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**Citation for the published paper:**

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**Title: What Aspects of Society Matter for the Quality of Life of a Minority? Global Evidence from the New Gay Happiness Index**

**Journal: Social Indicators Research, 2017, 132(3), 1163-1192**

**doi:[10.1007/s11205-016-1340-3](https://doi.org/10.1007/s11205-016-1340-3)**

**<https://link.springer.com/article/10.1007/s11205-016-1340-3>**

# What Aspects of Society Matter for the Quality of Life of a Minority? Global Evidence from the New Gay Happiness Index

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**Abstract** There is great variation in views on and treatment of minorities such as gay men across the world. We are the first to pinpoint what features of societies are beneficial to gay men's quality of life by using a unique new cross-country dataset covering 110 countries, the Gay Happiness Index. It covers how gays perceive public opinion about them, how they experience behavior towards them and how satisfied they are with their lives. Our study is based on the premise that it is important to look at minority-specific effects of policies and institutions and not solely at the effects for the average citizen, as well as the transmission mechanisms through which policies and institutions affect life satisfaction. We find that factors such as equal legal rights for gay people, GDP per capita, democracy and globalization relate positively to the quality of life of gay men, primarily by shaping public opinion and behavior in a pro-gay direction. Religion (the shares of Muslims and Orthodox Christians) and living in a post-communist country tend to relate negatively to our quality of life indicators. Most of these factors have been shown to matter for the well-being of people in general as well, which may be taken to suggest that gay people benefit from being included in society – legally, socially and economically – on the same terms as others.

**Keywords** Gay · Minorities · Happiness · Wellbeing · Life satisfaction · Institutions

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**Acknowledgments** The authors wish to thank Andreas Bergh, Jerg Gutmann, Martin Rode and participants of the 17<sup>th</sup> Danish Public Choice Workshop (Copenhagen, 2016) and the Public Choice Society conference (Fort Lauderdale, 2016) for helpful comments and the Swedish Research Council (Berggren and Nilsson), Torsten Söderberg's Foundation (Berggren and Nilsson), the Czech Science Foundation (grant 16-19934S) (Berggren and Nilsson) and the Jan Wallander and Tom Hedelius Foundation (Bjørnskov) for financial support.

# 1 Introduction

Studies on the individual and national determinants of subjective well-being have generated substantial insights in the last two decades. However, these studies tend almost exclusively to focus on people *in general*. They thus implicitly – and occasionally explicitly – rest on Benthamite utilitarian foundations where researchers generalize their findings to entire populations without taking the distinction between individuals, or groups of individuals, seriously. Yet, any population consists of many groups, and it may very well be that what makes an *average* person in a population experience well-being does not have the same effect on a typical member of a particular group. This insight provides a rationale for research on what makes various minorities satisfied with life. Normatively, the identification of what affects specific groups in society may create stronger foundations for Rawlsian perspectives on subjective well-being, both by the idea that one, when devising policies and institutions, should take into account that one could have been part of a minority (which would be unknown behind Rawls’s veil of ignorance),<sup>1</sup> and by the idea that policies and institutions should not necessarily aim at aggregate-utility maximization, but perhaps at taking the interests of the worst off into proper consideration. Studies on the well-being of minorities are able to identify what matters for particularly disenfranchised parts of the population and in that way provide knowledge for policymakers.

While certain groups have been studied, such as men and women, different income groups and people of various ages, there are still lacunae in the literature when it comes to many other groups. This study provides new findings for one minority: gay men.<sup>2</sup> Throughout history, gays have been persecuted in

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<sup>1</sup> Rawls’s basic idea is that people will be able to choose principles of justice that are fair in an original position characterized in the following way: “Among the essential features of this situation is that no one knows his place in society, his class position or social status, nor does any one know his fortune in the distribution of natural assets and abilities, his intelligence, strength and the like. We shall even assume that the parties do not know their conceptions of the good or their special psychological propensities. The principles of justice are chosen behind a veil of ignorance.” (Rawls 1971: 12). The veil of ignorance can thus help us consider principles or institutions embodying such principles without knowing how they would affect us. As an example, when considering same-sex marriage, we would have to disregard whether we are gay, fundamentalist Christian or anything else.

