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Amy C. Alexander, Christian Welzel, Ronald F. Inglehart

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Amy C. Alexander[1], *Christian Welzel*[2], *Ronald F. Inglehart*[3]

RISING SUPPORT FOR REPRODUCTIVE FREEDOMS: EMANCIPATORY BREAKTHROUGHS INTO A BULWARK OF TRADITION

This article presents evidence for a rising emancipatory spirit, across generations and around the world, in a life domain in which traditional family, fertility and sex (FFS) norms have been most resistant to emancipatory gains since the ages: reproductive freedoms. We propose an explanation of rising emancipative values that integrates several theoretical approaches into a single idea—the utility ladder of freedoms. Specifically, we suggest that objectively improving living conditions--from rising life expectancies to broadening education to better technologies—transform the nature of life from a source of threats to suffer into a source of opportunities to thrive. As living conditions begin to hold more promise for increasing population segments, societies climb the utility ladder of freedoms: supporting universal freedoms becomes increasingly instrumental to use the opportunities that a more promising life offers. This trend has begun to spill over into a life domain in which traditional FFS norms have until recently been able to block emancipatory gains: reproductive freedoms. We present (1) cross-national, (2) longitudinal, (3) generational and (4) multi-level evidence on an unprecedentedly broad basis in support of this theory.

Key Words: emancipative values - existential opportunities - reproductive freedoms - secular values - sex norms - utility ladder of freedoms

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[1] Georg-August University, e-mail: amy.catherine.alexander@gmail.com

[2] *Corresponding Author*: Christian Welzel, Leuphana University, Scharnhorststr. 1, 21335 Lueneburg, Germany. *E-mail*: cwelzel@gmail.com. *Acknowledgement*: We are deeply grateful to Ronald C. Inglehart (Jr.), Nicolas D. Valentino and Eduard Ponarin for their invaluable contributions to earlier drafts of this article. We take full responsibility for any shortcomings that remain. Part of the research in this article has been funded by a grant from the German Science Foundation (DFG), grant number WE 2266/9-1.

[3] University of Michigan and Laboratory for Comparative Social Research, Higher School of Economics, St Petersburg, Russia; contact information: rfi@umich.edu, 2626 Geddes Avenue, Ann Arbor, Michigan USA 48104

Introduction

With the liberal revolutions of the Enlightenment era, history has taken a sharp turn (Grayling 2007; Goldstone 2009). Before that incision, the story of humanity's emancipatory gains was very short. But ever since, struggles for emancipatory gains--from the abolition of slavery to the enforcement of human rights, democratic principles and anti-discrimination norms—have become a defining feature of modernity (Markoff 1996; Tilly & Wood 2009; Pinker 2011). This does not mean that modern history is an uninterrupted chain of emancipatory triumphs. Quite the contrary, emancipatory struggles have always met the fierce resistance of reactionary forces, including right-wing extremism, religious fundamentalism and violent terrorism (Armstrong 2001; Weinberg & Pedahzur 2004). Nevertheless, social movements, advocacy groups and civil society actors around the world continue to campaign for emancipatory gains, and they have been able to push the frontline of these gains to ever new areas (Clark 2009; Carter 2012).

Recently, the frontline has reached a domain where traditional family, fertility and sex (FFS) norms have been most resistant to emancipatory gains: reproductive freedoms (Kafka 2005; Knudsen 2006). Legalization of divorce, abortion and same-sex marriage, together with laws against the discrimination of homosexuals, mark emancipatory breakthroughs into the embryonic core domain of society: household formation, family life and sexual reproduction (Sunder 2003; Asal, Sommer & Harwood 2012). Here, emancipatory gains touch on a most fundamental domain of freedoms: the possession of our bodies and self-determination over our sexuality. As this article will show, reproductive freedoms represent indeed the latest domain in which we observe a rising emancipatory spirit. Societies that make advancements here usually have already made emancipatory gains in other areas, from civil rights to gender equity.

Emancipatory gains in reproductive freedoms are linked with the 'second demographic transition'—a trend towards later marriage, lower fertility and alternative forms of cohabitation throughout postindustrial societies (Lesthaege 2010). This article examines the motivational force behind these emancipatory gains: rising mass support for reproductive freedoms. Support for these freedoms belongs to a broader set of emancipative values whose general emphasis is on freedom of choice and equality of opportunities. As we will see, however, among the various components of these values, support for reproductive freedoms has emerged more recently and most rapidly.

In *Freedom Rising*, Welzel (2013) formulates a general theory of emancipation to explain emerging emancipative values. But the author does not apply this theory to rising mass support for reproductive freedoms in particular. Given this domain's exceptionally long-lasting resistance against emancipatory gains, this is a critical omission. Hence, our examination aims to fill this gap. To do so, we test the theory of emancipation with respect to reproductive freedoms.

In a nutshell, the theory of emancipation starts from objective improvements in ordinary people's existential conditions. These improvements include higher life expectancies, longer education, broader information access and better technological equipment. If these improvements spread on a mass-scale, the nature of life changes from a source of threats to suffer into a source of opportunities to thrive. In the course of this transformation, people's actions change from what external needs force them to do to what inner drives encourage them to do. Where this happens, societies ascend the *utility ladder of freedoms*: universal freedoms become increasingly instrumental for using the opportunities offered by a more promising life.

The theory of emancipation posits that evolution has endowed humans with the ability to recognize opportunities because this cognitive ability is helpful for navigating life (Woodley 2011). Thus, an objective expansion in opportunities does not escape people's cognition and, hence, induces a corresponding shift in *subjective* values--giving rise to emancipatory orientations that support universal freedoms. This utility-value link is vital to human functioning because it keeps our lives in touch with reality.

Reproductive freedoms are of particular interest in this context. They cover a domain where freedoms are most fundamental because they touch on the possession of our bodies. But throughout history, sexual reproduction has been the domain of life in which tradition proved most powerful in blocking emancipatory gains: bred by religiosity, traditional FFS norms in every culture emphasize family size and high female fertility under male control (Blumberg 2004; Lesthaege 2010). Against this background, rising emancipative values in the domain of reproductive freedoms signal an evolutionary breakthrough in the development of moral systems. This breakthrough testifies to the ascending utility of freedoms—a process induced by expanding opportunity endowments in the lives of increasing population segments.

These propositions have not been tested, which leaves an important gap that this article aims to fill. In so doing, our examination breaks new ground in several ways. To begin with, the literature review shows how a single principle—the utility ladder of freedoms—integrates various separately developed attempts to understand the roots of emancipatory orientations, which—at their apex—spawn support for reproductive freedoms. Second, we examine the impact of an unprecedentedly wide range of opportunity-inducing societal conditions. Third, we pay special attention to dynamic patterns and temporal order in the emergence of emancipative values and opportunity endowments, allowing us to tackle the causal direction in the co-evolution of these phenomena. Finally, we examine emancipative values in the field of reproductive freedoms (henceforth: ERF values) on a wider cross-national and longitudinal basis than ever before, using evidence from all completed waves of the World Values Surveys, with representative samples of the publics of over ninety societies throughout the world, covering a period of almost thirty years.

The article is organized into five sections. Section one outlines how the idea of a utility ladder of freedoms integrates several different explanations of emancipatory orientations into a single framework. Section two derives six specific hypotheses from this framework for testing the theory of emancipation on ERF values in particular. Section three describes the data and methods used to test these hypotheses. Section four reports the findings. The fifth and final section summarizes the results and discusses their implications.

Theory: The Utility Ladder of Freedoms

The idea of a *utility ladder of freedoms* constitutes the central principle of the theory of emancipation (Welzel 2013: 37-56). The idea derives from two premises:

(1) *Variability in Freedoms' Utility*. Legal guarantees of universal freedoms have varying utility for how people master their lives: the utility of such guarantees grows when people's existential conditions embody more options for intentional action. Then, more guarantees are needed to protect the autonomous use of the various available options. With few options for intentional action, extensive guarantees are rather useless.

(2) *The Utility-Value-Link*. Human life strategies are shaped by a utility-value link: people tend to value what is useful for mastering life under given circumstances. This utility-value link is vital to keep human existence in touch with reality. Hence, if expanding existential opportunities enhance the utility of guaranteed freedoms in an *objective* sense, *subjective* values adjust in the same direction, towards supporting universal freedoms, which eventually include reproductive freedoms.

The idea of a utility ladder of freedoms is *im*plicit in various attempts to explain the open-minded, egalitarian and libertarian spirit of emancipatory orientations. Making this idea *ex*plicit, thus, exposes a key point of convergence among separately developed approaches.

One of the earliest works on these types of orientations is Lasswell's (1951) *Democratic Character*. The author argues that emancipatory orientations emerge when people grow up under 'freedom from anxiety' because then they perceive life as an opportunity rather than a threat. Under this condition, universal freedoms appear as a good rather than an evil. Conversely, Adorno et al.'s (1950) theory of the 'authoritarian personality' claims that dogmatism, rigidity and fear from freedoms become prevalent when people grow up under threat perceptions.

In another classic, the *Closed versus Open Mind*, Rokeach (1960) posits that existential threats make people tense, rigid, defensive, and authoritarian; absence of threats makes them relaxed, flexible, opportunity-seeking and libertarian. Research on people's 'regulatory focus' finds the same logic in the guidance of problem solving strategies: exposing people to a threat,

leads them to adopt a 'prevention focus' in which they prioritize failure avoidance at the expense of experimentation; but when confronted with opportunities to gain, people switch into a 'promotion focus' in which they search for novelty, which involves a free play with options (Higgins, Foerster & Idson 1998; Higgins 2005). These situational adjustments take place within the margins of people's general priorities for prevention or promotion, which in turn result from their enduring exposures to existential threats or opportunities. In both cases--momentary adjustments and general priorities--a promotion-leaning orientation means greater openness to freedoms.

Another paradigm in experimental psychology exposes a similar logic. Sidanius, Pratto and Bobo (1994) demonstrate that threat perceptions feed a 'social dominance orientation.' People who feel vulnerable when left on their own seek protection in a strong group. A group is perceived as strong when it is internally cohesive and shows superiority over other groups. Social dominance orientations, thus, support the oppression of deviance in the in-group and the discrimination of deviant out-groups. This is an altogether illiberal attitude. Under absent threats, by contrast, people gain confidence in their individual strength, for which reason they cease to feel a need for group protection. Therefore, weak social dominance orientations make people supportive of universal freedoms (Sidanius et al. 2000).

Studies in practically every country find that whether people perceive life as a source of threats or a source of opportunities is influenced by their socioeconomic status: people in lower status positions are more vulnerable and, thus, more likely to feel threatened. People in higher status positions, by contrast, possess more options and tend to perceive life that way (Stouffer 1955; Sullivan, Pierson & Marcus 1982; Brint 1984; Lamont 1987; Sullivan & Transue 1999). Accordingly, cross-national survey data show that support for right-wing authoritarianism—which cultivates threat perceptions--is most widespread among the 'residual underclass': low-skilled workers in insecure jobs (Jackson et al. 2001; Scheve & Slaughter 2001; Givens 2005; Huddy et al. 2005; Wagner et al. 2006; Coenders, Lubbers & Scheepers 2008).

