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## **Do Equal Rights for a Minority Affect General Life Satisfaction?**

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**Abstract** While previous research examines how institutions matter for general life satisfaction and how specific institutions embodying equal rights for gay people matter for the life satisfaction of gays, we combine these two issues to analyze how the latter type of institutions relates to general life satisfaction. The question is how people in general are affected by laws treating everyone equally irrespective of sexual orientation. We find that legal recognition of partnership, marriage and adoption rights, as well as an equal age of consent, relate positively to general life satisfaction. Consequently, same-sex marriage and similar reforms come at no “welfare” cost to society at large – if anything, the opposite appears to hold. We further build on previous research showing positive effects of economic freedom on happiness *and* on tolerance towards gay people and interact our rights measure with economic freedom. This reveals that the positive effect on general happiness of equal rights mainly appears in countries with low economic freedom. This likely follows because minority rights are perceived to indicate openness to much-desired reforms in other areas.

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**JEL codes:** I31; Z13; Z18

## 1 Introduction

The literature on life satisfaction has generated a great number of insights.<sup>1</sup> One of them is the importance of certain formal institutions, pertaining to political, economic and judicial life, and some informal institutions, such as social trust and tolerance (see, e.g., Bjørnskov and Tsai 2015; Frey and Stutzer 2000; Helliwell and Huang 2008; Inglehart et al. 2008). An important aspect of these findings is that they can inspire political discussions and be taken into account by policymakers. Indeed, one normative view of politics is that it should aim at maximizing aggregate or average life satisfaction through specific policies (Layard 2006; Radcliff 2001) or at facilitating happy lives through the setting up of institutions that allow for processes that in turn enable citizens to find life satisfaction (Frey and Stutzer 2009, 2012). If so, it becomes central to find out which policies or institutions that have these desired beneficial consequences.<sup>2</sup>

However, the political applications of happiness research are almost always (implicitly or explicitly) focused on what happens to the happiness of *most* people, or the average person, reflecting an inherently Benthamite conception of the public good. This gives cause for concern that the interests of minorities are not taken into account when policies and institutions are designed. It is well-known, from political theorists in the 19<sup>th</sup> century onwards, that an unbridled majoritarianism can lead to “a tyranny of the majority” (De Tocqueville 2010 [1835]; Mill 2007 [1859]), in which minorities are ignored or even oppressed. Yet, treating minorities equally, in legislation and otherwise, may not necessarily be detrimental to the majority and could be beneficial.

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<sup>1</sup> We use life satisfaction and happiness interchangeably throughout the text.

<sup>2</sup> This is not to say that actual politics always or typically works like this: as we expand upon in our theory section, political decision-makers may either have other ideological goals than happiness or be self-interested and simply care about what benefits themselves. Still, our operating assumption is the relevance of general happiness as a normative goal.

If general happiness is the goal, it therefore becomes relevant to investigate how it is affected when a minority is treated like the majority by certain formal institutions. This is of interest both for normative evaluation and positive analysis (in terms of how it influences the political process). If general life satisfaction is going to be reduced, political resistance to reforms that “upgrade” the legal status of minorities is to be expected; while reforms become more probable if people in general expect to derive satisfaction from their implementation.

Equal rights for gays and lesbians have become more widespread in large parts of the world, but this minority is still legally discriminated against in many countries (ILGA 2015).<sup>3</sup> This offers data variation that allows us to study how legal institutions that entail equal rights for gays and lesbians in three areas – (absence of) persecution, recognition and protection – relate to the happiness of the general population. Do people in general experience more or less happiness as gays and lesbians are treated better legally – or is there no effect? One could think that the latter alternative is the more probable one, if for no other reason than gays and lesbians being a relatively small minority. A study from the United States indicates that about 2 % identify themselves as gay or lesbian, while about 7 % have engaged in same-sex sexual behavior (Gates 2011); Twenge et al. (in press) estimate the latter figure to be 8–9 % (a doubling from the early 1990s). Such figures are likely to underestimate the true numbers due to some stigma still being attached to answer questions with regard to sexual orientation and experience; and moreover, as gays and lesbians are increasingly “coming out”, there are more non-gay people that know and care for someone who is gay or lesbian.

Our study builds on two previously explored research questions: how basic political, legal and economic institutions relate to general life satisfaction, and how a specific set of institutions – equal rights for gay people – relates to the life satisfaction of gays. The first issue is explored by several studies that suggest the importance of both consequential and procedural aspects of political, economic and legal institutions (e.g., Bjørnskov et al. 2010; Frey and Stutzer 2000; Gehring 2013; Helliwell and Huang 2008; Ovasaka and Takashima 2006; Rode 2013). Disentangling the causal relationship Rode (2013) specifically finds evidence of a channel from economic freedom to happiness. The second issue was recently

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<sup>3</sup> On the spread of sexual freedom more generally, see Alexander et al. (in press).

pioneered by Berggren et al. (in press), who find that the life satisfaction of gay men stands in a strong positive relation to being included legally on equal terms. Our contribution is to analyze how equal rights for gays and lesbians influence the life satisfaction of the predominantly heterosexual majority, and how this relationship varies across levels of institutional quality.

Our empirical study is a cross-country panel data analysis for 93 countries. The main finding is that two of the three categories of rights – (absence of) persecution and protection – are not related to general happiness in a statistically significant way. However, the remaining area, recognition, displays a positive association with general happiness, indicating that same-sex marriage or partnerships, gay and lesbian adoption rights and an equal age of consent comes with higher life satisfaction in the overall population. This could either be because people are altruistic and care for the legal inclusion of the gay and lesbian minority, because they take this to imply social progress more generally, or because they welcome incentives for more stable family lives also for gays and lesbians. However, the relation could also come about because the introduction of recognition rights reflects other processes in society. In all, our findings suggest that equal legal treatment of this minority does not come with a general welfare cost – if anything, the opposite seems to hold.

To test how the relationship varies across levels of institutional quality we interact the equal rights measures with the economic freedom index, which indicates whether improved general life satisfaction associates with more or less market orientation. This exercise is based on previous studies showing, on the one hand, that economic freedom is related to happiness (Bjørnskov et al. 2010; Gehring 2013; Rode 2013) and that it, on the other hand, is related to tolerance towards gays and lesbians (Berggren and Nilsson 2013, in press), indicating a potential link. Interestingly, we find that the positive estimate of recognition is present only in countries with low economic freedom, which we interpret as a result of people in these regulated countries associating legal recognition of gays and lesbians with general social progress. Lastly, we perform some tests of interpretation and some sensitivity checks that indicate that our results are robust.