<sup>2</sup> According to the American Psychological Association (2008), “[s]exual orientation refers to an enduring pattern of emotional, romantic, and/or sexual attractions to men, women, or both sexes”, and by “gays” we mean those men with a sexual orientation that entails exclusive attraction to other men. The results of this study may well extend to other minority groups than gays. In fact, Inglehart and Abramson (1999) argue that inclusiveness toward gay men is a useful indicator of tolerant attitudes overall.

the vast majority of societies. Admittedly, there have been cultures where same-sex activity has been permissible and even lauded, but these are the exception. Rather, such activity has either been hidden from the general public or, whenever revealed, punished – socially, medically, legally.<sup>3</sup> In the post-World War II world, even though there are still many instances of illiberal attitudes and policies towards gay people (such as in Russia and some other post-communist countries, in African countries like Uganda and in many Muslim-dominated countries), things have changed more broadly in a gay-friendly direction, both culturally and legally, as, e.g., documented by the International Lesbian, Gay, Bisexual, Trans and Intersex Association (ILGA 2015). This is especially the case in the Western world, broadly conceived, where, e.g., anti-sodomy laws have been repealed and where gay people are increasingly allowed to marry and adopt children. In tandem with more favorable legal treatment, public attitudes have changed towards more tolerance and acceptance.<sup>4</sup> Even the current Pope Francis seems to use a more inclusive language than his predecessors (Donadio 2013), although change is arguably slow and so far mostly rhetorical in the Catholic Church. We illustrate the general global development by regional trends from the World Values Survey in Fig. 1. Although there are some indications of more illiberal attitudes in the period 1995–2000, homosexuality is seen as more justifiable today than in the 1990s in all regions of the world. The aggregates further indicate that there is large variation across regions with North America and Europe having the most liberal attitudes towards homosexuals and Central Asia (including Russia) and Sub-Saharan Africa on average having the least liberal attitudes towards this minority.

[Fig. 1 about here]

The global situation of more civil rights and greater acceptance of minorities in many places, but at the same time retained or even increased oppression in other places, provide a further motivation for our exploratory study. Societies differ in their approaches, and it is therefore important to ask the question: In what type of society do gays fare well? We believe we are the first to try to identify how society-level determinants – of a political, economic, legal and cultural kind – relate to the quality of life for gay men

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<sup>3</sup> On the history of attitudes towards homosexuality, see, e.g., Duberman et al. (1990) or Mondimore (1996).

<sup>4</sup> On the rise of sexual freedom more generally around the world, see Alexander et al. (in press). Yet, these developments do not mean that there is no *de facto* discrimination of gays also in Western countries – see, e.g., Ahmed et al. (2013), Boeri et al. (2015), Hammarstedt et al. (2015) and Patacchini et al. (2015).

across the world. To study this issue we take advantage of a unique, new dataset, *the Gay Happiness Index* (GHI). The index is based on an online survey in which more than 115,000 gay men from 130 countries participated and which indicates how they perceive public opinion towards them, how they have been treated in various contexts and how satisfied they are with life.<sup>5</sup>

Our study is, due to these new data, differentiated from two strands of previous research. The first strand was mentioned above: Cross-country studies on how societal-level factors of the kind we are interested in and use are related to life satisfaction – using data sampled *from the population as a whole*. It is probable that gays, as a distinct minority, experience life differently than people in general, and if one is concerned with the welfare of all citizens, it is important to pinpoint to what extent various institutions and policies affect particular groups. As for the second strand, there are several studies on the *individual-level* determinants of the quality of life of gays, focusing on personal circumstances; and as a rule, these studies are undertaken with data from one country and derive their conclusions from small samples, which may limit the wider applicability of the findings (see, e.g., Wong and Tang, 2003; Kertzner et al. 2009; Doyle and Molix 2014). Results like ours will give more precise policy tools for those who wish to improve the situation also of minority groups.<sup>6</sup>