The same logic that separates different population segments within the same societies also separates entire populations, which are often more distinct than their inner divisions. In fact, even though globalization is changing the geography of socioeconomic differences, these differences are still much larger between than within countries (Firebaugh 2003). Differences in cultural orientations as well are much more pronounced between than within countries, as Inglehart and Welzel (2010) demonstrate with massive evidence from the World Values Surveys. Yet, the logic is the same for both types of differences: existential pressures breed protective orientations that defy universal freedoms; existential opportunities encourage emancipatory orientations that support universal freedoms (Welzel 2013: 105-139).

A powerful shield against emancipatory orientations is traditional religiosity. Decades of research confirm that attachment to religion--irrespective of the specific denomination--preserves traditional FFS norms and, thus, sustains a shield against emancipatory gains, especially in reproductive freedoms (Harkness 1972; Ruether 1974; Peek, Lowe & Williams 1991; Okin 1999; Burn & Busso 2005; Paxton & Hughes 2007). 'Terror management theory' offers an explanation of why religion is most appealing under conditions that favor traditional FFS norms (Becker 1973; Solomon, Greenberg & Pyszcynski 1991). The theory argues that humans need to handle the anxiety that results from their awareness of life's inescapable finality. Ideologies for managing this anxiety—among which is religion—have stronger appeal where existential threats remind people notoriously of death. Religion provides comfort under this condition by the promise of salvation (Jong, Bluemke & Halberstadt 2013). Threat, hardship and misery are also the conditions that bestow utility on FFS norms: under pressure, one's prospects depend on support by one's in-group, whose outlook in turn depends on its size: bigger size means outnumbering competitors for scarce goods. The fact that existential pressure bestows utility on the in-group's 'manpower,' favors norms with a focus on high female fertility under patrilineal control—which is directly contradictory to reproductive freedoms (Blumberg 2004; Hudson et al. 2012). Since religion is more appealing under precisely these conditions, it naturally allies with traditional FFS norms. This connection explains why Norris and Inglehart (2011) find such clear evidence that religion is more attractive to individuals who feel existentially insecure and more vibrant in societies under existential pressures. Secularization is, thus, a preparatory step in opening the gate for rising support for reproductive freedoms.

Woodley's (2011) life strategy model makes a similar point. When societies move up on what he calls a '*k*-factor'—a summary measure of opportunity-rich living conditions—incentives for life time investments change. In line with fertility shift theories (Becker & Barro 1988; Galor 2011), this change can be described as a transition from a quantity-breeding to a quality-building strategy: people invest more time in their own and their offspring's development than in producing large numbers of offspring. As this happens, FFS norms together with their natural ally, religiosity, lose appeal. Consequently, emancipatory orientations are more likely to spill over into the domain of reproductive freedoms.

We suggest that all these views and insights can be condensed into a single proposition: as basic living conditions begin to embody more opportunities to thrive for large population segments, societies climb the utility ladder of freedoms. When life becomes safer, longer and more promising on a mass scale, supporting universal freedoms becomes increasingly instrumental to taking advantage of what is possible. Ascending the utility ladder of freedoms, thus, shifts large population segments into a chronic 'promotion focus.' Existential utilities, thus, shift from *giving* life to actually *living* it. This shift gives rise to emancipative values in various

areas, which eventually begin to include reproductive freedoms—traditional FFS norms' last stand.

Two more qualifications are noteworthy here. First, emancipative values represent a socially *reciprocal* orientation: their emphasis on universal freedoms includes the freedoms of others, which is an attitude that one adopts more easily if others anticipate the favor and also value one's own freedoms. To spread out these reciprocations need widely shared utilities, based on opportunity endowments that are *common* in a society. This proposition suggests that people's emancipative values grow more on the basis of options they share with many others than on the basis of options they have on top of what most others have. The utility ladder of freedoms is about *shared* utilities.

Second, the socialization thesis posits that people's values crystallize under the imprint of existential conditions present during their upbringing (Inglehart 1977; 2008). This thesis offers an additional testing ground for our idea that wider existential opportunities feed emancipative values: if both the socialization thesis and our proposition are accurate, existential opportunities measured over the time of a given birth cohort's upbringing must provide a fairly accurate prediction of the cohort members' emancipative values today.

Hypotheses

These general propositions inform six hypotheses:

1. Cross-nationally, societies whose living conditions embody greater opportunities to thrive for large population segments exhibit higher *mean* levels of ERF values.

2. Longitudinally, societies whose living conditions improved more experienced greater *gains* in ERF values.

3. Generationally, birth cohorts in societies whose formative living conditions were more permissive back in time exhibit stronger ERF values today.

4. Within societies, group characteristics indicating more permissive living conditions favor stronger ERF values among the individuals belonging to these groups.

5. Since people's ERF values are more strongly shaped by opportunities that are socially common than by opportunities that are individually unique, these values are predicted better by societal- than by individual-level measures of permissive conditions.

6. On all these accounts, ERF values ally with secular values, which dissolve the shield that traditional religiosity maintains against emancipatory gains in the field of reproductive freedoms.

Data

Sources and Sample

To measure ERF values we use data from the World Values Surveys (WVS). The WVS completed five waves of representative national surveys from 1981 to 2008, with random samples of adult populations in countries around the globe (for a detailed documentation see: www.worldvaluessurvey.org). Technical measurement details, data sources, descriptive statistics and links to replication data all are documented in detail in the Online Appendix (OA) at www.___.org.

Our evidence base varies with the four analytical angles of our hypotheses, looking at the (1) cross-sectional, (2) longitudinal, (3) cohort-related and (4) multi-level evidence. From the cross-sectional perspective, we explain between-societal differences in ERF values. For this analytical step, we have data from 81 to 93 societies worldwide. As the list of countries and their attribution to global cultural zones in Appendix-Table 1 (OA 1: 6) shows, these societies distribute fairly evenly across all regions of the globe.

From a longitudinal point of view, we explain the direction and amount of change in ERF values among those societies for which a considerable time series exists. This diminishes the sample to about 50 societies. But even this smaller sample includes the societies with the biggest economies and largest populations in each world region, as can be seen from OA 19 (p. 22). The smaller longitudinal sample shows similar variability in the key variables of interest as the larger cross-sectional sample. This is documented in Appendix-Table 9 (OA 15: 33).

In a generational perspective, we explain cohort differences in ERF values within and between societies. Specifically, we expect that the mean level of ERF values in a given birth cohort is predicted fairly well by the respective country's existential opportunities at the time when the members of this cohort were in their teenage years. The variables of interest are available for 85 societies of the cross-sectional sample, each being divided into six successive birth cohorts: (1) respondents born between 1930 and 1940, (2) between 1940 and 1950, (3)

1950 and 1960, (4) 1960 and 1970, (5) 1970 and 1980, and (6) after 1980. Thus, the unit of analysis is (85 * 6 =) 510 country-cohorts.

From the multi-level perspective, we examine how the ERF values of some 118,000 respondents are shaped simultaneously by individual and societal characteristics. Data on the variables of interest are available for 85 societies of the cross-sectional sample. Its composition is documented in Figure 7, which shows again a fairly even representation of all world regions.

As far as one can tell, there is no sampling bias in any of these country selections: we always have a relatively even global coverage and always capture the full range variation among contemporary societies, from developing countries such as Nigeria to developed countries such as Sweden. This is important: to test the idea that opportunity endowments are the 'treatment' that induces ERF values, we need to contrast societies at the extreme ends of opportunity endowments because they represent the treatment/non-treatment contrast most conclusively.

Variables

All variables measuring attitudes are taken from the WVS. Variables measuring structural characteristics of societies are taken from the Quality of Government Dataset (Quality of Government Institute 2010). Without exception, we standardize every variable into a range from minimum 0 to maximum 1, with fractions for intermediate positions. This makes regression coefficients comparable across variables originally measured in different coding schemes.

Our dependent variable, ERF values, is a thirty-point index that measures a respondent's acceptance of homosexuality, abortion and divorce, as documented in OA 1 (p. 4-6). These are the only items that address the theme of reproductive freedoms throughout all consecutive rounds of the WVS. For a longitudinal analysis this is crucial.

The Cronbach's alpha for the three items is .80 on the basis of the country-pooled individual level data and .85 on the basis of data aggregated to the societal level. The three items represent a single dimension within and across global cultural zones (Appendix-Table 1, OA 1: 6). Using from each society (N = 93) the most recent survey, the mean score in ERF values across some 160,000 respondents is .31. The standard deviation is .28.

To measure the prevalence of ERF values throughout each society, we calculate the population average. As the left-hand diagram in Figure 1 shows, the lowest scores in ERF values are found in Bangladesh (.03), Zimbabwe (.05), Jordan (.06) and Nigeria (.09). The highest scores exist in Denmark (.67), Norway (.69), Andorra (.78) and Sweden (.80).

(Figure 1 about here)

ERF values indicate an emancipatory worldview in a broader sense. This conclusion is corroborated by the fact that support for reproductive freedoms represents one of four components in Welzel's (2013) broader measure of emancipative values writ large. The other components include an emphasis on (a) people's voice, (b) personal autonomy and (c) gender equity and are each measured by three items, as shown in OA 2 (p. 7-9). At the individual level, ERF values correlate with emancipative values in these other fields significantly and positively at r = .23 (voice), .25 (autonomy) and .33 (equity). The societal-level correlations are .59, .60 and .73. Nevertheless, ERF values stick out from the other components of emancipative values: they represent an internally more coherent orientation and associate more closely with theoretically expected correlates of an emancipatory worldview.[4] There is also evidence that ERF values represent the frontline where emancipatory gains are both more recent and more contested. This can be seen from the fact that average support for ERF values is lowest (.31 compared to .56 for gender equity, .44 for personal autonomy and .36 for people's voice) and least consensual: the variance coefficient is .90 for ERF values, compared to .75 for people's voice, .70 for personal autonomy and .50 for gender equity.

These patterns qualify support for reproductive freedoms as an orientation that is meaningfully related to other indications of an emancipatory worldview but at the same time distinct enough to justify an analytical focus on precisely this field of emancipative values.

The right-hand diagram in Figure 1 documents the changes in ERF values, from the earliest to the latest survey for the fifty societies of our longitudinal sample.[5] The average time distance covered here is seventeen years (for most societies, the earliest time point is around

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[4] Using the country-pooled individual-level data including the latest available WVS from each of our ninety-three societies (N = 160,000 respondents), the Cronbach's alpha for the three items of emancipative values in the field of reproductive freedoms is .80, which compares to .64 for the three items of gender equity, .35 for the three items of personal autonomy and .40 for the three items of people's voice. What is more, emancipative values in the field of reproductive freedoms correlate at r = .31 with participation in nonviolent social movement activity, .23 with the perception of one's daily tasks as intellectual rather than manual and creative rather than routine-based and .38 with an enlightened, liberal understanding of democracy. The associations with these expected correlates of emancipative values are .22, .19 and .37 for an emphasis on gender equity; .21, .18 and .19 for an emphasis on personal autonomy; and .24, .15 and .22 for an emphasis on people's voice.

