .90. Nevertheless, as this article demonstrates, the shift from pro-fertility to individual-choice norms shows distinctive behavior and is moving at a much more rapid pace than the shift from materialist to postmaterialist values. Another major dimension of cross-cultural variation, traditional versus secular-rational values, is orthogonal to the survival versus self-expression dimension and is less central to this analysis.

Table 3. Predictors of Individual-Choice Norms: Individual-Level Regression Analysis (dependent variable is 73 countries' mean score on six-item individual-choice index, as measured in latest available survey, with median year being 2008)

Independentvariables	Model 1	Model 2	Model 3	Model 4	Model 5
Individual-level variables					
Educational level	.051*** (.001)	.054*** (.001)	.041*** (.001)	.037*** (.001)	–.003*** (.001)
Income	–	.011*** (.001)	.012*** (.001)	.012*** (.001)	.000 (.001)
Religiosity (importance of God)	–	–	–.086*** (.001)	–.084*** (.001)	–.031*** (.000)
Materialist/postmaterialist values				.122*** (.003)	.045*** (.002)
Societal-level variable					
Existential security, 1970 (life expectancy, infant mortality, GDP/capita in 1970)	–	–	–	–	.403*** (.001)
Constant	–.272*** (.006)	–.237*** (.007)	.503*** (.008)	.293*** (.010)	.400*** (.007)
Adjusted *R*-squared	.038	.039	.222	.237	.634
N	73,563	73,563	73,563	73,563	73,563

Note: Cell entry is unstandardized coefficient with standard errors in parentheses.
*** $p < .001$ ** $p < .01$ * $p < .05$
Source: Data from latest available Values Survey.

Empirical Analyses and Findings

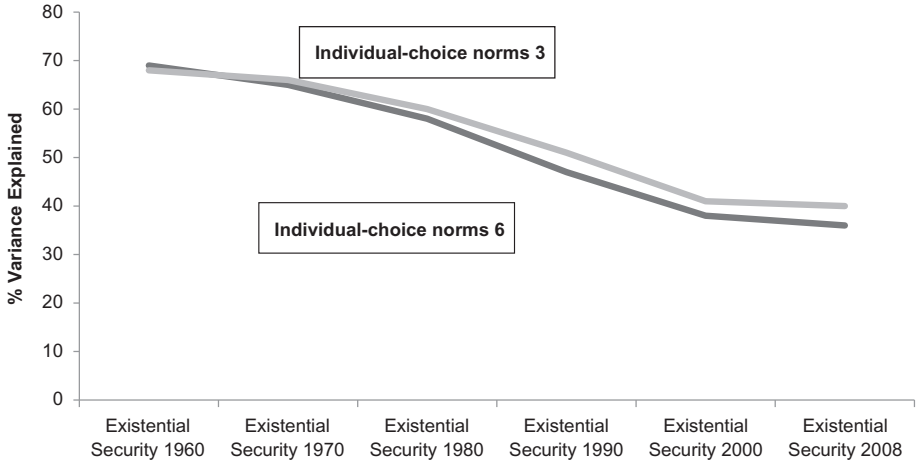
Hypothesis 1. Publics who reject gender equality also tend to reject homosexuality, divorce, and abortion, endorsing traditional pro-fertility norms; conversely, acceptance of gender equality, homosexuality, divorce, and abortion go together in an individual-choice syndrome. As table 1 above demonstrates, acceptance or rejection of all six indicators does *go together, with the publics of some societies being relatively favorable to gender equality, divorce, abortion, and homosexuality, while others reject them. One dimension emerges, with pro-fertility norms at one pole and individual-choice norms at the opposite pole.*

Hypothesis 2. High levels of existential security are conducive to individual-choice norms.

As figure A1 in the online appendix demonstrates, the publics of high-income countries are much likelier than those of low-income countries to hold tolerant attitudes toward all six items used to measure individual-choice norms. Averaged across the six items, in low-income countries only 38 percent of the public has tolerant attitudes, compared with 80 percent in high-income countries. These findings support the hypothesis that high levels of existential security are conducive to individual-choice norms. The evidence in figure 1 further supports this claim, but it also shows an unusual characteristic of our main independent variable, existential security.

Hypothesis 5 holds that the strongest predictor of a society's support for individual-choice norms will not be its *current* level of existential security

Figure 1. Impact of a country's level of existential security in 1960, 1970, 1980, 1990, 2000, and at time of survey on adherence to pro-fertility norms vs. individual-choice norms around 2009. Cell entry is the percentage of variance in individual-choice norms in latest available survey that is explained by a country's score on the existential security index measured in a given year.



(as measured by per capita GDP, life expectancy, and infant mortality) but the level that prevailed several decades before these norms were measured.

