Modernization, Existential Security and Cultural Change: Reshaping Human Motivations and Society

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ABSTRACT

In recent decades, rising levels of economic and physical security have been reshaping human values and motivations, and thereby transforming societies. Economic and physical insecurity are conducive to xenophobia, strong in-group solidarity, authoritarian politics and rigid adherence to traditional cultural norms; conversely, secure conditions lead to greater tolerance of outgroups, openness to new ideas and more egalitarian social norms.

Existential security shapes societies and cultures in two ways. Modernization increases prevailing security levels, producing pervasive cultural changes in developed countries. But long before this happened, substantial cross-sectional cultural difference already existed, reflecting historical differences in vulnerability to disease and other factors. Analysts working from different perspectives have described these cultural differences as Collectivism versus Individualism, Materialism versus Postmaterialism, Survival versus Self-expression values, or Autonomy versus Embeddedness, but they all tap a common dimension of cross-cultural variation that reflects different levels of existential security.

Keywords: Existential security, modernization, cultural change, xenophobia, authoritarianism, individualism, autonomy, Postmaterialism, self-expression values.

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I. INTRODUCTION

This chapter presents a revised version of modernization theory—Evolutionary Modernization theory—which argues that economic and physical insecurity are conducive to xenophobia, strong in-group solidarity, authoritarian politics and rigid adherence to traditional cultural norms; and conversely that secure conditions lead to greater tolerance of outgroups, openness to new ideas and more egalitarian social norms. It then analyzes survey data carried out from 1970 to 2014 in countries containing over 90 percent of the world's population, demonstrating how, in recent decades, rising levels of economic and physical security have been reshaping human values and motivations, and thereby transforming societies.

A society's culture is shaped by the extent to which its people grow up feeling that survival is secure or insecure. For most of human history survival has been insecure, with population rising to meet the food supply and then being held constant by starvation, disease and violence. In the 20th century, industrialization, urbanization and mass literacy enabled the working class to become mobilized in labor unions and Left-oriented political parties that elected governments implementing redistributive policies to provide an economic safety net. This was reinforced by exceptionally rapid economic growth in the decades following World War II and the absence of war between major powers. The publics of advanced industrial societies experienced unprecedented levels of existential security, and a large share of them grew up taking survival for granted. This brought an intergenerational value shift from emphasizing economic and physical security above all, toward greater emphasis on free choice, environmental protection, gender equality and tolerance of gays. This in turn led to major societal changes such as a surge of democratization around 1990 and the legalization of same-sex marriage.

With the rise of service economies, the working class base of the classic Left parties eroded and globalization weakened the bargaining power of workers in high-income societies. Subsequent economic stagnation, rising inequality and high unemployment have retarded the shift to new values, encouraging xenophobia and authoritarianism in Western countries. Nevertheless, acceptance of gender equality and homosexuality have become socially desirable attitudes and continue to spread rapidly.

Moreover, globalization is transferring capital and technology to countries from Eastern Europe to Latin America, raising their levels of existential security and bringing greater openness to new ideas and more egalitarian social norms. Until recently, most people in China and India still lived barely above the subsistence level, but in the long run this process is likely to transform the culture of these countries.

Existential security shapes societies and cultures in two ways. Modernization has brought sharp rises in prevailing security levels, producing pervasive cultural changes in advanced industrial societies. But long before this happened, substantial cross-sectional cultural difference already existed, reflecting historical differences in vulnerability to disease and other factors. Analysts from several disciplines, working from different perspectives, have described these cultural differences as Collectivism versus Individualism, Survival versus Self-expression values, or Autonomy versus Embeddedness, but they all tap a common axis of cross-cultural variation that reflects different levels of existential security.

This chapter analyzes cultural change, using evidence from hundreds of representative national surveys carried out in more than 100 countries,[2] together with economic, demographic and political data. This massive body of evidence demonstrates that an intergenerational shift

[2]For detailed information on the World Values Survey and the European Values Study see their respective websites, http://www.worldvaluessurvey and www.europeanvaluesstudy.eu.

from Materialist to Postmaterialist priorities has been occurring. But, as we will demonstrate, this is only one aspect of a broader cultural shift from Survival values, which give top priority to the survival needs, to Self-expression values emphasizing gender equality, environmental protection, tolerance, interpersonal trust and free choice. It also includes a shift from emphasis on hard work toward emphasis on imagination and tolerance as important values to teach a child. It is bringing new political issues to the center of the stage and encouraging the spread of democracy.

The following section outlines Evolutionary Modernization theory, which argues that economic development brings increased economic and physical security—which are conducive to increased cultural openness, which in turn encourages democracy and more liberal social legislation. Classic modernization theory, by contrast, emphasized the role of cognitive factors in shaping cultural change, arguing that as scientific knowledge spread, religion and traditional worldviews would inexorably give way to rationality.

Somewhat similarly, rational choice analysis, which dominated economics and political science in recent decades, assumes that human behavior reflects conscious choices designed to maximize one's utilities. This approach gives little weight to historical or cultural factors, assuming that—facing the same incentives—people of different cultures will make the same choices. This approach developed elegant and parsimonious models that don't adequately explain how humans actually behave. Experimental research indicates that human decisions are heavily influenced by unconscious biases or intuitions. Moreover, a massive body of survey evidence indicates that cultural change is path dependent, reflecting the persisting influence of a society's historical heritage. Rational choice theory, by contrast, holds that key institutions are

adopted through conscious elite choices— which could conceivably change from one day to the next.

If a society reaches a threshold where a sufficiently high level of economic and physical security that the younger birth cohorts grow up taking survival for granted, they may adopt new value priorities. These youngest cohorts have little political impact until they reach adulthood, and even then they are still a small minority of the adult population; it takes additional decades before they become the dominant influence. But intergenerational value change can eventually reach a threshold at which new norms became socially dominant. At this point, conformist pressures reverse polarity, supporting changes they formerly opposed and bringing relatively rapid cultural change.

II. THEORETICAL FRAMEWORK AND MAJOR CONCEPTS

A. CLASSIC MODERNIZATION THEORY AND EVOLUTIONARY MODERNIZATION THEORY

The idea that economic development brings predictable social and political changes has been controversial ever since it was proposed by Marx. It is intellectually exciting because it not only purports to explain past changes, but also promises to predict what will happen in the future. So far, most efforts to predict human behavior have failed, and the key predictions made by Marx's early version of modernization theory were wrong: industrial workers did not become an overwhelming majority of the workforce, bringing a revolution of the proletariat; and the abolition of private property did not bring an end to exploitation and social conflict— it led to the rise of a new ruling class, the communist party elite. Human behavior is so complex and influenced by such a wide range of factors, that any claim to provide precise, deterministic predictions is unrealistic. Nevertheless, certain trajectories are more probable than others.

The most basic feature of modernization is that it makes life more secure, eliminating starvation and increasing life expectancy. At high levels of development, this brings pervasive changes in human motivations, enabling people to shift from life strategies based on the assumption that survival is insecure, to strategies that take survival for granted and give increasingly high priority to a wide range of other human aspirations.

The feeling that survival is insecure leads to ethnocentric solidarity against outsiders and internal solidarity behind strong, authoritarian leaders. Indeed, under conditions of extreme scarcity, xenophobia is realistic: when there is just enough land to support one's tribe, and another tribe moves in, survival may literally be a choice between Us and Them. Conversely, rising levels of existential security allow people to become more open to strangers and new ideas.

Evolution has shaped all organisms to give top priority to survival. Those that did not do so died out, and the vast majority of all species that ever existed are now extinct. Thus, people evolved to give top priority to obtaining whatever is needed for survival when it is in short supply. One can live without oxygen for only a matter of minutes, and when it is scarce people focus all their efforts on getting it. One can live without water for a matter of days but when it is scarce, people struggle desperately to obtain it, killing for it if necessary. When dependable supplies of air and water are available, people take them for granted and give top priority to other goals. Though one can survive without food for weeks, when it is scarce it takes top priority. Throughout history, food has usually been scarce, reflecting the biological tendency for populations to rise to meet the available food supply and then be held constant by starvation, predators and disease.

There is a huge difference between growing up knowing that survival is insecure, and growing up taking survival for granted. For most of history survival has been precarious, but in recent decades an increasing share of the world's population has grown up assuming that they will not starve. Survival is such a basic goal that it influences almost every aspect of people's lives: in societies where survival has come to be taken for granted, major changes are occurring in job motivations, religion, sexual behavior and how people raise their children.

Once economic development gets under way, certain changes are likely to happen. Industrialization, for example, brings urbanization, occupational specialization and rising levels of formal education in any society that undertakes it. Farther down the line, it brings greater prosperity and better nutrition and health care, which lead to rising life expectancy. Still later, changes in the nature of work and improved means of birth control make it possible for increasing numbers of women to take jobs outside the home. This, together with related cultural changes, leads to rising gender equality.

The cultural heritage of some societies resists these changes, making socio-cultural change path dependent. Thus, Protestant societies allowed women to vote decades earlier than Catholic societies; and Japan has incorporated women into the work force more slowly than other developed countries. But a growing body of evidence indicates that as modernization proceeds, these and other changes become increasingly probable. Value systems reflect a balance between the driving forces of modernization and the persisting influence of tradition. Although classic modernization theorists, from Marx through Weber, thought that religion and ethnic loyalties would die out, religion and nationalism remain major forces. Cultural heritages are remarkably enduring.

Nevertheless, the economic miracles and welfare states that emerged in advanced industrial societies after World War II brought major cultural changes. For the first time in history, a large share of these countries' population grew up feeling that survival could be taken for granted. The cohorts born under these conditions began to give high priority to other goals, such as environmental quality and freedom of expression.

This led to a process of intergenerational value change that has been transforming the politics and culture of high-income societies, and is likely to transform China, India and other rapidly-developing societies when they reach a stage where a large share of the population grows up taking survival for granted. The best-documented aspect of this process is the shift from "Materialist" values (which give top priority to economic and physical security) to "Postmaterialist" values (which emphasize autonomy and self-expression). But this is just one component of a still broader shift from Survival values to Self-expression values that is transforming prevailing norms concerning religion, gender equality, tolerance of outgroups, and bringing growing support for environmental protection and democratic institutions (Inglehart and Baker, 2000; Inglehart and Norris, 2004; Inglehart and Welzel, 2005; Welzel, 2013).[3] The rigid cultural norms that characterized agrarian societies are giving way to norms that allow greater individual autonomy and free choice— and are conducive to successful knowledge societies.

B. CONVERGING EVIDENCE OF THE IMPORTANCE OF EXISTENTIAL SECURITY

Wording independently, anthropologists, psychologists, political scientists and evolutionary biologists have been developing strikingly similar theories of cultural and institutional change: they all emphasize the extent to which security from survival threats, such as starvation, war and disease, shape a society's cultural norms and sociopolitical institutions.

[3] Survival-Self-expression values are described in much greater detail on page 31.

As we have seen, Inglehart, Norris, Welzel, Baker and others argue that a new worldview is gradually replacing one that dominated Western society for centuries, because of the fundamental difference between growing up feeling that survival is precarious, and growing up taking survival for granted. Similar conclusions have been reached by researchers in several other disciplines. Thus, Gelfand et al. (2011) distinguish between cultures that are "tight" versus "loose," arguing that these qualities are shaped by the ecological and human-made threats that societies historically encountered. These threats increase the need for strong norms and punishment of deviant behavior to maintain order. Tight societies have autocratic governing systems that suppress dissent, provide strong deterrence and control of crime, and tend to be more religious. Testing these predictions against survey data from 33 countries, Gelfand *et al*. find that nations that encountered severe ecological and historical threats have relatively strong norms and low tolerance of deviant behaviour.

Similarly, Thornhill, Fincher et al. (2009, 2010) provide convincing evidence that vulnerability to infectious disease is linked with collectivist attitudes, xenophobia and low support for gender equality—all of which hinder the emergence of democracy (Fincher and Thornhill, 2008; Fincher, Thornhill, et al., 2008). They rated people in 98 societies on a collectivist-individualist scale, finding that a high threat of disease goes with collectivist attitudes, controlling for wealth and urbanization. Again similarly, Barber (2011) finds that religion helps people cope with dangerous situations; while religious belief declines as economic development brings greater economic security and health. These findings echo the predictions and findings of evolutionary modernization theory.

And they are consistent with classic claims by Adorno *et al*. (1953) that dogmatism, rigidity, and intolerance become prevalent when people grow up perceiving threats, and with

Rokeach's (1960) thesis that existential threats make people paranoid, defensive, and intolerant; absence of threats makes them secure, outgoing, and tolerant. In keeping with these claims, self-expression values—which include tolerance of homosexuality—are most widespread in prosperous societies with secure living conditions (Inglehart and Welzel, 2005). Socioeconomic development directly affects people's sense of existential security, determining whether physical survival seems uncertain or can be taken for granted. Consequently, as we will see, the values and beliefs found in developed societies differ strikingly from those found in developing societies.

C. THE RISE OF POSTMATERIALISM AND SELF-EXPRESSION VALUES

Modernization changes the prevailing sense of existential security. For most of history the great majority of the population lived just above the subsistence level. Since the industrial revolution, the resources needed for survival have increased greatly, which tends to increase people's sense of existential security— unless the resources are concentrated in the hands of a small minority. For existential security depends on a society's level of economic equality as well as its level of development. Even a very high per capita GDP will not produce high levels of security for the society as a whole, if it is concentrated in the hands of the elite.

But other things being equal, economic development can bring pervasive changes in a society's prevailing values and behavior. The earliest and most extensive evidence that the basic values of developed societies are changing concerns the shift from Materialist values to Postmaterialist values. More than 45 years ago, it was suggested that "A transformation may be taking place in the political culture of advanced industrial societies. This transformation seems to be altering the basic value priorities of given generations as a result of changing conditions influencing their basic socialization" (Inglehart, 1971:991).

This theory of intergenerational value change is based on two key hypotheses (Inglehart, 1977):

1. *A Scarcity Hypothesis.* Virtually everyone values freedom and autonomy, but people give top priority to their most pressing needs. Material sustenance and physical security are closely linked with survival, and when they are scarce, people give top priority to these Materialistic goals; but under secure conditions, people become more likely to emphasize Postmaterialist goals such as belonging, esteem, and free choice.

2. *A Socialization Hypothesis.* The relationship between material conditions and value priorities involves a long time-lag: one's basic values largely reflect the conditions that prevailed during one's preadult years and these values change mainly through intergenerational population replacement.

The scarcity hypothesis is similar to the principle of diminishing marginal utility. It reflects the distinction between the material needs for physical survival and safety, and non-material needs such as those for self-expression and esthetic satisfaction.

During the past several decades, advanced industrial societies have diverged strikingly from previous history: most of their population has *not* grown up under conditions of hunger and economic insecurity. This has led to a shift in which needs for belonging, esteem and free choice have become more prominent. The scarcity hypothesis implies that prolonged periods of high prosperity encourages the spread of Postmaterialist values-- while enduring economic decline has the opposite effect.

But there is no one-to-one relationship between socioeconomic development and the prevalence of Postmaterialist values, for these values reflect one's subjective sense of security, which is partly shaped by a society's income level but also by its social welfare institutions and

its security from violence and disease. Per capita income is one of the best readily-available indicators of the conditions leading to this value shift, but the theoretically crucial factor is one's sense of existential security.

Moreover, as the socialization hypothesis claims, people's basic value priorities do not change overnight. One of the most pervasive concepts in social science is that one's basic personality structure crystallizes by the time one reaches adulthood. Considerable evidence indicates that people's basic values are largely fixed when they reach adulthood, and change relatively little thereafter (Rokeach, 1968; Inglehart, 1977, 1997). If so, we would expect to find substantial differences between the values of young and old in societies that have experienced a rising sense of security. Intergenerational value change occurs when younger generations grow up under different conditions from those that shaped earlier generations.

These two hypotheses generate several predictions concerning value change. First, while the scarcity hypothesis implies that prosperity is conducive to the spread of Postmaterialist values, the socialization hypothesis implies that societal value change takes place gradually, largely through intergenerational population replacement. A sizable time lag exists between economic changes and their political effects.

The first empirical evidence of intergenerational value change came from surveys carried out in 1970 in six West European societies to test the hypothesized shift from Materialist to Postmaterialist values.[4] These surveys revealed large differences between the value priorities of older and younger generations. If, as claimed, these age-differences reflected intergenerational value change and not simply a tendency for people to get more Materialist as they aged, we would expect to find a gradual shift from Materialist to Postmaterialist values as younger birth

[4]This hypothesis was triggered by indications of intergenerational value change that emerged during the student protest era of the late 1960s and early 1970s.

cohorts replaced older ones in the adult population. The implications were far-reaching, for these values were closely linked with a number of important orientations ranging from emphasis on political participation and freedom of expression, to support for environmental protection, gender equality and democratic political institutions.

The value change thesis was controversial from the start. Critics argued that the large age-difference found in 1970 reflected life-cycle effects rather than intergenerational change: young people naturally prefer Postmaterialist values such as participation and free speech, but as they matured, they would come to have the same Materialist preferences as their elders, so the values of society as a whole would not change (Boeltken and Jagodzinski, 1985).

The value change hypothesis, by contrast, holds that young people are more Postmaterialist than their elders only if they have grown up under substantially more secure living conditions. Consequently, we would not expect to find intergenerational value differences in stagnant societies, and if future generations no longer grew up under more secure conditions than their elders, we would no longer find intergenerational value differences. But the degree of security experienced during one's formative years has a lasting impact. Consequently, as relatively Post-materialist post-war birth cohorts replaced older, more Materialistic ones in the adult population, we would witness a shift from Materialist to Postmaterialist values.

The shift toward Postmaterialist values, we argue, is driven by the change from growing up with the feeling that survival is precarious, to growing up with the feeling that survival can be taken for granted. Although the older birth cohorts had experienced the slaughter and starvation of two World Wars and the Great Depression, the postwar birth cohorts in Western democracies grew up in prosperity, with welfare states reinforcing the feeling that survival was secure, during the longest period in history without war between major powers.

These differences between the formative experiences of the postwar birth cohorts and all older cohorts, produced major differences in their value priorities. But these differences started to become evident only when the first post-war birth cohort became politically-relevant young adults two decades after World War II, contributing to the era of Student Protest in the late 1960s and 1970s. A widespread slogan among the protesters was "Don't trust anyone over thirty!"

D. CULTURAL CHANGE AND SOCIETAL CHANGE.

The intergenerational shift toward Postmaterialist values and Self-expression values did not just change things inside people's heads. It also began to change their societies.

A culture is a survival strategy for a society, comprising a set of norms and skills that are conducive to survival in a given environment. Like biological evolution, culture evolves through a process analogous to random mutations and natural selection, but since culture is learned, it can change much more rapidly than biological evolution.