[5] Since we are concerned with change in variables that move at glacial pace, it is important to measure change over the largest available time interval. Short-term changes, by contrast, easily capture random fluctuations that are irrelevant in a developmental context. Throughout this article, change in a given variable is calculated by subtracting the earliest score from its latest score. Since all variables are standardized into a range from 0 to 1, changes range from a theoretical minimum of -1 to a theoretical maximum of +1, with 0 indicating no change. The sign of change indicates its direction and the magnitude its amount. Against skepticism in the early literature (e.g., Cronbach & Furby 1970), recent scholarship defends the analyses of change scores as essential to the understanding of dynamic relations (Liker, Augustyniak & Duncan 1985; Allison 1990; Miller & Kane 2001).

1990 and the latest around 2005). The average change score over all fifty societies is +.10. Societies with positive changes above .05 scale points outnumber those with negative changes of that scope by 37 to 5. If we focus on the eleven postindustrial societies (footnoted in Figure 5) that participated in both the first round of the WVS (1981) and the last one (2008), the mean change score over these twenty-seven years is +.20. Across the same societies and time span, similar changes exist for the other components of emancipative values, although on a somewhat narrower scope: +.10 for gender equity, +.12 for people's voice and +.18 for personal autonomy (Welzel 2013: Online Appendix, p. 47-48).

The conditions we measure to explain emancipative values have in common that they embody some sort of an opportunity endowment, be it of an existential, institutional or cultural nature. For instance, there are more opportunities to flourish for wider segments of the population when per capita incomes are higher and more equally distributed, when there is broader access to education and especially higher education, when life expectancies are longer and when less of people's (and especially women's) time is absorbed by raising many children. To measure these very existential opportunity endowments, we use the per capita Gross Domestic Product (GDP) in purchasing power parities, the inverse of the Gini income inequality coefficient, the tertiary enrollment ratio and the years of schooling of the average person in a society, the average life expectancy and the inverse of the female fertility rate, all taken from the year in which emancipative values are measured (OA 6: 15-16).

All six measures converge in a single dimension and the Cronbach's alpha of the six indicators is .85. Thus, we summarize all six measures into an encompassing *index of existential opportunities* as detailed in OA 6. To straighten out a curved distribution, we use a squared version of this existential opportunities index.[6]

A distinct domain of permissive living conditions refers to qualities of a society's institutional order--qualities that make people's lives safer and their options more certain and predictable. We label these qualities bureaucratic integrity, law and order, civil supremacy and administrative accountability. Data on these variables originate in the International Country Risk Guide and summarize expert judgments on safety from the risks of corruption (bureaucratic integrity), disorder (law and order), military takeovers (civil supremacy) and state chicanery (administrative accountability). The Risk Guide's summary indicator of safety from all these

[6] Because of the syndrome character of development, other authors construct similar composite indexes. The exact composition of indicators differs somewhat between these indexes because they are informed by slightly different concepts, such as 'modernization' in the case of Hadenius and Teorell (2005), 'social progress' in the case of Estes (2009) and 'long life histories' in the case of Woodley (2011). By contrast, we are interested in indicators of better existential opportunities, that is, better prospects for a long and prosperous life with rich options for cognitive and other aspects of self-development on a mass basis.

risks (originally named 'political risk'), is labeled *institutional functioning index* here (see OA 9: 19).[7]

Some features of the institutional functioning index are advanced in bureaucratically efficient autocracies, such as Singapore. Thus, institutional functioning is a state quality that does not automatically incorporate democracy. From the viewpoint of permissive conditions, democracy is an inherently relevant institutional quality: democracy provides permissive conditions by entitling people to participate in politics and to vote who governs. When it comes to lasting entitlements, *enduring* democracy is important. To measure enduring democracy we use Gerring et al.'s (2005) 'democracy stock index' (OA 10: 20-21). In addition, we use Welzel's (2013: 253-260) *civic entitlements index* (OA 5: 14).

Besides formal institutions, cultural norms are a source of more restrictive or more permissive living conditions. Gelfand et al. (2011) describe cultures as 'tight' when their norms are rigid and as 'loose' when these norms are permissive. Likewise, Suh et al. (1998) attribute restrictive tendencies to 'collectivist' norms and permissive tendencies to 'individualistic' norms. We use these authors' measures of tightness-vs.-looseness and collectivism-vs.-individualism as documented in OA 10 (p. 20-21). An especially strong manifestation of restrictive cultural tendencies is the prevalence of traditional FFS norms. Reasonable manifestations of these norms' strength are consanguinity and patrilocality (Blumberg 2004; Hudson et al. 2012). Consanguinity describes a pattern in which pre-arranged marriages among distant relatives prevail. Patrilocality is a household formation pattern in which the bride moves into the household of the husband's parents. To measure consanguinity, we use the data from Woodley and Bell (2012). To measure patrilocality we calculate from the latest WVS for each society the fraction of married men above the age of thirty living in their parents' household (see OA 10: 20-21).

An inverse indicator of traditional FFS norms and, thus, a measure of permissive cultural environments is the prevalence of secular values. To measure secular values we use questions from the WVS covering three aspects of religiosity: the importance attributed to religion, self-description as a religious person and frequency of service attendance. As documented in OA 3 (p. 10-12), all three measures are highly correlated across and within culture zones, so we average them and then inverse the average to obtain a measure of secular values--indicating a distance to religiosity. As with emancipative values, to obtain societal-level measures of secular values, we calculate the national averages on the multi-point index of secular values.

[7] Alternatively, we used the 'good governance' indicators from the World Bank labeled 'government effectiveness,' 'regulatory quality,' 'rule of law,' 'control of corruption' and 'nonviolence and stability' (Kaufman et al. 2010). But these indicators show no closer association with emancipative values than do the indicators of the Risk Guide.

Note that, at the societal level, measures of values no longer indicate personal preferences for these values. Instead, they turn into measures of the cultural climate, indicating how prevalent these values are in given societies. Social prevalence measures of values show to what extent personal values represent a collective norm (Welzel 2013: 84).[8]

Yet another domain of permissive conditions is the absence of armed conflict. We use three indicators. Internal peace is the inverse of Gibney, Cornett and Wood's (2010) 'political terror scale,' measuring the absence of state repression and terror inside a society. External peace is the inverse of a society's international conflict involvement, taken from Gleditsch et al.'s (2002) Armed Conflict Dataset. Encompassing peace is the inverse of the 'global peace index' by the Vision of Humanity (2010): in the inversed version, this index measures the absence of both external and internal violence in a society (OA 10: 20-21).

To some extent, every society is influenced by its international environment but this influence is arguably stronger for societies that are more involved in international exchange. Thus, the level of ERF values in a society might reflect its level of exchange with the international environment. Hence, we use indicators of each society's economic, social and political exchange, plus a summary indicator labeled *global exchange index*. The data originate from Dreher, Gaston and Marton (2008) and are documented in OA 7 (p. 17).

Culture zone theories suggest that societies do not indifferently pick up everything from their international environment but are more receptive of trends in societies which they perceive as alike based on cultural similarities (Inglehart & Welzel 2005). Hence, a society's level of ERF values might largely reflect the level of these values in societies belonging to the same culture zone. To test this idea we create an *exogenous contagion index* that assigns each society the average score in ERF values of all other societies of the same culture zone, based on the ten-fold culture zone classification by Welzel (2013: 23-24) (see OA 8: 18).

In examining the cohort pattern of cultural change, we need to extend the temporal perspective and to go back to living conditions that were present several decades ago when older cohorts were in their formative years. Since this temporal extension limits data availability, we focus on two of the most distinct types of permissive living conditions, one of a socioeconomic and the other of an institutional nature: existential opportunities and civic entitlements. Because of data restrictions, we rely on proxy measures of these two variables, using Vanhanen's (2003)

[8] We experimented with different prevalence measures, using the median instead of the mean or the geometric and quadratic means instead of the arithmetic means as well as proportions of respondents scoring in the upper quartiles and quintiles of our multi-point value measures. None of these variants produced stronger results than those obtained by the arithmetic population means.

combined literacy and urbanization estimates as a proxy for existential opportunities and his index of democratization as a proxy for civic entitlements. OA 13-14 (p. 24-25) provide a detailed validation of these proxies.

To examine our theory's micro-foundation, additional predictors of ERF values are introduced at the individual level. These include a summary measure of the other three components of emancipative values (Welzel 2013: 57-104; OA 2: 7-9). The reason is obvious: since ERF values are supposed to grow on the basis of emancipative values in other fields or to co-evolve with these, these other emancipative values should be a significant predictor of ERF values. The same should hold true for individual-level characteristics indicating richer opportunity endowments in an objective sense. Arguably, the best indicator of richer opportunity endowments is one's level of education, which is measured on a nine-point index from incomplete primary-level to complete tertiary-level education. As routine demographic controls, we include female sex (coded 1 for female and 0 for male) and a respondent's year of birth. These variables are documented in OA 18 (p. 32), with descriptive statistics shown in OA 22 (p. 39).

Methods

We explain variation in ERF values on four different bases of evidence. First, we apply correlation and regression analyses to explain contemporary differences in these values between societies, using our cross-sectional sample of 84 to 93 societies. In this analytical step, input variables are taken from the same year as the surveys used to measure ERF values. We use the latest available measure for each society, which spans a period from 2000 to 2008 with 2004 being the mean year of measurement.

Second, we use dynamic regressions to explain the amount and direction of change in ERF values among the 50 societies of our longitudinal sample, based on simultaneous change in those input variables that were significant in the cross-sectional analyses.

Third, we explain cohort differences in ERF values within and between societies by the living conditions that our 510 country-cohorts experienced during the decade in which they spent the majority of their teenage years, using temporally ordered panel regressions.

Fourth, we apply multi-level models to examine how individual and societal characteristics simultaneously shape the ERF values of some 118,000 respondents from 85 societies. Specifically, we test the assumption that opportunities which people have in common with most others in their society enhance their ERF values more pronouncedly than do opportunities which people have on top of what most others have.

The input variables that explain ERF values most consistently throughout each of these four distinct analytical angles pinpoint the most likely causes of this type of orientation. As concerns the causal direction in the relationship between ERF values and its predictors, the longitudinal models in step three are especially indicative because they show the impact of the predictors of these values insofar as they are free from an influence of prior ERF values.

Findings

Cross-sectional Evidence

The first hypothesis suggests that opportunity-inducing conditions in various life domains explain the societies' overall levels of ERF values fairly well. The bivariate correlations in Appendix-Table 4 (OA 11: 22) confirm this suggestion: each of the twenty-eight indications of permissive living conditions correlates positively and significantly with ERF values. One also gets a sense in which domains permissive conditions are particularly important: the indices for existential opportunities, civic entitlements, exogenous contagion, and secular values stick out as the strongest correlates of ERF values, with correlations of r = .79, .78, .76 and .72 in the order just mentioned.