Figure 1 compares the predictive power of a country's level of existential security as measured at various time points before the survey in which individual-choice norms were measured (around 2009).[3] Our two earliest measures—existential security in 1960 and 1970—are the strongest predictors of individual-choice norms around 2009 (each explaining about 65 percent of the cross-national variance). Surprising as it may seem—but as predicted by Hypothesis 5—these much-earlier measures explain far more variance than does existential security measured in 1980, 1990, 2000, or at the time of the survey. This is remarkable. Normally, the strongest version of a predictor is one measured shortly before the dependent variable (Lewis-Beck 2005; Traugott 2001). As Silver (2015) demonstrates, if a survey carried out one year before the election indicates that a US Senate candidate has a five-point lead over her opponents, the probability that she will actually win is only slightly better than would be predicted by a random coin flip. But as the survey gets closer to the election, its predictive power gets stronger. A survey carried out one week before the election showing the same five-point lead has an 89 percent likelihood of accurately predicting the result, and a survey carried out one day before the election has a 95 percent likelihood of being accurate.

Here, our strongest predictor of a public's acceptance of individual-choice norms around 2009 is an index of existential security based on their country's life expectancy, infant mortality, and per capita GDP almost *fifty years* before the dependent variable. Why?

We are dealing with exceptionally deep-rooted cultural norms that were already established in biblical times and showed little change for centuries. The usual time-series analysis approach, in which change on the dependent variable is predicted by slightly earlier change in the independent variable, is not appropriate here, for we are dealing with intergenerational population replacement and threshold effects. The dependent variable—individual-choice norms—is linked with religious and cultural traditions that are very resistant to change. The emergence of low infant mortality and high life expectancy and economic security by 1960 were conducive to change in these norms—but it took decades for their impact to become manifest at the societal level.

All three components of the existential security index show this same unusual pattern: recent measures of life expectancy (and infant mortality and GDP/capita) have a much weaker impact on acceptance of new norms governing gender equality and reproductive behavior than do earlier measures—with the levels that existed in 1960 or 1970 explaining far more of the variance in individual-choice norms in 2009 than more recent measures.

This also holds true of religiosity (as measured by a question about how important God is in one's life). Religiosity is one of the most deep-rooted of all mass attitudes and is very resistant to change. Here again, existential security in 1960 (or 1970, or 1980) is a significantly stronger predictor of religiosity in 2009 than is existential security in 2000 or 2008.[4]

This also holds true of postmaterialist values. A country's level of existential security in 1960 or 1970 explains about twice as much of the variance in its level of postmaterialist values in the latest survey (around 2009) as does existential security in 2000 or 2008.[5] As Inglehart (1971) has argued, these values reflect the level of security that prevailed during a birth cohort's pre-adult years—which may have been several decades before the survey in which they were measured.

Now let's perform a broader test of the hypothesis that high levels of existential security are conducive to individual-choice norms. Table 2 analyzes mean scores on our six-item index of individual-choice norms in sixty-three countries.[6] The results strongly support Hypothesis 2: a society's existential security in 1970 alone explains fully 62 percent of the variance in its acceptance of individual-choice norms around 2009, as model 1 demonstrates.

Table 2 also presents evidence concerning two other hypotheses:

> *Hypothesis 6. Postmaterialist values explain additional variance in support for individual-choice norms. Postmaterialist value priorities emerge if one grows up taking survival for granted. They tap aspects of existential security, such as declining violence rates, that are not captured by our existential security index. Accordingly, existential security in 1970 plus a nation's mean score on materialist/postmaterialist values explain 65 percent of the cross-national variance in support for individual-choice norms.*

> *Hypothesis 7. People with strong religious beliefs, and societies in which religion is strongest, will be least likely to support individual-choice norms. If virtually all major religions emphasize traditional pro-fertility norms, then religiosity should have a negative impact on individual-choice norms. It does—and adding religiosity to the analysis increases the explained variance. Existential security plus postmaterialist values and religiosity explain 72 percent of the cross-national variation in acceptance of individual-choice norms.*

Table 3 presents an analysis of the individual-level factors shaping support for individual-choice norms. Its results are similar to those found in the societal-level analysis. As Hypothesis 2 proposes, high educational levels and incomes are significantly linked with support for individual-choice norms. Similarly, in keeping with Hypotheses 6 and 7, religiosity is negatively linked with support for individual-choice norms, and postmaterialist values are positively linked with them. These two variables have considerably stronger individual-level effects than education and income, raising the explained variance to 22 percent.

But these norms are not just shaped by the individual's personal characteristics, but also by one's social environment. It is perfectly legitimate to use both individual-level and societal-level variables in the same model when testing contextual effects, as is done here, in order to test the claim that the characteristics of one's society can have even more impact on one's attitudes than one's own income or education. Dramatically supporting this claim, a societal-level index

of existential security proves to be a strong predictor of individual-choice norms. Adding it to the regression raises the explained variance to 63 percent (model 5).

Since table 3 is not a multilevel analysis, it can't test cross-level interactions. Table 4 does so, presenting the results of a multilevel regression analysis that uses model 5 of table 3 as its baseline. Our purpose is to test the robustness of the effects found in our individual-level analysis in a random-effects model where the country intercepts are allowed to vary, and to explore the cross-level interaction effects of existential security with individual-level variables.

