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Evolutionary Modernization Theory: Why People's Motivations are Changing

Ronald F. Inglehart

University of Michigan, Ann Arbor, USA

Higher School of Economics, Moscow, Russia

ABSTRACT

A society's culture is shaped by the extent to which its people grow up feeling that survival is secure or insecure. This article 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 their group's traditional cultural norms – and conversely that secure conditions lead to greater tolerance of outgroups, openness to new ideas and more egalitarian social norms. Earlier versions of this theory have been presented in publications by Inglehart, Norris, Welzel, Abramson, Baker and others (Inglehart & Baker, 2000; Inglehart & Norris, 2004; Inglehart & Welzel, 2005; Welzel, 2013), and a forthcoming book (Inglehart, 2018) tests this theory more extensively, analyzing survey data gathered from 1970 to 2014 in over 100 countries containing more than 90 percent of the world's population.

KEYWORDS

Modernization, social change, existential security, post-material values, self-expression values

Introduction

For most of history, survival was insecure, with population rising to meet the food supply and then being held constant by starvation, disease and violence. Under these conditions, societies emphasize strong in-group solidarity, conformity to group norms, rejection of outsiders, and obedience to strong leaders. For under extreme scarcity, xenophobia is realistic: if there is just enough land to support

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rfi@umich.edu

one tribe and another tribe tries to claim it, survival may literally be a choice high levels of existential security open the way for greater individual autonomy and more openness to diversity, change, and new ideas.

The concept that deference to authority goes together with xenophobia and other forms of intolerance was first presented in the classic *The Authoritarian Personality* (Adorno, Frenkel-Brunswik, Levinson & Sanford, 1950), which viewed authoritarianism between Us and Them. Under these conditions, a successful survival strategy is for the tribe to close ranks behind a strong leader, forming a united front against outsiders – a strategy that can be called the Authoritarian Reflex. Conversely, as a personality trait caused by harsh child-rearing practices. The Authoritarianism concept was controversial from the start (Christie & Jahoda, 1954), giving rise to an enormous literature. Its original theoretical basis and the instrument originally used to measure it have been largely superseded, but over the past seven decades scores of studies have confirmed that there is a strong tendency for deference to authority to be linked with xenophobia, intolerance and conformity to group norms. This seems to reflect a deep-rooted human reaction to insecurity. A review of a massive body of evidence from surveys, experiments and statistical data concludes that a syndrome of authoritarian racism, political and moral intolerance exists and that it is caused by individuals' innate predispositions to intolerance, interacting with changing levels of societal threat (Stenner, 2005). My own research suggests that given generations tend to have relatively high or low levels of authoritarianism, in so far as they have been raised under low or high levels of existential security.

In the 20th century, industrialization, urbanization and mass literacy enabled the working class to become mobilized in labor unions and Left-oriented political parties, which elected governments that implemented redistributive policies, providing an economic safety net. This was reinforced by the fact that during the decades following World War II, the publics of advanced industrial societies experienced unprecedented levels of existential security as a result of exceptionally rapid economic growth and the absence of war. Their younger members grew up taking survival for granted. This brought an intergenerational value shift from giving top priority to economic and physical security, 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.

Classic modernization theory and evolutionary modernization theory

Modernization theory has a long history. The idea that economic development brings predictable social and political changes has been controversial ever since it was proposed by Karl Marx. It is intellectually exciting because it not only attempts to explain what happened in the past, but also 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 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.

A central 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 perception that survival is insecure, to strategies that take survival for granted and give top 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 authoritarian leaders. Indeed, under conditions of extreme scarcity, survival may require closing ranks in a battle for survival. Since humanity lived at the brink of starvation throughout most of its existence, an Authoritarian Reflex evolved in which insecurity triggers support for strong leaders, strong in-group solidarity, rejection of outsiders, and rigid conformity to group norms. Conversely, high levels of security allow more room for individual free choice and more openness to outsiders and new ideas.

Evolution has shaped all organisms to give top priority to survival. Organisms 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.

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, and survival is such a basic goal that it dominates people's life strategies, influencing almost every aspect of their lives. But in recent decades an increasing share of the world's population has grown up assuming that they will not starve, and in societies where survival is taken for granted, major changes are occurring in job motivations, religion, politics, sexual behavior and how children are raised.