Figure 2 visualizes the bivariate relationship between ERF values and three of their strongest, yet conceptually most distinct, correlates: existential opportunities, civic entitlements and secular values. There is a similar grouping pattern in all three of these diagrams: societies in Sub-Saharan Africa, South Asia and the MENA region beset the lower left-end of the distribution; Western societies led by Scandinavia are at the upper right end; and societies from Latin America and the ex-communist world are found in between.

This pattern is familiar from many studies of social development and no serious scholar would be surprised to rediscover it with whatever *objective* social indicator one uses (Delhey & Newton 2005; Estes 2009). However, we rediscover the same pattern with *subjective* indicators taken from mass survey data. This is surprising given the widespread suspicion that survey measures are not as reliable and comparable as objective social indicators (e.g., Stegmueller 2011). Disconfirming this suspicion, the strong tie of ERF values to existential opportunities and civic entitlements reveals that mass-level subjective values closely reflect objective societal conditions: subjective orientations are in touch with objective realities, as our hypothesized utility-value link suggests. The very existence of this link only makes sense if objective conditions exert selective pressures on the values that people adopt. Since these pressures operate on a mass-scale, their effect is evident in the social prevalence of values.

(Figure 2 about here)

Looking at the strong relationship between secular values and ERF values in the right-hand diagram of Figure 2, China and Vietnam are outliers: they combine strong secular values with *weak* ERF values. Other societies in East Asia--including Hong Kong, Japan, South Korea and Taiwan--also show weaker ERF values than their strong secular values suggest. Arguably, this pattern reflects the role of Confucianism in East Asia. In history, religion was not a formative force of Confucian culture. Thus, religiosity is not the chief preservative of traditional FFS norms in this particular culture. For this reason, strong secular values in East Asia are—in contrast to everywhere else—not an indicator of a permissive culture.

Permissive living conditions are highly collinear across the different domains in which they materialize. This defies a 'kitchen sink' approach that includes many conceptually related predictors at once in a multivariate regression to explain ERF values. Instead, we select one predictor from each domain of permissive conditions and pick the one that shows the strongest correlation with ERF values. Thus, we select existential opportunities from the socioeconomic domain, civic entitlements from the institutional domain, secular values from the cultural domain, and exogenous contagion from the domain of outside influences. In so doing, we cover a maximum diversity of distinct domains and represent each by its strongest indicator.

(Table 1 about here)

Table 1 shows the results of these regressions. In the first model, existential opportunities, civic entitlements and exogenous contagion all show an independent and significantly positive effect on ERF values. Among these three conditions, exogenous contagion associates with a steeper increase in ERF values than do existential opportunities. But the larger T-ratio of the coefficient for existential opportunities indicates that their explanatory power over ERF values is larger than the explanatory power of exogenous contagion over ERF values.

Global exchange, for its part, shows no effect under control of the other variables and is replaced with secular values in model 2 for this reason. Doing so increases the explained variance in ERF values from 72 to 77 percent. It now turns out that secular values associate with the steepest gain in ERF values while existential opportunities turn insignificant. Thus, secular values mediate the effect of existential opportunities: these opportunities contribute to ERF values mostly insofar as they give rise to secular values. Still, our sample includes the distinct group of East Asian societies in which secular values are—in contrast to everywhere else--*not* indicative of a permissive culture. This partly 'suppresses' the effect of secular values on ERF

values. Controlling for this fact by including an East Asia dummy[9], thus, brings the effect of secular values more strongly to the surface. This is evident from model 3.

Establishing purely cross-sectional associations is insufficient for a causal interpretation. Causality involves a dynamic relationship in which *change* in a dependent variable associates with *change* in its presumed predictors. This leads us to our second hypothesis: societies that made bigger progress towards permissive living conditions also experienced larger gains in ERF values.

Dynamic Evidence

We focus on the 50 societies for which we can measure change over ten or more years. On this basis, Appendix-Table 5 (OA 12: 23) correlates change in ERF values with change in those permissive conditions that turned out as the strongest cross-sectional correlates in Table 1.

The longitudinal evidence is more selective than the cross-sectional evidence: fewer variables correlate with ERF values in a dynamic way. Indeed, only secular values, existential opportunities and exogenous contagion retain in the dynamic perspective the positive association with ERF values. Civic entitlements, by contrast, do *not* correlate with ERF values in a dynamic way. Hence, the association of civic entitlements with ERF values in the cross-section lacks a dynamic underpinning. It cannot be causal for this reason.[10]

(Table 2 about here)

The analyses in Table 2 re-examine the bivariate results from Appendix-Table 3 in a multivariate framework, using dynamic regressions. We regress ERF values at the time of the latest survey T_2 on (1) themselves at the time of the earliest survey T_1 and (2) on change from T_1 to T_2 in the predictor variables. Obviously, this is a lagged-dependent variable model, which is one reason why this model is dynamic: under control of the lagged dependent variable, we see for other predictors in the model how much they shift ERF values at T_2 upward or downward from where they were at T_1. The other reason why the model is dynamic is that the predictors themselves measure change. Hence, the regression models show to what extent change from T_1 to T_2 in a given predictor shifts ERF values at T_2 upward or downward from their level at T_1.

[9] China, Hong Kong, Japan, South Korea, Taiwan, Thailand, and Vietnam are coded 1. All other societies are coded 0.

[10] Civic entitlements associate with ERF values in the cross-section merely because of their link to the conditions that do have a dynamic association with ERF values.

Including the lagged dependent variable among the predictors has two more desirable properties. For one, we reduce the problem of endogeneity: should other predictors in the model be endogenous to ERF values in the sense that their change is triggered by the initial level of these values, this is controlled for. Next, we reduce omitted variable bias: lagged ERF values embody virtually every other prior influence on these values, including influences we are unaware of (Pascarella & Wolniak 2004).[11]

Under these premises, the two models in Table 2 show that ERF values have a strong component of temporal self-perpetuation. This is evident from the large coefficients for the lagged dependent variable. Beyond that, an increase from T_1 to T_2 in existential opportunities by one unit shifts ERF values at T_2 upward from its level at T_1 by a .28-unit. A one-unit increase in the mean level of ERF values in other societies of the same culture zone elevates these values by another .27-unit. Expanding civic entitlements show no effect on rising ERF values, confirming the lack of a dynamic association in Table 3.

If we replace change in existential opportunities with change in secular values (model 2), the explained variance increases from 60 to 69 percent. Expanding civic entitlements remain insignificant and exogenous contagion drops in significance. Changing secular values is now by far the strongest predictor: a one-unit rise in secular values yields a .58-unit rise in ERF values. Interestingly, while the East Asia dummy was significant in the cross-section, it no longer is in the dynamic perspective. Thus, a Confucian heritage is linked with a low *level* of ERF values, but it does not hamper the *rise* ERF values.

These findings suggest that the rise of ERF values is *not* induced by improvements in institutional conditions but by improvements in socioeconomic conditions. And this process is mediated by secular values: progress in permissive socioeconomic conditions gives rise to ERF values mostly because this progress strengthens secular values, which melt down the shield that traditional religiosity maintains against emancipatory orientations.

Figures 4 and 5 visualize the sequential dynamic. Figure 4 illustrates the effect of improving existential opportunities on rising secular values; Figure 5 illustrates the effect of rising secular values on rising ERF values. In both figures, the left-hand diagram shows the uncontrolled effect, while the right-hand diagram shows the partial effect under controls.

(Figures 4 and 5 about here)

[11] Against criticism by Achen (2001), Keele and Kelly (2006) defend the use of lagged dependent variables in autoregressive models as appropriate for most cases of application.

Let's focus on the dynamic relationship between secular values and ERF values. There is little correspondence in *absolute* change scores: while the clear majority of societies made gains in ERF values, secular values decreased in almost as many societies as they increased. Especially post-Soviet societies experienced a decrease in secular values. This reflects religion's growing prominence in societies whose failed secular doctrine left an ideological vacuum. Still, the changes in secular values show a strong *relative* correspondence with change in ERF values: when secular values increased more than usual, ERF values also increased more than usual; likewise, when secular values decreased more than usual, ERF values too decreased more than usual. China and Spain provide the most extreme confirmatory cases of this logic: China combines the most unusual *de*crease in both sets of values, Spain the most unusual *in*crease.

Interestingly, the effect of rising secular values on rising ERF values remains completely undiminished when we control for expanding civic entitlements. This is obvious from a comparison of the left-hand and right-hand diagrams in Figure 5.

Figure 4 displays the dependence of rising secular values on improving existential opportunities. The left-hand diagram shows that societies with the least improvement in existential opportunities—namely post-Soviet societies such as Russia, Belarus and Ukraine—experienced a decrease in secular values. Conversely, societies with some of the largest improvements in existential opportunities—including Spain, Ireland and Norway—also experienced the largest increases in secular values.

China, which is a leverage case in Figure 5, is a pronounced outlier in the left-hand diagram of Figure 4, together with Japan: in both cases, change towards secular values is considerably lower than the improvement in existential opportunities over the same period suggests. Partly, these two societies' deviation from the close relationship between improving existential opportunities and rising secular values is explained by the fact that they both started from an unusually high level of secular values: they couldn't get much more secular, even with massively improving existential opportunities. Thus, when we control for the start-level of secularism in the right-hand diagram of Figure 4, China and Japan move closer to the regression line and the fit improves from a 36 to a 44 percent explained variance.

Cohort-related Evidence

Our third hypothesis posits that cohorts whose members grew up at times with more permissive conditions exhibit stronger ERF values today than members of cohorts whose formative phase was characterized by less permissive conditions.

The left-hand diagram of Figure 6 plots the level of ERF values for the members of eight successive cohorts, separately for Welzel's (2013: 23) ten global culture zones. There is an obvious tendency that ERF values increase along the cohort succession in each culture zone. But

the level of the tendency differs between culture zones, and so does its gradient. The level is lowest and the gradient flattest in the Islamic East, Sub-Saharan Africa and the Indic East—the zones with the least permissive living conditions. Conversely, the level of the cohort trend is highest and the gradient steepest in the Western world—the part of the globe with the most permissive living conditions. Ex-communist societies, Latin America and the Sinic East are in between—as they are in terms of permissive conditions.

(Figure 6 about here)

The cohort pattern could reflect a lifecycle effect: younger people are always more emancipatory but become less emancipatory as they age. The right-hand diagram of Figure 6, however, speaks strongly against a lifecycle effect. It shows how the level of ERF values changed in each cohort among the dozen societies for which we have longitudinal evidence from the first to the fifth wave of the WVS, covering almost thirty years. Obviously, birth cohorts did not become less emancipatory as they aged. Instead, they became more emancipatory. Yet, they did become more emancipatory in ways that *reproduce* the cohort differences from almost thirty years before. Thus, even though the time trend strengthens ERF values, the fact that it elevates each cohort from its specific start-level reproduces cohort differences over time.