As table 4 indicates, the effects shown in table 3 are robust. Although the absolute values of the effects become smaller, they remain highly significant and the models have a reasonably good fit, as indicated by the marginal *R*-squared and the conditional *R*-squared, which accounts for almost half of the variance on the dependent variable. Existential security in 1970 remains highly significant in all models. Model 2 shows a significant interaction effect: while education has relatively little effect on support for individual-choice norms in countries having low levels of existential security, it has a relatively strong effect on support for individual-choice norms in countries with high levels of existential security. In other words, we can't attribute the rise of individual-choice norms to rising education levels *per se*: in less secure societies, education has little effect—but in countries with high levels of existential security, education is strongly linked with individual-choice norms. These societies may have reached a tipping point where new norms are spreading rapidly among the more educated strata.

Similar interaction effects are observed in models 3, 4, and 5. In all of these models, both the main individual-level effects and societal-level existential security maintain their significance. But the interaction effects indicate that existential security has a weaker effect among highly religious people than among less religious ones. In other words, religion plays a major role in reinforcing traditional pro-fertility norms in societies with low levels of existential security, but gradually loses its power to do so as societies attain higher levels of security. Conversely, both income and postmaterialist values have little impact on norms governing gender equality and reproductive behavior in less secure societies, but become increasingly important in societies with high levels of existential security.

Hypothesis 3 holds that since younger birth cohorts in developed countries have grown up under more secure conditions than those shaping older cohorts, we will find substantial differences between the values of their younger and older cohorts. Consequently, as younger cohorts replace older ones, we should observe a shift from pro-fertility norms to individual-choice norms in developed societies.

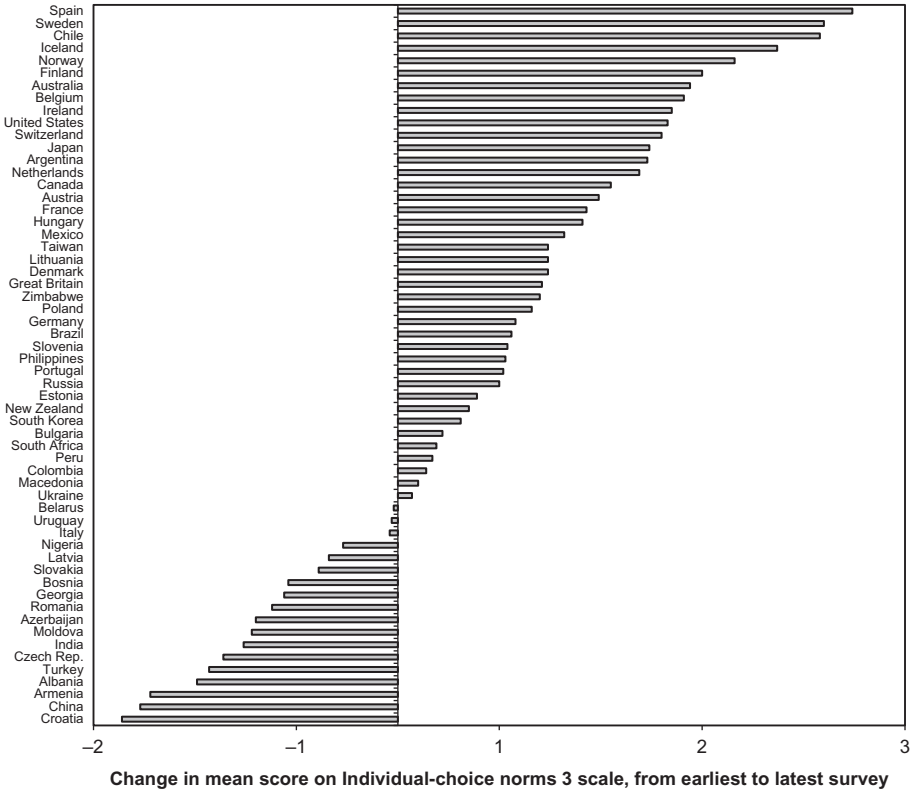
Figure 2 shows changes on the three-item individual-choice norms index in all fifty-eight countries providing a time series of at least ten years (with a median span of more than twenty years). The publics of twenty-four of the twenty-five high-income countries became more supportive of individual-choice norms, with little change in the one remaining high-income country. Less than half of the thirty-three other countries became more supportive, with rising support found mainly in upper-middle-income countries.