In recent decades, the prevailing values of the more developed countries have changed profoundly, transforming basic cultural norms concerning gender roles, abortion, divorce, birth control and sexual orientation that had persisted for centuries. One of the most dramatic examples is the emergence of new gender roles. Throughout history, women have generally been subordinate to men and limited to a very narrow set of roles, first as dutiful daughters and then as dutiful wives and mothers. In recent decades, this has changed radically. Increasingly, almost any job that is open to men is also open to women. Two generations ago, women comprised a small minority of those receiving higher education. Today, women are a majority of the university students in most industrialized countries and a growing share of the faculty. Less than a century ago, women could not even vote in most countries; today they not only vote, they hold a growing share of the parliamentary seats in many democracies and are moving into top

political positions. After centuries of subordinate status, women are increasingly taking positions of authority in academic life, business and government.

In another example of recent societal change, openly gay politicians have become mayors of major cities, members of parliament, foreign ministers and heads of government. Since 2000, a growing number of countries have legalized same sex marriage. The rate of change varies enormously, with low-income countries[5] (especially Islamic ones) strongly resisting change. In many countries, homosexuality is still illegal, with some countries applying the death penalty. Thus, in recent Egyptian surveys, 99 percent of the population has said that homosexuality is "never" justifiable -- which means that even the gays are condemning it. For those adhering to traditional norms, these changes are alarming. They have given rise to some of the hottest political issues in developed countries. And they help explain much of the current conflict between Islamic fundamentalists and Western societies. The publics of high-income societies have been changing rapidly, while the publics of most Muslim-majority countries have changed relatively little—and from their perspective, the social norms emerging in high-income countries are decadent and shocking. A growing gap has opened up between people holding traditional values in Islamic countries and the developed world. Once, many people in these countries saw Western democracies as a model to emulate. Today, both Islamic fundamentalists and Russian fundamentalists see Western culture as something to guard against.

E. COGNITION AND EMOTIONS AS SOURCES OF VALUE CHANGE

Classic modernization theory needs to be modified in another respect-- its one-sided emphasis on cognitive factors in shaping cultural change. Weber attributed the rise of a secular, rational worldview to the spread of scientific knowledge: scientific discoveries had made

[5]We refer to the World Bank's categorization of "low income" countries in 1990: we use income levels at this early date because there is strong evidence that one's basic values are shaped to a greater extent by the conditions experienced during one's formative years, than by current economic conditions.

traditional religious explanations of the world obsolete; as scientific knowledge spread, religion would inexorably give way to rationality. Similarly, some modernization theorists argued that education drives the modernization process: within most countries, the more educated tend to have modern worldviews, and as educational levels rise, traditional religious worldviews will inevitably give way to secular-rational ones.

This emphasis on cognitive forces captures only part of the story. Emotional and experiential factors, such as whether people feel that survival is secure or insecure, are at least equally important in shaping people's worldviews. Higher levels of formal education are linked with secular-rational values and self-expression values, but higher education is not just an indicator of the extent to which one has absorbed knowledge. It is also an indicator of the extent to which one has experienced relatively secure conditions during one's formative years, since children from economically secure families are likelier to get higher education.

But each society also has a distinct social climate reflecting the prevailing mass outlook, which helps shape people's outlook. Thus, although higher education generally encourages people to place more emphasis on self-expression values, there is considerably more difference in emphasis on self-expression values *between* the highly educated people of different nations, than between the highly educated and the general public *within* given nations.

The cognitive component of education is largely irreversible—while one's sense of security and autonomy is not. The feeling that the world is secure or insecure is an early-established and relatively stable aspect of one's outlook. But these feelings can be eroded by short-term period effects and, even more so, by catastrophic events such as the collapse of one's entire society and economy. Such events are rare, but an entire group of countries experienced them in 1989-1991, when communism collapsed throughout Central and Eastern Europe. The

former Soviet satellites from Estonia to Slovenia suffered sharp declines, but eventually recovered and became members of the European Union. The people of the Soviet successor states experienced even sharper decreases in living standards, and they lived through the collapse of their social and political systems, and the belief systems under which they had lived for many decades. Scientific *knowledge* did not disappear-- it continued to grow, and educational levels remained high in these societies. But the prevailing sense of existential security and individual control over one's life fell sharply. If the emergence of modern values were solely determined by cognitive forces, then self-expression values would have continued to spread. But if these values are mainly shaped by feelings of security or insecurity, we would expect to find a resurgence of religion and survival values in the ex-Soviet societies. As we will see below, this is exactly what happened. Cultural change is not simply determined by cognitive factors. To an even greater extent, it is shaped by people's first-hand experience with existential security or insecurity.

F. AN ALTERNATIVE TO EVOLUTIONARY MODERNIZATION THEORY: RATIONAL CHOICE

Evolutionary modernization theory argues that whether one grows up perceiving survival as precarious or secure, together with enduring cultural difference, has a major impact on people's values and behavior—but we should consider a major alternative explanation of people's behavior: rational choice.

The rational choice school, which dominated economics and political science until recently, is based on the assumption that human behavior reflects conscious choices designed to maximize one's utilities. This approach gives little weight to historical or cultural factors, assuming that—facing the same incentives—people of different cultures will make the same choices. But a growing body of empirical evidence indicates that these models don't adequately

explain how humans actually behave. Accordingly, behavioral economics has become increasingly influential, incorporating emotional and cultural explanatory factors.

There is no question that conscious choices by political elites often have important and immediate impacts. For example, when the U.S Supreme Court legalized same-sex marriage in 2015, it was immediately followed by a surge of such marriages. The proximate cause was the Supreme Court decision. But a deeper cause was a long-term shift in mass attitudes. Same-sex marriage had been not merely illegal but unthinkable for centuries. But, as data from the Values Surveys demonstrate, this norm was gradually weakening through a process of intergenerational value change. Public support for same-sex marriage became increasingly widespread and vocal until the laws themselves were changed.

A large body of psychological research demonstrates that the overwhelming majority of activity in the human brain takes place on an unconscious level. Since we are only aware of conscious processing, we tend to assume that it determines our decision-making. An since humans are adept at rationalizing whatever choices they make, after the fact one can always fit a rational choice explanation to any set of events. But experimental research indicates that human decisions are heavily influenced by unconscious biases or intuitions (Tversky and Kahneman, 1974; Wilson, 2002; Morewedge and Kahneman, 2010; Kahneman, 2011). Moreover, conscious and unconscious processing occur in different regions of the brain. Brain scanning indicates that when a decision is made, activity occurs first in unconscious areas and is then followed by activity in conscious areas: apparently, the decision is determined by unconscious factors, which are then rationalized into a coherent narrative by the brain's conscious component (Sanfey et al., 2003; De Martino et al., 2006; Soon et al., 2008). Similarly, recent findings in psychology and cognitive neuroscience suggest that moral beliefs and motivations come from intuitions and

emotions that evolution has prepared the human mind to develop; and moral judgment is a product of quick and automatic intuitions that then give rise to slower, conscious reasoning that finds reasons to support the individual's intuitions (Greene and Haidt, 2002; Haidt and Bjorklund, 2008).

Paradoxically, having emotions is more rational than being purely rational. It enables people to avoid being a rational fool who always defects in a prisoner's dilemma situation. The fact that emotions evolved, enables people to make lasting commitments to stand by one's friends or one's tribe through thick and thin, in situations where a purely rational person would defect whenever the situation made it profitable. Emotions make it possible for people to work together in trusting, long-term relationships. In the long run, natural selection is more conducive to survival than rationality by itself (Ridley, 1996).

Emotions enable people to make quick choices in situations where a rational analysis of the options might be almost endless; conscious reasoning then develops a coherent narrative. In such cases, rational choice only seems to be determining human behavior. But since, in the long run, natural selection is very effective at producing cultural norms that have a good fit with the environment, the end result often resembles what would emerge from a process of rational choice. Accordingly, cultural change often can be modeled accurately using game theory (Bednar, et al., 2010). Rational choice models of cultural change often do not reflect how given norms actually evolved historically-- but they may capture the underlying logic of why a given arrangement fits its environment and consequently survives. Such models are like evolutionary biologists' explanation that polar bears evolved white coats "in order to be less conspicuous against the snow." Biologists are fully aware that polar bears did not consciously decide to develop white coats, but this is a parsimonious way to describe how random mutations and

natural selection led to this result. In contemporary social science, rational choice theorists often describe complex evolutionary processes as if they resulted from rational bargaining and conscious choice— even when they reflect evolutionary processes involving events with unforeseen consequences, rather than conscious choices.

G. SLOW AND FAST CULTURAL CHANGE

In contrast with rational choice theory, which implies that societal changes can occur almost overnight, evolutionary modernization theory argues that major cultural changes normally move at the glacial pace of intergenerational population replacement-- but there is an exception to this rule.

A culture is a set of learned behavior that constitutes a society's survival strategy. The norms governing this strategy usually change very slowly, often persisting for centuries, but under certain conditions they can change rapidly. Though fashions change quickly, basic values tend to change through intergenerational population replacement, with multi-decade time-lags between the emergence of root causes and the time when cultural change becomes manifest in a society (Inglehart 1971; 1990). Analysis of the Materialist/Postmaterialist value shift suggests that basic values change gradually, largely through intergenerational population replacement (Inglehart 1971; 1977; 1990; 1997). Instead of sweeping the entire world evenly, as awareness of the optimal rational choice might do, this shift occurs only when a society reaches a threshold where a sufficiently high level of economic and physical security that younger birth cohorts grow up taking survival for granted. In contrast to this, rational choice theory holds that key institutions are adopted through conscious elite choices— which could conceivably change from

one day to the next. It also tends to assume that institutions determine culture, in which case basic cultural norms would also change rapidly.

Rational choice explanations do not account for the fact that cultural change tends to occur through intergenerational population replacement, or for the persisting influence of religious cleavage and historical events that occurred many centuries ago.

Rising levels of existential security have been reshaping the world in recent decades. Life expectancies, incomes, and school attendance rose from 1970 to 2010 in every region of the world (Human Development Report, 2013). Poverty, illiteracy, and mortality are declining globally (Estes, 2010; Ridley, 2011; Hughes and Hillebrand, 2012). And war, crime rates and violence have been declining sharply for many decades (Goldstein, 2011; Pinker, 2011). The world is now experiencing the longest period without war between major powers in recorded history. This, together with the postwar economic miracles and the emergence of the welfare state, produced conditions under which a growing share of the world's population has grown up taking survival for granted, bringing intergenerational shifts toward Postmaterialist values and Self-expression values (Inglehart, 2008).

But in addition to the shifts linked with intergenerational population replacement, conversion effects are also possible: given birth cohorts can become increasingly tolerant of new social norms due to diffusion of these values through education and exposure to the mass media—which now present these values in a more favorable light than they did decades ago. This could eventually transform what are perceived as socially desirable norms.

In advanced industrial societies with high levels of existential security, among successful young people it no longer is socially acceptable to be sexist or a gay-basher. But the publics of low-income societies remain solidly opposed to gender equality and tolerance of gays. Western

motion pictures and television programs, cell phones and the internet have penetrated widely even in low-income countries, but they haven't yet had much impact on their lifestyle norms (Norris and Inglehart, 2009). Education and mass communications may play important roles in transforming attitudes toward gender equality and tolerance of gays but so far, their impact seems mainly limited to societies with relatively high levels of existential security.

It is perfectly conceivable that both intergenerational population replacement and value diffusion can occur. Thus, intergenerational change seems to play the dominant role in the shift from Materialist to Postmaterialist values, but some value diffusion also seems to be taking place: given birth cohorts not only failed to become more Materialist as they aged—they actually became somewhat more Postmaterialist.

III. MAJOR PREDICTIONS

The theory just discussed, generates the following predictions:

1. When a society attains such high levels of existential security that a large share of the population grows up taking survival for granted, it brings coherent and roughly predictable social and cultural changes, producing an intergenerational shift from values shaped by scarcity, toward increasing emphasis on Postmaterialist values, Self-expression values and individual autonomy.

2. As younger birth cohorts replace older cohorts in the adult population, it transforms the societies' prevailing values— but with long time-lags. The youngest cohorts have little political impact until they reach adulthood, and even then they are still a small minority of the adult population; it takes additional decades before they become the dominant influence.

3. Intergenerational value change is shaped by short-term period effects in addition to population replacement, but in the long run the period effects tend to cancel each other out while the population replacement effects tend to be cumulative.

4. Intergenerational value change can eventually reach a threshold at which new norms became socially dominant. At this point, conformist pressures reverse polarity, supporting changes they had formerly opposed and bringing much more rapid cultural change than that produced by population replacement alone.

5. Cultural change is path-dependent: a society's values are shaped by its entire historical heritage, and not just its level of existential security.

IV. EMPIRICAL EVIDENCE

A. THE SHIFT TO POSTMATERIALIST VALUES IN THE WEST AND THE WORLD

More than four decades have passed since the shift from Materialist to Postmaterialist values was hypothesized. Have the predicted changes actually taken place?

The first empirical evidence of intergenerational value change came from surveys carried out in 1970 in six West European societies to test the hypothesized value shift.[6] Although the Values Surveys have subsequently monitored a much broader range of value changes, this research provided the earliest quantitative evidence of intergenerational value change and, by far, the most extensive data base. From 1970 to 2010, representative national surveys were carried out almost every year in these six countries, providing a detailed time series covering four decades based on more than 300,000 interviews. Additional time series evidence is now available from scores of other countries on all six inhabited continents.

In testing the value change hypothesis, we asked people which goals they considered most important, choosing between such things as economic growth, fighting rising prices, maintaining order, and the fight against crime (which tap Materialist priorities); and freedom of speech, giving people more say in important government decisions, more say on the job, and a

[6]This hypothesis was triggered by indications of intergenerational value change that emerged during the student protest era of the late 1960s and early 1970s.

society where ideas count (which tap Postmaterialist priorities).[7] Representative national surveys in 1970 asked these questions in six West European countries (Great Britain, France, Italy, West Germany, Belgium and The Netherlands).

These surveys revealed large differences between the values of young and old in every society. As Figure 1 indicates, among those aged 65 and older, people with Materialist value priorities outnumbered those with Postmaterialist value priorities by more than 14:1. This suggests that in the early 20th century, Materialists outnumbered Postmaterialists overwhelmingly. In that era, the Marxist claim that politics is dominated by class conflict and economic issues, was a reasonably good first approximation of reality. But as one moves from older to younger cohorts, the balance gradually shifts toward a diminishing proportion of Materialists and a growing proportion of Postmaterialists. Among the youngest cohort (those from 18 to 25 years old in 1970) Postmaterialists outnumber Materialists. This cross-sectional evidence suggests that, as the oldest birth cohorts die off during the decades following 1970, we should observe a shift in prevailing motivations, with Postmaterialists increasingly numerous.

(Figure 1 about here)

But do these age differences reflect enduring birth cohort effects or transient life-cycle effects? With data from just one time point, one can not be sure—and the two interpretations have very different implications. The life-cycle interpretation implies that the postwar cohort will become increasingly Materialist as they age, so that by the time they are 65 years old they will have become just as Materialist as the 65 year olds were in 1970—and society as a whole won't change. The cohort-effects interpretation implies that the younger cohorts will remain relatively Postmaterialist over time—so that as they replace the older, more Materialist cohorts, the society's prevailing values *will* change.

[7] For fuller detail on how Materialist/Postmaterialist values are measured, see Inglehart, 1990: chapter 2.

Cohort analysis provides the only conclusive way to answer this question and it requires: (1) survey data covering several decades; (2) surveys carried out at numerous time points, enabling one to distinguish period effects from life-cycle and birth-cohort effects; and (3) sufficiently large numbers of respondents at each time point so that one still gets accurate estimates when one breaks the sample down into several birth cohorts,.

(Figure 2 about here)

Figure 2 shows the results of a cohort analysis based on over 300,000 interviews. It follows given birth cohorts over four decades, using data from Euro-barometer surveys that included the Materialist/Postmaterialist battery in almost every year from 1970 to 1997, supplemented with data from the Values Surveys from 1999 and 2007-2009.[8] This figure pools the data from all six countries in order to provide sufficiently large samples to reliably estimate each cohort's position at a given time-- which is calculated by subtracting the percentage of Materialists from the percentage of Postmaterialists. Thus, at the zero point on the vertical axis, the two groups are equally numerous. The proportion of Postmaterialists increases as one moves up; and the proportion of Materialists increases as one moves down on Figure 2.

If the age differences shown in Figure 1 reflected life cycle effects, then each of the cohort lines would move downward, with each cohort becoming more Materialist from 1970 to 2009. If the age differences reflect stable birth cohort effects, the lines would be horizontal, with each cohort remaining about as Postmaterialist at the end of the time series as it was at the start.

But we also need to take period effects into account. Our theory implies that negative events such as a major recession will push all cohorts downward in response to current

[8]The samples are weighted to reflect each country's population. Since the 2006 World Values Survey did not include Belgium, we used data from the 1999 Belgian survey in the pooled analysis. This tends to reduce the amount of change observed from 1999 to 2006, but the distortion is minimal since Belgium contains only four percent of six countries' population.

conditions. With recovery, they will return to their former level, so that in the long run they will remain about as Postmaterialist as they were at the start. In the short run, a period effect that pushed all the cohorts downward, would give a misleading impression that the age differences reflected life cycle effects. But in the long run, positive and negative fluctuations tend to cancel each other out.

With detailed data from a long time series, we can see that period effects clearly *are* present. As Inglehart and Welzel (2005) demonstrate, they reflect current economic conditions, particularly inflation levels. During periods of economic downturn, each birth cohort moves down, becoming more Materialist; with recovery, each birth cohort moves up again, becoming more Postmaterialist—but the differences between given birth cohorts are relatively stable. Consequently, the period effects have no lasting impact: the younger cohorts remain relatively Postmaterialist despite short-term fluctuations, and over a period of four decades we find no overall tendency for the members of given birth cohorts to become more Materialist as they age.

But during this four-decade span, the three oldest birth cohorts have left the sample. These cohorts were replaced by three younger ones, born in 1956-65, 1966-75 and 1976-1985. The cohort analysis presented in Figure 2 shows no evidence of life cycle effects. It is clear that the age-related differences found in 1970 reflect lasting cohort differences. This implies that as younger, less Materialist cohorts replace older ones in the adult population, these societies will shift from Materialist toward Postmaterialist values.

This is precisely what happened. During the past four decades, there was a substantial shift toward Postmaterialist values among the six publics first surveyed in 1970 (we also found this in the U.S. and other Western countries). The heavy shaded line on Figure 2 shows the net shift toward Postmaterialist values among the adult population as a whole at various time points

from 1970 to 2009. In the early 1970s, Materialists heavily outnumbered Postmaterialists in all six countries. Overall, Materialists were four times as numerous as Postmaterialists, and fourteen times as numerous as Postmaterialists among the oldest cohort. Similarly, in the U.S. in 1972, Materialists were three times as numerous as Postmaterialists. During the ensuing years, major shifts occurred. By 2000, Postmaterialists were slightly more numerous than Materialists in Western Europe and twice as numerous as Materialists in the U.S. The predicted shift toward Postmaterialist values had taken place.