The socialization thesis posits that cross-sectional cohort differences in values reflect the existential conditions that the members of these cohorts witnessed when they were in their teenage years. If this logic applies to ERF values, we should be able to predict any country-cohort's ERF values by permissive conditions that prevailed in a given country during the decade in which members of the respective cohort spent the majority of their teenage years. If we limit ourselves to reasonably large cohorts per country, we can go back to permissive conditions as far as the 1940s. Thus, we use the above described proxy measures from Vanhanen for a country's existential opportunities and civic entitlements at a given decade to predict the recent ERF values of people in this country who spent the majority of their teenage years in the decade under consideration.

(Figure 7 about here)

If we regress each of the 510 country-cohorts'[12] recent ERF values on existential opportunities and civic entitlements present in the respective country when cohort members were in their teenage years, we obtain the two partial regression plots in Figure 7.[13] The evidence is

[12] Proxy measures of existential opportunities and civic entitlements are not available for all observations because Vanhanen provides measures only for decades in which a society was nationally independent, which is not the case for each of our 85 societies for each decade from 1940-50 to 1990-2000. Thus, OA 13 (p. 24-26) shows results when we impute missing observations and operate with a full data matrix of 510 observations. Results are substantially the same.

[13] The appendix includes a detailed documentation on how this was done and displays the data matrix.

clear: cohort members exhibit stronger ERF values nowadays, the more permissive the conditions of their country were at the time of their upbringing. However, among the two domains of permissive conditions--socioeconomic and institutional--the socioeconomic one is more important: the former explains 32 percent, the latter only 7 percent of the country-cohorts' ERF values (in total, we explain 68 percent of the variance, so the remainder of 29 percent is due to the inseparable overlap between permissive socioeconomic and institutional conditions).[14]

The impact of existential opportunities remains positive and significant when we use an endogeneity-free measure: this measure of existential opportunities is free from an influence of the ERF values of the cohorts grown up a decade before these opportunities. The same does *not* hold true for civic entitlements: de-coupled from the ERF values of the cohorts grown up the decade *before* these entitlements, their influence on the ERF values of the cohorts grown up in the decade *during* these entitlements vanishes entirely. These findings suggest that the effect of existential opportunities on the ERF values of the cohorts grown up during these opportunities is real.

Again, there is two-fold evidence of the mediation of the causal path by secular values: (1) existential opportunities during the decade of a cohort's upbringing explain 38 percent of this cohort's secular values today (controlling for civic entitlements during the decade of a cohort's upbringing, which explain only an insignificant 1 percent of this cohort's secular values today); (2) secular values during the decade of a cohort's upbringing explain 30 percent of this cohort's ERF values today (controlling for existential opportunities during the cohort's upbringing, which explain 12 percent of this cohort's ERF values today). In short, while preceding existential opportunities explain subsequent secular values, preceding secular values explain subsequent ERF values. These results are documented in OA 17 (p. 31).

Multi-level Evidence

The fourth hypothesis posits that there is a solid micro-foundation of our logic: individuals who experience richer opportunities tend to be more emancipatory in their orientation. However, our fifth hypothesis suggests that permissive conditions strengthen people's values more by the *shared experience* of these conditions than by their unique individual experience. Accordingly,

[14] The explanatory power of existential opportunities over emancipative values is as strong for the cohort differences within the same countries (i.e., 64% explained variance) as it is for the country differences within the same cohorts (58%). Also, the spatial relatedness of different cohort observations from the same countries and the temporal relatedness of different country observations from the same cohorts apply to both emancipative values and its predictor variables. Spatial and temporal correlation is, thus, the same on both sides of the equation, which assures comparability.

we expect that the individuals' ERF values are predicted better by societal- than by individual-level manifestations of permissive conditions.

(Table 3 about here)

The hierarchical-linear regressions in Table 3 test these assumptions. The societal-level component of the three models confirms the results of the cross-sectional regressions in Table 1 in a multi-level framework. The novel part are the individual-level effects, all of which point in the expected direction, with emancipative values in other fields and secular values showing the strongest effects on ERF values. However, characteristics of the society in which a person lives strengthen her ERF values more than her own characteristics.[15] For instance, a one-unit increase in a person's education strengthens her ERF values by a .09-unit, whereas as a one-unit increase in the existential opportunities of a person's surrounding society strengthens her emancipative values by a .37-unit. Likewise, a one-unit increase in a person's own secular values strengthen her ERF values by a .18-unit, compared to a .59-unit increase for a one-unit increase in the social prevalence of secular values. In short, living in a secular culture strengthens one's ERF values more than a personal belief in secularism.

(Figure 7 about here)

The relevance of a secular culture is also evident in that it enhances the emancipatory effect of formal education. This is evident from Figure 7 and the cross-level interactions in Table 5: an individual's education strengthens her ERF values more pronouncedly when this education takes place in a more secular society.

Conclusion

Evidence from around the world supports the hypothesis that emancipative values are a cross-fertilization product: they flourish when permissive living conditions become increasingly common and, thus, elevate societies on the utility ladder of freedoms. Today, this is obvious in a domain of freedoms against which traditional FFS norms have shown their longest resistance: reproductive freedoms. To a large extent, support for reproductive freedoms rises through secular values: as they become stronger, they melt down the shield that traditional religiosity maintains against emancipatory gains. These conclusions hold in a global cross-cultural setting, showing no disruption of the general pattern by specific cultural traditions, with the noteworthy exception of

[15] This conclusion is safe because all individual-level variables are centered on their societal mean level. This filters out from the individual-level measures all overlapping variance with similar societal-level measures. Thus, we perfectly separate individual-level and societal-level effects.

East Asia: here the secular legacy of Confucianism has adopted the role of religion in preserving traditional FFS norms.

In the domain of reproductive freedoms, emancipative values are an evolutionary novel orientation that breaks with the ages-old idolizations of heterosexual marriage, childbearing, family size and male-controlled female chastity. If this is a correct characterization, ERF values are a prime indicator of what Pinker (2011) calls the 'escalator of reason.' It would be highly intriguing for further research to find out how these developments relate to the 'Flynn effect'--the rise in average intelligence throughout postindustrial societies (Flynn 2012). Flynn hypothesizes that the rise in IQs indicates an improvement in cognitive capacities that comes with an increased ability for self-transcendence and empathy with remote others. These are key psychological foundations of social justice and social equity norms. Should this turn out to be true, the widely held view that modernity brings technological progress but no moral progress is in serious doubt.

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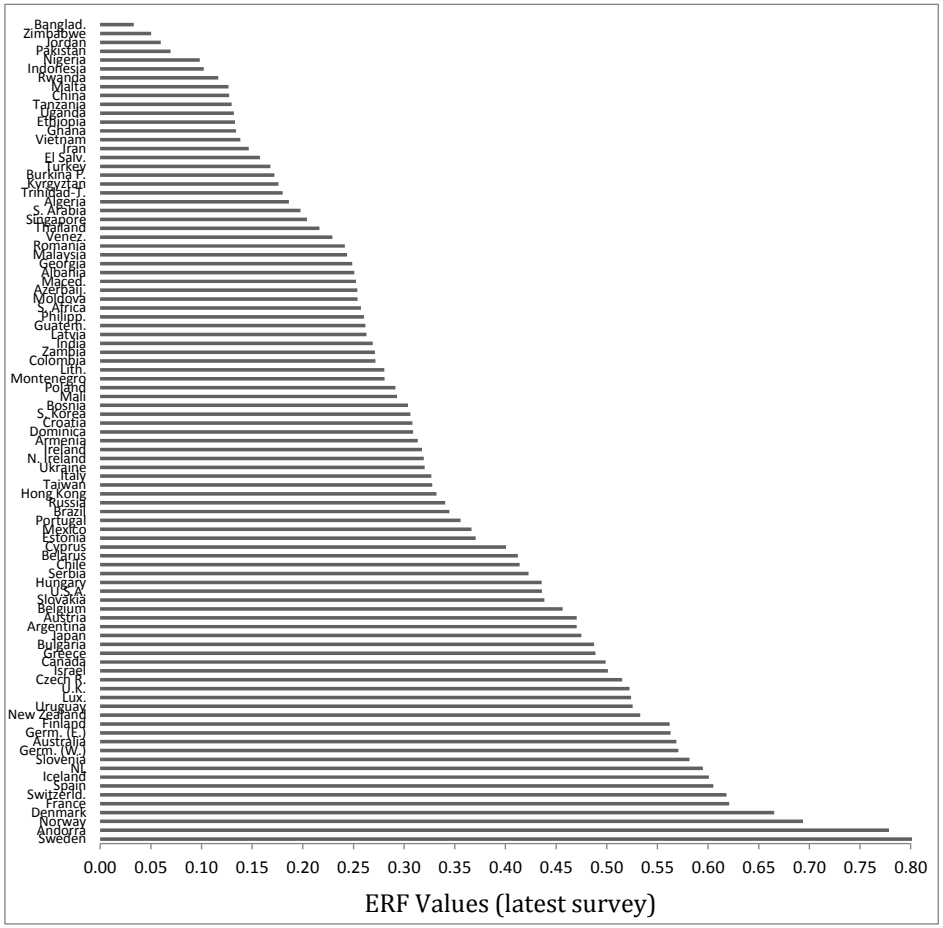
Figure 1. Levels and Changes in Emancipative Values in Reproductive Freedoms (ERF Values)