## **2 Theoretical Considerations**

Our theoretical considerations concern the relationship between equal legal treatment irrespective of sexual orientation and general happiness; why this relationship can be

affected by the character of economic-legal institutions; and why the findings matter for what political decisions that are taken.

## 2.1 Equal Legal Treatment and General Happiness

Legal inclusion of gays and lesbians on equal grounds can give rise to either a negative, a positive or no effect on general life satisfaction.<sup>4</sup> We ask what speaks in favor of each of these options.

We note three ways in which *a negative effect* can arise. *First*, one potential mechanism rests on most people following a set of common norms and believing them to be proper. If most people regard legal inclusion as a violation of their norms of what is permissible, general life satisfaction could decline when particular minorities are legally recognized and included. For example, many religious people interpret their holy scriptures such that same-sex behavior is immoral and should be counteracted – not allowed or supported – by the state. *Second*, similar effects could arise if sufficient shares of the population are sexually prejudiced, i.e. harbor personal negative attitudes against gay and lesbians (see Herek 2000), such that legal inclusion may appear illegitimate. *Third*, a negative effect on general life satisfaction could also occur if people consider such inclusion costly. This would be rational if legal recognition includes the extension of various financial rights to same-sex couples or by having the legal or social-welfare system handle more cases. In all of these cases, people will react negatively when noting a greater legal inclusion of gays and lesbians on equal terms and general happiness will decrease as a result.

*A positive effect* can, in contrast, arise if most people support legal inclusion. Such support can be based on at least three types of (not mutually exclusive) considerations. *First*, people can hold encompassing, other-regarding preferences and thus be empathetic towards this minority and therefore care about their happiness. If legal inclusion makes gays and lesbians better off, which Berggren et al. (in press) show to be the case, this makes the majority better off as well. One could describe this as many in the heterosexual population having the utility of gay and lesbian people in their own utility function with some positive weight (where

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<sup>4</sup> Different persons can be affected differently, so there can be negative, positive and no effects at the same time in a population. What we discuss here and later capture empirically, however, is the average or dominant effect in a country.

one could envisage the weight to be larger the closer someone is to someone who is gay or lesbian, e.g., a family member). *Second*, people may welcome equal rights if they see minority inclusion as an indicator of general social progress that will benefit themselves as well in the future. The latter mechanism is akin to Hirschman and Rothschild's (1973) tunnel effect: seeing others moving ahead can increase satisfaction, even if one is stuck oneself, if it is taken as an indication that one will move ahead oneself in the near future. It may also be the case, as argued by Inglehart and Abramson (1999), that inclusiveness towards gay and lesbians is a useful indicator of tolerant attitudes overall – suggesting, in this case, that people interpret affirmative reforms for this minority as an indicator that reforms in other areas will probably follow, to their benefit. However, if most people are generally socially conservative and do not want social or legal change in various areas, then the positive effect is transformed into a negative one; see the preceding paragraph. If, on the other hand, the preferences for life choices are particularly diverse, the effect is likely to be positive and stronger than in less diverse countries. *Third*, in the area of family law, people in general may regard it as socially beneficial if more people form stable relationships and create families. This may hold also for conservatives who otherwise are not fond of homosexuality but realize that it is better that the institutions support caring forms of life (see Sullivan 1989 for an argument along these lines).

*No effect* is the last possibility. If the majority does not care much one way or the other about the legal inclusion of gays and lesbians, more equal inclusion will not affect general life satisfaction. It could be that most people are indifferent on this kind of matter, or that approximately equal shares of the population hold opposing views. Even though vocal advocates of reform and vocal opponents thereof dominate the media, this does not mean that people in general care (at least not very much, in comparison with other factors in life that affect their life satisfaction) or that they come to agree.

## 2.2 Interaction Effect of Economic Freedom

As mentioned, previous empirical research has documented a positive relationship between the degree to which economic-legal institutions are market-oriented, as measured by the economic freedom index, and happiness. Moreover, economic freedom has been shown to relate to tolerance towards gays and lesbians as well,

which in turn is arguably related to legal change in the favor of gays and lesbians. Taken together, this suggests that there could be an interaction effect between economic freedom and our indicators of legal rights for gays and lesbians on happiness. Before discussing expected interaction effects, let us first consider briefly why economic freedom as such could matter for happiness.

Gehring (2013) finds that three elements of economic freedom are conducive to life satisfaction: a high-quality legal system, stable monetary policy and easy regulations. It is not hard to see why a legal system that protects private property and enforces laws perceived to be just in an effective manner brings about higher life satisfaction: without such protection, life would presumably be nasty, brutish and short. As for stable monetary policy, this entails low and stable inflation, which makes economic life predictable and minimizes arbitrary redistribution from loan-takers to savers. Again, it is not hard to see how this has positive effects on general happiness. As for low regulation, it implies a competitive economic order with a high degree of freedom of choice, and a limited role for regulation specifically designed to benefit special interests. Having an institutional order and procedures within which meaningful choice can be made can stimulate happiness (Frey and Stutzer 2009); and the decentralization of resource-allocation decisions may improve the scope of available opportunities and better fit people's preferences (Stroup 2007). An effect of a competitive order is also that discrimination and intolerance may be less prevalent, as argued by Becker (1971) and Berggren and Nilsson (2013). In such an order, it becomes costly to make choices based on dislike or prejudice rather than productivity. For these reasons, economic freedom should enter our empirical analysis as a control variable: it can be expected to affect happiness.

What do we expect, on theoretical grounds, an interaction effect between measures of equal legal treatment and economic freedom to look like? On the one hand, there could be different effects at low and high economic freedom, and on the other hand, the sign could be either positive or negative.

At high degrees of economic freedom there is a good legal system in place and a high degree of competition. More equal rights for gays and lesbians in such a setting could have a positive effect if general attitudes of tolerance are more widespread and discrimination less common: i.e., if there is more empathy in the general population and if gays and lesbians experience better lives through fairer treatment. A high degree of economic freedom also implies that formal legal changes

would be *de facto* implemented effectively while the same *de jure* changes may remain entirely nominal when economic freedom is low. There could also be a positive effect if people perceive such change as an indicator of more general social progress. However, since the level of rights is higher in countries with high economic freedom, a given change could be expected to matter little for happiness, given marginal diminishing happiness. In other words, in such a setting, social progress has proceeded so far that equal rights for gays and lesbians is seen as something completely natural, and a marginal change does then not give rise to any particular feelings of satisfaction. This would tend to make legal changes ineffective in societies with high economic freedom. The effect could, on the other hand, be negative if the higher degree of competitiveness makes discrimination more difficult while economic decision-makers really are intolerant and wish to discard gays and lesbians. These decision-makers and the groups in society they represent could then become frustrated, bitter and unhappy, when they are, in effect, stopped from discriminating.