But Western levels of economic security have not continued to rise during the past two decades. Economic growth has been relatively stagnant and, with rising income inequality, most people experienced little or no increase in real income. This has been reinforced by cutbacks in the welfare state and high levels of unemployment, particularly among youth. The shift toward Postmaterialist values has tapered off in these Western countries. Thus, in the most recent surveys, the youngest cohorts are no more Postmaterialist than the other postwar cohorts. The one surviving prewar cohort remains distinctive, with Materialists still outnumbering Postmaterialists, but intergenerational population replacement no longer brings a large shift toward Postmaterialist values.

But a major value transition has occurred: in 1970, Materialists greatly outnumbered Postmaterialists in all Western countries. By 2000 Postmaterialists were slightly more numerous than Materialists, but because Postmaterialists tend to be concentrated among the more secure, better-educated and more articulate strata of society, they set the tone: their values have become politically correct. Intergenerational value change is no longer a major factor; except for the oldest cohort, young and old now have pretty similar values. But the culture of high-income Western countries has been transformed.

The logic of the Postmaterialist shift has significant implications for other countries. The world as a whole has shown unprecedented economic growth since1980, with India and China experiencing annual growth rates from 6 to 10 percent. But only a few decades ago, most people in both countries lived just above the starvation level. In the memory of living people, at least 30 million Chinese starved to death after the failure of the Great Leap Forward. These countries now have many millionaires—and millions of people living in dire poverty. Their countries' impressive growth rates mean that 40 percent of the world's population is moving from starvation-level poverty to a modest level of economic security, and evolutionary modernization theory implies that in the long run, this will bring a shift toward Postmaterialist values. But, as we have seen, multi-decade time-lags are involved. For now, Postmaterialists constitute tiny minorities in China and India. But our theory predicts that, if they continue on their present trajectories, a shift toward Postmaterialist values will take place when a younger generation emerges that has grown up taking survival for granted. Many other countries from Mexico to Singapore already are approaching or have attained this threshold.

In the world as a whole, the ratio between Materialists and Postmaterialists varies tremendously according to a society's level of economic development. Low-income countries and strife-torn countries show an overwhelming preponderance of Materialists, while prosperous and secure ones are dominated by Postmaterialists. Thus, Materialists outnumber Postmaterialists in Pakistan by a ratio of 55 to 1, and in Russia by a ratio of 28 to 1; but in the U.S. Postmaterialists outnumber Materialists by 2 to 1, and in Sweden by 5 to 1. No one can guarantee that economic growth will continue, but in countries that do attain high levels of existential security, we would expect to find intergenerational value change.

(Figure 3 about here)

Figure 3 shows the distribution of Materialist and Postmaterialist values in each birth cohort that was born from 1927 to 1996 in eleven ex-communist countries that are now members of the European Union-- Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia-- using the latest available survey from 2008-2012. These countries earliest available surveys, around 1990, showed large intergenerational differences indicating a shift toward Postmaterialist values, which probably contributed to the mass demonstrations that led to the fall of communist regimes there.

The transition from state-run to market economies brought severe economic dislocations that dampened the trend toward Postmaterialist values, but this economic decline was not lasting. These countries soon became members of the European Union, and during their first decade in the E.U., the new members had economic growth rates about twice as high as those of the older members. The intergenerational shift toward Postmaterialist values has resumed, as Figure 3 indicates. Among the oldest cohort, born from 1927 to 1936, Materialists still outnumber Postmaterialists by a ratio of eight to one—but among the youngest cohort, the ratio is only 2.5 to one. Intergenerational value change seems to be emerging, though these countries still lag far behind Western Europe in absolute levels of Postmaterialist values.

The Russian public also showed signs of a strong intergenerational shift from Materialist to Postmaterialist values in the earliest available survey in 1990—but the decline of existential security that the Russia people experienced with the collapse of communism was much more severe than in the ex-communist countries just examined. The Soviet Union disintegrated, per capita income fell to about 40 percent of its former level, social welfare institutions broke down, crime was rampant and male life expectancy declined to levels as much as 20 years below those of other industrialized countries. Equally important, belief in a Marxist belief system that once

provided a sense of order and purpose to many people, had also collapsed. The Russian public experienced an extraordinary malaise, in which a majority of the Russian public described themselves as unhappy and dissatisfied with their lives as a whole.

Around 2000, the Russian economy began to recover, due to rising oil and gas prices, and order was restored under Vladimir Putin. Subjective well-being levels are also recovering-- but the youngest Russian birth cohorts have not experienced significantly higher levels of economic and physical security than their elders: their formative years were shaped by widespread poverty and disorder. Consequently, recent Russian surveys show little evidence of an intergenerational shift toward Postmaterialist values, and Materialists overwhelmingly outnumber Postmaterialists.

(Figure 4 about here)

Figure 4 shows the distribution of Materialist and Postmaterialist values by birth cohort in eight Latin American countries-- Argentina, Brazil, Chile, Colombia, Guatemala, Mexico, Peru and Uruguay-- based on the latest available surveys, from 2005 to 2012. During the past 25 years, most Latin American countries have experienced substantial economic growth and have made successful transitions from authoritarian regimes to stable democratic governments. These countries now show signs of an intergenerational shift from Materialist to Postmaterialist values. Among the oldest cohort (born from 1927 to 1936), Materialists outnumber Postmaterialists by more than three to one. But among the youngest cohort (born from 1987 to 1996), Postmaterialists outnumber Materialists. In their overall value distributions, these countries still lag far behind the six West European countries analyzed above—and behind the U.S. and Sweden, where Postmaterialist outnumber Materialists by wide margins. But an intergenerational transition seems to be transforming Latin American countries.

(Figure 5 about here)

The forces of modernization are starting to transform Islamic societies, but they are still at an early stage. The 2007-2013 wave of the WVS shows evidence that a process of intergenerational value change is now at work in some Muslim-majority countries—particularly those that played leading roles in the Arab Spring uprisings. Figure 5 shows the shifting balance between Materialist and Postmaterialist values in nine Muslim-majority countries, Morocco, Tunisia, Libya, Palestine, Jordan, Turkey, Albania and Indonesia. Among the oldest birth cohort, Materialists outnumber Postmaterialists by a ratio of more than ten to one; among the youngest birth cohort, the ratio is slightly more than two to one. The ratio is shifting, but it has not yet produced a cohort in which Postmaterialists outnumber Materialists.

The age-related differences are relatively weak in 13 other Muslim-majority countries, Kazakhstan, Uzbekistan, Azerbaijan, Kyrgyzstan, Lebanon, Iran, Saudi Arabia, Qatar, Yemen, Mali, Pakistan, Bangladesh, and Malaysia (median r = -.05). The countries that show evidence of relatively strong intergenerational value change do not have the highest levels of per capita GDP (which are found in the Gulf states)—but they do have significantly higher life expectancies, lower infant mortality rates, and lower fertility rates than the other Islamic countries. Thus, the median life expectancy in the countries shown in Figure 5 is 75 years; the median life expectancy in the others is 69 years. Muslim-majority countries with relatively high life expectancies, show relatively large intergenerational value differences. Moreover, apart from Indonesia, these countries are clustered on or near the Mediterranean and have relatively large population flows to and from Western Europe.

Simply holding elections will not establish effective democracy in the Muslim world. And it seems unlikely that the Arab-speaking countries will, in the near future, establish an enduring wave of democratization like the one that swept Eastern Europe in the final days of the Cold War. But there are signs that intergenerational change is beginning to transform the culture of some Muslim-majority countries.

B. GLOBAL CULTURAL PATTERNS

The shift toward Postmaterialist values is only one component of a broader process of cultural change that is reshaping the political outlook, religious orientations, gender roles, and sexual mores of advanced industrial society (Inglehart, 1990; Inglehart and Baker, 2000; Inglehart and Welzel, 2005; Norris and Inglehart, 2011). The emerging worldview moves away from traditional cultural norms, especially those limiting individual self-expression.

We find huge cross-national differences in what people believe and value. The Values Surveys have monitored about 90 percent of the world's population. In some countries, 95 percent of the public say that God is very important in their lives, while in others, only 3 percent do so. In some societies, 90 percent of the people believe that men have more right to a job than women; in others, only 8 percent think so. These cross-national differences are robust and enduring, and are closely linked with a society's level of economic development: people in low-income societies are much likelier to emphasize religion and traditional gender roles than are people in rich countries.

To identify the main dimensions of global cultural variation, Inglehart and Baker (2000) performed a factor analysis of each society's mean level on scores of variables measured in the Values Surveys. The two most important dimensions that emerged reflected: (1) a polarization between Traditional and Secular-rational values and (2) a polarization between Survival and Self-expression values.

People holding Traditional values are strongly religious, have high levels of national pride and respect for authority, and low tolerance for abortion and divorce. Secular-rational values have the opposite characteristics. The Traditional /Secular-rational values dimension reflects the transition from agrarian society to industrial society. Classic modernization theory focused on this dimension, claiming that industrialization was linked with occupational specialization, urbanization, centralization, bureaucratization, rationalization and secularization--themes discussed extensively by Marx, Weber, Durkheim, Spencer and others. Evidence from the Values Surveys supports their claims: the people of agrarian societies do indeed tend to emphasize traditional values, while societies with a high percentage of industrial workers tend to emphasize secular-rational values.

(Table 1 about here)

Another major dimension of cross-cultural variation is linked with the transition from industrial society to post-industrial society. This is a much more recent development that classic modernization theory did not discuss. We examine it more closely here. The shift from a manufacturing economy to a knowledge economy is linked with pervasive value changes that can be summed up as a shift from Survival values toward Self-expression values. Table 1 shows how strongly the responses to 20 different questions are correlated with this Survival/Self-expression dimension. A correlation of zero indicates that responses to a given question are

unrelated to this dimension. Correlations near .90 indicate that responses to a given question are linked with the underlying Survival/Self-expression dimension in an almost one-to-one relationship. This table only shows the relatively strong correlations; many other questions are also linked with this dimension.

As Table 1 demonstrates, whether one has Materialist or Postmaterialist values is a particularly sensitive indicator of the broader Survival/Self-expression values dimension. This is logical, since the conditions that lead to Postmaterialist values are also conducive to Self-expression values. But these values also reflect a number of issues that go far beyond Postmaterialist values. For example, Self-expression values reflect mass polarization over such questions as whether "Men make better political leaders than women," or "When jobs are scarce, men have more right to a job than women." Self-expression values are also linked with tolerance of outgroups, gays and lesbians. People with Self-expression values give high priority to environmental protection, tolerance of diversity and rising demands for participation in decision-making in economic and political life.

People who emphasize Survival values tend to be significantly less satisfied with their lives and less happy than people with Self-expression values. This is a remarkable finding. It suggests that certain value systems are more conducive to human happiness than others. As long as a society remains near the survival level, its culture is mainly oriented toward ensuring physical survival. But as survival becomes secure, a society's culture can become increasingly oriented toward maximizing subjective well-being. Self-expression values are conducive to subjective well-being in so far as they emancipate people from traditional constraints that are no longer necessary for survival, allowing greater freedom of choice in how to live one's life. For many groups such as women and gays, emancipation from traditional constraints makes a major

contribution to life satisfaction and happiness. Consequently, the shift from Survival values to Self-expression values is an effective cultural evolution. Though it reflects the impact of complex events with unforeseen consequences, in retrospect this cultural shift looks as if it reflected a conscious rational choice by the people of advanced industrial societies— a choice that enhances their happiness and life satisfaction.

The shift from Survival values to Self-expression values also includes a shift in child-rearing values, from emphasis on hard work toward emphasis on imagination and tolerance as important values to teach a child. Societies that rank high on self-expression values tend have an environment of trust and tolerance, in which people place a relatively high value on individual freedom and have activist political orientations-- attributes that the political culture literature argues is crucial to democracy.

A major component of rise of Self-expression values is a shift away from deference to all forms of external authority. Submission to authority has high costs: the individual's personal goals must be subordinated to those of external authorities. When survival is insecure, people are relatively willing to do so. Under threat of invasion, internal disorder or economic collapse, people tend to seek strong authority figures who can protect them from danger. Conversely, prosperity and security are conducive to tolerance of diversity in general and democracy in particular. This helps explain a long-established finding: rich societies are much likelier to be democratic than poor ones. Under conditions of insecurity, people may be willing or even eager to submit to authoritarian rule, but with rising levels of existential security, they become less willing to do so.

The rise of Self-expression values brings an intergenerational change in a wide range of basic cultural norms, from norms linked with survival of the species, to norms linked with the

pursuit of individual wellbeing. Thus, younger birth cohorts are more tolerant of homosexuality than their elders, and they are more favorable to gender equality and more permissive in their attitudes toward abortion, divorce, extramarital affairs, and euthanasia. Economic accumulation for the sake of economic security was the central goal of industrial society. Ironically, its attainment set in motion a process of gradual cultural change that has made these goals less crucial-- and is now bringing a rejection of the hierarchical institutions that helped attain them.

C. ECONOMIC DEVELOPMENT AND VALUE CHANGE

The central claim of modernization theory is that economic and technological development tend to bring coherent and roughly predictable social and political changes. Evolutionary modernization theory argues that these changes are largely driven by the fact that modernization brings pervasive value changes—causing the people of economically advanced societies to have systematically different motivations from those of less developed societies.

Is this empirically true? Data from hundreds of surveys covering 90 percent of the world's population indicates that it is—to a remarkable degree. Figure 6 presents a cross-cultural map of the world, showing where the publics of given countries are located on each of the two major dimensions. Moving from the bottom to the top of this map, one moves from emphasis on Traditional values to emphasis on Secular-rational values; and moving from left to right represents a shift from emphasis on Survival values toward Self-expression values.

(Figure 6 about here)

As Figure 6 demonstrates, the publics of high-income societies rank relatively high on both major dimensions of cross-cultural variation, placing relatively strong emphasis on both Secular-rational values and on Self-expression values. Conversely, the publics of low-income and lower-middle-income societies rank relatively low on both dimensions, tending to emphasize

Traditional values and Survival values. The publics of upper-middle-income societies fall into an intermediate zone.[9] The zones' boundaries capture a remarkably consistent relationship between economic development and values: all of the high-income societies—without a single exception—fall into the upper-right-hand zone, ranking relatively high on both major dimensions of cross-cultural variation, each of which taps the responses to scores of questions. Conversely, all of the low-income and lower-middle-income societies— again without a single exception—fall into the lower-left hand zone, ranking relatively low on both dimensions.

The cross-cultural differences depicted here are huge: in relatively Traditional societies, up to 95 percent of the public say that God is very important in their lives; in Secular-rational societies, as few as 3 percent do so. In Survival-oriented societies, up to 97 percent of the public says that homosexuality is never justifiable; in Self-expression-oriented societies, only 6 percent say this. To a remarkable degree, a society's values and goals reflect its level of economic development. The classic Marxist emphasis on economic determinism seems justified.

D. THE PERSISTENCE OF TRADITIONAL CULTURES

But reality is not quite that simple. Modernization theorists from Marx and Weber (1904) to Bell (1973) and Toffler (1990) have argued that the rise of industrial society is linked with coherent cultural shifts away from traditional value systems. But other social scientists including Huntington (1996), Putnam (1993), Fukuyama (1995), Inglehart and Baker (2000), Inglehart and Welzel (2005) argue that cultural traditions are remarkably enduring and shape the political and economic behavior of their societies today. Surprising as it may seem, *both* claims are true.

[9] GDP/capita taps only one aspect of existential security, which is also shaped by the society's social welfare institutions and its safety from crime, violence and disease. But since high-income societies tend to rank high on all of these aspects of existential security, a society's GDP/capita provides a fairly good indicator of the extent to which its people enjoy high levels of existential security.

Evidence from around the world indicates that socioeconomic development *does* tend to propel various societies in a roughly predictable direction. Socioeconomic development brings occupational specialization, rising educational levels, and rising income levels; it diversifies human interaction, shifting the emphasis from authority relations toward bargaining relations; in the long run this brings cultural changes, such as changing gender roles, changing attitudes toward authority, changing sexual norms, declining fertility rates, broader political participation, and more critical, less easily manipulated publics.

But cultural change is path dependent. The fact that a society was historically Protestant or Orthodox or Islamic or Confucian gives rise to cultural zones with distinctive value systems that persist even when one controls for the effects of socioeconomic development. These cultural zones are robust. Although the value systems of different countries are moving in the same direction under the impact of modernizing forces, their value systems have not been converging, as simplistic models of cultural globalization suggest.

This may seem contradictory, but it is not. If the world's societies were all moving in the same direction at the same rate of speed, the distances between them would remain constant and they would never converge. The reality is not that simple, of course, but this illustrates an important principle: postindustrial societies *are* changing rapidly and they are moving in a common direction-- but the cultural differences between them were empirically as great in 2014 as they were in 1981. Though socioeconomic development tends to produce systematic changes in what people believe and want out of life, the influence of cultural traditions does not disappear. Belief systems have a remarkable durability and resilience. Though values can and do change, they continue to reflect a society's historical heritage. Cultural change is path dependent.

Nevertheless, it seems clear that socioeconomic development brings predictable long-term changes. One indication of this is the fact that the worldviews and behavior of the people living in developed societies differ immensely from those of peoples in low-income societies. Another indication is the fact that the value systems of developed societies are changing in a consistent and roughly predictable direction. These changes do not reflect a homogenizing trend—they cannot be attributed, for example, to the impact of a global communications network that is transmitting a common set of new values throughout the world. If this were the case, the same value changes would occur in all societies that are exposed to global communications. But this has not been happening. For these value changes are *not* taking place in low-income countries, or in societies that were experiencing sharply declining standards of living, such as the Soviet successor states from 1990 to 2000, even though these societies were integrated into the global communications network. These changes occur only when the people of a given society have experienced high levels of existential security for long periods of time. Socioeconomic development brings predictable cultural and political changes—and its collapse tends to bring changes in the opposite direction.

These changes are probabilistic and they are not linear. Industrialization brings a shift from traditional to secular-rational values-- but with the rise of postindustrial society, cultural change starts to move in another direction. The shift from Traditional to Secular-rational values becomes slower and stagnates, while another change becomes more powerful-- the shift from Survival to Self-expression values, through which people place increasing emphasis on human choice, autonomy and creativity. This change was moving slowly during the transition from pre-industrial to industrial societies, but it becomes the dominant trend when industrial society gives way to postindustrial society. The classic modernization theorists focused on the rise of secular-

rational values. Quite understandably, they did not foresee the rise of Self-expression values that emerges in the later stages of modernization. This trend is very different from the technocratic authoritarianism that many modernization theorists (and such novelists as George Orwell) thought would shape the future. In contrast with these expectations, self-expression values make democracy the most likely outcome at advanced levels of modernization.

The industrial phase of modernization does not necessarily lead to democracy but allows for authoritarian, fascist and communist versions of industrialization and mass mobilization. But in the postindustrial phase of modernization, rising self-expression values challenge authority and raise growing demands for genuinely responsive democracy, as we will demonstrate.