Table 4. Predictors of Support for Individual-Choice Norms: Multilevel Regression Analysis

Independentvariables	Model 1	Model 2	Model 3	Model 4	Model 5
Individual-level variables					
Educational level	–.003*** (.001)	.005*** (.001)	–.003*** (.001)	–.003*** (.001)	–.003*** (.001)
Income	.001 (.001)	–.000 (.001)	.003*** (.001)	.001 (.001)	.000 (.001)
Religiosity (importance of God)	–.030*** (.001)	-.029*** (.001)	–.030*** (.001)	–.030*** (.001)	–.030*** (.001)
Materialist/postmaterialist values	.054*** (.002)	.051*** (.002)	.054*** (.002)	.051*** (.002)	.067*** (.002)
Societal-level variable					
Existential security, 1970 (life expectancy, infant mortality, GDP/capita in 1970)	.436*** (.001)	.349*** (.003)	.410*** (.003)	.560*** (.004)	.366*** (.004)
Cross-level interaction terms					
with educational level	–	.016*** (.001)	–	–	–
with income	–	–	.006*** (.001)	–	–
with religiosity	–	–	–	–.021*** (.001)	–
with postmaterialist values	–	–	–	–	.038*** (.002)
Constant	.292 (.119)	.240 (.168)	.283 (.007)	.274*** (.006)	.260*** (.010)
N countries	66	66	66	66	66
N individuals	73,659	73,659	73,659	73,659	73,659
R-squared, marginal	.32	.33	.32	.33	.33
R-squared, conditional	.47	.47	.47	.47	.47
AIC	70853	69799	70754	68387	70466

Note: Cell entry is a fixed regression coefficient with standard errors in parentheses. Random effects in all models are countries' intercepts. Median year of survey is 2008.

Figure 2. Changes in individual-choice norms 3 from earliest available survey to latest available survey in all countries having time series covering at least ten years.



Twelve of the fifteen countries showing significantly *declining* support for individual-choice norms are formerly communist countries. While Muslim-majority societies generally show the lowest *levels* of support for individual-choice norms, very little change occurred there. The greatest rise in opposition to these norms occurred in formerly communist countries where a Marxist ideology once gave a sense of meaning and purpose to many people. The collapse of Marxism left an ideological vacuum that is being filled by religion (and nationalism), which is growing rapidly, bringing rising opposition to individual-choice norms.

Table 5 analyzes factors linked with *changes* in support for individual-choice norms from the earliest to the latest available survey. The dependent variable is individual-choice norms 3, as measured in the latest available survey (around 2009). The first independent variable used here is also individual-choice norms 3, as measured in the *earliest* available survey (around 1990). As usual, autocorrelation is strong: individual-choice norms measured in the *earliest* survey explain fully 47 percent of the variance in individual-choice norms in the *latest* survey. Including support for individual-choice norms at time 1 as a predictor

Table 5. Predictors of Change in Individual-Choice Norms from Earliest to Latest Available Survey: National-Level Regression Analysis (dependent variable is national mean on three-item individual-choice index as measured in latest available survey, with median year being 2009)

Independentvariables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Individual-choice norms in earliest survey (median year: 1990)	1.07*** (.151)	.503** (.165)	.738*** (.154)	.423* (.160)	.235 (.171)	.412* (.165)	.296 (.169)
Existential security, 1990 (infant mortality, life expectancy, GDP/ capita in 1990)	–	.336*** (.065)	–	.260*** (.067)	.195** (.070)	–.195** (.064)	.152* (.065)
Materialist/ postmaterialist values	–	–	1.50*** (.356)	.934** (.350)	1.08** (.340)	–.171 (.411)	.304 (.402)
Importance of God	–	–	–	–	-.093* (.038)	–.107** (.035)	–.136*** (.037)
Formerly communist country	–	–	–	–	–	–.438*** (.130)	–.314* (.139)
Economic growth rate, past 20 years	–	–	–	–	–	–	–.020* (.010)
Constant	.244*** (.065)	.197*** (.055)	–2.51*** (.656)	–1.51* (.640)	-1.14 (.630)	.760 (.806)	.788 (.780)
Adjusted *R*-squared	.470	.640	.593	.677	.704	.753	.769
N	56	56	56	56	56	56	56

Note: Based on data from all countries from which a time series of at least ten years is available. Cell entry is unstandardized regression coefficient with standard errors in parentheses.
Significance levels: *** $p < .001$ ** $p < .01$ * $p < .05$

means that all other predictors used in the analysis are analyzing the variance in support for individual-choice norms that is not explained by support for individual-choice norms in the earliest survey: in other words, we are analyzing their impact on *change* in support for individual-choice norms.

Using support for individual-choice norms at time 1 as a predictor also controls for all prior influences on support for individual-choice norms, including ones we don't know about. This means that the effects of existential security at any time before the first survey are already incorporated in the model, so in explaining subsequent changes in support for individual-choice norms, we use existential security in 1990. Adding this to the equation raises the explained variance from 47 percent to 64 percent (model 2). A country's level of materialist/postmaterialist values also has a significant impact on changing support for individual-choice norms, raising the explained variance from 47 percent to 59 percent. When all three variables are included, the model explains 68 percent of the change in support for individual-choice norms.