We study determinants of six indicators that each measures some aspect of the quality of life of gays. These are based on the components of the GHI, which we group together on the basis of principal component analysis (PCA). The first is an indicator of the degree to which gay men perceive public opinion to be favorable towards them – we call it *favorable opinion*. The second, third and fourth indicators measure aspects of how gay men experience the public’s behavior towards them: they concern *absence of discrimination*, *absence of threats* and *absence of bad behavior* (where the last measure covers derogatory statements). The fifth and sixth indicators measure *life satisfaction* and the *desire not to move* where the latter indicator captures the degree to which gay men are sufficiently happy to stay on living in their present place of residence instead of wanting to move to another place because of concerns about how they are treated based on their sexual orientation. Our main interest lies in the two last indicators, as we ultimately want to know what brings about more (and less) life satisfaction and a “revealed preference” for not wanting to

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<sup>5</sup> We use the term “quality of life” rather than “gay happiness” since the index is comprised of factors that are not, as such, all measures of happiness (even though they may affect happiness).

<sup>6</sup> On the policy relevance of life satisfaction findings, with a special argumentation for how they matter for the design of institutions, see Frey and Stutzer (2012).

move (which we interpret as a more “objective” measure of life satisfaction). The other four measures are seen as inputs (or transmission mechanisms) that determine these two complementary and “ultimate” welfare indicators.

The main findings are that equal legal rights for gay people, GDP per capita, democracy and economic globalization positively relate to the quality of life of gay men, while religion and living in a post-communist country typically stand in a negative association with our outcome variables. Notably, our econometric framework suggests that the relationship between these factors and life satisfaction largely goes through public opinion of gay men and through the way gay men are treated. So, for example, the more economic globalization there is in a country, the more favorable are the attitudes towards gays and the better they are treated, which in turn is associated with a higher quality of life. In summary, the best kind of society for gay men to live in seems to be a well-off, economically and politically liberal country with equal legal protection for gays and without too strong religious groups. While we cannot convincingly demonstrate that these findings capture causal effects, due to the nature of the cross-sectional data, one advantage with studying the influence of society-level variables on the quality of life of a rather small minority – most estimates seem to be that around 2 % of the male population is gay (Gates 2011) – is that reverse causality is highly unlikely. While one can see how society-level factors affect the lives of a small group, it is less evident how the latter can influence the former in any decisive way.

Given the finding that many of the factors that matter for the well-being of people in general also matter for the well-being of gays, the policy implication seems to be that policies and laws should, in the main, be designed and enforced neutrally: The policies, institutions and cultural features that are good for people in general are good for gays as well, and there seems to be limited need for “special rights”. In fact, even the measure of “gay rights” that we include arguably measures the degree to which *equality* before the law is enforced in three dimensions: persecution, recognition and protection. This is not about special but about the same rights – not to be imprisoned or executed for whom you interact with sexually and romantically; to be allowed to marry and be tried as adoptive parents; and to not be discriminated against (where laws typically do not list homosexuality but sexual orientation, thus encompassing hetero- and bisexuality as well).

The structure of the paper is as follows. Section 2 provides a theoretical outline of how we perceive different society-level factors to relate to our outcome variables, supported by examples from the previous empirical literature. We then proceed to present the data (Section 3) and the results (Section 4), after which we offer concluding remarks (Section 5).

## 2 Theoretical Framework and Connections to the Literature

Quality of life is a broad and vague concept, and on a general level we take it to refer to individuals' subjective assessment of how good their life is, where indicators can be either verbal or action-based. In the former case, someone may quantify, on a given scale, how satisfied they are with life or how happy they are; in the latter case, someone may choose to remain in a physical location or move, where the former is a revealed preference that life is considered more satisfactory in the present location than in conceivable alternatives and where the latter indicates that the quality of life is expected to be better elsewhere. But quality of life can also encompass other factors that are deemed desirable by the individual, either because they are valued in themselves or because they are intermediate factors that in turn affect life-satisfaction indicators.

For example, if a person lives in a society where he or she is liked and valued, this can be considered an indicator of a high-quality life; and likewise, how a person is treated by others can be such an indicator. If one is discriminated against, threatened or treated badly in other ways, quality of life is reduced. Hence, we take the concept to be broad, subjective – and very important. The importance stems from the presupposition that most people strive for high-quality lives, which entail such things as favorable opinions from others, just and affirming treatment by others and, ultimately, satisfaction with life.