Progress is not inevitable. Socioeconomic development brings massive and roughly predictable cultural changes, but if economic collapse occurs, cultural changes tends to move in the opposite direction. Nevertheless, development has been the dominant trend of recent centuries: almost every country in the world is more prosperous today than it was two hundred years ago.

The fact that a society was historically shaped by a Protestant or Confucian or Islamic cultural heritage leaves an enduring impact, setting that society on a trajectory that continues to influence subsequent development—even when the direct influence of religious institutions fades away. Thus, although few people attend church in Protestant Europe today, the societies that were historically shaped by Protestantism continue to manifest a distinctive and similar set of values and beliefs. The same is true of historically Roman Catholic societies and historically Islamic or Orthodox or Confucian societies, as Figures 7 and 8 below demonstrate.

(Figure 7 about here)

Factor analysis of data from the 43 societies in the 1990 WVS/EVS found that the Traditional/Secular-rational values dimension and the Survival/Self-expression values dimensions accounted for over half of the cross-national variance on scores of variables (Inglehart, 1997).[10] Figure 7 shows the locations of 43 countries on these two dimensions, based on surveys carried out in 1990-1991. When this analysis was replicated with data from the 1995-1998 surveys, the same two dimensions emerged. Similarly, in both the 2000-2001 surveys and the 2005-2007 surveys, these same two dimensions again emerged—although the new surveys included dozens of additional countries (Inglehart, 1997; Inglehart and Baker, 2000; Inglehart and Welzel, 2005; 2010).

[Figure 8 about here]

Figure 8 shows the locations of 94 countries on the global cultural map, using the latest available data from the 2008-2014 Values Surveys. Comparing this cultural map with maps based on earlier surveys, one finds the same basic pattern, with cultural zones consisting of Protestant Europe, Catholic Europe, the English-speaking countries, Latin America, Africa, the Confucian countries, South Asia, and Eastern Europe/Orthodox all in similar positions on the two cultural maps.[11] But Figure 8 is based on surveys carried out more than 20 years later than those in Figure 7, adding scores of new countries and dropping several countries included earlier; the later map includes more than twice as many countries as the earlier one. Nevertheless, the overall pattern is remarkably similar. The 1990 map included only four Latin American countries; the 2011 map contains ten, but they all fall into the same region. The 1990 map had only two African countries while the 2011 map has eleven, but they too fall into the same lower-

[10] For greater detail on how these two dimensions were constructed, see Inglehart, 1997: chapter 2.

[11] Compare the map based on the 1999-2001 data at http://www.worldvaluessurvey.org. Also see the 1995 map in Inglehart and Baker (2000), p. 29 and the 1990 map in Inglehart (1997), p. 98. The similarity of the five maps, based on data from different surveys, is striking.

left region. The 1990 map had only one Muslim-majority country (and thus no Islamic zone); the 2011 map has 15 Muslim-majority countries (five of which are in Africa), and they all fall into the lower-left quadrant together with the African countries. Their relative positions on these two dimensions were remarkably stable attributes of given countries from 1981 to 2014.

Welzel (2013) has developed two alternative measures of cross-cultural variation that are conceptually and empirically rather similar to these two dimensions:[12] at the national level, Welzel's Sacred vs. Secular values dimension correlates with Traditional/Secular-rational values at r = .82, and his Survival/Emancipative Values dimension correlates with Survival/Self-expression values at r = .80. Though his measures are constructed in a more elegant way, they are correlated with each other (r = .56) which is logical, since they tap two phases of the modernization process-- but has the drawback of pulling any two-dimensional map into a long, narrow diamond shape. My two dimensions are constructed to be uncorrelated, which distorts reality somewhat (as does any two-dimensional map of the world) but makes it possible to display the relative positions of many countries on each dimension in a clearer, less crowded fashion.

Evolutionary modernization theory holds that rising levels of existential security are conducive to a shift from Traditional values to Secular-rational values, and from Survival values to Self-expression values. Accordingly, as we have seen, virtually all of the high-income countries rank high on both dimensions, falling into the upper-right region of the chart-- while virtually all of the low and lower-middle-income countries rank low on both dimensions, falling into the lower-left region of the chart.

[12]His measures are explained and tested for validity in Welzel, 2013:pp. 57-105.

But the evidence also supports the Weberian view that a society's religious values leave a lasting imprint. The publics of Protestant Europe show relatively similar values across scores of questions—as do the publics of Catholic Europe, the Confucian-influenced societies, the Orthodox societies, the English-speaking countries, Latin America, and sub-Saharan Africa. At first glance, these clusters might seem to reflect geographic proximity, but closer examination indicates that this holds true only when geographic proximity coincides with cultural similarity. Thus, the English-speaking zone extends from Europe to North America to Australia, while the Latin American zone extends from Tiajuana to Patagonia; and an Islamic subgroup within the African-Islamic cluster places Morocco relatively near Indonesia, though they are on opposite sides of the globe. The cross-national differences found here reflect each society's economic *and* socio-cultural history.

Is it justifiable to use national-level mean scores on these variables as indicators of societies' attributes? National means tell only part of the story; measures of variance and skew are also informative. But having examined them, we conclude that for present purposes, the most significant aspect of subjective orientations are the differences in national-level means.

One can imagine a world in which everyone with a university-level education had modern values, placing them near the upper right-hand corner of the map-- while everyone with little or no education clustered near the lower left-hand corner of the map. We would be living in a global village where nationality was unimportant. Perhaps someday the world will look like that, but the reality today is very different. Although individual Swedes or Nigerians can fall anywhere on the map, there is surprisingly little overlap between the prevailing orientations of large groups from one country and their peers in other countries. The cross-national cultural differences so large that they dwarf the differences within given societies. The ellipse in the

lower right-hand corner of Figure 8 shows the size of the mean standard deviation on each dimension *within* given countries.[13] It occupies a tiny fraction of the map. Two-thirds of the average country's respondents fall within one standard deviation of their country's mean score on both dimensions and 95 percent fall within two standard deviations. Despite globalization, nations remain an important unit of shared experiences, and the predictive power of nationality is much stronger than that of income, education, region or sex (Inglehart and Welzel, 2010).

E. MODERNIZATION-LINKED ATTITUDES TEND TO BE ENDURING AND CROSS-NATIONALLY COMPARABLE

The two main dimensions of cross-cultural variation constitute stable attributes of given societies that are fully as stable as per capita GNP. Most attitudinal variables tap transient orientations. But the forces of modernization have impacted on large numbers of societies in enduring and comparable ways. Urbanization, industrialization, rising educational levels, occupational specialization and bureaucratization produce enduring changes in people's worldviews. They do not make all societies alike, but they do tend to make societies that have experienced them *differ* in consistent ways from societies that have not experienced them. For example, modernization tends to make religion less influential. Specific religious beliefs vary immensely, but the worldviews of people for whom religion is important, differ from those for whom religion is not important, in remarkably consistent ways.

Our theory holds that self-expression values should be strongly correlated with indicators of economic modernization. Although measured at different levels and by different methods, we find remarkably strong linkages between individual-level values and societies' economic characteristics. Across all available societies, the average correlation between self-expression

[13]The average standard deviation on the traditional vs. secular-rational dimension is smaller than the average standard deviation on the survival vs. self-expression dimension, which is why we show an ellipse rather than a circle.

values and ten widely-used economic modernization indicators, ranging from per capita GDP and mean life expectancy, to educational levels, is .77 (Inglehart and Welzel, 2010).[14]

F. THE SELF-EXPRESSION/INDIVIDUALISM/AUTONOMY SUPER-DIMENSION

Survival/Self-expression values have been measured in hundreds of surveys in countries containing 90 percent of the world's population. This dimension is remarkably robust. In wave after wave of the Values Surveys, the relative positions of given countries on the global cultural map are remarkably stable over time. Relative scores on this dimension are much more stable than most other orientations: only religion and its close-correlate, Traditional/Secular-rational values, shows even greater stability. The Values Surveys have measured over 100 orientations repeatedly in scores of countries over the last 35 years. The correlations between a country's position on the earliest and latest available surveys range from a low of .04 (in response to the question, "Do you live with your parents?") to a high of .93 (in response to the question "How important is religion in your life?"). The stability of responses concerning religion is not surprising. The role of religion—whether extremely important or completely unimportant-- is one of most deeply-rooted aspects of any culture. For religious people, one's views on this topic are instilled early in life, supported by religious institutions, and reinforced by weekly or even

[14]Some cross-national survey projects limit themselves to carrying out surveys only in countries with long-established survey research organizations. This is intended to ensure that they obtain high-quality fieldwork, but it largely limits them to doing research in high-income societies. From the start, the World Values Survey has endeavored to cover the full range of variation, including low-income countries. Two effects work against each other here: (a) the presumed increase in measurement error that comes from including lower-income societies with less-developed survey research infrastructure-- which would be expected to weaken the correlations between attitudes and predictor variables; and (b) the increased analytical leverage that comes from including the full range of societies, which should strengthen the correlations. Which effect is stronger? The results are unequivocal. Among high-income societies the average correlation between self-expression values and ten widely-used economic development indicators is .57, while across all available societies the average correlation is .77. The data from all available societies explains almost twice as much variance as does the data from high-income societies alone. If the presumably lower quality of the data from lower-income countries outweighed the analytical leverage gained from their inclusion, including them should weaken their correlations with relevant societal phenomena. In fact, the correlations obtained from analyzing all available societies are consistently stronger than those obtained by analyzing only the data from high-income countries. The gains obtained by increasing the range of variation, more than compensate for any loss of quality.

daily prayer. But Survival/Self-expression values-- though not supported by any formal institutions and having no clear external label, is almost as stable as religion: r = .89.

Moreover, the Survival/Self-expression values dimension seems to tap the same dimension of cross-cultural variation that psychologists have been studying for decades under the name of "Collectivism/Individualism." Oyserman, Coon and Kemmelmeier (2002) cite hundreds of studies dealing with Individualism/Collectivism. Individualism is usually seen as the opposite of collectivism. Social psychologists find that individualism is more prevalent in Western societies than elsewhere, arguing that Protestantism and civic emancipation in Western societies led to institutions that gave greater scope to individual choice, personal freedom, and self-actualization.

Hofstede (1980) defined Individualism as a focus on rights above duties, a concern for oneself and immediate family, an emphasis on personal autonomy and self-fulfillment, and basing identity on one's personal accomplishments. Collectivism emphasizes conformity to group norms and goals. In collectivist societies, group membership is a central aspect of identity and collectivist goals, such as sacrifice for the common good, are highly valued. Furthermore, collectivism implies that life satisfaction derives from successfully carrying out social roles and obligations, and restraint in emotional expression is valued to ensure in-group harmony.

Hofstede first measured "Individualism/Collectivism" in the early 1970s in surveys of IBM employees in scores of countries. Despite the lapse of several decades and although he did not use representative national samples, the relative positions of the countries Hofstede measured around 1973 correspond closely to the relative positions of countries on the Survival/Self-expression values dimension, as measured in recent national surveys.

Furthermore, Survival/Self-expression values also seems to tap the same dimension of cross-cultural variation as does Schwartz's "Autonomy/Embeddedness" dimension. Schwartz examined a broad array of values. Factor analysis of data from scores of countries reveals an Autonomy-Embeddedness dimension that corresponds to the concept of individualism and collectivism. According to Schwartz (2006: 137-182):

> "In autonomy cultures, people are viewed as autonomous, bounded entities. They cultivate and express their own preferences, feelings, ideas, and abilities, and find meaning in their own uniqueness… In embeddedness cultures, meaning in life comes largely through social relationships, identifying with the group, participating in its shared way of life, and striving toward its shared goals. Embedded cultures emphasize maintaining the status quo and restraining actions that might disrupt in-group solidarity or the traditional order."

As Table 2 below demonstrates, despite large differences in theoretical approaches and measuring techniques, Survival/Self-expression values, Individualism/Collectivism and Autonomy/Embeddedness all tap a common underlying dimension that accounts for 81 per cent of the cross-national variation. Countries that rank high on Self-expression (rather than Survival values), also tend to rank high on both Individualism (rather than Collectivism) and Autonomy (rather than Embeddedness). We will refer to this underlying super-dimension as Self-expression/Individualist/Autonomy values. Survival/Self-expression values shows the strongest loading on this super-dimension, correlating with it at .93, but Individualism/Collectivism and Autonomy-Embeddedness also show very strong correlations.

The fact that these three dimensions covary so closely at the national level, is an astonishing finding for several reasons. First, because Hofstede did not measure Individualism/Collectivism using representative national samples—his studies were based on

surveys of IBM employees.[15] Furthermore, although Hofstede covered scores of countries, his surveys were conducted around 1973—but the cross-national differences he found then, correspond closely to those found in representative national surveys in the 21st Century. Clearly, IBM employees are not representative of their national populations, so the absolute levels of their values do not provide accurate measures of the national means. Nevertheless, if they deviate from the national mean in the same direction, and by roughly the same amount, then the *relative* positions of given societies will be in the right ball park. Furthermore, most of Hofstede's fieldwork was carried out in the early 1970s. As Inglehart and Welzel (2005) have demonstrated, in recent decades there has been a systematic shift toward growing emphasis on Self-expression values. Being linked with rising levels of existential security, this shift has been strongest in high-income countries, but it has also affected other societies to some extent.

Nevertheless, the *relative* positions of given societies that Hofstede found around 1973, correspond closely to those of the same societies measured in recent representative national surveys. This may seem astonishing. But if—as Inglehart and Welzel (2005) have found—virtually all developed countries are moving in the same direction at roughly the same pace, their *relative* positions will remain roughly constant. A growing gap has been opening up between the mean values of the populations of high-income countries and low-income countries, but this has left the rank order of their positions relatively unchanged. The positions of given countries on the global cultural map in the earliest available survey are strongly correlated with their positions in the latest available survey, as meaured thirty years later.

The same principles apply to Schwartz's measures of Autonomy/Embeddedness values. They were not measured with representative national samples— Schwartz studied students, who

[15]Many others have analyzed Individualism/Collectivism, sometimes using representative national samples, but only in single countries or small numbers of countries.

clearly are not a representative sample of their countries' populations. But if the students deviate from the national means in the same direction, and by roughly the same amount, then the *relative* positions they show for given societies will be reasonably accurate. Accordingly, the relative positions of given countries on the Autonomy/Embeddedness dimension correspond closely to those found on both Survival/Self-expression values and Individualism/Collectivism. As Table 2 indicates, the correspondence is astonishingly strong. Survival/Self-expression values, Individualism/Collectivism and Autonomy/Embeddedness all tap a common underlying dimension, with Survival/Self-expression values showing the highest loading.[16] Individualism-Collectivism, Autonomy-Embeddedness and Survival/Self-expression values all reflect variation in the extent to which given societies allow people a narrow or broad range of free choice. Scarcity and insecurity impose severe constraints on human choice but modernization gradually emancipates people from the rigid cultural constraints that prevail under insecure conditions.

One reason why this Self-expression/Individualism/Autonomy super-dimension is so robust might be because its cross-national differences reflects genetic variation-- which in turn is rooted in different levels of historic vulnerability to disease and starvation as Gelfand *et al.*, (2011) and Thornhill and Fincher (2009, 2010) have argued. Examining the impact of biological factors on culture, Chiao and Blizinsky (2009) find linkages between genetic factors and collectivist attitudes, arguing that cultural values have evolved, adapting to the social and physical environments under which genetic selection operates. The evidence suggests that certain populations evolved in environments that were relatively vulnerable to disease, giving a survival advantages to genetic variations linked with avoidance of strangers and strict conformity

[16]Welzel (2013) has developed a revised and technically improved version of the Survival/Self-expression dimension, called Emancipative Values. When substituted for Survival/Self-expression values in this analysis, it also emerges as the top-loading item.

to social taboos—while other populations evolved in environments that were less vulnerable to disease, which gave a survival advantage to genetic variation linked with greater openness to strangers and different social norms. This led to the emergence of a pattern of cross-cultural variation in which some societies were relatively closed to outsiders and cultural diversity, while other societies were relatively open. Empirically, the individualism/collectivism dimension that Chiao and Blizinsky use is closely correlated with Self-expression values.[17]

Economic development, the emergence of the welfare state, and other historic factors can change people's values considerably—but the process is path dependent, with the influence of genetic differences persisting to some degree. With technological development, human vulnerability to disease has diminished dramatically—but its historic impact has not yet disappeared. Even today, cross-national differences on this cultural super-dimension are so robust that any competently designed study seems likely to uncover them.

The work of Acemoglu and Robinson (2006) also points in this direction. They trace the roots of economic development and democracy back for 500 years, attempting to determine which came first. They conclude that both economic development and democracy can be traced to enduring fixed national effects—which they claim reflect institutional differences. But calling them institutions is completely arbitrary: fixed national effects capture any enduring attribute of given countries, from institutions to language and culture to climate and topography and historic vulnerability to disease. Recent research has produced additional relevant evidence, with Shcherbak (2014) finding that cross-national differences in lactose intolerance have a genetic basis and are strongly correlated with cross-national differences on this cultural super-dimension. Meyer-Schwarzenberger (2014) analyzes the structure of 166 languages, finding strong and

[17]They find a.66 correlation between Individualism and Self-expression values.

robust correlations between Self-expression values and a measure of Linguistic Individualism that could conceivably also be rooted in genetic differences. Inglehart *et al.* (2014) find strong correlations between cross-national variation on certain genes, and the extent to which a given society emphasizes tolerance and Self-expression values.

Building on earlier exercises in genetic mapping (Cavalli-Sforza, et al. 1994), Inglehart *et al.* (2014) gathered data on 79 STR allele frequencies of five genetic markers used in forensic genetic testing to identify people's ethnic origins.[18] They obtained data from 39 countries (countries such as the U.S., Australia or Argentina-- populated mainly by immigrants from other countries-- were not included). A principal components factor analysis of each country's mean score on the 79 STR alleles produces two main dimensions. When we map the 39 countries on these two dimensions, they fall into five geographic clusters, grouping countries in Europe, sub-Saharan Africa, South America, South Asia and North Africa, and East and Southeast Asia—replicating some of the clusters found on the global cultural maps shown above. The first principal component could be interpreted as reflecting the degree of historical parasite prevalence, with which it is correlated at r = -.86. It seems possible that historical vulnerability to disease may, over the course of many centuries, have given a survival advantage to certain genetic variations over others.

We do *not* view a country's score on this genetic variation dimension as reflecting genetic variation and nothing else: like Acemoglu and Robinson's Fixed Country Effects, this score is a black box that reflects not only genetic variation but anything else that co-varies with geography. But since this score is directly derived from measures of genetic variation, it would

[18]They used the forensic STR system because these data are available for many populations, including some not studied for other genes.

be rash to deny that it *includes* genetic variation— along with differences in culture, language, institutions, topography, climate and anything else linked with a country's geographic location.