At low degrees of economic freedom, the quality of the legal system and the degree of competitiveness are lower. If legal treatment of gays and lesbians becomes more equal, this could be positive for happiness if people, in a setting with greater potential for economic and social liberalization, interpret this as a sign of liberalization in more areas, that will benefit them. This would be more beneficial in conditions of low economic freedom, because government control and interference is substantially larger and not subject to the same disciplining consequences as in private markets (cf. Becker 1971). Also, since the level of rights for gays and lesbians is quite low, a given change has a more noticeable effect, given diminishing marginal happiness. One could also envisage a negative effect on happiness, if people's intolerance is great and if their empathy is low in settings with low economic freedom.

### 2.3 The Relevance of Happiness for Political Decision-Making

Our analysis is relevant not only in the normative sense of demonstrating, to those who adhere to a goal of general happiness promotion, how equal legal treatment of gays and lesbians affects general happiness. In addition, we propose that it is equally relevant in the positive sense of highlighting how happiness may play a role in political decision-making – in explaining why reforms towards inclusiveness occur

or do not occur. Political decision-makers are motivated either by some normative ideal (maybe an ideology) or by self-interest (maybe long-term income or power maximization). Our argument is that in both cases, and whatever the normative ideal, happiness research is of great relevance.

As for the first type of politician, the normative ideal could be general happiness maximization. And, in fact, aiming for higher general happiness, either directly through policies or indirectly through institutional processes that allow for autonomous economic and political choice, is taken as a given goal in our analysis. If this is the only goal of the decision-makers and there is no self-interest, results of the kind produced in this paper are decisive for policy positions. However, it bears noting that there are other grounds for considering the legal treatment of minorities that do not regard the life satisfaction of the majority as decisive – e.g., the contract-theoretic approach of Rawls (1971) or the natural-rights libertarianism of Nozick (1974). If policymakers subscribe to *such* normative theories, and nothing else, it becomes irrelevant for their policy positions what the general happiness effects of equal treatment are, since they are motivated by notions such as caring for the worst-off in society and for having procedures in place that uphold natural rights in an equal manner. They could of course still advocate the same policies as politicians motivated by happiness concerns, only on different grounds.

Yet, even when politicians are solely motivated by a normative ideal, they need to be (re-)elected – otherwise they cannot implement policies that move their country closer to the ideal. This means they must always pay some attention to how the majority or median voter views matters, which can be expected to be strongly influenced by how people perceive their life satisfaction to be affected. If most voters think a proposed reform will improve their life satisfaction, the politicians are, all else equal, more likely to advance such reform proposals. When the goal of the politicians themselves is to maximize general happiness, this of course poses no problem at all – they will assess how general happiness is affected and propose policies accordingly. When the normative ideal of the politicians is different, there again is no problem if the policy positions are aligned with what brings people happiness. However, if the preferred policy positions are such that they are associated with reduced general happiness, there is a trade-off between taking what voters think into account and what the politicians themselves ideally want to implement. The point is that assessments of how general happiness is affected are

always relevant to take into account for ideal-driven politicians who want to get and stay in power.

Politicians need not be motivated by some normative ideal: there is also the self-interested type (Mueller 2003). In that case, they will still find studies that relate institutions and policies to happiness of great interest, because to achieve their goal (power, status, income) they need to get elected, and, in a populist fashion, adapt their policy positions to what most voters want. That, in turn, is arguably related to expected happiness effects of alternative policies.<sup>5</sup>

### **3 Data and Empirical Approach**

We follow recent studies and use, as our dependent variable, the average life satisfaction on the country level from all available waves of the World Values Survey and the European Values Study (Bjørnskov et al. 2010; Bjørnskov and Tsai 2015; Gehring 2013). This forms an unbalanced panel of 249 observations from 93 countries for the years in which there were World Values Survey waves: circa 1981, 1990, 1995, 2000, 2005 and 2010. The survey question is: “All things considered, how satisfied are you with your life as a whole these days?”, which respondents answer using a ten-point scale.

Our main variables of interest on the right-hand side are the three measures of (equal) rights for gays and lesbians: (absence of) persecution (concerning the legality of same-sex relations), recognition (concerning marriage, adoption and age of consent) and protection (concerning inclusion of sexual orientation in anti-discrimination laws). These are derived from the most recent ILGA report (ILGA 2015) and are constructed as counts of legal rules directly affecting gays and lesbians. The variables range between -2 and 0 (persecution), -2 and 3 (recognition), and 0 and 4 (protection). We provide details on their specific construction in the appendix.

We also include, on the right-hand side, the economic freedom index (EFI) by Gwartney et al. (2015), mirroring the degree to which an economy is market-oriented on a scale from 0 to 10. The EFI is comprehensive and exists for many countries and

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<sup>5</sup> One can refine this analysis of “the politics of happiness” in various ways, e.g., by introducing interest groups in addition to voters and by shifting the focus from what makes most voters happy to what makes marginal voters happy. Still, the key point is that happiness is the driving force of those whose support matter for the politicians to be (re-)elected (Vis 2010).

is used frequently in scientific analyses.<sup>6</sup> Yet, we focus mainly on a version of the index that aggregates areas 2 to 5, but also provide a test where we make use of each of these four areas of the index: Legal structure and security of property rights, Access to sound money, Freedom to trade internationally, and Regulation of credit, labor and business. As such, we exclude area 1, which captures the size of government. The reason is that while several studies find that the four areas that we use here are significantly correlated, the size of government always forms its own dimension (cf. Heckelman and Stroup, 2005; Rode and Coll, 2012). We observe that the correlations between areas 2, 3, 4 and 5 are approximately 0.5-0.6 in our sample, while the correlations between area 1 and the other four are between -0.3 and 0.2. We therefore exclude area 1 and aggregate the rest of the EFI into one index with a reliability coefficient (Cronbach's Alpha) of 0.82.