While the literature on life satisfaction includes a plethora of individual-level factors such as, e.g., income, health, employment and family situation, their analysis requires individual-level data that are not available for the kind of cross-country study that we undertake. We instead focus on societal-level factors – factors that may enter what might be called the production function of life satisfaction – that are arguably directly or indirectly relevant to minorities, and in particular to gay men.<sup>7</sup> Figure 2 provides an illustration of our overall framework, within which we focus on three types of societal characteristics: economic, institutional and cultural factors.

[Fig. 2 about here]

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<sup>7</sup> For more on individual-level factors of importance to the quality of life of gay people, see van den Akker et al. (2013) and Powdthavee and Wooden (2015). Nussbaum and Sen (1993) discuss what constitutes quality of life, while Bjørnskov et al. (2008), Dolan et al. (2008) and Frey and Stutzer (2002, 2012) provide overviews of the life-satisfaction literature.

First, overall *economic development* provides a first potentially relevant factor. Conventional economics suggests that higher GDP per capita has positive effects on wellbeing and life-satisfaction as more income allows citizens to buy more goods and services and to save, which provides a feeling of safety in a risky world (Di Tella et al. 2003).<sup>8</sup> These positive aspects of higher income should be present in the lives of gay men. In addition, there may be an effect of economic development on overall tolerance towards minorities that affect them positively (Corneo and Jeanne 2009). Wealthier societies tend to be less conflict-oriented, and the cultivation of virtues like tolerance as well as a general shift from modern to postmodern values is easier the more resources people have (Inglehart 2000; Friedman 2005). This shift in opinions may also be observed in people's behavior towards minorities: A person who is accepting of gays is also, as a rule, unwilling to discriminate against gays, threaten them or treat them badly in other ways. In all, this leads us to expect GDP per capita to exert a positive effect on the quality of life of gay men.

Second, *globalization* can give rise to higher welfare by giving people effective access to a greater variety of goods and services, which in turn improves peoples' possibilities to make purchases close to their preferences. Globalization also improves peoples' quality of life as it entails opportunities to travel, move and take part of wider culture (Dixit and Stiglitz 1977; Bjørnskov et al. 2008; Rode 2013). With respect to the particular quality of life of minorities, Berggren and Nilsson (2015) demonstrate a clear and positive association between globalization and the willingness of parents to teach tolerance. This could be because parents realize that in a globalized world, it pays to have an open-minded view of people who are different; and they may also be affected by physical and cultural meetings with new people and phenomena. This will tend to increase the quality of life of gay men through three main mechanisms: increased purchase possibilities, which are arguably more important in poorer societies, travel and cosmopolitan culture, which is a phenomenon we expect to be more prevalent in rich societies, and tolerance and a more favorable public opinion of gay men.

A third economic society-level factor that may affect life satisfaction is the *size of government*. As elaborated in Bjørnskov et al. (2007), the prediction from neoclassical economic theory is that governments will improve individuals' quality of life as they aim at maximizing social welfare and can solve costly

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<sup>8</sup> While Clark et al. (2008: 123) state that "greater economic prosperity at some point ceases to buy more happiness", recent studies, such as Deaton (2008) and Stevenson and Wolfers (2008), find that the wellbeing-income relationship is roughly a linear-log relationship and that there is no evidence of satiation.



coordination problems. However, from a public-choice perspective, it is fully reasonable to expect governments to intervene and regulate “too much” – i.e., above an optimal level and in ways that are not generally welfare improving, as government officials and bureaucrats pursue their own interests in decision and implementation processes. In democracies in particular, policies and expenditures directed at the median voter can be harmful or at least not beneficial to citizens with non-median preferences. Minorities, and not least gay men, are unlikely to be represented by the median voter, and their quality of life may therefore be negatively affected by larger government expenditures, as larger government means a smaller share of resources available to private consumption in accordance with personal preferences and to interaction that may have tolerance-inducing effects (Berggren and Nilsson 2013, 2014). In addition, government may use its resources in ways that directly worsen public attitudes towards gays, as indeed has been done in the West over centuries, when same-sex relations were criminalized and vilified. The effect on public opinion arguably spills over to public behavior – at least behavior is negative towards gays only if attitudes are negative, and in that way, government expenditures may have indirect effects as well. We further expect these effects to be clearer in rich, democratic societies, where governments face fewer revenue constraints and where problems associated with median voter politics tend to be more prevalent.