A country's level of religiosity also has a significant (negative) impact on change in support for individual-choice norms, raising the explained variance to 70 percent. And a history of communist rule also has a significant negative impact on changing support for individual-choice norms, raising the explained variance to 75 percent.

Although a country's economic growth rate from 1990 to 2010 is a change indicator, it is not linked with rising support for individual-choice norms—in fact, high growth rates are *negatively* linked with changing support for individual-choice norms, as model 7 indicates. As Hypothesis 8 proposed, a country's *level* of existential security is a stronger predictor of changes in support for individual-choice norms than its recent rate of economic *growth*—which actually points in the wrong direction. In recent decades, low-income and middle-income countries have had much higher economic growth rates than high-income countries—but the countries with the highest growth rates tend to be below the threshold at which people start adopting individual-choice norms. Consequently, high recent economic growth rates are *negatively* linked with rising support for individual-choice norms.

We are dealing with exceptionally deep-rooted norms. Change does not begin until a high-security-level threshold is reached, and the results become manifest much later, through intergenerational population replacement. Ultimately, of course, the process *does* reflect change, since attaining this threshold reflects many decades of economic growth that contributed to high levels of existential security. But during the interim (which may be fifty years or more), a country's *level* of existential security provides a more accurate predictor of change than does its recent economic growth rate—or recent *changes* in life expectancy, infant mortality, and per capita GDP.

Hypothesis 9 holds that cultural change can reach a tipping point where new norms become perceived as dominant. At this point, social desirability effects reverse polarity: instead of retarding the changes linked with intergenerational population replacement, they accelerate them, bringing rapid cultural change.

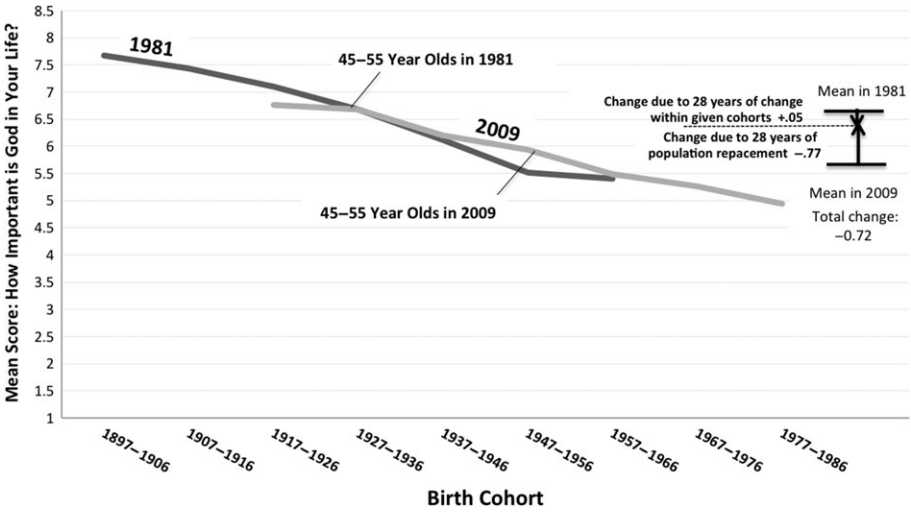
As we have seen, perceived majority opinion seems to play an important role: a society's prevailing mood is an even more powerful predictor of an individual's attitude toward individual-choice norms than the individual's own income or educational level. Consequently, when support for individual-choice norms becomes seen as dominant in a given social milieu, it can reverse the polarity of social desirability effects—producing much more rapid changes than those brought by intergenerational value change alone.

This is unusual. For example, the shift from materialist to postmaterialist values is mainly due to intergenerational population replacement, as younger, more postmaterialist cohorts replaced older ones in the adult population. Inglehart (2008) performed a cohort analysis of postmaterialist values in six Western European countries from 1970 to 2006. Although substantial short-term fluctuations occur, a given birth cohort's mean score on the materialist/postmaterialist values index changes very little from the earliest to the latest reading across this thirty-six-year time span.[7] But among the population as a *whole*, there was a substantial shift toward postmaterialist values: the mean score on the materialist/postmaterialist index rose by thirty points for the combined six-nation sample. This change was overwhelmingly due to intergenerational population replacement: *within* a given birth cohort, the average net change was an increase of five points—which conceivably might be attributed to increased social desirability of postmaterialist responses, but accounts for only one-sixth of the net change.