Following the earlier literature on country-level determinants of happiness, we also control for social trust, religiosity, government expenditures, openness to trade, the logarithm to real GDP per capita, democracy and a post-communist dummy (cf. Bjørnskov et al. 2010; Gehring 2013; Helliwell and Huang 2008). For descriptive statistics, see Table A1 in the Appendix. We use OLS with period and regional fixed effects (for the regions Asia, Latin America and the Caribbean, North Africa and the Middle East and Sub-Saharan Africa).

In the following, we first present the baseline model; add interaction dummies for above-and below-median levels of economic freedom that separate the sample in two equal halves; and then carry out a number of extensions and robustness exercises. With the interactions, we note that they must always be interpreted carefully, as the marginal effects of equal rights in the following become conditional on which half-sample an observation is in. With interactions, we therefore report two estimates of rights – one above the sample median economic freedom, and another below the median.

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<sup>6</sup> See Hall and Lawson (2014) for a comprehensive survey.

## 4 Results

### 4.1 Baseline Regressions

Fig. 1 shows a plot between the sum of three types of rights and general life satisfaction. Each dot corresponds to one country in a particular year. While the association is not perfect, it indicates that for at least a subgroup of countries, equal rights protection for a small minority is positively related to the life satisfaction of the majority. The figure also indicates that the association is substantially and significantly stronger among observations below the sample-median level of economic freedom.

*Insert Figure 1 about here*

Separating the three indices of rights suggest that most of the correlation is driven by recognition rights ( $r = 0.54$ ), whereas the correlations with (absence of) persecution and protection rights, respectively, are substantially weaker. In order to see if it is recognition rights as such or related factors that drive this association, we need to control for other possible determinants of life satisfaction. Table 1 presents the baseline regression results.

*Insert Table 1 about here*

Column 1 provides a first indication that there may be an overall correlation, as noted in Fig. 1, although the estimated coefficient for the overall rights index fails to attain significance at conventional levels. Adding indicators of institutional quality – democracy and economic freedom – in column 2 does not change much in this regard. In both columns, the set of control variables conforms to the existing literature: GDP per capita, social trust and religiosity are strongly significant and positive, government expenditures become negatively significant when institutional quality is taken into account, and both democracy and economic freedom contribute significantly to overall life satisfaction (cf. Helliwell and Huang, 2008; Bjørnskov et al. 2010).

However, when separating the overall rights index into its three components in column 3, we find that one component, recognition, relates positively to life satisfaction in a significant way. That is, situations with equal marriage and adoption rights, and equal ages of consent seems to go together with higher general happiness.

Finally, columns 4 and 5 report the interaction results between the three indicators of equal rights for gays and lesbians and a dummy in which we split the

sample below or above the median of economic freedom. Column 4 reports results for the full sample; in column 5, we exclude observations for which the persecution indicator shows that gays and lesbians are actively persecuted by the law. We do so to ensure that our overall findings are not driven by the relatively few cases in which homosexual citizens are extremely discriminated.

The interaction results confirm the basic picture in Fig. 1: We find a strongly significant, positive association between the recognition indicator and life satisfaction in countries characterized by low economic freedom. Further tests indicate that the positive effect is likely to hold for about 40 % of the sample and more than half of the countries in the sample.<sup>7</sup> This effect is also of real social and political relevance, as the estimates indicate that a one-point improvement on the recognition scale associate with a long-run happiness gain of 30 % of a standard deviation. This change is approximately similar to the gains from doubling national real GDP per capita or with the effects of moving from an average trust level in our sample, where 28 % of the population thinks that most people can be trusted, to Scandinavian levels of trust where approximately 70 % agree with this statement.

#### 4.2 Interactions with the four areas of economic freedom

We have so far employed an aggregate indicator of economic freedom, which in principle may hide important variation. In Table 2, we therefore separate the four areas, create an area-specific dummy variable capturing whether observations are above or below the area medians, and interact them with the rights indices. Column 1 repeats the results of column 4 of Table 1, for easy comparison.

*Insert Table 2 about here*

Although legal quality and freedom to trade are not significant per se – unlike the overall index, sound money and regulatory freedom – the main findings are unaffected in all these specifications.<sup>8</sup> The effect of recognition on life satisfaction in

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<sup>7</sup> Using a linear interaction between economic freedom and recognition rights instead, we find that the rights lose significance at a level of economic freedom of approximately seven points on a ten-point scale. This level corresponds to that of countries such as Jamaica, Slovenia or Turkey.

<sup>8</sup> The literature in general disagrees on which exact elements are important for life satisfaction. Gehring (2013) argues that legal quality is more important in rich countries while other elements such as sound money are more important in poor countries. In addition, we note that the within-country variation is substantially smaller for legal quality than for other elements (cf. Sobel and Coyne, 2011).

the low-freedom half of the sample remains strongly significant and of approximately the same size throughout the table, and none of the effects are near significance when economic freedom in any of the four areas is above the sample median. Consequently, there are no significant differences across the four areas of economic freedom.

#### 4.3 Further interpretative tests

As a final exercise we test different interpretations of the findings. We do so by changing the equal rights indices in four ways: by taking the logarithm of each index, the 40-year average of the indices (1975-2015), their initial value in 1980, and the indices lagged ten years.

*Insert Table 3 about here*

The intuition behind estimating the potential effects of the logarithm to the indices is that this transformation directly controls for decreasing marginal returns to equal rights. In section 2, we note that previous research indicates that economic freedom contributes to tolerance towards homosexuals. Introducing an interaction with economic freedom might therefore simply pick up a non-linear effect, i.e. that the impact of rights is decreasing in economic freedom because more free countries are already more tolerant. Estimating a logarithmic relation handles the potential non-linearity. In column 1 of Table 3, we find very similar results with the logarithm of recognition rights, including the insignificant and small coefficients above the median of economic freedom, as in our baseline setting. This non-finding is thus inconsistent with a simple non-linear influence.

Second, the results could be spurious if contemporary equal rights merely reflect some relatively stable cultural attitudes or other time-invariant values or beliefs. Within our sample, the equal rights indices vary both across countries and over time within countries. Columns 2 and 3 provide two tests in which we remove the within-country variation by using the average across all observations since the mid-1970s (column 2) and by using the initial rights indices in 1980 (column 3). The logic behind these particular tests is that if the equal rights indices reflect stable cultural differences, the estimates using the average or initial values ought to be more precisely measured and most likely more so using the initial values. The overall results are similar to those in Tables 1 and 2, but the interactions in particular are measured with substantially *less* precision. Using the initial values in column 3

reduces the size and significance of the coefficient of recognition in the low-freedom half of the sample. Again, this simple test is inconsistent with what one would expect if the indices merely reflected some stable beliefs or cultural features.