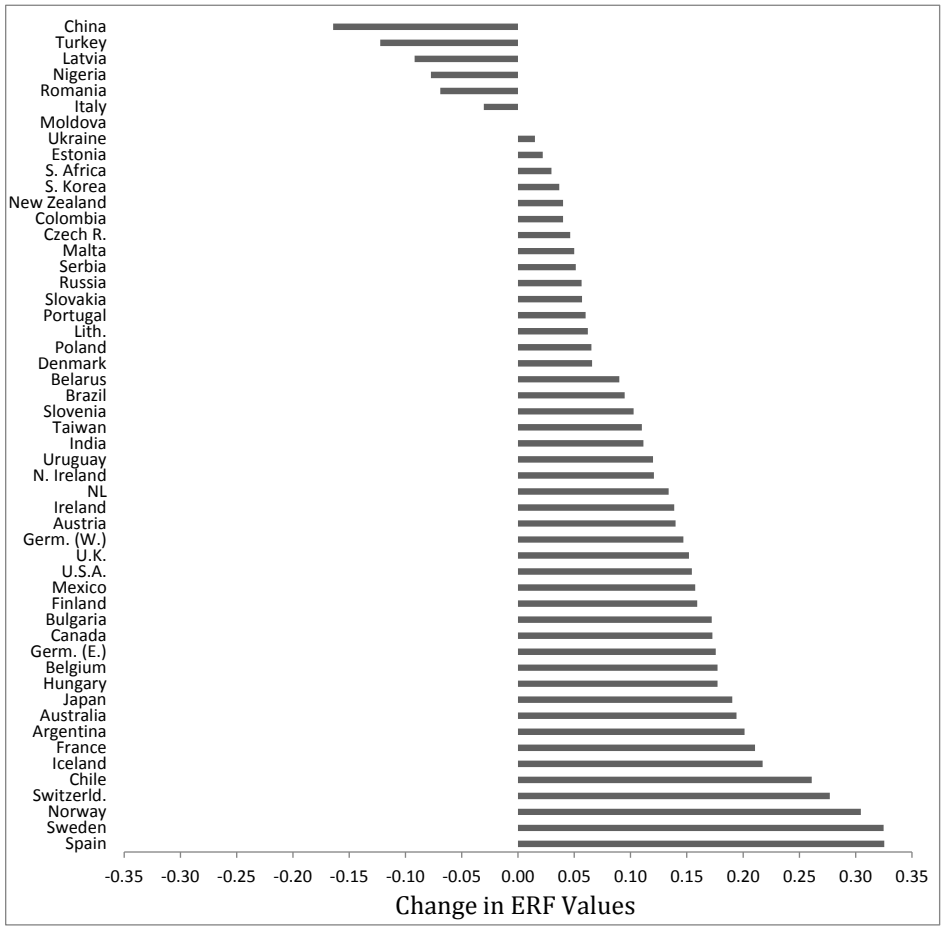
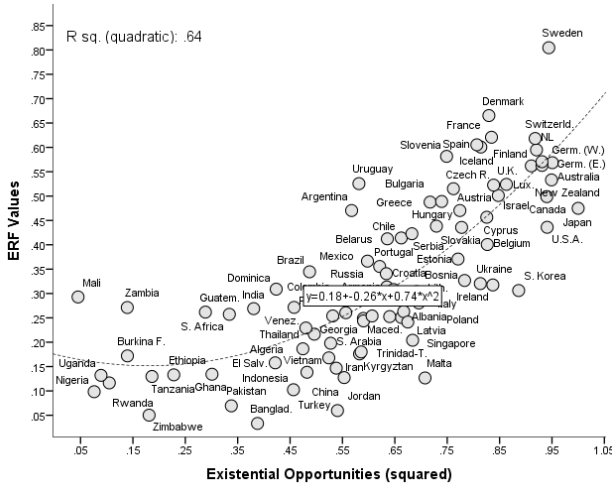
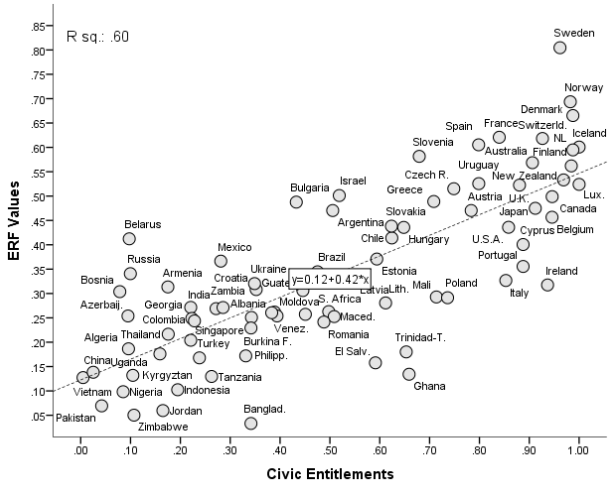


Figure 2. Links between ERF Values and Three Manifestations of Permissive Societal Conditions

Permissive *Existential* Conditions



Permissive *Institutional* Conditions



Permissive *Cultural* Conditions

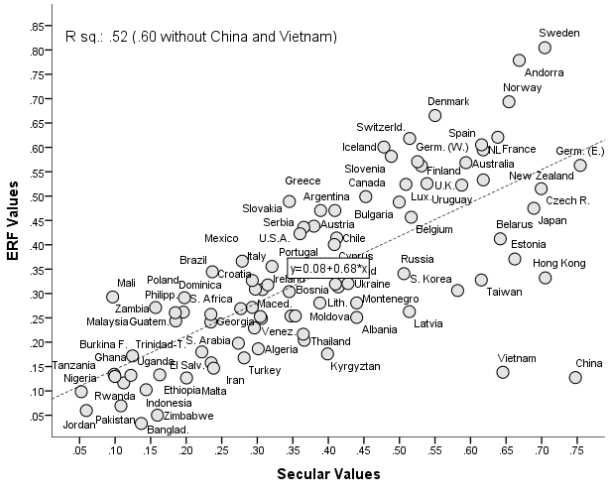
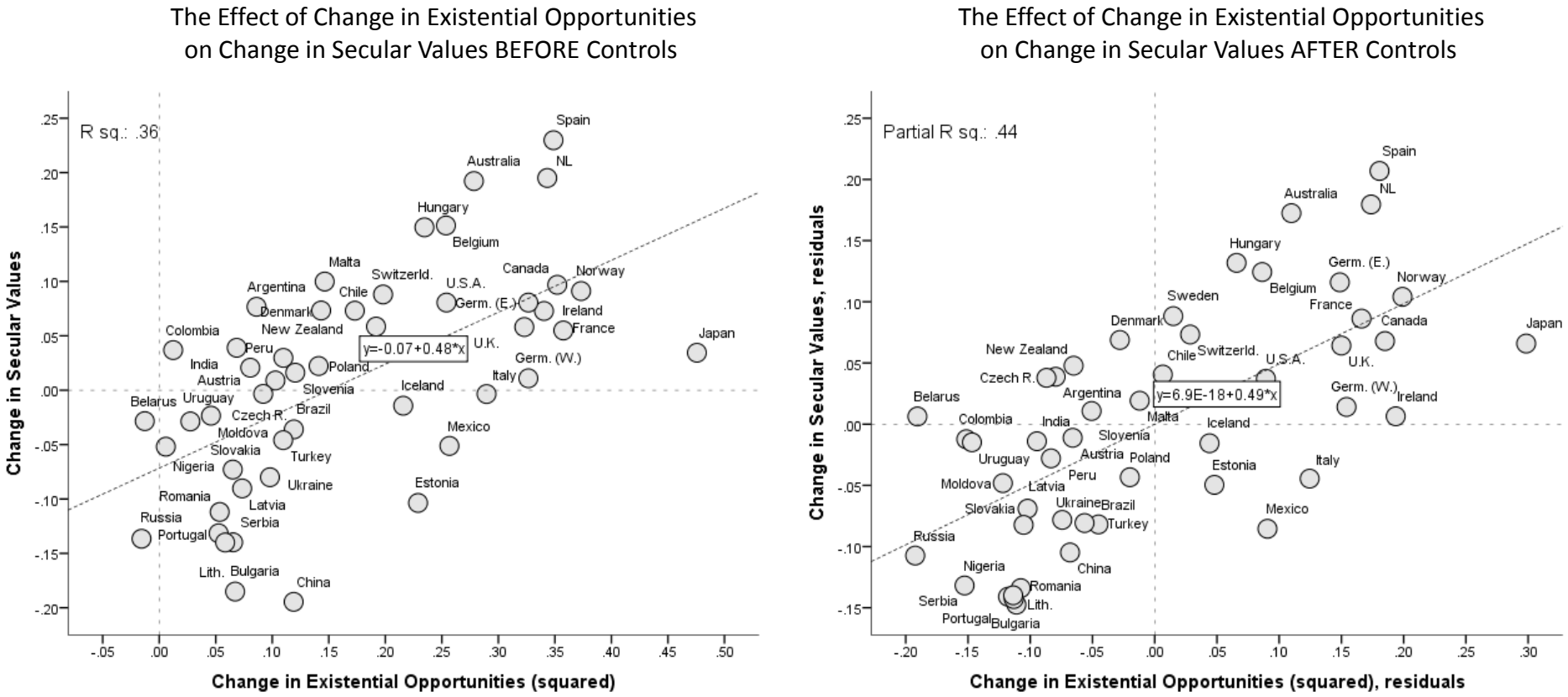
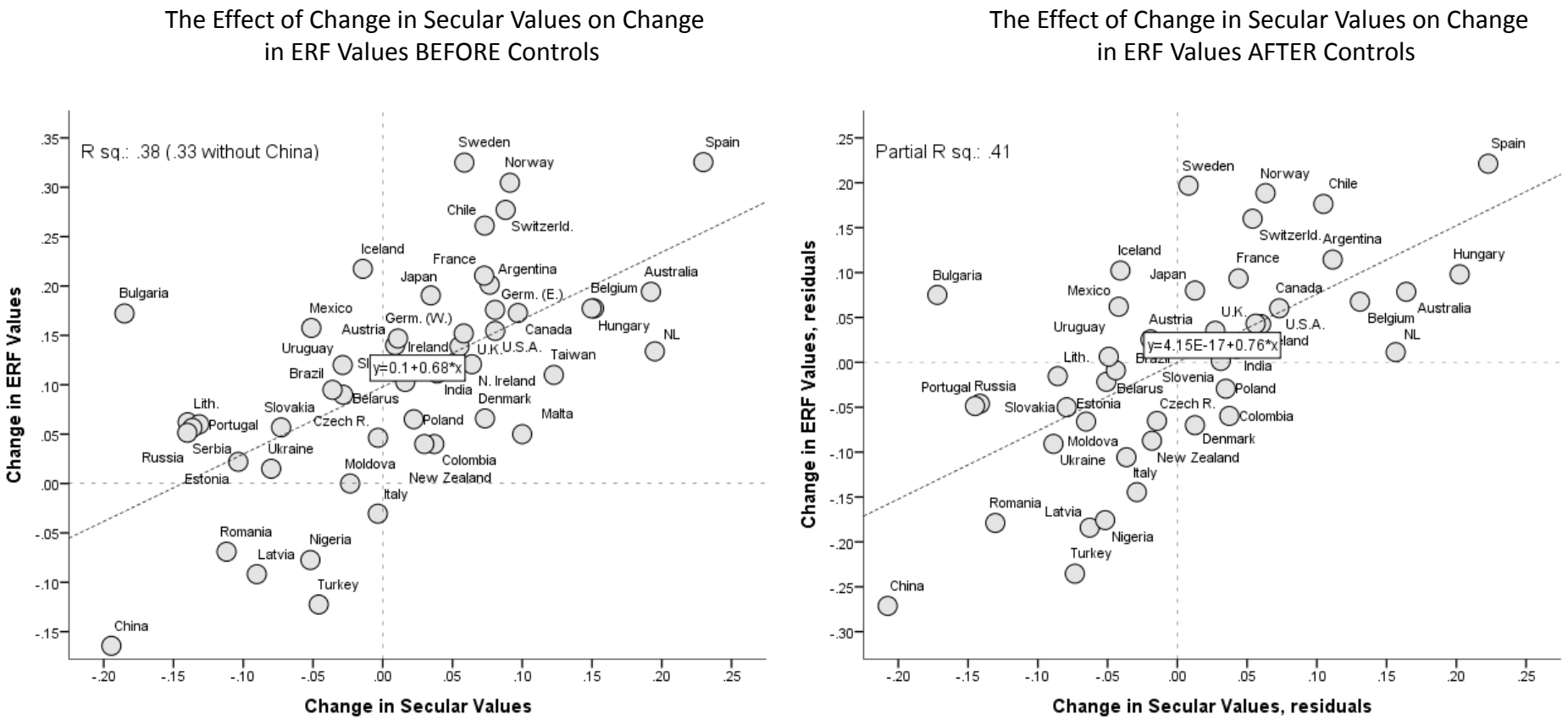