The shift from materialist to postmaterialist values was mainly driven by intergenerational population replacement. Changes in religiosity show a similar pattern. Though religiosity has increased in most formerly communist countries, in recent decades it has declined in almost all high-income countries—and this decline almost entirely reflects intergenerational population replacement. Figure 3 shows the relationship between birth cohort and religiosity in all fourteen high-income countries from which we have data from both 1981 and around 2009. Religiosity is measured by the mean response of each cohort to the question "How important is God in your life?" on a ten-point scale. The left-most line shows the levels for all cohorts as measured in 1981, while the other line shows the levels measured in 2009. Both lines show a downward slope moving from older to younger birth cohorts, since younger respondents are less religious than their older compatriots. Five birth cohorts are represented in substantial numbers at both time points, and their levels of religiosity are almost identical in 1981 and 2009: the intergenerational differences do not reflect life-cycle effects—the religiosity of given birth cohorts was virtually unchanged during this twenty-eight-year period. But the 1981 line includes two highly religious older birth cohorts (on the left) that had dropped out of the sample by 2009. They were replaced by two much more secular younger birth cohorts (on the right). This brought a substantial overall decline in emphasis on religion—a decline that was almost entirely due to intergenerational population replacement.

Changes in individual-choice norms show a very different pattern, as figure 4 (based on the same fourteen high-income countries) demonstrates. Here, the effects of intergenerational population replacement are reinforced by large

Figure 3. Changes in importance of religion, as measured by the question "How important is God in your life?" due to intergenerational population replacement, and due to within-cohort changes, in fourteen high-income societies (according to World Bank categories in 2000).

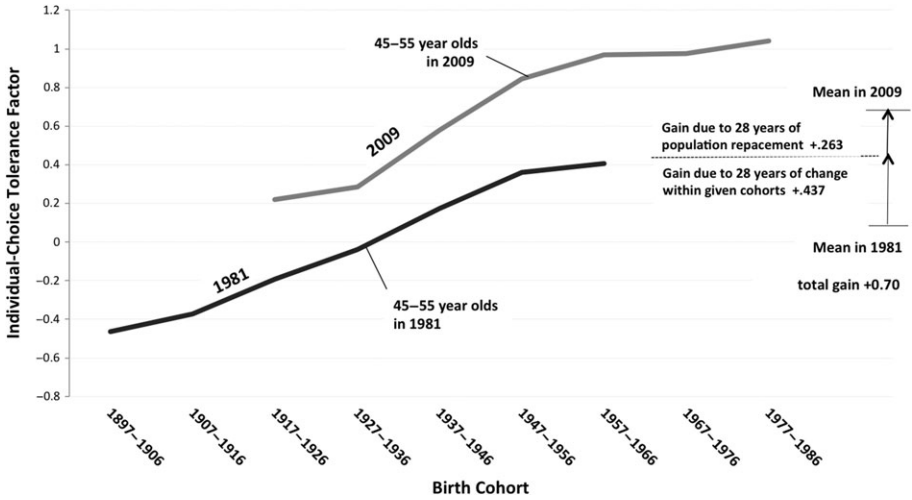


Source: Values Surveys in the following countries: Australia, Belgium, Canada, Denmark, France, Great Britain, Iceland, Ireland, Italy, Netherlands, Norway, Spain, Sweden, United States.

changes *within* given birth cohorts—with each cohort becoming substantially more tolerant in 2009 than it was in 1981.[8] Though intergenerational population replacement is linked with a .265 increase on the individual-choice norms index, changes within given cohorts account for an even larger increase of .435 points. We can't directly prove that these intra-cohort shifts reflect changes in social desirability effects, which are inherently difficult to measure since they imply that one can't take one's measurements at face value, but this explanation is plausible and consistent with Hypothesis 9's claim that exceptionally rapid changes in individual-choice norms are occurring in high-income societies because conformist pressures have reversed their polarity.

Recent historical evidence also suggests that this has happened. During the 2004 US presidential election, same-sex marriage was so unpopular that, in order to increase turnout among social conservatives, Republican strategists put referenda banning same-sex marriage on the ballot in key swing states. The ban was successful in every case. From 1998 through 2008, there were thirty statewide referenda seeking to ban same-sex marriage—and all thirty of them succeeded. But the tide suddenly turned. In 2012, there were five new statewide referenda on the topic—and in four out of five cases, the public voted in favor of legalizing same-sex marriage. In 2015 the US Supreme Court ruled that the Constitution guarantees a right to same-sex marriage: even elderly judges seem to sense that a watershed social change is occurring and want to be on "the right side of history."

Figure 4. Changes in individual-choice norms due to intergenerational population replacement, and to within-cohort changes, in fourteen high-income societies for which data are available from 1981 to 2009.