A final potential interpretation of our findings is that the introduction of legal rights mainly affects life satisfaction by changing people's norms (Sunstein 1996). If *de jure* changes actually influence *de facto* norms, we would expect the change to occur gradually over some period of time. We therefore implement a simple way to capture such lagged effects by employing the equal rights indices, lagged ten years. Our expectation is that if the mechanism through which equal rights work is changing society's norms, we should find stronger effects when using the ten-year lag compared to the baseline setting with the contemporaneous measure. The results in column 4 nevertheless mimic those of previous columns by exhibiting smaller interaction estimates surrounded by substantially larger confidence intervals compared to the baseline findings. This suggests that an "expressive function of law" effect is not the main explanation of our results. And when directly including a measure of societal norms – the share that thinks that homosexuality can be justified – in column 5, this does not change the main findings, while the new justification variables obtains a small and insignificant estimate.<sup>9</sup>

In all, our estimates suggest that the legal recognition of gays and lesbians – in the sense that the law grants them exactly similar rights as heterosexual citizens in the areas of marriage, adoption and age of consent – is associated with higher life satisfaction among the general population. We find that this association is statistically significant and quantitatively substantial in countries in which economic freedom is limited, but not in particularly free countries. Our tests further suggest that a main part of the identification comes from *changes* over time, such that our findings are unlikely to reflect omitted time-invariant factors and that they are not

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<sup>9</sup> In further tests, we experiment with different measures of norms from the World Values Survey/European Values Study. We first use the share of respondents stating that they would not like homosexuals as neighbours as an alternative measure of the acceptance of gay people. This measure is also far from significance. When including the share that would not like neighbours of a different race, and the share that regards divorce as justifiable, neither of these variables changes our main findings, although the divorce measure is significant and negatively associated with life satisfaction.

due to accompanying changes in societal norms towards gay citizens.<sup>10</sup> These results are also stable to a number of robustness tests.<sup>11</sup> We therefore proceed to conclude and discuss a number of likely mechanisms that can account for our findings.

## **5 Concluding Remarks**

We provide the first study of how more equal legal treatment of a minority affects general life satisfaction across a broad set of countries. This complements previous research that documents the influence of other formal institutions on general life satisfaction and of more equal legal treatment of a minority on the life satisfaction of that minority. We ask if it is the case that the majority becomes more or less satisfied with life when gays and lesbians are treated better by formal institutions.

We find that one indicator of the rights of gays and lesbians relates positively to general life satisfaction: recognition, i.e. the degree to which equal marriage and adoption rights and an equal age of consent are granted. The other two rights indicators, (absence of) persecution and protection, are not related in a statistically significant way to our outcome variable.

Theoretically, the relationship between equal rights and general life satisfaction could be explained by empathy/altruism (if people in general derive satisfaction from seeing gay people being treated the same), by people seeing this type of minority inclusion as an indicator of general social progress that will benefit them as well in the future (in line with the Hirschman and Rothschild, 1973, tunnel effect) or by

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<sup>10</sup> Given the nature of the available data and the method used we cannot rule out that there could be some other, simultaneous reforms that drive the increase in general happiness. Still, we consider this unlikely, since the particular part of equal rights that turns out to be significantly related to general life satisfaction (recognition, capturing equal treatment in the area of marriage, adoption and the age of consent) is an area where the rights of different-sex couples were established a long time ago, in most countries well before the 1970s (Cretney, 2003). In contrast, debates regarding and implementation of equal family rights for same-sex couples have as a rule taken place later and without simultaneous changes in family law for the population at large.

<sup>11</sup> We have performed a full jackknife test in which each of the 93 countries were excluded one at a time, as well as a similar period jackknife. The results are not sensitive to these systematic sample and time-period variations. As a sensitivity test we also ascertained that our main findings are not driven by observations with either extreme life satisfaction scores or extreme recognition rights. These results are available upon request.

people in general regarding it as positive that more people are able to lead established family lives.

We furthermore find that the positive relationship is mainly evident in countries characterized by relative low levels of economic freedom. It is hard to see that people in such countries are more empathetic or altruistic than others, so we suggest that the prospect for more general social progress is the more plausible explanation. In contexts with relatively low economic freedom, people arguably feel that they are themselves in dire need of social reforms in other areas and feel hope when reforms that grant gays and lesbians equal rights have come about. Equal rights for this minority may thus be seen as an indicator of expected social progress, expected to come about, perhaps, as a cluster of legal changes to the benefit of most people.<sup>12</sup> Yet another, complementary explanation is that in countries with high economic freedom, social progress has proceeded so far that equal family rights for gays and lesbians are seen as something completely natural, which does not give rise to any particular feelings of satisfaction. Such rights are only “noticed” in a setting where they are seen as unexpected or unusual.

In all, we believe our results demonstrate that the introduction of more equal rights in the area of marriage, adoption and age of consent for a minority need not come with a “welfare” cost: rather, the opposite seems to hold. The majority of people, at least in countries with low economic freedom, seem to benefit from this type of social development – as does the minority in question itself.

## **Appendix**

Here we document the construction of the three indices of equal rights of gays and lesbians, as well as the overall index. All are based on information in ILGA (2015) that provides data on the current status but also allows us to reconstruct the prior status of countries. We do so using the information on when laws and regulations

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<sup>12</sup> It could also be that people in less economically free countries are more family-oriented and conservative in their values, such that they derive satisfaction from strengthened opportunities and incentives for gays and lesbians to enter into stable family arrangements. However, in tests (not shown) where we include a variable from the WVS capturing how justifiable divorce is, we find no indication that such features are more important in less free countries.

were changed, which enables us to trace changes back in time. We can therefore provide a full panel of indicators back to 1980 for all countries in our sample.

We first code recognition as the sum of four variables: whether the law recognizes the same age of consent for heterosexual and homosexual activity (a score of 1), whether it is the same for heterosexual and lesbian activity (0) or whether the age of consent differs (-1); whether same-sex activity is illegal (a score of -1), legal for lesbian activity (0) or legal for both sexes (1); whether joint adoption is allowed for homosexual couples; and whether marriage union is legal on the same terms as heterosexual couples (a score of 1), whether the law recognizes legal partnership (0) or if it is illegal (-1). The protection index likewise consists of four subindices: whether there is prohibition against discrimination in employment decisions; prohibition against discrimination based on sexual preferences; prohibition of hate crimes; and prohibition against incitement to hatred. Finally, the (absence of) persecution index consists of two dummies capturing whether homosexual activity is punishable by death and whether there are specific propaganda laws prohibiting the ‘advertisement’ of homosexuality.