Figure 3. The Dynamic Relationship between Change in Existential Opportunities and Change in Secular Values



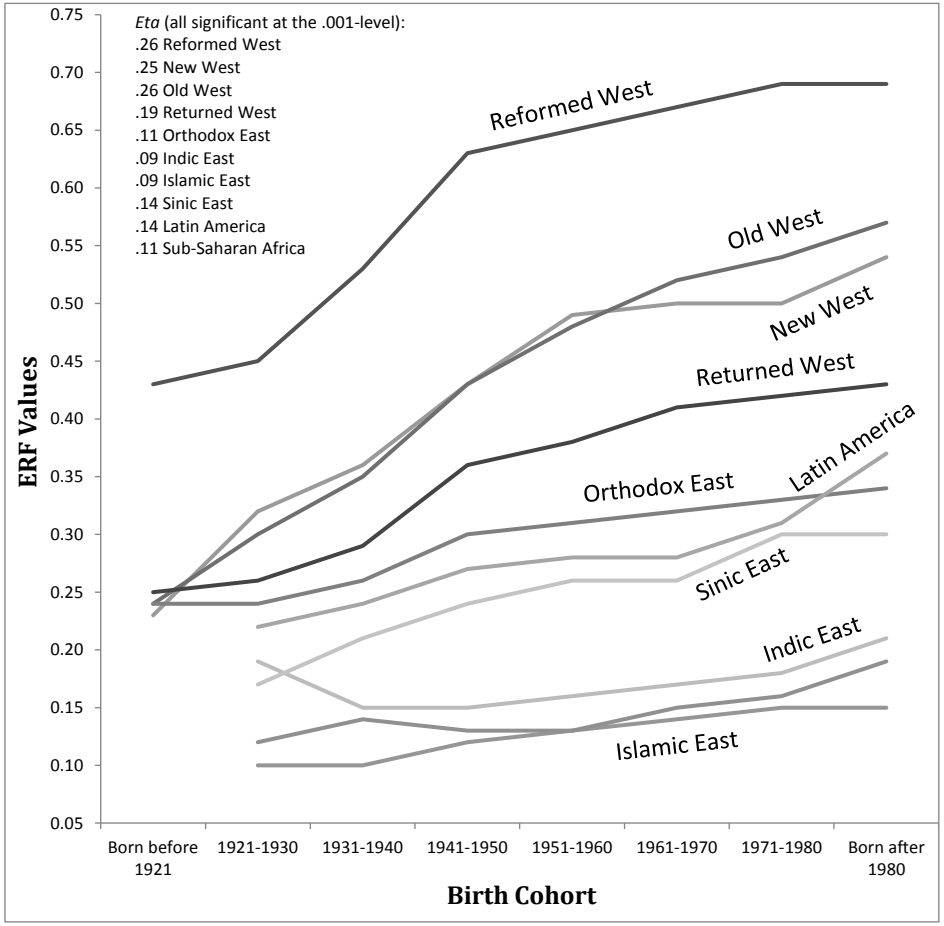
Note: The analyses are limited to societies with an at least ten year time distance between the earliest and latest survey of the WVS. Right-hand diagram controls the relationship for the start-level of secular values.

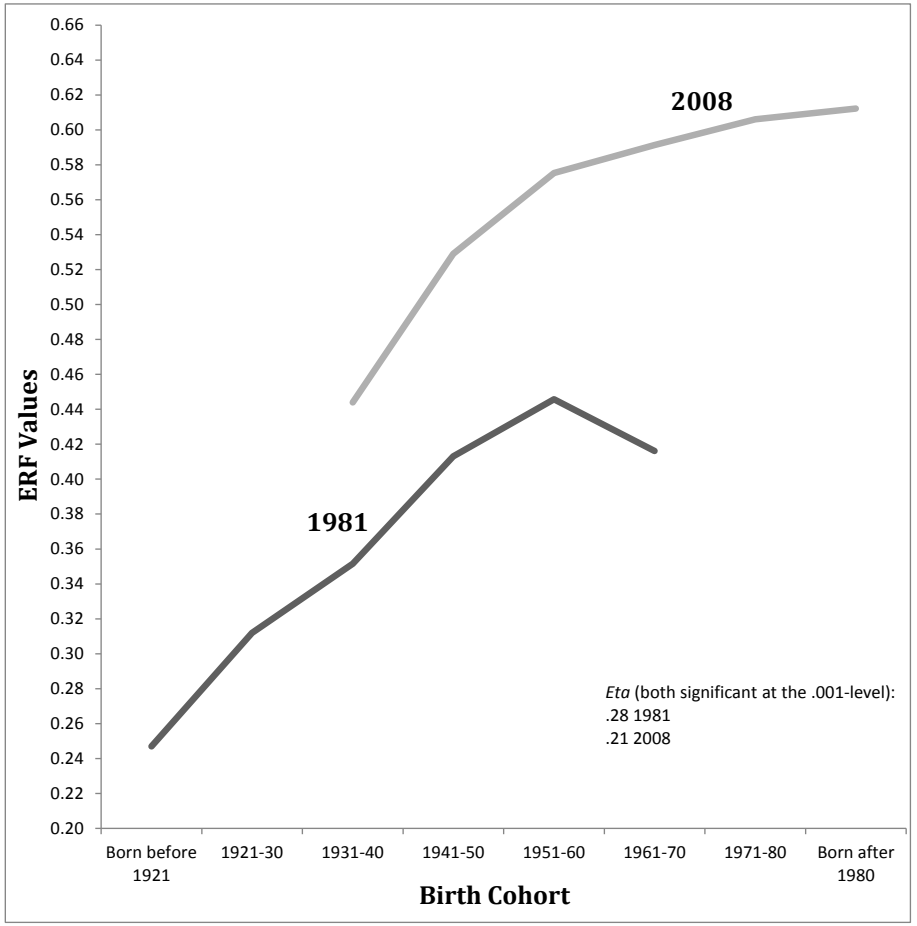
Figure 4. The Dynamic Relationship between ERF Values and Secular Values



Note: Analysis is limited to societies with an at least ten years time distance between the earliest and latest survey in the WVS. Right-hand diagram is the partial regression plot of model 2 in Table 5.

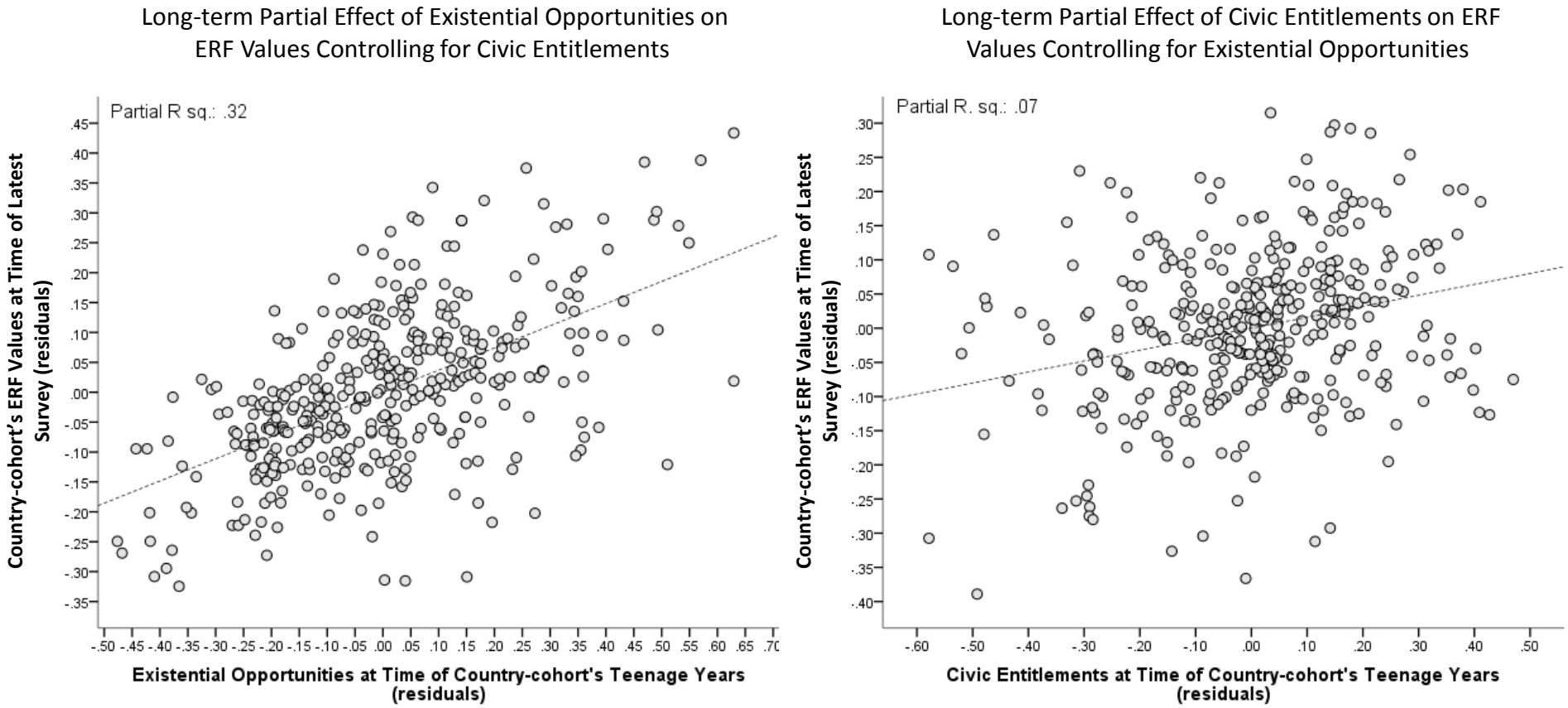
Figure 5. The Cohort-Pattern in ERF Values[16]