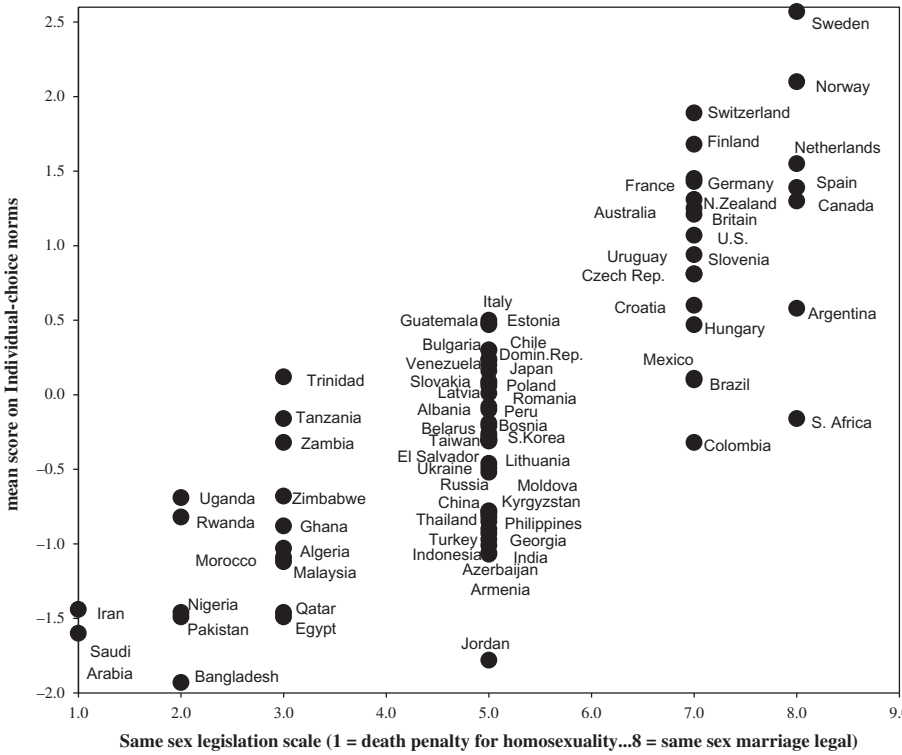
Source: Values Surveys in the countries listed in figure 3.

Hypothesis 10 holds that when new norms become culturally dominant they can have major societal-level consequences, such as growing numbers of women in positions of authority, or legalization of same-sex marriage.

The spread of individual-choice norms is not limited to changes in people's heads. It also brings societal-level changes. As figure 5 demonstrates, legislation concerning homosexuality is closely linked with the degree to which individual-choice norms have emerged. The laws vary immensely, with scores ranging from "1" in countries where homosexuality is punishable by the death penalty to "8" in countries where same-sex marriage is legal. Countries that rank high on individual-choice norms are much likelier to have adopted legislation favorable to gays and lesbians ($r = .79$).

It seems unlikely that this strong correlation between mass-level values and societal legislation exists because the legislation shapes the values. Same-sex marriage first became legal in 2000, but the relevant values had been spreading for decades. In 2001 the Netherlands experienced a sudden surge in same-sex marriages. The proximate cause was the fact that the Dutch parliament had just legalized same-sex marriages—which had been virtually unthinkable for centuries. The root cause of this societal-level change was the fact that a gradual shift had taken place in the Dutch public's attitudes toward homosexuality. In the 1981 Values Survey, the Dutch were more tolerant than any other public surveyed, but almost half of them expressed disapproval of homosexuality (the old being much less tolerant than the young). In most other countries, 75 percent to 99 percent of the public disapproved of homosexuality. These attitudes gradually become more tolerant through an intergenerational value shift. By 1999, disapproval among the Dutch public had fallen to less than half its 1981 level. A year later, the Dutch parliament

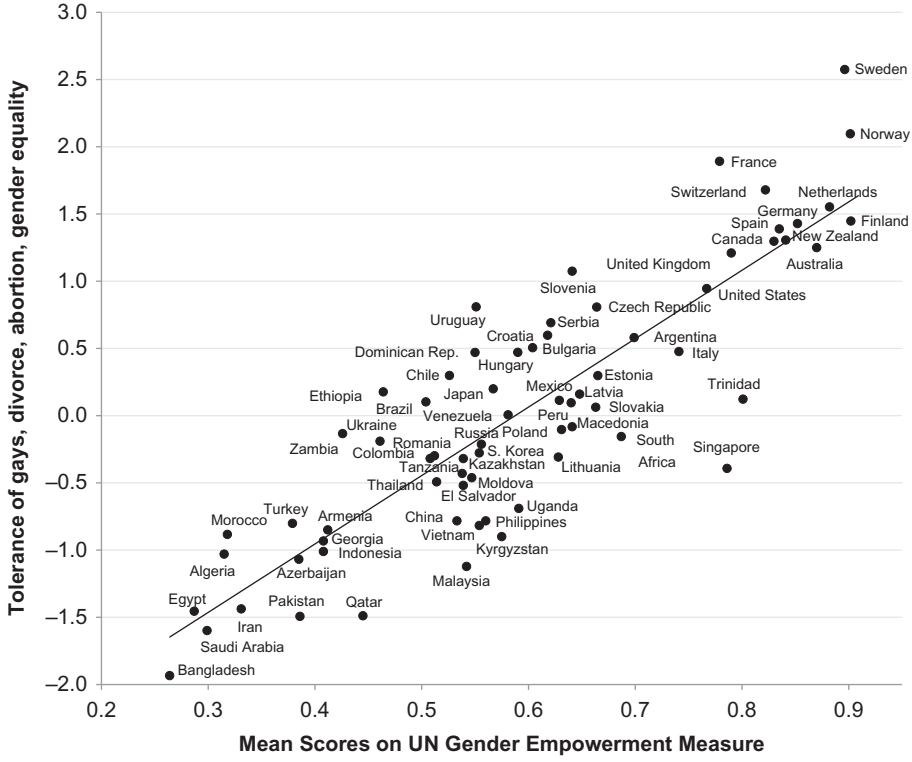
Figure 5. National legislation concerning homosexuality in 2012, by public acceptance of gender equality, divorce, abortion, and homosexuality ($r = .79$). Legislation concerning homosexuals in 2012 downloaded from LGBT Portal with original polarity reversed, making high scores indicate tolerant legislation. 1 = death penalty for homosexuality, 2 = heavy penalty, 3 = minimal penalty, 4 = homosexuality illegal but not enforced, 5 = same-sex unions not recognized, 6 some form of same-sex partnership, 7 = same-sex unions recognized but not performed, 8 = same-sex marriages performed.