The resulting variables thus range between -2 and 0 (persecution), -2 and 3 (recognition), and 0 and 4 (protection). The full index consequently varies between -4 and 7.

*Insert Table A1 about here*

## **References**

- Alexander, A. C., Inglehart, R., & Welzel, C. (in press). Emancipating sexuality: Breakthroughs into a bulwark of tradition. *Social Indicators Research*.
- Becker, G. S. (1971). *The Economics of Discrimination*. Chicago: University of Chicago Press.
- Berggren, N., Bjørnskov, C., & Nilsson, T. (in press). What aspects of society matter for the quality of life of a minority? Global evidence from the new Gay Happiness Index. *Social Indicators Research*.
- Berggren, N., & Nilsson, T. (2013). Does economic freedom foster tolerance? *Kyklos*, 66(2), 177–207.

- Berggren, N., & Nilsson, T. (in press). Tolerance in the United States: Does economic freedom transform racial, religious, political and sexual attitudes? *European Journal of Political Economy*.
- Bjørnskov, C., Dreher, A., & Fischer, J. A. V. (2010). Formal institutions and subjective well-being: Revisiting the cross-country evidence. *European Journal of Political Economy*, 26(4), 419–430.
- Bjørnskov, C., & Tsai, M.-C. (2015). How do institutions affect happiness and misery? A tale of two tails. *Comparative Sociology*, 14(1), 353–385.
- Cretney, S.M. (2003). *Family Law in the Twentieth Century: A History*. Oxford: Oxford University Press.
- De Tocqueville, A. (2010) [1835]. *Democracy in America*. Indianapolis: Liberty Fund.
- Frey, B. S, & Stutzer, A. (2000). Happiness, economy and institutions. *Economic Journal*, 110(466), 918–938.
- Frey, B. S, & Stutzer, A. (2009). Should national happiness be maximized? In A. K. Duff and B. Radcliff (Eds.), *Happiness, Economics and Politics* (pp. 301–323). Cheltenham: Edward Elgar.
- Frey, B. S, & Stutzer, A. (2012). The use of happiness research for public policy. *Social Choice and Welfare*, 38(4), 659–674.
- Gates, G. J. (2011). How many people are lesbian, gay, bisexual and transgender? Los Angeles: The Williams Institute, UCLA. Available from [escholarship.org/uc/item/09h684x2](https://escholarship.org/uc/item/09h684x2), accessed 5 May 2016.
- Gehring, K. (2013). Who benefits from economic freedom? Unraveling the effect of economic freedom on subjective well-being. *World Development*, 50(October), 74–90.
- Gwartney, J. D., Lawson, R. A., & Hall, J. E (2015). *Economic freedom of the world: 2015 annual report*. Vancouver: The Fraser Institute.
- Hall, J. C, & Lawson, R. A. (2014). Economic freedom of the world: An accounting for the literature. *Contemporary Economic Policy*, 32(1), 1–19.
- Heckelman, J.C., & Stroup, M.D. (2005). A comparison of aggregation methods for measures of economic freedom. *European Journal of Political Economy* 21, 953–956.

- Helliwell, J. F., & Huang, W. (2008). How's your government? International evidence linking good government and well-being. *British Journal of Political Science*, 38(4), 595–619.
- Herek, G. M. (2000). The psychology of sexual prejudice. *Current Directions in Psychological Science*, 9(1), 19–22.
- Hirschman, A. O., & Rothschild, M. (1973). The changing tolerance for income inequality in the course of economic development. *Quarterly Journal of Economics*, 87(4), 544–566.
- ILGA (2015). *State-sponsored homophobia: A world survey of laws: Criminalisation, protection and recognition of same-sex love*. Geneva: ILGA.
- Inglehart, R., & Abramson, P. R. (1999). Measuring postmaterialism. *American Political Science Review*, 93(3), 665–677.
- Inglehart, R., Foa, R., Peterson, P., & Welzel, C. (2008). Development, freedom and rising happiness. *Perspectives on Psychological Science*, 3, 264–285.
- Layard, R. E. (2006). Happiness and public policy: A challenge to the profession. *Economic Journal*, 116(510), C24–C33.
- Mill, J. S. (2007) [1859]. *On liberty and the subjection of women*. London: Penguin.
- Mueller, D. C. (2003). *Public choice III*. Cambridge: Cambridge University Press.
- Nozick, R. (1974). *Anarchy, state and utopia*. New York: Basic Books.
- Ovaska, T., & Takashima, R. (2010). Does a rising tide lift all the boats? Explaining the national inequality of happiness. *Journal of Economic Issues*, 44(1), 205–224.
- Radcliff, B. (2001). Politics, markets and life satisfaction: The political economy of human happiness. *American Political Science Review*, 95(4), 939–952.
- Rawls, J. (1971). *A theory of justice*. Cambridge, MA: Belknap Press.
- Rode, M. (2013). Do good institutions make citizens happy, or do happy citizens build better institutions? *Journal of Happiness Studies*, 14(5), 1479–1505.
- Rode, M., & Coll, S. (2012). Economic freedom and growth. Which policies matter the most? *Constitutional Political Economy* 23, 95-133.
- Sobel, R.S., & Coyne, C.J. (2011). Cointegrating institutions: the time series properties of country institutional measures. *Journal of Law and Economics* 54, 111-134.
- Sullivan, A. (1989). Here comes the groom: A (conservative) case for gay marriage. *The New Republic*, 28 August, 20–22.

Sunstein, C. R. (1996). On the expressive function of law. *University of Pennsylvania Law Review*, 144, 2021–2053.

Twenge, J. M., Sherman, R. A., & Wells, B. E. (In press). Changes in American adults' reported same-sex sexual experiences and attitudes, 1973–2014. *Archives of Sexual Behavior*.

Vis, B. (2010). *Politics of risk taking: Welfare state reform in advanced democracies*. Amsterdam: Amsterdam University Press.