Benjamin et al. (2012) analyzed a sample of comprehensively genotyped subjects with data on economic and political preferences, finding evidence of significant heritability of these traits—but also finding evidence that the heritable variation on these traits is explained by many genes with small effects. Coupled with the fact that genetic variation goes in clusters, this has important implications. At this stage, we don't know which genes (if any) are shaping cross-cultural variation on the Self-expression/Individualism/Autonomy Super-dimension. But a growing body of evidence suggests that genetic factors may be involved—in a complex causal chain linked with climatic conditions and historic vulnerability to disease.

Instead of viewing culture differences as fixed attributes of given societies, we argue that they reflect a society's entire historical heritage-- but this heritage can be reshaped by dynamic societal processes. In other words, Individualism is not a static individual-level psychological attribute—it is shaped by a society's level of development. Self-expression values, Autonomy values and Individualism all tap a syndrome that becomes more widespread when existential constraints on human choice recede. Modernization facilitates a shift away from collectivism, toward individualism, bringing increasing emphasis on individual autonomy and weakening traditional hierarchical norms. This cultural shift, in turn, is conducive to societal changes such as the emergence and flourishing of democratic institutions. Possibly because of linkages with genetic variation, this pattern of cross-cultural variation is so robust and so deep-rooted that almost any competently-designed empirical study of cross-cultural differences is likely to uncover it—and researchers in a wide range of fields have done so.

G. VALUE CHANGE ON TWO MAJOR DIMENSIONS

Evolutionary modernization theory holds that the pervasive differences we have found between the values of rich and poor societies reflect a process of intergenerational value change that occurs when societies attain such high levels of existential security that the younger birth cohorts grow up taking survival for granted. If so, we would expect to find more intergenerational value change in high-income societies than in low-income societies.

(Figure 9 about here)

As Figure 9 indicates, empirical evidence supports this expectation. The vertical axis on this graph reflects the extent to which given birth cohorts in given types of countries emphasize Survival values or Self-expression values. As it demonstrates, the publics of high-income societies emphasize Self-expression values much more strongly than the publics of low-income or middle-income countries. But we also find that the *intergenerational differences* are greater in high-income societies than elsewhere: the oldest cohort (born in 1927 or earlier) is only slightly above the global mean on Survival versus Self-expression values (the zero point on the vertical scale); but among the youngest cohort (born since1978) Self-expression values are almost one standard deviation more widespread than in the world as a whole.

Among the publics of developing countries, we find much less emphasis on Self-expression values-- and a relatively modest increase in emphasis on Self-expression values as we move from old to young: these countries are still approaching the threshold at which a substantial share of the population has grown up taking survival for granted.

The publics of ex-communist societies show even lower levels of emphasis on Self-expression values—but we find a relatively strong intergenerational increase in emphasis on these values as we move from old to young. The publics of these societies attained relatively high levels of existential security during the decades after World War II, producing a substantial

amount of intergenerational value change. But the collapse of communism and existential security around 1990 drove down all birth cohorts' absolute levels of Self-expression values to levels from which they have not yet recovered.

(Figure 10 about here)

This pattern of age differences, together with the strong linkage found between value systems and per capita GDP, suggests that economic development brings systematic changes in a society's beliefs and values. Time-series evidence supports this expectation. Tracing given countries' positions in successive surveys from 1981 to 2014, one finds that the publics of virtually all high-income countries moved in the predicted direction. As Figure 10 demonstrates, the publics of eight Protestant European countries, eight Catholic European countries plus seven English-speaking countries and Japan, all moved toward greater emphasis on Secular-rational values and Self-expression values.[19]

In striking contrast, the publics of Russia, China and a group of 21 other former communist countries moved toward greater emphasis on Traditional values. This reflects the resurgence of religion that occurred following the collapse of the communist belief system. Although Africa, Latin America and the Islamic countries show the highest *levels* of religiosity, this changed very little in these countries from 1981 to 2014. By far the largest *gains* in religiosity occurred in the ex-communist world, where religion and nationalism moved in to fill the ideological vacuum left by the collapse of a communist belief system that once gave a sense of meaning and purpose to millions of people.

Despite this increasing emphasis on Traditional values, rising economic security brought a significant overall increase in emphasis on Self-expression values. Russia was a particularly

[19]To avoid an unreadably complex map, this figure shows the net changes experienced by entire groups of countries using the clusters identified above, plus the changes experienced by Russia, China, India and Japan.

dramatic case: initially, it experienced a much sharper decline in existential security than most other ex-communist countries, with real per capita income falling to about 40 percent of its previous high, along with rising crime, and sharply declining male life expectancy. These conditions began to reverse themselves around 2000, when Putin restored order and oil and gas prices recovered, bringing strong economic recovery. The Russian public shifted from rising emphasis on Survival values and moved toward growing acceptance of Self-expression values--but traditional values continued to fill the vacuum left by the collapse of the communist belief system.

The values of African publics show very little change. Sub-Saharan Africa has begun to enjoy strong economic growth recently, but because cultural change involves long time-lags, we would not expect to see the results for some time.

V. THEORETICAL, EMPIRICAL, AND PRACTICAL IMPLICATIONS

A. CHANGING VALUES AND SOCIETAL-LEVEL CHANGE

We have argued that when new norms become culturally dominant they can bring important societal-level changes. This is particularly true of Self-expression values, which have brought new issues such as gender equality and gay rights to the center of the stage in advanced industrial societies. As Figure 11 demonstrates, legislation concerning homosexuality is closely linked with the degree to which Self-expression values have emerged among given publics.[20] Countries that rank high on Self-expression values are likelier to have adopted legislation favorable to gays and lesbians than societies that emphasize Survival values (r = .68).

(Figure 11 here)

[20]The scale used here ranges from a score of "1" in countries where homosexuality is punishable by death, to a score of "8" in countries where same-sex marriage is legal.

It seems unlikely that this correlation between mass-level values and societal legislation exists because the legislation shaped the values. Same-sex marriage first became legal in 2000 (in The Netherlands), but survey data demonstrate that the relevant values had been spreading for decades through intergenerational population replacement (Inglehart and Welzel, 2005). 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 it. But the root cause was the fact that a gradual shift had taken place in the Dutch public's attitudes toward homosexuality. In the 1981 Values Surveys, almost half of the Dutch expressed disapproval of homosexuality (the old being much less tolerant than the young)— but the Dutch were more tolerant than any other public surveyed. In most 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 legalized same-sex marriage, soon followed by a growing number of other countries— all of which had relatively tolerant publics (Inglehart and Welzel, 2005).

(Figure 12 here)

The spread of Self-expression values has also contributed to rising gender equality, as measured by the extent to which women hold high positions in political, economic and academic life. As Figure 12 demonstrates, countries that rank high on Self-expression values also tend to rank high on the UN Gender Empowerment Measure, the correlation being .80. Legislative changes (such as the adoption of gender quotas) no doubt helps legitimate the new norms, but here again, as survey data demonstrate, the underlying norms have been changing for 50 years,

while the legislative changes are relatively recent. The cultural changes clearly preceded the institutional changes, and probably contributed to them.

Inglehart, Ponarin and Inglehart (forthcoming) find that mass attitudes toward both gender equality and homosexuality have been changing in a two-stage process. The first phase was a gradual shift based on intergenerational population replacement. Eventually, this reached a threshold at which the new norms became dominant among growing segments of the public in high-income societies. Conformist pressures then reversed polarity and began to support changes they had formerly opposed, bringing much more rapid cultural change than that produced by population replacement alone. By 2015, a majority of the U.S. Supreme Court supported same-sex marriage: even elderly judges wanted to be on the right side of history.

The claim that institutions determine culture does not hold up in the light of historical evidence, which suggests that culture and institutions influence each other, with cultural change sometimes preceding institutional change.

B. VALUE CHANGE AND DEMOCRACY

In recent years, a democratic boom has given way to a democratic recession. Between 1985 and 1995, scores of countries made transitions to democracy, bringing widespread euphoria about democracy's future. But since then, democracy has retreated in many countries and attempts to establish democracy in Afghanistan and Iraq left both countries in chaos. These developments, along with the failure of the Arab Spring and growing authoritarianism in China and Russia, have led many observers to argue that democracy has reached its high-water mark and is unlikely to expand any farther.

That conclusion is mistaken. The bad news is that it is unrealistic to assume that democratic institutions can be set up easily, anywhere. Although the outlook is never hopeless,

democracy is most likely to emerge and survive when certain social and cultural conditions are present. The U.S. government ignored this reality when it attempted to establish democracy in Iraq without considering cultural cleavages that endangered the effort. The good news, however, is that the conditions conducive to democracy can and do change – and abundant evidence indicates that the process of modernization advances them.

The long-term trend toward democracy has always moved in surges and declines. At the start of the twentieth century only a handful of democracies existed, and even they were not full democracies by today's standards. There was a large increase in the number of democracies immediately after World War I, another surge following World War II, and a third surge at the end of the Cold War. Each of these surges was followed by a decline-- but the number of democracies never fell back to the original base line. By the early twenty-first century, about 90 states could be considered democratic. Although many of these democracies are flawed, the overall trend is striking: in the long run, modernization tends to bring democracy—partly because it brings rising emphasis on Self-expression values.

(Figure 13 about here)

Figure 13 depicts the relationship between Self-expression values and an index of effective democracy developed by Inglehart and Welzel (2005). The extent to which self-expression values are present in a society explains over 80 percent of the cross-national variance in the extent to which liberal democracy is actually implemented. The linkage between individuals' self-expression values and democratic institutions is remarkably strong and consistent. China and Vietnam show lower levels of democracy than their publics' values would predict. Both countries have authoritarian regimes that have greatly increased the latitude for individual choice in the economic realm, and been experimenting with local-level democracy—

but their one-party regimes are extremely reluctant to allow competition at the national level. These regimes are under growing societal pressure to liberalize, which communist party elites are vigorously resisting. The success of their economic reforms is giving rise to societal pressures that in the long run may erode their one-party regimes.

Empirically, one finds a remarkably strong correlation between self-expression values and effective democracy. But do self-expression values lead to democracy, or does democracy cause self-expression values to emerge? The evidence indicates that the causal flow moves mainly from self-expression values to democracy.

One indication of this is the fact that democratic institutions do not need to be in place for self-expression values to emerge. In the years preceding the 1990 wave of democratization, self-expression values had emerged through a process of intergenerational value change-- not only in Western democracies, but also within many authoritarian societies (Inglehart and Welzel, 2005). By 1990, the publics of East Germany and Czechoslovakia—living under two of the world's most authoritarian regimes— had developed high levels of self-expression values. The crucial factor was not the political system, but the fact that these countries were among the most economically advanced countries within the communist world, with highly developed educational systems and advanced social welfare systems. Accordingly, when the threat of Soviet military intervention was removed, they moved swiftly toward democracy. Longitudinal evidence analyzed by Inglehart and Welzel (2005) and by Welzel (2013) indicates that democratic institutions have a minor effect on self-expression values, which are primarily shaped by socioeconomic development, but that rising self-expression values have a major impact on democratic institutions. These findings are consistent with previous research indicating that

socioeconomic development leads to democracy, rather than the other way around (Burkhart and Lewis-Beck,1994; Helliwell,1993; Boix and Stokes, 2003).

C. FUTURE DIRECTIONS

Changes in people's basic values and motivations seem to be transforming society and it is important to continue monitoring them. Future research should also probe more deeply into (1) the causal linkages between individual-level value change and societal change, and (2) the causes of cultural change, including the extent to which genetic factors are involved and identifying which genes (if any) play important roles.

VI. CONCLUSION

We have found that rising levels of existential security seem to bring coherent and roughly predictable social and cultural changes, leading the people of relatively secure societies to have systematically different values from those of less developed societies. Though globalization has undermined the bargaining position of workers in high-income countries, it is transferring capital and technology to other countries throughout the world, raising their levels of existential security and bringing greater openness to new ideas and more egalitarian social norms. Normally, these values change gradually, through intergenerational population replacement, so that very long time-lags are involved between changes in formative conditions and the transformation of a society's prevailing values. But a threshold can be reached at which conformist pressures reverse polarity: Norms that once were considered deviant become seen as prevalent, and instead of resisting change, social desirability effects accelerate it.

Cultural change is path-dependent: a society's values reflect its entire historical heritage. But despite approaching it from different theoretical perspectives and using completely different measurement methods, researchers in a wide range of fields have found a pattern in which

existentially secure societies consistently rank high, while others consistently rank low, on an underlying Individualism/ Autonomy/Self-expression super-dimension. How it is labeled and how it is interpreted tends to be shaped by one's theoretical expectations, but this pattern of cross-cultural variation is so robust and deep-rooted that almost any competently-designed empirical study of cross-cultural differences is likely to uncover it. Modernization is bringing changes on this super-dimension of cross-cultural variation that seem to be shaping contemporary levels of democracy and legislation concerning gender equality, gays and lesbians and many other topics.

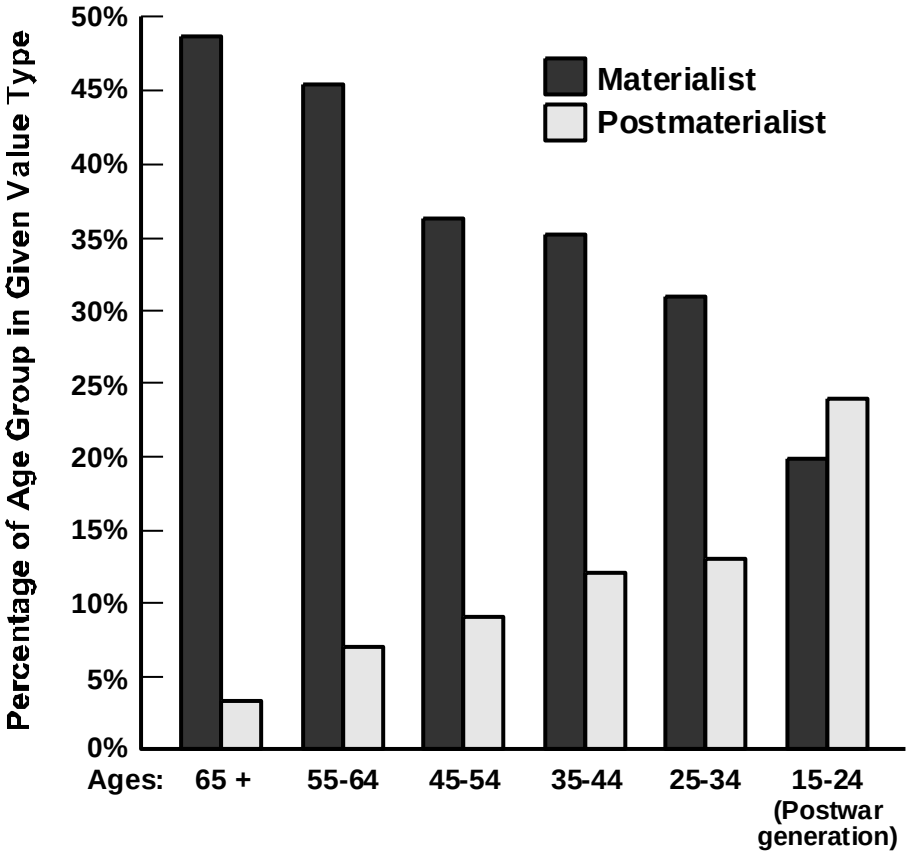

Figure 1. Value type by age group, among the Publics of Britain, France, West Germany, Italy, Belgium and The Netherlands in 1970.

Source: European Community survey of February, 1970; based on original 4-item Materialist/Postmaterialist values battery.
Reprinted from Inglehart, 1990: 76.

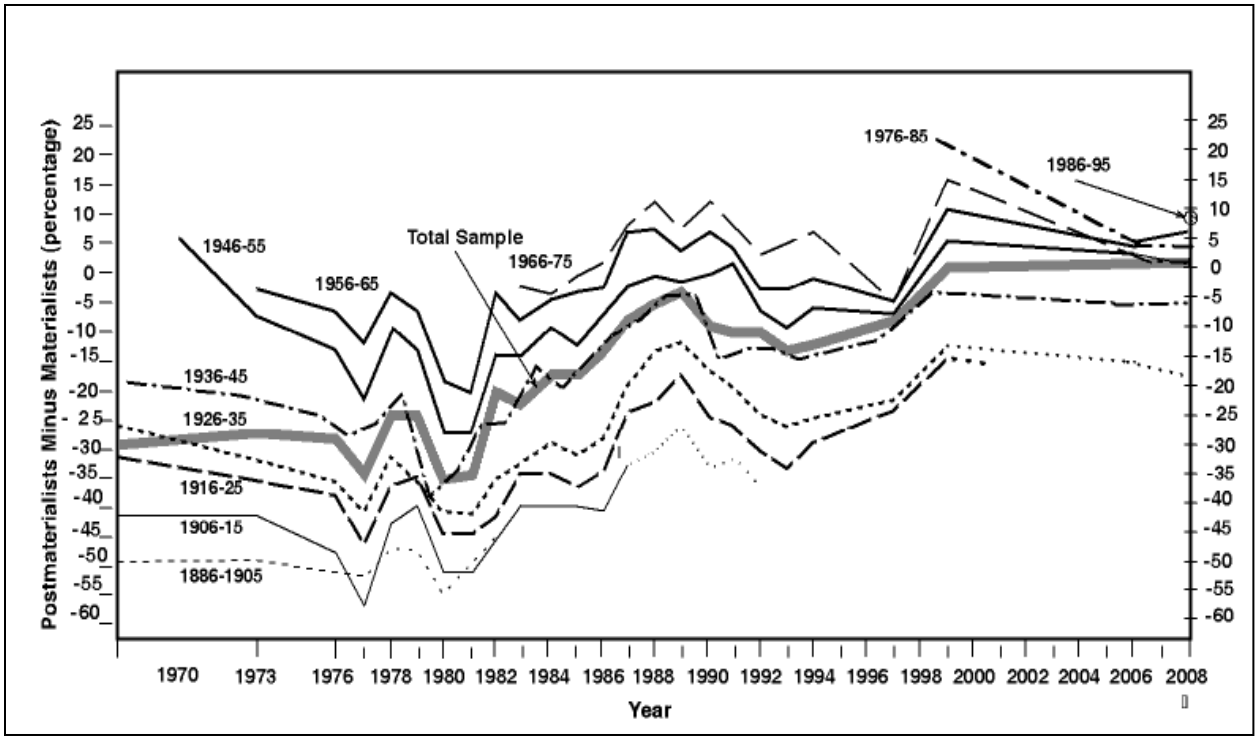

Figure 2. Cohort Analysis: Percentage of Materialists minus percentage of Postmaterialists in six West European countries, 1971 to 2009 (countries are Britain, France, West Germany, Italy, Belgium and The Netherlands).
Source: data from 1970 through 1997 are from Euro-Barometer surveys; data from 1999, 2006 and 2008-2009 are from European Values Study/World Values Survey.