Social change is not deterministic but some trajectories are more probable than others. In the long run, once economic development gets underway, 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, because socio-cultural change is path-dependent and cultural heritages are remarkably enduring. Although classic modernization theorists from Karl Marx to Max Weber thought that religion and ethnic loyalties would die out, religion and nationalism remain major forces. Thus, Protestant societies allowed women to vote decades earlier than Catholic societies; and Japan 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. Even Japan is moving toward gender equality. Value systems reflect a balance between the driving forces of modernization and the persisting influence of tradition.

The exceptionally rapid economic growth and the 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 free choice and self-expression). But this is just one component of a still broader shift from Survival values to Self-expression values (Inglehart & Welzel, 2005, chapter 2) that is transforming prevailing norms concerning politics, religion, gender equality, tolerance of outgroups, and bringing growing support for environmental protection and democratic institutions (Inglehart et al., 2000–2004–2005). 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.

Converging evidence of the importance of existential security

Working independently, anthropologists, psychologists, political scientists, sociologists, evolutionary biologists and historians 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.

Thus, Inglehart, Norris, Welzel, Abramson, Baker and other political scientists and sociologists argue that a new worldview is gradually replacing one that dominated Western society for centuries (Inglehart, 1971–1977–1990–1997; Inglehart & Abramson, 1995; Inglehart & Baker, 2000; Inglehart & Norris, 2004; Norris & Inglehart, 2004; Inglehart & Welzel, 2005). This cultural change is driven by the profound 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. For example, a team of psychologists and anthropologists led by Michele Gelfand distinguishes between cultures that are “tight” versus “loose,” arguing that these qualities are shaped by the ecological and human-made threats that societies historically encountered (Gelfand et al., 2011). 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, a group of biologists and psychologists led by Corey Fincher and Randy Thornhill provide convincing evidence that vulnerability to infectious disease is linked with collectivist attitudes, xenophobia and rejection of gender equality – all of which hinder the emergence of democracy (Fincher & Thornhill, 2008; Fincher, Thornhill, Murray & Schaller, 2008; Thornhill, Fincher & Aran, 2009; Thornhill, Fincher & Murray, 2010). 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, biopsychologist Nigel Barber finds that religion helps people cope with dangerous situations; while religious belief declines as economic development brings greater economic security and health (Barber, 2011). These findings echo the predictions of evolutionary modernization theory.

Working from still another perspective, historian Ian Morris, after examining a vast array of historical evidence, concludes that “each age gets the thought it needs” – with foraging, farming and industrial societies developing appropriate value systems through an evolutionary process rather similar to the one described in evolutionary modernization theory (Morris, 2015).

This article integrates these findings and examines the causal linkages underlying evolutionary modernization. It argues that economic development brings increased economic and physical security and reduced vulnerability to disease – which are conducive to increased cultural openness, which encourages democracy and more liberal social legislation.

This is consistent with classic claims by Theodor Adorno et al. that dogmatism, rigidity, and intolerance become prevalent when people grow up perceiving threats, and with Milton Rokeach’s thesis that existential threats make people paranoid, defensive, and intolerant; absence of threats makes them secure, outgoing, and tolerant (Adorno et al., 1950; Rokeach, 1960). In keeping with these claims, Self-expression values – which include tolerance of homosexuality – are most widespread in prosperous societies with secure living conditions (Inglehart & 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 pervasively from those found in developing societies.

The rise of postmaterialism in the West

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, I argued in the *Silent Revolution* 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).

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 insecure, people give top priority to these Materialistic goals; but under secure conditions, people place greater emphasis on 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: a large share 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). If so, one would expect to find substantial differences between the values of young and old in societies that have experienced rising levels 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 will take 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.¹ 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 cohorts replaced older ones in the adult population. If this was happening, 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 aged, they would come to have the same Materialist preferences as their elders, so the values of society as a whole would not change (Boeltken & 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 Postmaterialist post-war birth cohorts replace older, more Materialistic ones in the adult population, we should witness a gradual shift from Materialist to Postmaterialist values.

The differences between the formative experiences of the postwar birth cohorts and all older cohorts, produced major differences in their value priorities. But these differences didn't become evident at the societal level until 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 at that time was "Do not trust anyone over thirty!"

A forthcoming book analyzes cultural change, using evidence from hundreds of representative national surveys carried out from 1981 to 2014 in more than 100 countries², together with economic, demographic and political data. This massive body

¹ This hypothesis was triggered by indications of intergenerational value change that emerged during the student protest era of the late 1960s and early 1970s.