**Table 1** Equal rights and general life satisfaction: baseline results

| Dependent variable: life satisfaction         | 1                  | 2                  | 3                 | 4                 | 5                  |
|---|--------------------|--------------------|-------------------|-------------------|--------------------|
| Social trust                                  | .011***<br>(.004)  | .012***<br>(.004)  | .012***<br>(.004) | .013***<br>(.004) | .013***<br>(.004)  |
| Religiosity                                   | .017***<br>(.004)  | .017***<br>(.004)  | .017***<br>(.004) | .017***<br>(.004) | .017***<br>(.004)  |
| Government expenditures                       | -.011<br>(.014)    | -.033***<br>(.013) | -.031**<br>(.013) | -.031**<br>(.013) | -.026*<br>(.015)   |
| Openness                                      | .000<br>(.001)     | .001<br>(.001)     | .001<br>(.001)    | .001<br>(.001)    | .002*<br>(.001)    |
| Log GDP per capita                            | 457***<br>(.079)   | .288***<br>(.078)  | .288***<br>(.079) | .266***<br>(.092) | .194*<br>(.101)    |
| Democracy                                     |                    | .396***<br>(.117)  | .394***<br>(.117) | .395***<br>(.117) | .312**<br>(.124)   |
| Economic freedom                              |                    | .178***<br>(.045)  | .175***<br>(.045) | .127**<br>(.056)  | .186***<br>(.057)  |
| Post-communist                                | -.464***<br>(.168) | -.317**<br>(.153)  | -.309**<br>(.156) | -.357**<br>(.157) | -.469***<br>(.168) |
| Overall rights index                          | .049<br>(.031)     | .028<br>(.028)     |                   |                   |                    |
| (Absence of) persecution                      |                    |                    | -.065<br>(.159)   | -.177<br>(.192)   | -                  |
| Recognition                                   |                    |                    | .112*<br>(.061)   | .304***<br>(.097) | .293***<br>(.092)  |
| Protection                                    |                    |                    | -.019<br>(.045)   | .021<br>(.092)    | -.004<br>(.087)    |
| Interaction: Above median freedom             |                    |                    |                   | .121<br>(.127)    | .043<br>(.126)     |
| Interaction* persecution                      |                    |                    |                   | .223<br>(.390)    | -                  |
| Interaction * Recognition                     |                    |                    |                   | -.255**<br>(.102) | -.252***<br>(.097) |
| Interaction * Protection                      |                    |                    |                   | -.038<br>(.100)   | -.027<br>(.094)    |
| Observations                                  | 263                | 249                | 249               | 249               | 225                |
| Countries                                     | 97                 | 93                 | 93                | 93                | 80                 |
| Within R squared                              | .352               | .439               | .443              | 0.463             | .509               |
| Between R squared                             | .669               | .743               | .745              | 0.749             | .752               |
| Wald chi squared                              | 261.72             | 364.83             | 366.01            | 374.94            | -                  |
| <i>Effects above median interaction level</i> |                    |                    |                   |                   |                    |
| (Absence of) persecution                      |                    |                    |                   | .046<br>(.326)    | -                  |
| Recognition                                   |                    |                    |                   | .048<br>(.068)    | .041<br>(.064)     |
| Protection                                    |                    |                    |                   | -.017<br>(.049)   | -.031<br>(.047)    |

All regressions include a constant term and regional and period fixed effects. \*p<0.10, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors in parenthesis.

**Table 2** Equal rights and general life satisfaction: looking at areas of economic freedom separately

| Dependent variable: life satisfaction         | 1                 | 2                 | 3                  | 4                 | 5                  |
|---|-------------------|-------------------|--------------------|-------------------|--------------------|
| Economic freedom                              | .127**<br>(.056)  |                   |                    |                   |                    |
| Legal quality                                 |                   | -.042<br>(.043)   |                    |                   |                    |
| Sound money                                   |                   |                   | .092***<br>(.025)  |                   |                    |
| Freedom to trade                              |                   |                   |                    | .034<br>(.035)    |                    |
| Regulatory freedom                            |                   |                   |                    |                   | .119**<br>(.049)   |
| (Absence of) persecution                      | -.177<br>(.192)   | -.165<br>(.173)   | -.198<br>(.168)    | -.159<br>(.182)   | -.092<br>(.192)    |
| Recognition                                   | .304***<br>(.097) | .325***<br>(.090) | .327***<br>(.082)  | .312***<br>(.095) | .263***<br>(.082)  |
| Protection                                    | .021<br>(.092)    | .037<br>(.065)    | -.007<br>(.068)    | -.016<br>(.071)   | -.045<br>(.074)    |
| Interaction: Above median freedom             | .121<br>(.127)    | .192<br>(.128)    | -.064<br>(.118)    | -.010<br>(.117)   | -.013<br>(.111)    |
| Interaction* persecution                      | .223<br>(.390)    | .409<br>(.297)    | .545*<br>(.318)    | .346<br>(.420)    | .009<br>(.297)     |
| Interaction * Recognition                     | -.255**<br>(.102) | -.260**<br>(.102) | -.331***<br>(.089) | -.261**<br>(.109) | -.215***<br>(.092) |
| Interaction * Protection                      | -.038<br>(.100)   | -.112<br>(.081)   | .013<br>(.080)     | .003<br>(.081)    | .050<br>(.090)     |
| Observations                                  | 249               | 248               | 249                | 249               | 249                |
| Countries                                     | 93                | 93                | 93                 | 93                | 93                 |
| Within R squared                              | 0.463             | .413              | .500               | .407              | .414               |
| Between R squared                             | 0.749             | .776              | .756               | .757              | .776               |
| Wald chi squared                              | 374.94            | 380.66            | 408.54             | 354.65            | 373.92             |
| <i>Effects above median interaction level</i> |                   |                   |                    |                   |                    |
| (Absence of) persecution                      | .046<br>(.326)    | .245<br>(.271)    | .347<br>(.309)     | .187<br>(.371)    | -.083<br>(.245)    |
| Recognition                                   | .048<br>(.068)    | .065<br>(.070)    | -.004<br>(.068)    | .051<br>(.074)    | .048<br>(.072)     |
| Protection                                    | -.017<br>(.049)   | -.075<br>(.057)   | .007<br>(.052)     | -.012<br>(.054)   | .005<br>(.058)     |

All regressions include the full baseline specification as well as a constant term and regional and period fixed effects. \*p<0.10, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors in parenthesis.