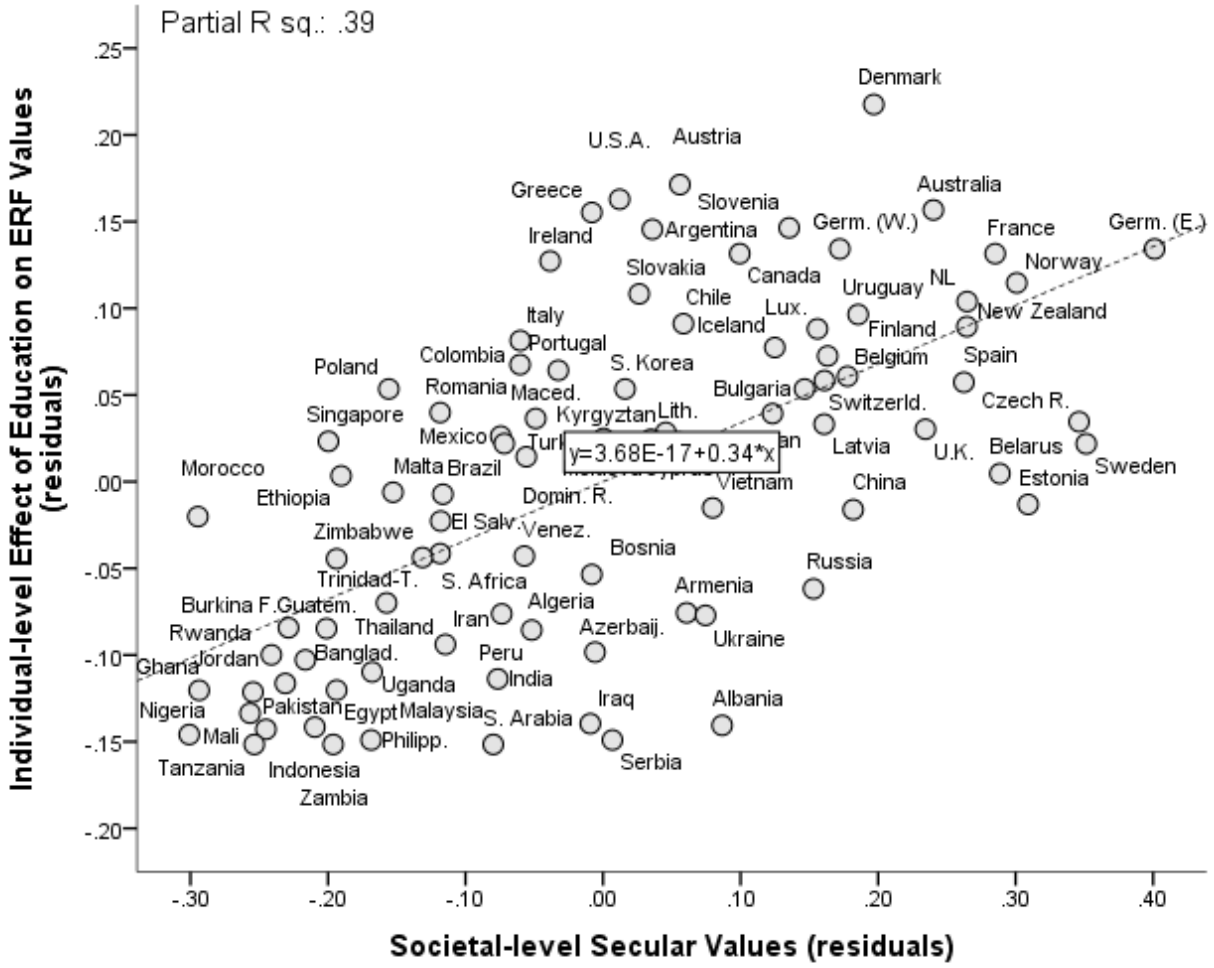
[16] Right-hand diagram limited to societies that participated in both the earliest and latest round of the WVS: Australia, Canada, France, West Germany, Italy, Japan, The Netherlands, Norway, Sweden, U.S.A., U.K. Each sample weighted to equal size.

Figure 6. Predicting the ERF Values of Country-Cohorts by Conditions during these Cohorts' Teenage Years



Note: Unit of analysis are country-cohorts (6 cohorts per 85 societies equals 510 observation units). Existential opportunities proxied by Vanhanen data on the combined literacy and urbanization rate; civic entitlements proxied by Vanhanen's democratization index (see Online Appendix for details).

Figure 7. Variation in Education's Individual-level Effect on ERF Values as a Function of Secular Values at the Societal Level



Note: Data from the latest available surveys of the WVS (2000 – 2008). We see the partial effect under control of the East Asia dummy. The East Asia dummy is a suppressor variable whose inclusion enhances the otherwise partly hidden effect of secular values.

Table 1. Cross-Sectional Explanation of Societal-level ERF Values in Reproductive Freedoms

	DEPENDENT VARIABLE: ERF Values (latest survey, 2000 - 2008)		
PREDICTORS (at time of latest survey):	Model 1	Model 2	Model 3
Constant	-.00 (-0.30) †	-.001 (-.70) †	.010 (.47) †
Existential Opportunities (sq.)	.212 (.98) ***	.050 (.65) †	
Civic Entitlements	.152 (.65) ***	.234 (.66) ***	.258 (.04) ***
Exogenous Contagion	.312 (.41) ***	.201 (.63) †	
Global Exchange	.110 (.96) †		
Secular Values		.344 (.26) ***	.579 (.81) ***
East Asia (dummy)			-.175 (-.05) ***
Adjusted R^2	.72	.77	.82
N (societies)	81	81	84

Notes: Entries are unstandardized regression coefficients with their T-values in parentheses. Test statistics of heteroskedasticity (White-test) and multicollinearity (variance inflation factors) reveal no violation of OLS assumptions. However, the DFFITs identify China as an influential case (outlier). Removing it, increases the explained variance by 2 to 3 percent in Models 1 and 2 and elevates the T-value of Secular Values above that of Civic Entitlements. Significance levels: * $p \leq .100$; ** $p \leq .050$; *** $p \leq .005$; † not significant ($p > .100$).

Table 2. Dynamic Models Explaining the Shift in ERF Values from the Earliest to Latest Survey with Change in Predictor Variables

PREDICTORS:	DEPENDENT VARIABLE: ERF Values at T_2 Model 1		Model 2	
Constant	-.02	0	.05	0
	(.28)†		(.94)†	
ERF Values at T_1	.85	4	.84	5
	(.71)	***	(.25)	***
Δ (T_2 - T_1) Exist. Opportunities (sq.)	.28	2		
	(.37)	**		
Δ (T_2 - T_1) Civic Entitlements	-.010	.14)	.04	0
	(-†		(.75)†	
Δ (T_2 - T_1) Exogenous Contagion	.27	2	.18	1
	(.20)	**	(.82)	*
Δ (T_2 - T_1) Secular Values			.58	4
			(.19)	***
East Asia (dummy)			-.030	.63)
			(-†	
Adjusted R^2	.60		.69	
N (societies)	47		49	

Notes: Entries are unstandardized regression coefficients with their T-values in parentheses. Test statistics of heteroskedasticity (White-test) and multicollinearity (variance inflation factors) reveal no violation of OLS assumptions. Influential case diagnostics (DFFITs) identify China as a leverage case. Excluding China, the coefficient for change in Secular Values drops somewhat (*b* = .58) and so does the T-value (3.71) but it remains the most significant and strongest effect. Significance levels: * *p* □ .100; ** p □ .050; *** p □ .005; † not significant (*p* □ .100).

T_2: Time of latest survey if at least ten years after first survey (15

	surveys from WVS round 4 with modal year 2000 and 37 surveys from round 5 with modal survey year 2006; mean year of T_2 is 2004)
T_1:	Time of earliest survey if at least ten years before last survey (23 surveys from WVS round 1 with modal survey year 1982, 22 surveys from round 2 with modal survey year 1990 and 7 surveys from round 3 with modal survey year 1996; mean year of T_1 is 1987).
Δ (T_2 - T_1):	Minimum time distance is 10 years, maximum is 27 years, mean time distance is 17 years.

Table 3. Multi-level Models Explaining Individual Respondents' ERF Values

	DEPENDENT VARIABLE: ERF Values (latest survey, 2000-2008)		
PREDICTORS (at time of latest survey):	Model 1	Model 2	Model 3
Constant	.33 (31.34)***	.33 (39.63)***	.33 (39.02)***
Societal-level Effects (SL):			
Civic Entitlements	.17 (2.95)**	.20 (5.46)***	.23 (6.92)***
Exist. Opportunities (sq.)	.37 (.875)***	.07 (1.36)†	
Secular Values		.54 (6.22)***	.59 (8.29)***
East Asia (dummy)	-.09 (-3.07)***	-.16 (-4.56)***	-.16 (-4.29)***
Individual-level Effects (IL):			
Female Sex	.02 (6.86)***	.02 (6.85)***	.02 (6.86)***
Birth Year	.11 (9.50)***	.11 (9.51)***	.11 (9.50)***
Formal Education	.09 (13.40)***	.09 (13.79)***	.09 (13.81)***
Other Emancipative Values	.18 (11.27)***	.18 (11.27)***	.18 (11.27)***
Secular Values	.18 (20.27)***	.18 (20.50)***	.18 (20.44)***
Cross-level Interactions:			
Education*Entitlements	.12 (3.84)***	.13 (4.63)***	.13 (5.74)***
Education*Opportunities	.08 (2.10)**	-.01 (-0.15)†	
Education*Secular Values		.16 (3.00)	.16 (4.12)

					***			***		
	Education*East Asia	-0.11)	.00	(†	-0.97)	.02	(-†	-0.62)	.02	(-†
Error Reduction (%):										
	IL-Variation of DV		13.9%			13.9%			13.9%	
	SL-Variation of DV		69.1%			81.1%			81.0%	
	Education's IL-Effect		49.9%			54.7%			55.5%	
N (observations)					118,298 individuals in 85 societies					

Notes: Entries are unstandardized regression coefficients with T-ratios in parentheses (based on robust standard errors). Models calculated with HLM 6.02. Samples weighted to equal size, using the latest survey from each society (2000-2008). Reduction of error calculated from change in random variance component relative to the empty model. All individual-level variables (except female sex) are country-mean centered; societal-level variables (except East Asia dummy) are global-mean centered. 64% of the variation in ERF values is at the individual level, 36% at the societal level (i.e., intra-class correlation: .60). Significance levels: * p □ .050; ** p □ .010; *** p □ .001; † not significant (p □ .050).

Amy C. Alexander
Georg-August University, e-mail: amy.catherine.alexander@gmail.com

Christian Welzel
Corresponding Author: Christian Welzel, Leuphana University, Scharnhorststr. 1, 21335 Lueneburg, Germany. *E-mail*: cwelzel@gmail.com. *Acknowledgement*: We are deeply grateful to Ronald C. Inglehart (Jr.), Nicolas D. Valentino and Eduard Ponarin for their invaluable contributions to earlier drafts of this article. We take full responsibility for any shortcomings that remain. Part of the research in this article has been funded by a grant from the German Science Foundation (DFG), grant number WE 2266/9-1

Ronald F. Inglehart
University of Michigan and Laboratory for Comparative Social Research, Higher School of Economics, St Petersburg, Russia; contact information: rfi@umich.edu, 2626 Geddes Avenue, Ann Arbor, Michigan USA 48104

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