*Urbanization* is another factor of potential relevance, building on the idea that the higher the fraction living in cities, the more positive attitudes towards gay men. A reason is that as people in cities tend to come into contact with people different from themselves, including gays, they develop a local culture that is more tolerant. As for a direct effect on gay men, a high degree of urbanization can provide them with more opportunities to find others like themselves and to create a social arena that offers higher satisfaction (cf. Glaeser 2011). Conversely, we expect *post-communist countries* to affect public opinion of gays negatively. These countries retain a cultural heritage from the communist era with clear social consequences – e.g., in the form of lower social trust and lower cooperation (see, e.g., Bjørnskov 2007; Helliwell and Huang 2008; Heineck and Süßmuth 2013; Bjørnskov and Tsai 2015). There was also a clear anti-gay message, in terms of legislation and culture, from communist parties, which was strongly enforced and which plausibly affected opinion – and in turn behavior towards gays.<sup>9</sup> It is also plausible to expect a

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<sup>9</sup> As discussed by Whitam (1983), homosexuality was seen as a symptom of bourgeois decadence in the Soviet Union and was therefore seen as something to be eradicated. As a number of other cultural and ideological factors have tended to persist after the post-communist transition, a generally negative view of homosexuality may be part of a communist legacy (Heineck and Süßmuth 2013; Necker and Voskort 2014).

direct, negative effect on the life satisfaction of gay men, as on others, of a communist heritage (Inglehart 2000).

In addition to such economic factors, political and institutional factors may be important to quality of life. Here we focus on a factor, *democracy*, that can be argued to affect wellbeing positively by facilitating outcomes closer to citizen preferences and creating procedural utility (Frey and Stutzer 2002; Dorn et al. 2007; Stadelmann-Steffen and Vatter 2012). When it comes to democracy and public opinion about minorities, a basic tenet of democratic thinking is equality: that all should have an equal say about collective affairs. Embracing this basic spirit of democracy does not *necessarily* entail equal treatment of all kinds of minorities (especially not minorities that are economically separate, such as those with high wealth or income), but we argue that there should be a spillover effect, both in general attitudes and in the character of policies (cf. Mukand and Rodrik 2015). Where there is democracy, there is arguably greater openness to individualism and allowing, perhaps even encouraging, people to lead their lives as they please; and there is an idea of designing policies such that people – even non-typical groups – benefit from the joint political project. Yet, as already noted, policies and expenditures in particular implemented by democracies may be primarily directed towards the median voter and hence welfare-reducing for gay men and other minority groups. We therefore expect democracy to positively relate to public attitudes toward gay men while it may also mediate negative expenditure effects (cf. Bjørnskov et al. 2008). And again, even though positive attitudes do not automatically result in good behavior towards gays, we think it reasonable to expect democracy to improve behavior as well through the attitude channel.

Among non-political institutions, most of the literature has focused on the wellbeing value of legal institutions. In the following, we propose that two indicators are relevant: *the rule of law* and *laws protecting gay people* (we call the latter ILGA rights, based on the name of the organization that classifies these rights). The rule of law denotes a well-functioning legal system that upholds laws in an effective manner. If there is an effect from the character of law on public attitudes towards gay people (and there are indications that laws can, indeed, change attitudes – see, e.g., Bilz and Nadler 2014), the sign could go either way *depending on the content of the laws*. If the laws are discriminatory, for example, then a well-functioning legal system may reinforce anti-minority social norms and discriminatory behavior, which would directly affect the life satisfaction of gay men. If the legal system is effective, but if the laws are perceived to be detrimental, this will tend to reduce satisfaction and to increase the incentives to move. There is therefore reason to focus on the particular legislation that is enforced and whether the legislation is discriminatory or emphasizes equal treatment and universal rights, which is what the ILGA rights index captures. Such rights should tend

to promote positive attitudes, positive behavior (or at least reduce bad behavior) and also give gay men an immediate life-quality boost by becoming legally recognized.