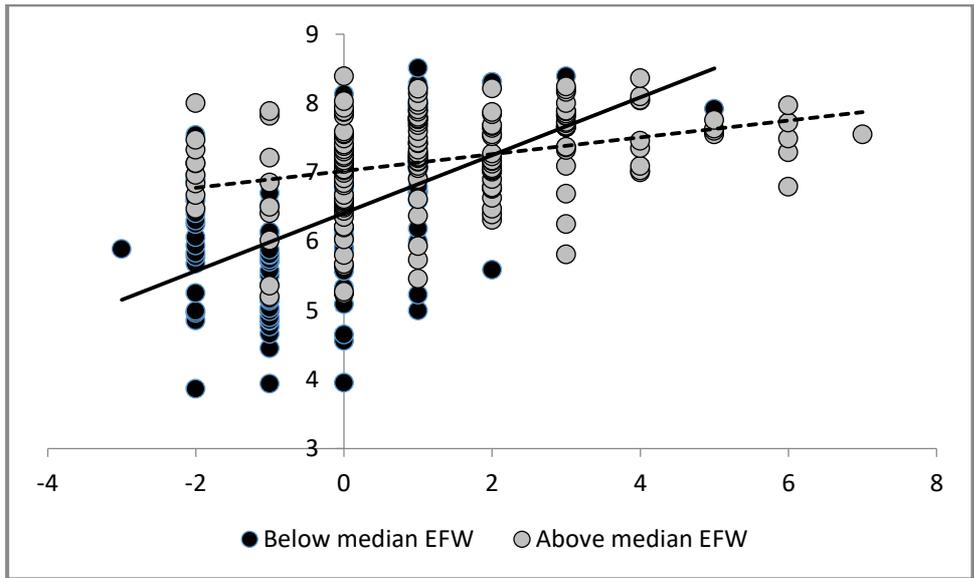
**Table 3** Specific results – interpretation

| Dependent variable: life satisfaction         | 1                 | 2                 | 3                 | 4                 | 5                 |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|
| Version of equal rights indices:              | Logarithmic       | Average           | Initial           | 10-year lag       | Contemporary      |
| Economic freedom                              | .129**<br>(.057)  | .151***<br>(.055) | .167***<br>(.055) | .148***<br>(.055) | .127**<br>(.057)  |
| (Absence of) persecution                      | -.273<br>(.416)   | -.125<br>(.193)   | .138<br>(.189)    | -.139<br>(.188)   | -.157<br>(.193)   |
| Recognition                                   | .682***<br>(.245) | .249**<br>(.117)  | .116*<br>(.069)   | .252**<br>(.104)  | .270***<br>(.097) |
| Protection                                    | .069<br>(.169)    | .054<br>(.142)    | .041<br>(.069)    | .230<br>(.174)    | .031<br>(.092)    |
| Interaction: Above median freedom             | .232<br>(1.044)   | -.002<br>(.142)   | .084<br>(.152)    | .062<br>(.120)    | .116<br>(.129)    |
| Interaction* persecution                      | .388<br>(.938)    | .098<br>(.397)    | -.418<br>(.348)   | .138<br>(.386)    | .190<br>(.385)    |
| Interaction * Recognition                     | -.513*<br>(.270)  | -.149<br>(.111)   | -.057<br>(.068)   | -.153<br>(.107)   | -.230**<br>(.103) |
| Interaction * Protection                      | -.104<br>(.186)   | .118<br>(.142)    | .014<br>(.071)    | -.171<br>(.178)   | -.055<br>(.101)   |
| Homosexuality justified                       |                   |                   |                   |                   | .027<br>(.039)    |
| Observations                                  | 249               | 249               | 249               | 249               | 241               |
| Countries                                     | 93                | 93                | 93                | 93                | 90                |
| Within R squared                              | .463              | .459              | .454              | .449              | .468              |
| Between R squared                             | .745              | .746              | .748              | .759              | .757              |
| Wald chi squared                              | 371.60            | 366.47            | 359.48            | 381.46            | 381.71            |
| <i>Effects above median interaction level</i> |                   |                   |                   |                   |                   |
| (Absence of) persecution                      | .115<br>(.809)    | -.027<br>(.333)   | -.280<br>(.279)   | -.002<br>(.324)   | .033<br>(.321)    |
| Recognition                                   | .169<br>(.208)    | .099<br>(.097)    | .059<br>(.061)    | .099<br>(.078)    | .039<br>(.068)    |
| Protection                                    | -.035<br>(.102)   | .172<br>(.129)    | .056<br>(.072)    | .059<br>(.074)    | -.024<br>(.050)   |

Column 1 uses logarithmic values of the equal rights indices; column 2 uses the average values from the last 40 years (1975–2015); column 3 uses the initial values from 1980; column 4 uses values for the equal rights indices that precede the values for the other variables by ten years; and column 5 uses values from the same year as for the other variables (as is done in Tables 1 and 2 as well). All regressions include the full baseline specification as well as a constant term and regional and period fixed effects. \*p<0.10, \*\*p<0.05, \*\*\*p<0.01. Robust standard errors in parenthesis.

**Table A1** Descriptive Statistics

|                             | Mean   | Standard<br>deviation | Minimum | Maximum | Observations |
|-----------------------------|--------|-----------------------|---------|---------|--------------|
| Life satisfaction           | 6.759  | 1.001                 | 3.725   | 8.510   | 296          |
| Overall rights index        | .618   | 1.796                 | -3      | 7       | 296          |
| (Absence of)<br>persecution | -0.095 | 0.315                 | -2      | 0       | 296          |
| Recognition                 | 0.118  | 0.948                 | -2      | 3       | 296          |
| Protection                  | 0.595  | 0.948                 | 0       | 4       | 296          |
| Social trust                | 28.541 | 15.292                | 3.18    | 76.04   | 296          |
| Religiosity                 | 83.174 | 17.951                | 15      | 100     | 276          |
| Government<br>expenditures  | 7.994  | 3.518                 | 2.027   | 26.507  | 281          |
| Openness                    | 76.806 | 49.009                | 13.198  | 410.236 | 281          |
| Log GDP per capita          | 9.249  | 1.076                 | 5.765   | 11.822  | 293          |
| Democracy                   | 0.747  | 0.436                 | 0       | 1       | 296          |
| Economic freedom            | 6.977  | 1.368                 | 3.03    | 9.05    | 276          |
| Legal quality               | 6.532  | 1.607                 | 2.391   | 9.625   | 269          |
| Sound money                 | 7.617  | 2.252                 | 0       | 9.887   | 275          |
| Freedom to trade            | 7.286  | 1.575                 | 1.303   | 9.761   | 271          |
| Regulatory freedom          | 6.515  | 1.257                 | 1.002   | 8.982   | 272          |
| Post-communist              | 0.274  | 0.447                 | 0       | 1       | 296          |



**Fig. 1** Equal rights for gays and lesbians (overall index) and general life satisfaction, two groups (below and above median economic freedom)