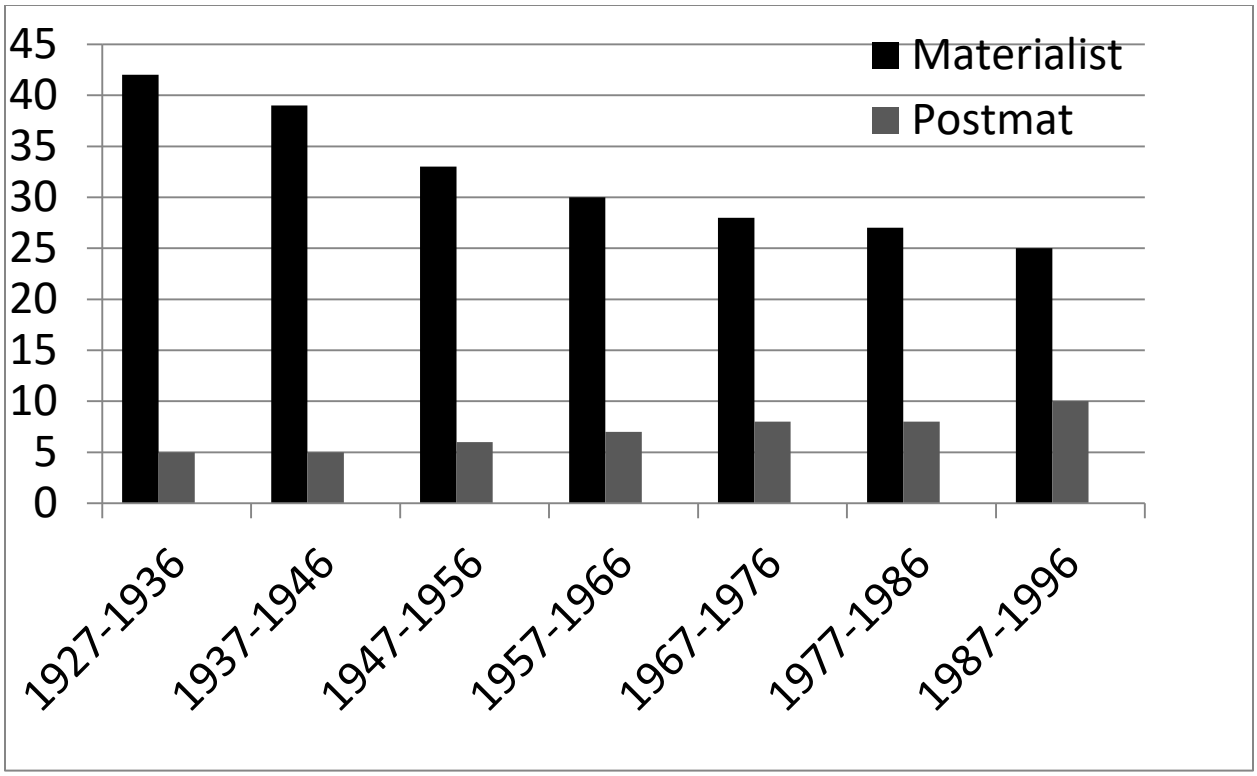

Figure 3.Materialist vs. Postmaterialist values by birth cohort, in eleven ex-communist countries now in the European Union (Bulgaria, Croatia, Czech Rep., Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia) in 2008-2012.

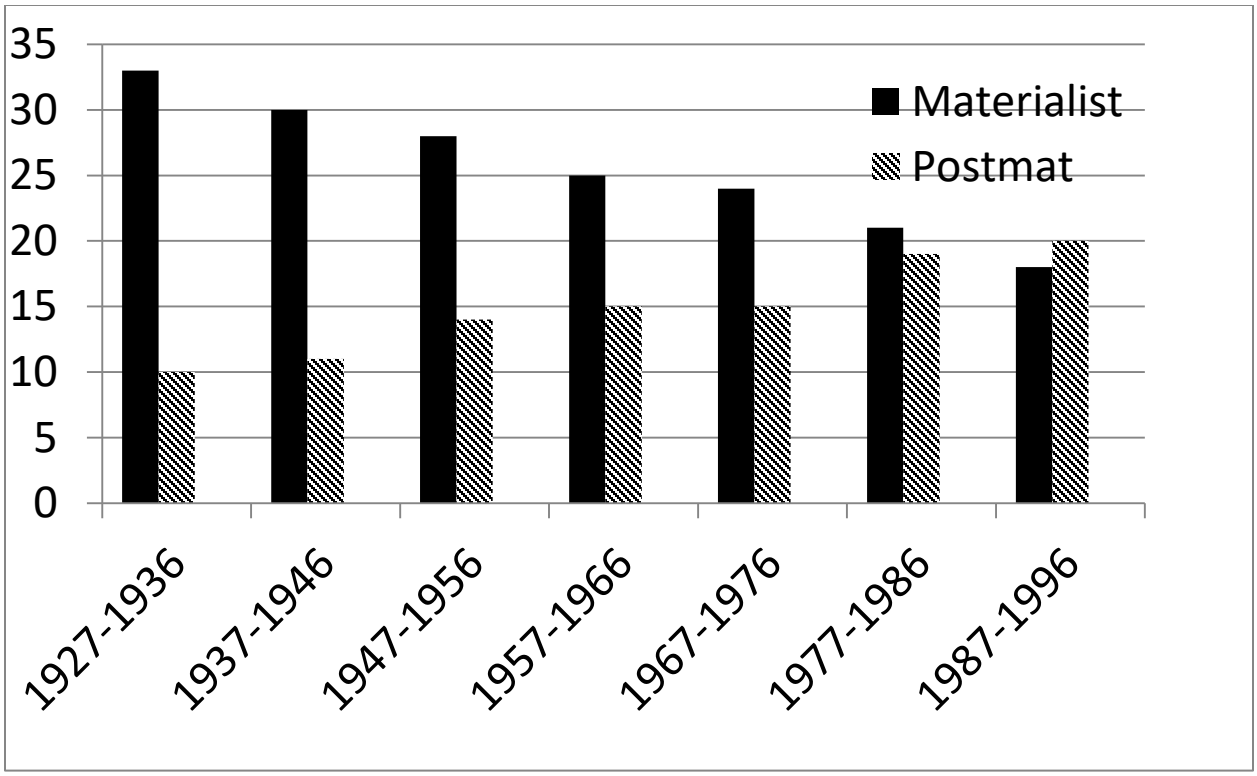

Figure 4.Materialist vs. Postmaterialist values by birth cohort, in eight Latin American countries (Argentina, Brazil, Chile, Colombia, Guatemala, Mexico, Peru, Uruguay), 2005-2012).

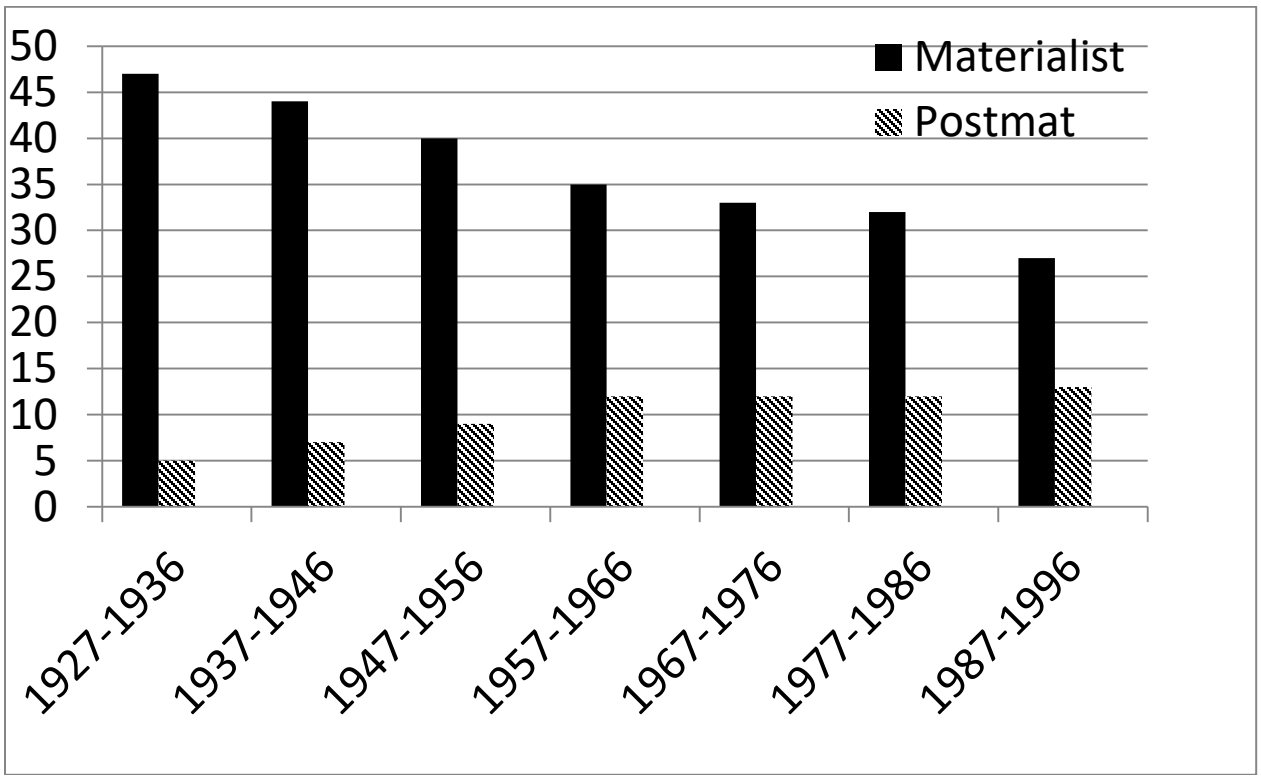

Figure 5. Materialist vs. Postmaterialist values by birth cohort, in nine Muslim-majority countries (Morocco, Algeria, Tunisia, Libya, Palestine, Jordan, Turkey, Albania and Indonesia). N = 24,107.
Source: World Values Survey and European Values Study, 2007-2013.

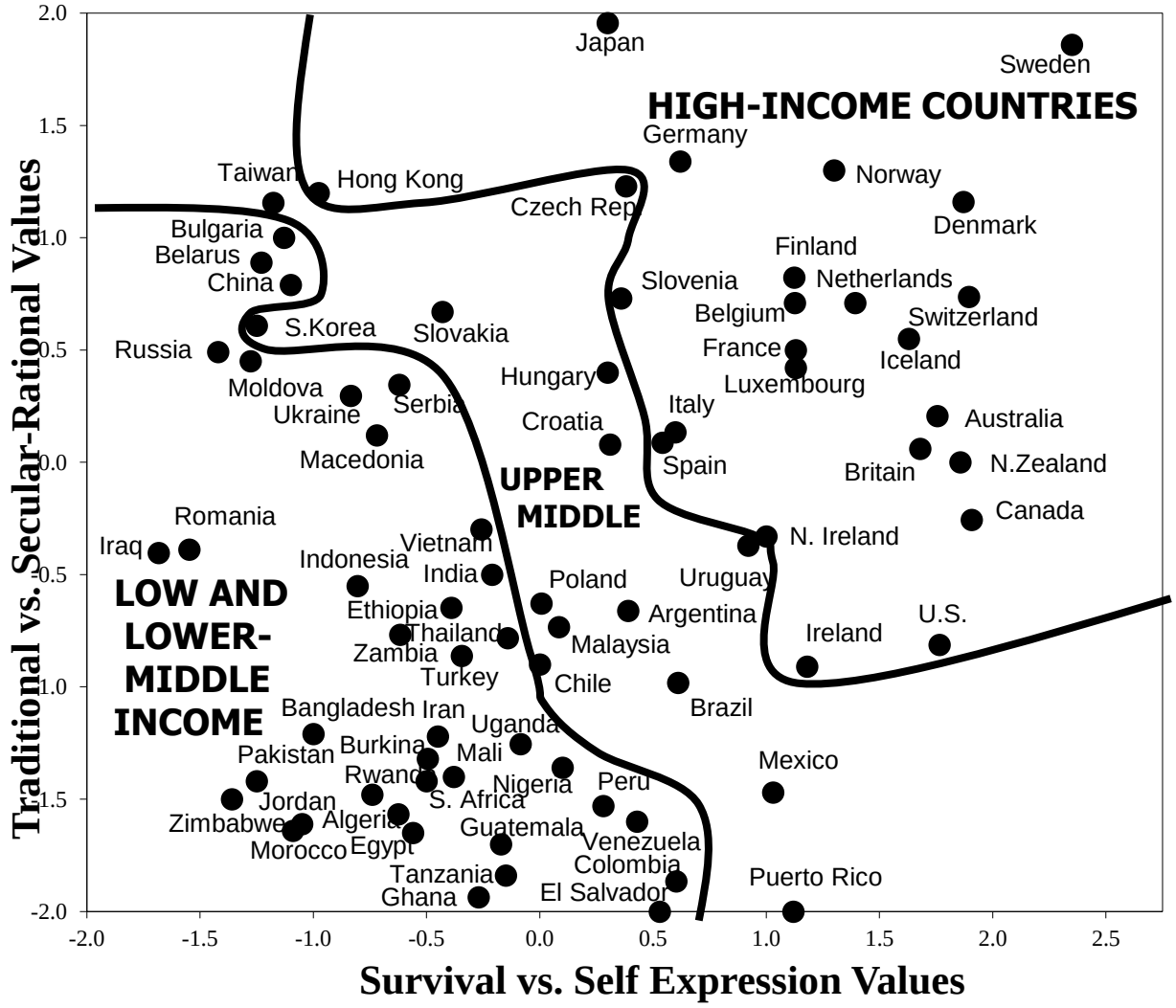

Figure 6. Mean scores of 75 countries on two major value dimensions, by level of development.
Source: Data from Values Surveys (median date of survey 2005); economic level based on World Bank's income categories as of 1992.

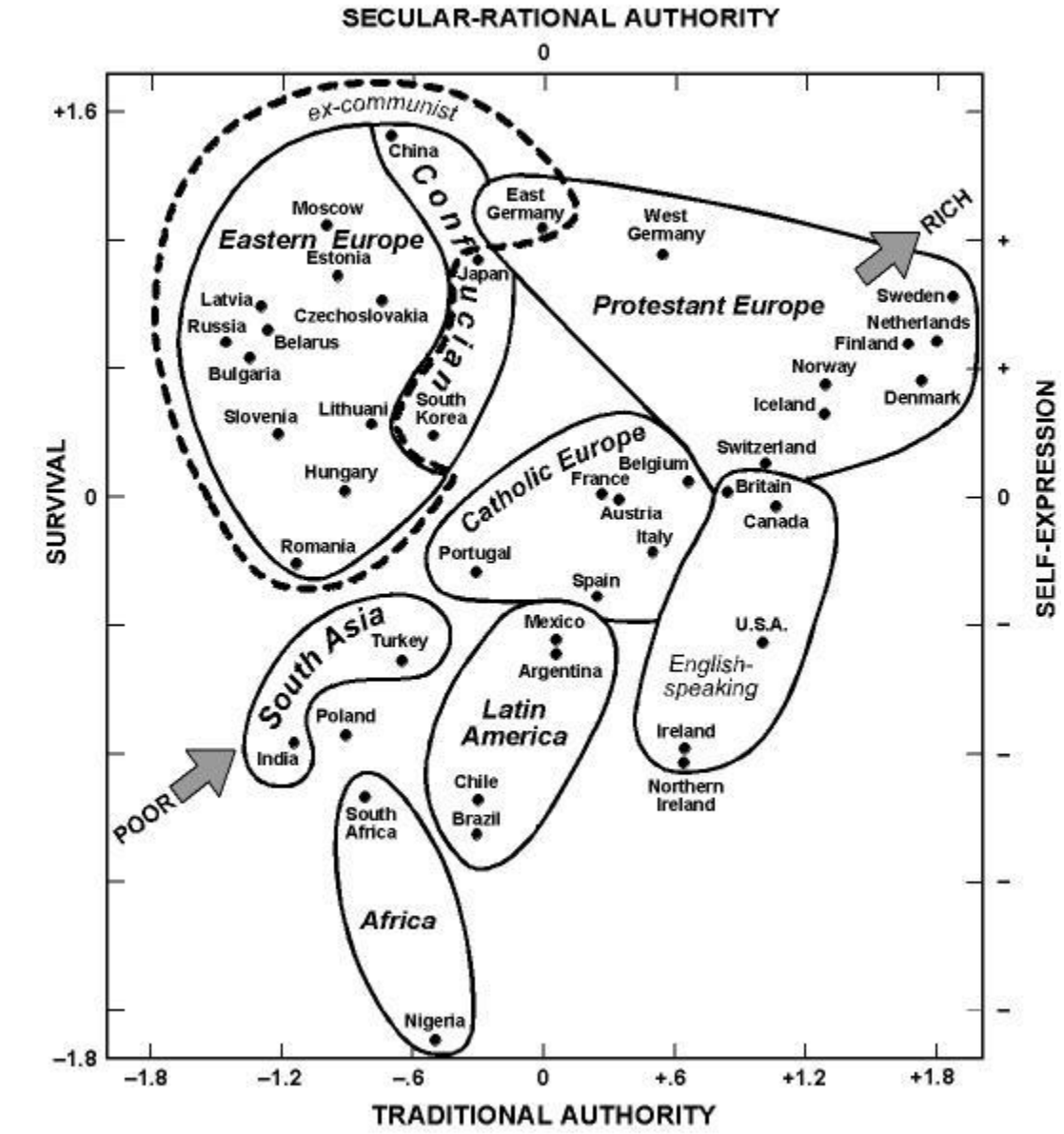

Figure 7.Locations of 43 societies on global cultural map in 1990-1991.
Source: Inglehart, 1997: 93.