It is furthermore reasonable to assume that there is a relationship between cultural variables and life satisfaction. *Social trust* fosters social cohesion, and countries with high levels of trust are generally characterized by honest behavior, which should affect life satisfaction directly and positively (Knack and Keefer 1997; Gundelach and Kreiner 2004; Helliwell and Wang 2011). In addition, if people trust others they do not know (much about), they should be more open to accepting people who are different, as implied by Berggren and Nilsson (2014), who find that the market economy stimulates tolerance towards gays to a greater degree when social trust is high, and thus less likely to discriminate against minorities. The effect of trust on the inclination to move is, however, ambiguous: trust can make gays feel less inclined to move if they feel part of a trusting community – but they could also be less disinclined to move if their trust extends to people in new places.

Lastly, one of the most studied cultural variables is *religion*, which is generally found to influence the quality of life. Theoretically, the effect of religion on life satisfaction is ambiguous, as being a member of a religion could yield a range of benefits, e.g., social contacts and emotional as well as material support. However, religious membership may also be costly, as it generally comes with rules and restrictions on individual behavior, e.g., regarding proper clothing, sexuality, food, gender interaction and leisure activities (Blazer and Palmore 1976; Bjørnskov et al. 2008; Fidrmuc and Börke Tunali 2015). Recent findings suggest that religion and its salience – how religious people are – may affect life satisfaction differently across economic contexts, such that there are no evident gains in wellbeing from religiosity after passing a certain level of economic development (Lim and Putnam 2010; Bjørnskov and Tsai 2015). We in particular expect certain religions to be negatively associated with the quality of life of gay men, due to anti-gay teachings, resistance to legal and social acceptance and lower tolerance (Gutmann and Voigt 2015). While almost all religions entail theological/moral positions on homosexuality that almost without exception are negative, religious traditions nevertheless vary considerably. The more liberal development, which would benefit minority satisfaction, can to a large degree be found among Protestants and in countries where church membership is largely nominal, e.g., due to state-church systems. Conversely, more customary religious traditions tend to characterize Orthodox Christianity and Islam.

In summary, while we note that a large number of society-level factors may affect quality of life in general, particular economic, institutional and cultural factors are a priori likely to be of particular importance for minorities, such as the one analyzed here. These factors can affect life satisfaction and

quality directly or through public opinion and behavior, although some effects may differ between poor or rich societies. We therefore next move to the empirical analysis to see to what extent our theoretical predictions hold.

### 3 Data

#### 3.1 Main Data

Our main data derive from a new survey, the Gay Happiness Index (GHI), conducted across the world through the website [www.planetromeo.com](http://www.planetromeo.com) (a social forum for gay men) between December 2014 and February 2015. Approximately 115,000 gay men in 130 societies participated.<sup>10</sup> Only aggregate data, with average values over all respondents per country, are available. Lemke et al. (2015) report having asked a long list of questions intended to capture the life satisfaction of gay men as well as their perceptions of

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<sup>10</sup> A strength of the sample is that it is large and drawn from a substantial group of very diverse countries, and while it is based on an online survey, there are indications of smaller and smaller differences between offline and online survey populations as Internet access spreads (Fricker and Schlonlau 2002). It bears noting, for example, that the mean age of respondents in this online survey is similar to that found in other surveys (see, e.g., Powdthavee and Wooden 2015). Nevertheless, there might still be a concern that the sample is non-representative (Wilson and Laskey 2003). Let us address such a concern with four points. First, we deal with this in Section 4, by weighting the sample such that observations from countries with fewer than 100 respondents are downplayed, by carrying out an outlier analysis in the form of a jackknife exercise and by separating estimates for rich and poor countries. The inclusion of regional dummies also alleviates part of the concern to the extent that they capture broad factors affecting survey participation. Second, even if skewedness exists, it may be reasonable to assume that it is similar across countries, which makes comparisons of our kind less problematic. Third, it may be the case that online surveys are actually more representative of gay men in general than traditional surveys that ask gay men who are members of particular organizations or who visit particular physical venues, since we believe that this group is more prone, in most countries and not least in countries where there is legal and social disapprobation, to socialize via the web compared to people in general. As noted in Tikkanen and Ross (2003), one difference between men who visit gay chat rooms online and those who never do is that the former group has less often publicly come out, indicating that an Internet survey of this kind may comprise people that would otherwise not be survey participants. Fourth, Planet Romeo can be accessed via smartphones, both on the web and through an app, which does not make it necessary to own a computer to participate in the survey; it is not least noteworthy that increasingly, people in developing countries use phones for financial transactions and social interaction. All this being said, it should be noted that our results mainly apply to gay men who use the Internet in some form.