legalized same-sex marriage, soon followed by a number of other countries—all of which had relatively tolerant publics (Inglehart and Welzel 2005).

As figure 6 demonstrates, countries that rank high on individual-choice norms also tend to rank high on the UN Gender Empowerment Measure (reflecting the extent to which women hold authority positions in political, economic, and academic life). The correlation between the six-item individual-choice index and the UN Gender Empowerment measure is .82. Legislative measures (such as gender quotas) probably help legitimate individual-choice norms, but here again, the underlying norms have been changing for fifty years, while the legislative changes are relatively recent. The cultural changes preceded the institutional changes, and probably contributed to them. The claim that institutions determine culture does not hold up in light of historical evidence, which suggests that culture and institutions influence each other—with cultural change sometimes preceding institutional change.

Figure 6. Societal levels of gender empowerment, by mass support for individual-choice norms ($r = .87$).



Conclusion

We hypothesized that high levels of existential security are contributing to an intergenerational shift from pro-fertility norms to individual-choice norms. Evidence from the past three decades indicates that these changes have indeed occurred, and that high levels of existential security help drive them. A handful of variables linked with existential security explain most of the cross-national variation in support for individual-choice norms, and most of the *change* in support for individual-choice norms levels from 1981 to 2014. Though in high-income countries, the more educated and more secure strata are most likely to hold the new norms, education *per se* is not the root cause of these changes: these norms are not widespread among the more educated in low-income countries.

Although the rise of postmaterialist values and the declining importance of religion in high-income countries have moved at the pace of intergenerational population replacement, individual-choice norms are spreading much more rapidly. During the past century, sharply falling infant mortality and rising life expectancy rates produced conditions where women no longer needed to devote

their lives to producing and rearing large numbers of children in order to replace the population. The repression and self-denial linked with traditional pro-fertility norms was no longer essential to societal survival. Initially, these norms were highly resistant to change, but after long time lags linked with intergenerational population replacement, the spread of individual-choice norms seems to have reached a tipping point where conformist pressures reversed polarity—accelerating the rate of change.

This rapid shift from pro-fertility norms to individual-choice norms has stimulated strong negative reactions among social conservatives in many countries. In the 2016 election Donald Trump mobilized xenophobic and sexist sentiments to win the US presidency. But the social base for the sexist component of such appeals seems to be dwindling rapidly. The evidence examined here suggests that, after centuries of stability, traditional norms concerning gender equality and sexual orientation are rapidly eroding in high-income societies, in a cultural shift that has already begun to transform legislation concerning homosexuality and the extent to which women hold positions of authority. Though she didn't win the presidency, Hillary Clinton was the first woman to win the presidential popular vote.

Notes

1. These indices are factor scores generated by the analyses in table 1.
2. The data on GDP/capita are from the Penn World Tables; the data on life expectancy and infant mortality are from the World Health Organization.
3. The date of the latest-available survey ranges from 2007 to 2014, with a median of 2009. The results shown here are based on regression analyses in which the existential security index for a given year was the sole independent variable.
4. See figure A2 in the online appendix.
5. See figure A2 in the online appendix.
6. In preliminary analyses, the impact of national-level education indices was also tested. They show the expected relationship positive linkage with individual-choice norms, but are considerably weaker predictors than the existential security measure used here. Being closely correlated with the existential security index, educational indicators are not included here.
7. See figure A3 in the online appendix.
8. The mean score on individual-level choice norms was calculated for each birth cohort, as measured in the earliest available survey (1981) and the latest available survey (2009). For each of the five cohorts providing data from both time periods, we then calculated the difference between its score in the earliest period and its score in the latest period. The overall within-cohort change score represents the average of these differences. The change due to population replacement is calculated by taking the difference between the overall mean scores in the earliest time period and the latest time period, and then subtracting the within-cohort effect.

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Supplementary Material

Supplementary material is available at *Social Forces* online, http://sf.oxfordjournals.org/.

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