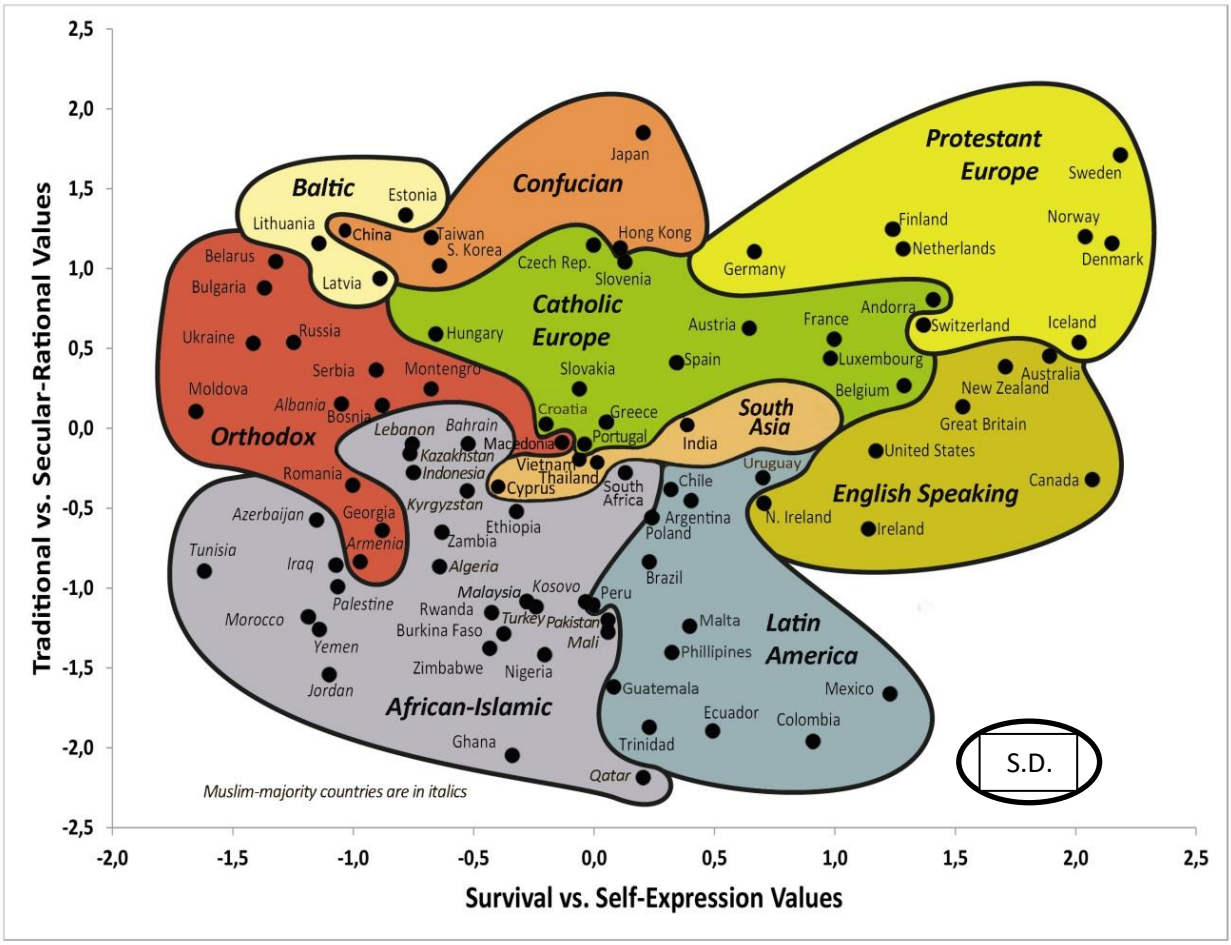

Figure 8. Locations of 94 societies on global cultural map, 2008-2014 (median year of survey is 2011).

Source: Values Surveys. The size of the mean standard deviation within a given country is shown on the lower left. The names of Muslim-majority societies are in italics.

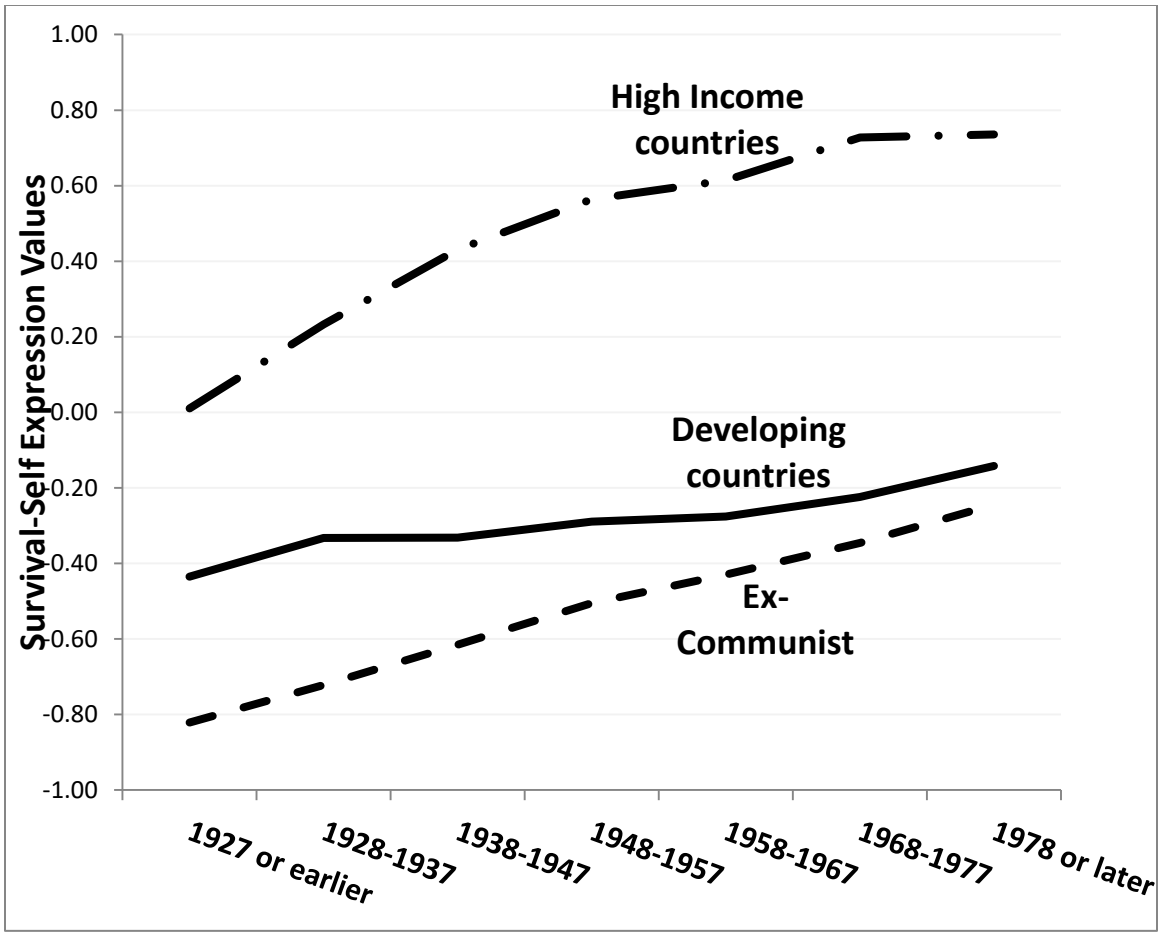

Figure 9. Age-related differences on Survival/Self-expression values, in three types of societies.

Source: Values Surveys, 1981-2014.

High Income countries (as of 1992): Andorra, Australia, Austria, Belgium, Canada, Cyprus, Denmark, Finland, France, Germany, Great Britain, Iceland, Ireland, Israel, Italy, Japan, Luxembourg, Netherlands, New Zealand, Northern Ireland, Norway, Singapore, Spain, Sweden, Switzerland, Taiwan, United States
Developing countries (as of 1992): Algeria, Argentina, Bangladesh, Brazil, Burkina Faso, Chile, China, Colombia, Dominican Republic, Ecuador, Egypt, Ethiopia, Ghana, Greece, Guatemala, India, Indonesia, Jordan, Malaysia, Mali, Malta, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Portugal, Rwanda, South Africa, South Korea, Tanzania, Thailand, Trinidad & Tobago, Turkey, Uganda, Uruguay, Venezuela, Vietnam, Zambia, Zimbabwe
Ex-Communist countries: Albania, Azerbaijan, Armenia, Bosnia, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Romania, Russia, Serbia, Slovakia, Slovenia, Ukraine

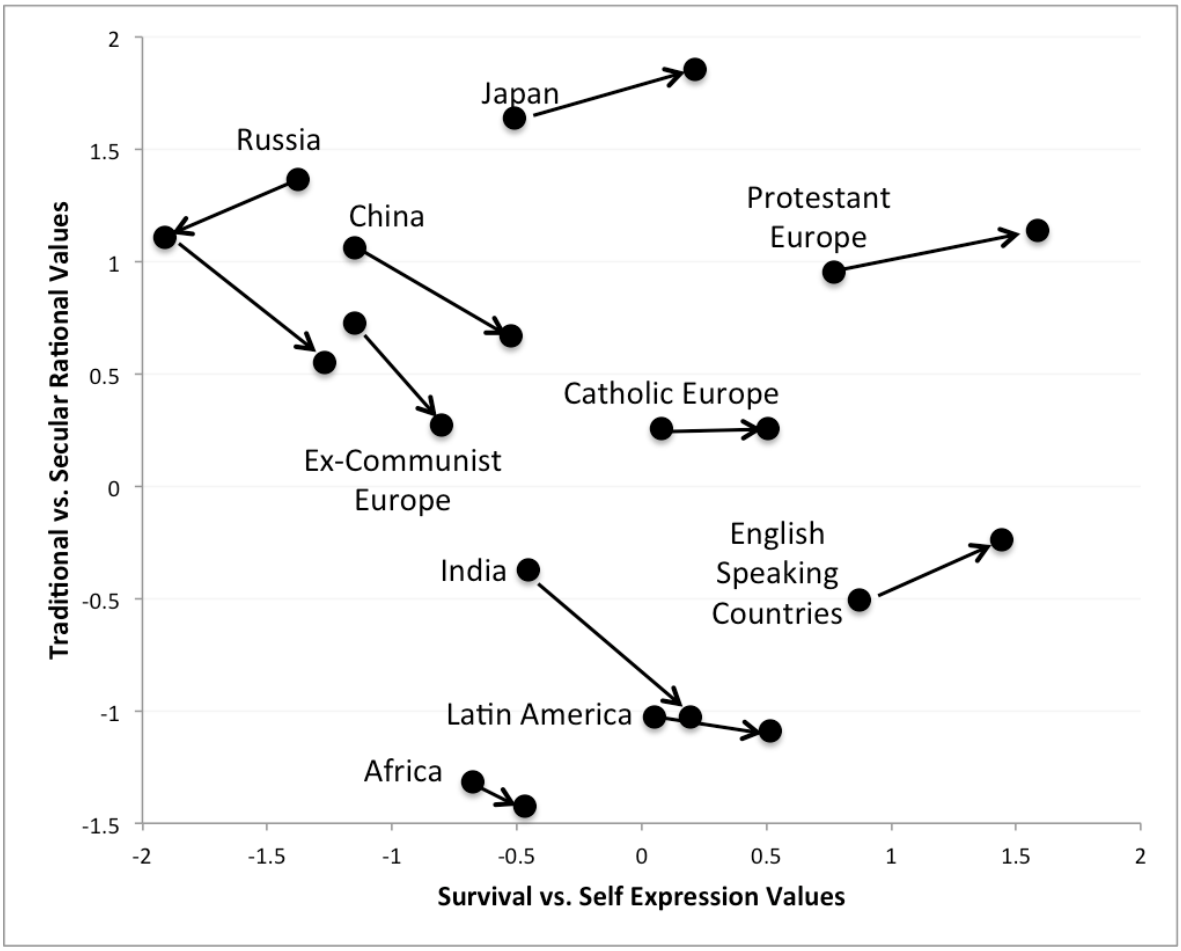

Figure 10. Net change on two major dimensions of cross-cultural variation from earliest to latest available survey (1981-2014) in ten types of societies.

Ex-Communist countries: Albania (1998-2008), Azerbaijan (1997-2011), Armenia (1997-2011), Bosnia (1998-2008), Bulgaria (1991-2008), Belarus (1990-2008), Croatia (1996-2008), Czech Republic (1991-2008), Estonia (1996-2011), Georgia (1996-2009), Hungary (1991-2008), Kyrgyzstan (2003-2011), Latvia (1996-2008), Lithuania (1997-2008), Moldova (1996-2008), Poland (1990-2012), Romania (1998-2012), Serbia (1996-2008), Slovakia (1991-2008), Slovenia (1992-2011), Ukraine (1996-2011)
Latin American countries: Argentina (1984-2006), Brazil (1991-2006), Chile (1990-2011), Colombia (2005-2011), Mexico (1981-2012), Peru (1996-2012), Uruguay (1996-2011), Venezuela (1996-2000)
African countries: Ghana (2007-2012), Morocco (2007-2011), Nigeria (1990-2011), Rwanda (2007-2012), South Africa (1982-2006), Zimbabwe (2001-2012)
Catholic European countries: Austria (1990-2008), Belgium (1981-2009), France (1981-2008), Greece (1999-2008), Italy (1981-2005), Luxembourg (1999-2008), Portugal (1990-2008), Spain (1981-2011)
Protestant European countries: Denmark (1981-2008), Finland (1990-2009), Germany (1981-2008), Iceland (1990-2009), Netherlands (1981-2012), Norway (1982-2008), Sweden (1982-2011), Switzerland (1996-2008)
English Speaking countries: Australia (1981-2012), Canada (1982-2006), Great Britain (1981-2009), Ireland (1981-2008), New Zealand (1998-2011), Northern Ireland (1981-2008), United States (1982-2011)
Russia (1990, 1995-2011), **China** (2007-2012), **Japan** (1981-2010), **India** (1990-2012)

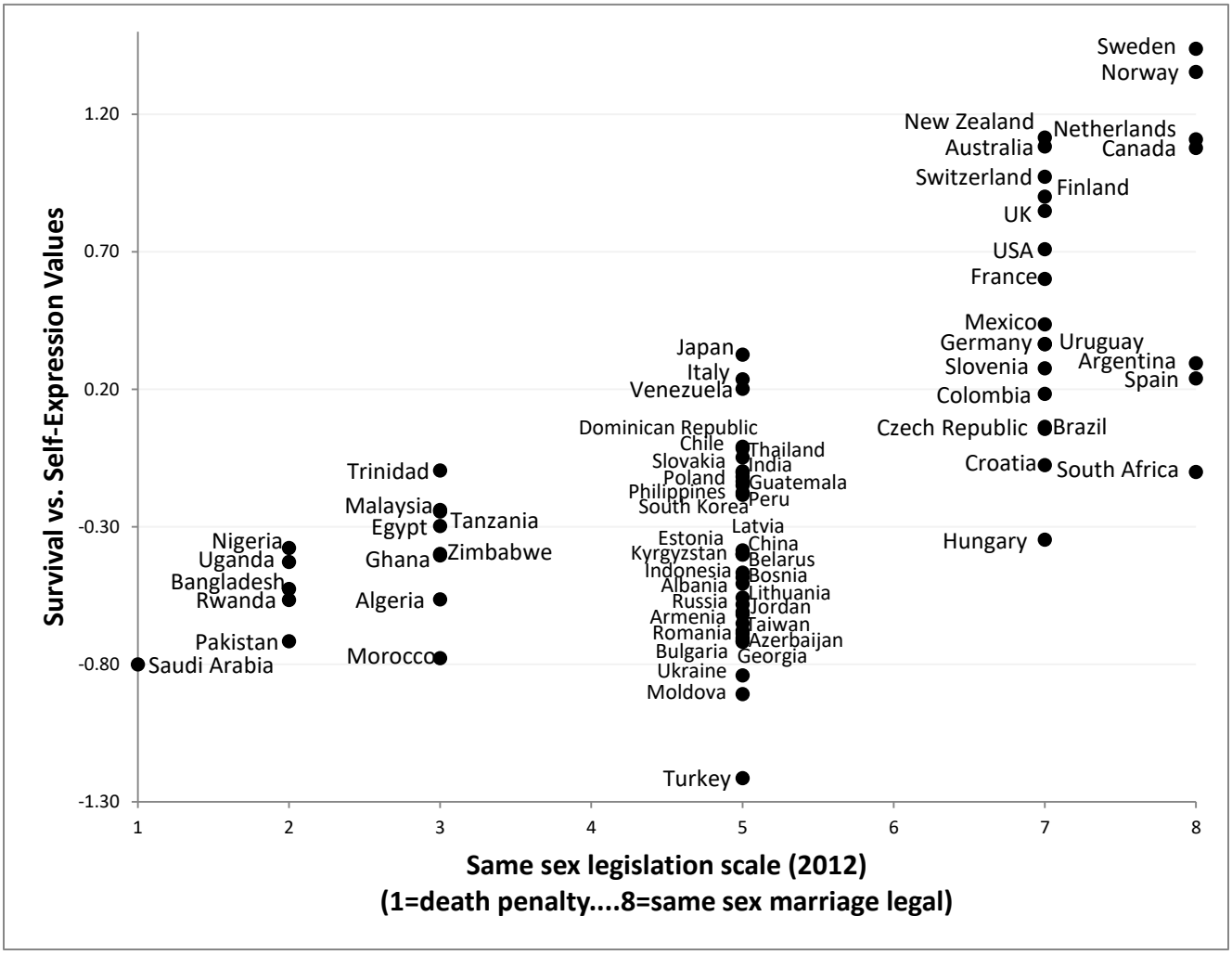

Figure 11. National legislation concerning homosexuality in 2012, by Survival vs. Self-Expression Values (r = .68).

Legislation concerning homosexuals in 2012 downloaded from LGBT Portal (original scale's polarity reversed to make high scores reflect tolerant legislation).

Scale: 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 but not marriage, 7=same sex unions recognized but not performed, 8=same sex marriages performed. No cases available with codes 4 or 6.