² For detailed information on the World Value Survey and the European Value Survey see their respective websites: www.worldvaluessurvey.org and www.europeanvaluesstudy.eu

of evidence demonstrates that the predicted intergenerational shift from Materialist to Postmaterialist priorities has been occurring (Inglehart, 2018). But it is only one aspect of a broader cultural shift from Survival values that give top priority to the survival needs, to Self-expression values that emphasize 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.

Cultural change and societal change

Changing values can change societies. A culture is a set of norms and skills that are conducive to survival in a given environment, constituting a survival strategy for a society. 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 highly developed countries have changed profoundly, transforming 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 daughters and then as 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 countries³ (especially Islamic ones) strongly resisting change. In many countries, homosexuality is still illegal, with some countries imposing the death penalty for homosexual behavior. Thus, in recent Egyptian surveys, 99 percent of the population said that homosexuality is “never” justifiable – which means that even the gays were condemning it. For those adhering to traditional norms, these cultural changes are alarming. They have given rise to some of the hottest political issues in developed countries. And they help explain the current conflict between Islamic fundamentalists and Western societies. The publics of

³ 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.

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 of today's 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, Islamic fundamentalists see Western culture as something to guard against.

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 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 indeed 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 much 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 much more difference in the degree of emphasis on Self-expression values between the highly educated people of different nations, than *between* the highly educated and the general public within the same nations (Inglehart & Welzel, 2005, pp. 219–221).

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 this outlook can be affected by current economic and political events, and greatly affected by catastrophic events such as the collapse of the Soviet Union. Such events are rare, but an entire group of countries experienced them in 1989–1991, when communism collapsed throughout Central and Eastern Europe. The people of the Soviet successor states experienced sharp declines in living standards, and lived through the collapse of their social and political systems, and the collapse of 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 factors, then Secular-rational values and Self-expression values would have continued to spread. But if these values are shaped by feelings of existential security, we would expect to find a regression from modern values toward increasing emphasis on Survival values and religion in the ex-Soviet societies. As we see, 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.

An alternative explanation: rational choice

This article argues that whether one has grown up perceiving survival as precarious or secure, together with historical cultural differences, has a major impact on people's behavior – but we should consider a major alternative theory: rational choice.

Two contrasting types of theories are competing to explain how individuals and societies behave: rational choice theories, and cultural models. 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 – all people will make the same choices. This school has developed elegant and parsimonious models, 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 in recent years, incorporating emotional and cultural explanatory factors.

There is no question that conscious choices by political elites can 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 that took place over many decades. Public support for same-sex marriage became increasingly widespread and articulate 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. And 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 & Kahneman, 1974; Wilson, 2002; Morewedge & 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, Rilling, Aronson, Nystrom & Cohen, 2003; De Martino, Kumaran, Seymour & Dolan, 2006; Soon, Brass, Heinze & Heynes, 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 (Green & Haidt, 2002; Heidt & Bjorklund, 2008).

Paradoxically, having emotions is ultimately more rational than being purely rational. 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 if it were profitable. Emotions make it possible for people to work together in trusting, long-term relationships. In the long run, natural selection behaves as if it were more rational than sheer rationality 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 – 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 their environment, the end result often resembles what would emerge from a process of rational choice. Accordingly, cultural change often can be modeled pretty accurately using game theory (Bednar, Bramson, Jones-Rooy & Page, 2010). Rational choice models of cultural change may 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 perfectly 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 complex events with unforeseen consequences, rather than conscious choices.

Slow and fast cultural change

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 slowly, 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). Empirical analysis of the Materialist/Postmaterialist value shift supports the idea that basic

values change gradually, largely through intergenerational population replacement (Inglehart, 1971–1977–1990–1997). Instead of spreading across the entire world evenly, as awareness of the optimal 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 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 & Hillebrand, 2012). And war, crime rates and violence have been declining 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 norms in a much more favorable light than they did decades ago. This could eventually transform what are perceived as socially desirable norms.

In secure advanced industrial societies, 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 have not yet had much impact on their lifestyle norms (Norris & 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 has been largely 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 slightly more Postmaterialist over time.

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 and Self-expression values.

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 such as economic booms or recessions, in addition to population replacement, but in the long run the period effects often 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.

A forthcoming book – *Cultural Evolution: How People's Motivations are Changing, and How this is Transforming the World* – tests these hypotheses against extensive new data.

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