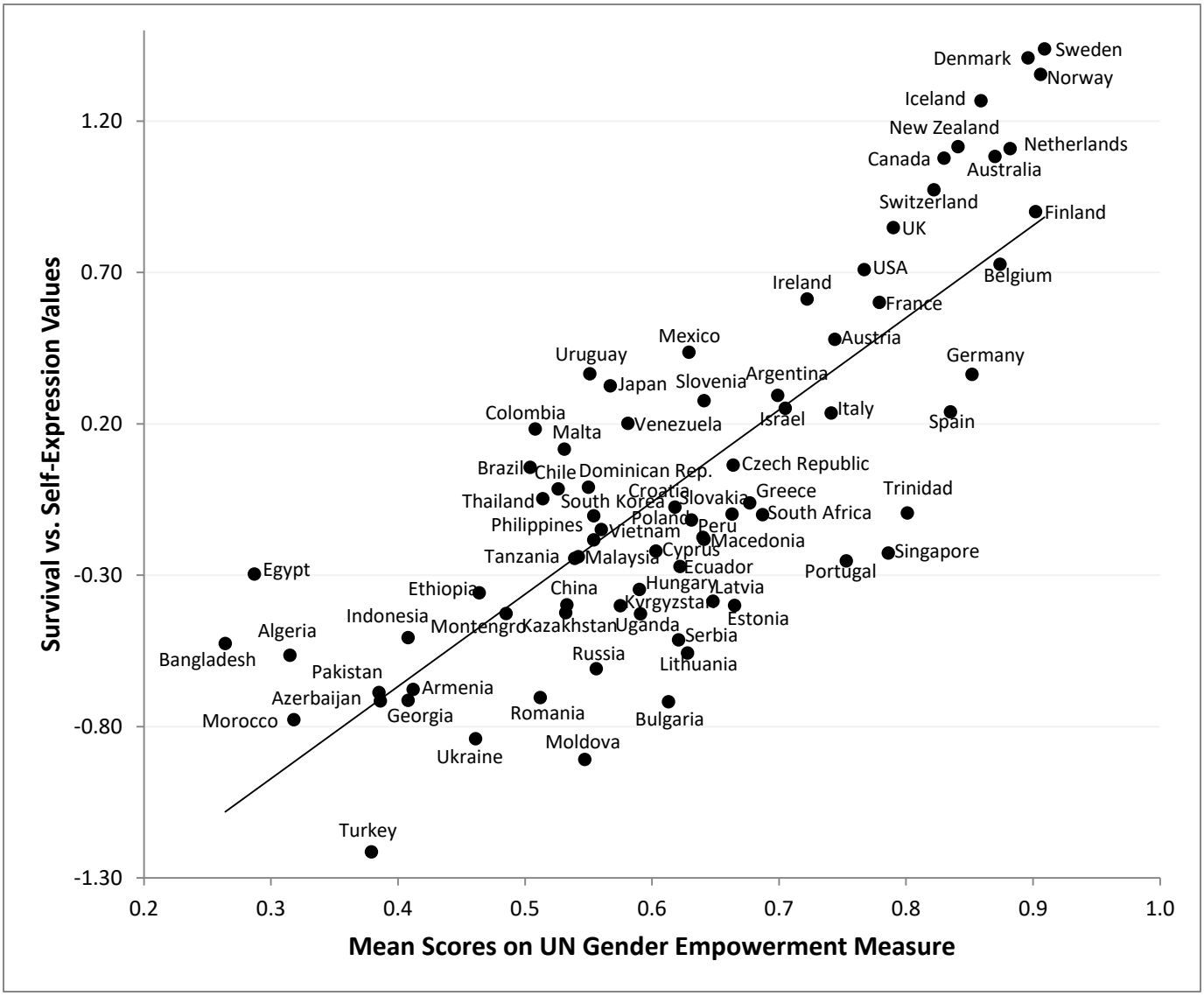

Figure 12. Societal levels of Gender Empowerment, by survival vs. self-expression values. The UN Gender Empowerment Measure reflects the extent to which women hold positions of authority in political, economic and academic life. (r = .80)

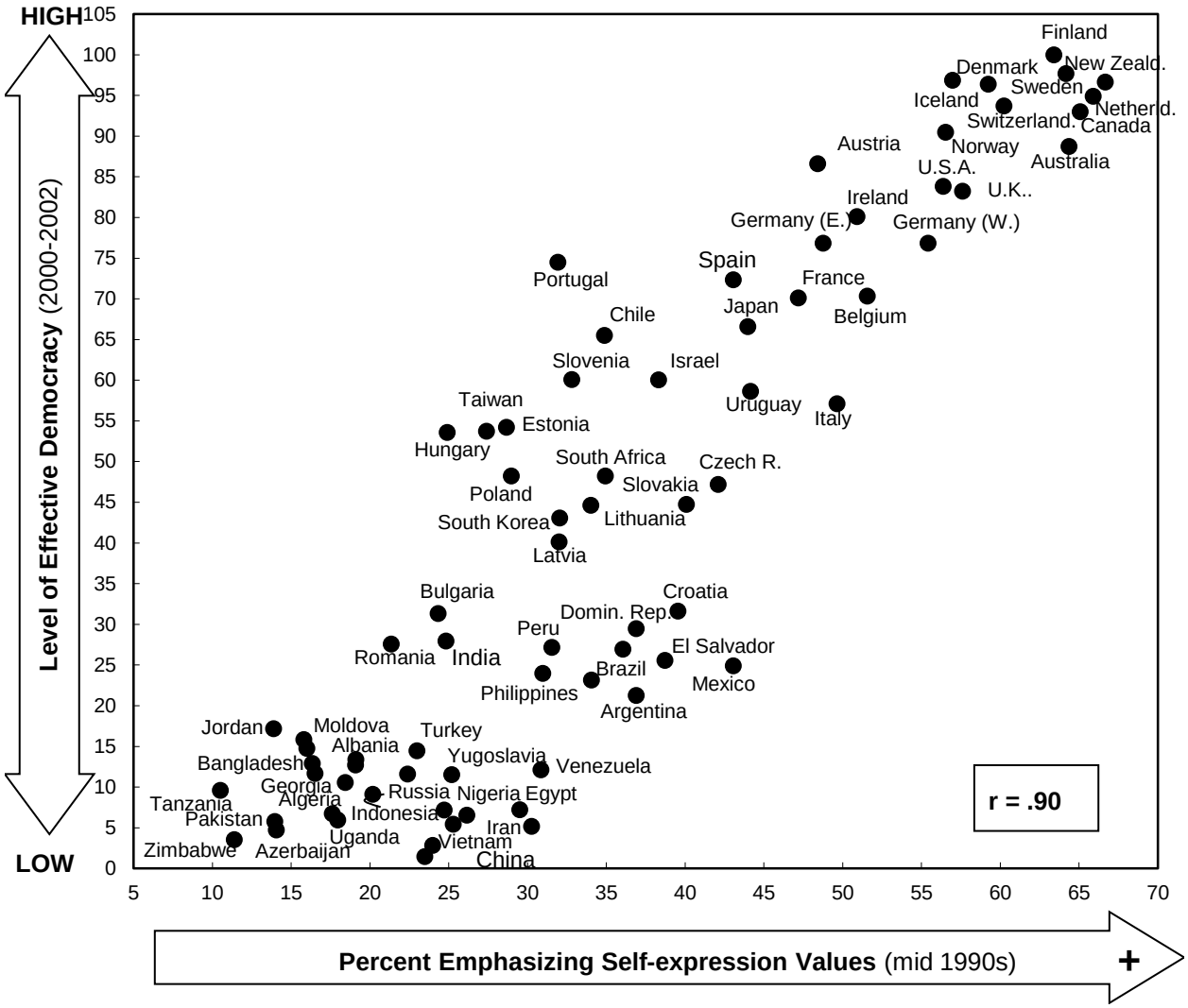

Figure 13. Effective Democracy around 2000 by a country's mean level of Self-expression values in mid 1990s.
Source: Inglehart and Welzel, 2005: p.155.

Table 1. Orientations linked with Survival vs. Self-expression Values

	Correlation
People with SURVIVAL VALUES endorse the following:	
Materialist rather than Postmaterialist values (economic and physical security one's top priorities)	**.87**
Men make better political leaders than women	.86
I am not highly satisfied with my life	.84
A woman has to have children to be fulfilled	.83
I wouldn't want foreigners, homosexuals or people with AIDS as neighbors	.81
I have not and would not sign a petition	.80
I am not very happy	.79
I favor more emphasis on the development of technology	.78
Homosexuality is never justifiable	.78
I have not recycled to protect the environment	.76
I have not attended a meeting or signed a petition to protect the environment	.75
A good income and safe job are more important than a feeling of accomplishment and working with people you like	.74
I do not rate my health as very good	.73
A child needs a home with both a father and a mother in order to grow up happily	.73
When jobs are scarce, a man has more right to a job than a women	.70
A university education is more important for a boy than for a girl	.69
The government should ensure that everyone is provided for	.69
Hard work is one of the most important things to teach a child	.65
Imagination is not one of the most important things to teach a child	.62
Tolerance is not one of the most important things to teach a child	.62
People with SELF-EXPRESSION VALUES take the opposite position on all of the above	

The original polarities vary; some statements have been reworded to endorse Survival values.

Table 2. The Self-expression/Individualism/Autonomy Factor
(first principal component loadings)

Survival/Self-expression values, national mean scores	.93
Individualism-Collectivism scores (Hofstede)	.89
Autonomy-Embeddedness scores (Schwartz)	.87

One factor emerged, which explains 80% of the cross-national variation.
Source: Analysis of Values Survey data; Hofstede 2001 (with additional country scores from Chiao and Blizinsky, 2009); and Schwartz (2003).

References

Acemoglu, D. and J.A. Robinson. 2006. *Economic Origins of Dictatorship and Democracy.* New York: Cambridge University Press.

Adorno, T. W., Frenkel-Brunswik, E., Levinson, D. J., and Sanford, R. N. 1953.*The Authoritarian Personality*. New York: Norton.

Andersen, R., and Fetner, T. 2008. "Cohort differences in tolerance of homosexuality." *Public Opinion Quarterly*, 72(2), 311–330.

Barber, N. 2011. A cross-national test of the uncertainty hypothesis of religious belief. *Cross-Cultural Research*, 45(3), 318-333.

Bednar, J., A. Bramson, A. Jones-Rooy and S. Page, 2010. "Emergent Cultural Signatures and Persistent Diversity," *Rationality and Society* 22, 4: 407-444.

Bell, D. 1973. *The Coming of Post-Industrial Society.* New York: Basic Books.

Benjamin, D.J. et al.,2012. "The Genetic Architecture of Economic and Political Preferences," *PNAS* 109(21)*:* 8026–8031.

Boeltken, F. and W. Jagodzinski, 1985. "In an Environment of Insecurity: Postmaterialism in the European Community, 1970-1980." *Comparative Political Studies* 17: 453-484.

Broadberry, S., and O'Rourke, K. (eds.). 2010. *The Cambridge Economic History of Modern Europe: 1700-1870*. Cambridge: Cambridge University Press.

Cavalli-Sforza, L. L., P. Menozzi, and A. Piazza, 1994.*The History and Geography of Human Genes.* Princeton: Princeton University Press.

Chiao, J.Y.and K.D. Blizinsky, 2009. "Culture–Gene Coevolution of Individualism–Collectivism and the Serotonin Transporter Gene," *Proceedings of the Royal Society B*277(1681): 529-53.

De Martino, B., D. Kumaran, B. Seymour, and R.J. Dolan, 2006. "Frames, Biases, and Rational Decision-making in the Human Brain," *Science*, 313(5787): 684-687.

Estes, R. 2010. "The World Social Situation: Development Challenges at the Outset of a New Century," *Social Indicators Research* 98: 363–402.

Fincher, C. and R. Thornhill, 2008. "Assortative Sociality, Limited Dispersal, Infectious Disease and the Genesis of the GobalPattern of Religion Diversity," *Proceedings of the Royal Society*, 275(1651): 2587-2594.

Fincher, C., R. Thornhill, D. Murray and M. Schaller, 2008. "Pathogen Prevalence Predicts Human Cross-cultural Variability in Individualism/Collectivism," *Proceedings of the Royal Society B*275(1640): 1279-1285.

Fukuyama, F. 1995. *Trust: Social Virtues and the Creation of Prosperity.* New York: Free Press.

Gat, A. 2006.*War in Human Civilization*.Oxford: Oxford University Press.

Gelfand, M. et al. 2011. "Differences between Tight and Loose Cultures: A 33-Nation Study."*Science* 332(6033): 1100-1104.

Goldstein, J. S., 2011. *Winning the War on War: The Decline of Armed Conflict Worldwide*. New York: Plume.

Greene, J., and J. Haidt, 2002. "How (and Where) Does Moral Judgment Work?" *Trends in Cognitive Sciences* 6(12): 517-523.

Haidt, J., and F. Bjorklund, 2008. "Social Intuitionists Answer Six Questions about Morality," *Moral Psychology* 2: 181-217.

Hofstede, G. 1980. *Culture's Consequences: International Differences in Work-Related*

Values. Beverly Hills, CA: Sage Publications.
Hughes, B. B., and E.E. Hillebrand, 2012.*Exploring and Shaping International Futures*. Boulder, CO: Paradigm Publishing.
Human Development Report, 2013.*The Rise of the South: Human Progress in a Diverse World.*New York:United Nations Development Programme.
Huntington, S.P. 1996. *The Clash of Civilizations: Remaking of the World Order.* New York: Simon & Schuster.
Inglehart, R. 1971. "The Silent Revolution in Europe: Intergenerational Change in Post-Industrial Societies," *American Political Science Review* 65(4): 991-1017.
Inglehart, R., 1977. *The Silent Revolution: Changing Values and Political Styles among Western Publics.* Princeton: Princeton University Press.
Inglehart, R. 1990. *Cultural Shift in Advanced Industrial Society.*Princeton: Princeton University Press.
Inglehart, R. 1997.*Modernization and Postmodernization: Cultural, Economic and Political Change in 43 Societies.* Princeton: Princeton University Press.
Inglehart, R. 2008. "Changing Values among Western Publics, 1970-2006: Postmaterialist Values and the Shift from Survival Values to Self-Expression Values," *West European Politics* 31(1-2): 130-46.
Inglehart, R.F., et al., 2014.. "Genetic Factors, Cultural Predispositions, Happiness and Gender Equality,"*Journal of Research in Gender Studies* 4(1): 40-69.
Inglehart R. and W. Baker. 2000. "Modernization and Cultural Change and the Persistence of Traditional Values," *American Sociological Review* 65(1): 19-51.
Inglehart, R. and P. Norris, 2004.*Rising Tide: Gender Equality in Global Perspective.* Cambridge: Cambridge University Press.
Inglehart, R. and D. Oyserman. 2004. "Individualism, autonomy, self-expression and human development." In H. Vinken, J. Soeters, and P. Ester (Eds.), *Comparing Cultures, Dimensions of Culture in a Comparative Perspective*. Leiden, The Netherlands: Brill: 74-96.
Inglehart, R. and E. Ponarin, 2016."Cultural Change, Slow and Fast."*Social Forces* (forthcoming).
Inglehart, R. and C. Welzel, 2005.*Modernization, Cultural Change and Democracy: The Human Development Sequence.*New York: Cambridge University Press.
Inglehart, R. and C. Welzel, 2010. **"**Changing Mass Priorities: The Link between Modernization and Democracy" *Perspectives on Politics* 8(2): 551-567.
Inglehart, R.F., E. Ponarin and R.C.Inglehart (forthcoming)." Cultural Change, Slow and Fast." *Social Forces*.
Kahneman, D. 2011. *Thinking, Fast and Slow*. New York: Farrar, Strauss and Giroux.
Lesthaeghe, R. and Surkyn, J. 1988. "Cultural Dynamics and Economic Theories of Fertility Change," *Population and Development Review,* 141: 1–46.
Lewis-Beck, M. 2005."Election Forecasting: Principles and Practice."*British Journal of Politics and International Relations*, 7:145–164.
Meyer-Schwarzenberger, M., 2014. "Individualism, Subjectivism, and Social capital: Evidence from Language Structures."Paper presented at summer workshop of Laboratory for Comparative Social Research, Higher School of Economics, St. Petersburg, Russia, June 29-July 12, 2014.
Morewedge, C. and D. Kahneman, 2010. "Associative Processes in Intuitive Judgment,"

Trends in Cognitive Sciences 14: 435-440.
Norris, P. and R. Inglehart.2004, 2011.*Sacred and Secular: Religion and Politics Worldwide.*New York: Cambridge University Press.
Norris, P. and R. Inglehart. 2009.*Cosmopolitan Communications: Cultural Diversity in a Globalized World.* New York: Cambridge University Press.

Oyserman, D., H. Coon and M. Kemmelmeier. 2002. "Rethinking Individualism and Collectivism: Evaluation of Theoretical Assumptions and Meta-analyses." *Psychological Bulletin*, 128: 3-72.
Prentice, T. 2006."Health, History and Hard Choices: Funding Dilemmas in a Fast-Changing World. "*Nonprofit and Voluntary Sector Quarterly* 37(1): 63S-75S.
Pinker, S. 2011.*The Better Angels of Our Nature: Why Violence Has Declined.* New York: Viking Press.
Putnam, R.D. 1993. *Making Democracy Work: Civic Traditions in Modern Italy*. Princeton, NJ: Princeton University Press.
Ridley, M., 1996.*The Origins of Virtue: Human Instincts and the Evolution of Cooperation*. London: Penguin Press Science.
Ridley, M. 2011. *The Rational Optimist: How Prosperity Evolves*. New York: Harper Perennial.
Robinson, W. 1950."Ecological Correlations and the Behavior of Individuals." *American Sociological Review*. 15(3):351-57.
Rokeach, M., 1960.*The Open and Closed Mind*. New York: Basic Books.
Rokeach, Milton, 1968. *Beliefs, Attitudes and Values.* San Francisco: Jossey-Bass, Inc.
Rokeach, Milton, 1973. *The Nature of Human Values*. New York: Free Press.
Sanfey, A. G., J.K. Rilling, J.A. Aronson, L.E. Nystrom, and J.D. Cohen, 2003. "The Neural Basis of Economic Decision-making in the Ultimatum Game," *Science* 300(5626): 1755-1758.
Schwartz, S.H. 2006. "A Theory of Cultural Value Orientations: Explication and Applications."*Comparative Sociology,* 5(2-3): 137-182.
Selig, J., Preacher, K., and Little, T. 2012."Modeling Time-Dependent Association in Longitudinal Data: A Lag as Moderator Approach."*Multivariate Behavioral Research*, 47(5): 697–716.
Shcherbak, A., 2014. "Does Milk Matter? Genetic Adaptation to Environment: The Effect of Lactase Persistence on Cultural Change." Paper presented at summer workshop of Laboratory for Comparative Social Research, Higher School of Economics, St. Petersburg, Russia, June 29-July 12, 2014.
Silver, N. 2015.*The Signal and the Noise*. New York: Penguin.
Singh G. and van Dyck P. 2010."Infant Mortality in the United States, 1935-2007." Rockville, Maryland: U.S. Department of Health and Human Services.
Soon, C. S., M. Brass, H.J. Heinze, , and J.D. Haynes, 2008. "Unconscious Determinants of Free Decisions in the Human Brain," *Nature Neuroscience* 11(5): 543-545.

Thornhill, R., C. Fincher and D. Aran, 2009. "Parasites, Democratization, and the Liberalization of Values across Contemporary Countries *Biological Reviews* 84(1): 113–131.

Thornhill, R., C. Fincher, and D.R. Murray, 2010. "Zoonotic and Non-zoonotic Diseases in Relation to Human Personality and Societal Values," *Evolutionary Psychology* 8:151-55.

Toffler,A. 1990.*PowerShift: Knowledge, Wealth, Violence in the 21st Century*.New York:Bantam.

Traugott, M. 2001. "Trends: Assessing Poll Performance in the 2000 Campaign." *Public Opinion Quarterly*, 65(3): 389–419.

Tversky, A. and D. Kahneman, 1974. "Judgement under Uncertainty: Heuristics and Biases," *Science* 185(4157): 1124-1131.

Van de Kaa, D. 2001. "Postmodern Family Preferences: From Changing Value Orientation to New Behavior," *Population and Development Review*, 27: 290-331.

Weber,M. 1904 [1930].*The Protestant Ethic and the Spirit of Capitalism.* London: Routledge.

Welzel, C. 2013. *Freedom Rising: Human Empowerment and the Quest for Emancipation.*New York: Cambridge University Press.

Wilson, T., 2002.*Strangers to Ourselves: Discovering the Adaptive Unconscious*. Cambridge, MA: Harvard University Press.