how the surrounding society views and behaves towards them. The survey is thematically organized around three themes: public opinion (how the respondents think others perceive of them), public behavior (how the respondents have been treated) and life satisfaction (how satisfied the respondents are with their lives).

*Public opinion* is captured by questions about laws, government and government decisions; people's attitudes; the gay-friendliness of one's work place or school; how gay men are perceived at public events; whether the respondent would hold hands with another man in public; whether he would kiss another man in public; whether he would approach a man for a date or sex; and a broader question of the degree to which homosexuality is accepted in society. *Public behavior* is captured by a set of questions about the occurrence of discrimination in the family, at work, in education and health care; about the likelihood of receiving verbal insults and violent threats and suffering minor or serious assaults; and of the likelihood of experiencing (derogatory) statements about homosexuality at work, school, among friends and in public. Finally, *life satisfaction* is captured by a standard question on overall satisfaction with life and by one about self-acceptance. As an alternative satisfaction measure, the survey also asked about respondents' intentions to move away from their current place of residence within the country or move out of their country, and their intentions to change jobs or schools. By providing information on these latter variables, the GHI survey thereby can be seen to address a common critique of the standard way of gauging overall life satisfaction and subjective well-being – that answers to survey questions do not always readily correspond to more “objective” measures of well-being. Case and Deaton (in press) for example discuss the surprisingly weak association between life satisfaction scores and suicide, and note that other types of observable behavior also seem less clearly associated with subjective satisfaction than one might think.<sup>11</sup> For more details about the GHI and its specific questions, see Section 1 of the Online Appendix (OA, pp. 1–2).

In our empirical analysis, we do not use the GHI in the way it is originally constructed, since some of the correlations between questions within each of the three themes are as low as .3. The aggregation of the overall GHI may thus hide that the full dataset is conceptually multidimensional, i.e., that it should ideally

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<sup>11</sup> To some extent, the critique hides an important but never stated assumption. If dissatisfaction is to result in a desire for specific behavior, such as moving to another location, dissatisfied respondents must also perceive that it is *possible* to do so. If moving is not perceived to be a practical possibility – either because people are somehow barred from moving or if respondents believe that the situation is equally bad at alternative locations – it is entirely possible to be strongly dissatisfied without having incentives to change behavior.

be statistically separated in more than three conceptual themes. We therefore document in Tables 1a and 1b how the GHI variables can be aggregated in a statistically valid way by applying principal components analysis (PCA) to estimate the dimensionality of the data and using that to form conceptually distinct indices.<sup>12</sup> These analyses point to a proper separation into six indices, which we then rescale.

[Table 1a about here]

[Table 1b about here]

While we provide a full set of statistically separable indices for 110 countries in Online Appendix-Table 1 (OA, pp. 4–6), the PCA reported in Table 1a simply confirms that the questions that Lemke et al. (2015) pool in groups of public opinion, life satisfaction and incentives to move away in fact load on to dimensions of their own. Conversely, the battery of questions relating to public behavior in Table 1b turns out to cover three dimensions: the absence of discrimination, the absence of threats or insults and the absence of derogatory statements in social fora. Columns 4–6 in both tables, where we exclude all observations from countries with fewer than 100 participants in the survey, show that the particular separation of dimensions is not due to these potentially questionable observations. All eigenvalues of the first factor excluded from the solution – i.e., the variation that we do not use when we form separable indices – are well below 1, and the factor solutions explain most of the variation in each dimension, indicating that the solution is robust. Although PCA in principle yields as many factors as there are input variables, the eigenvalues of these other factors – second, third, etc., as indicated in the notes to the tables

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<sup>12</sup> We use PCA as a way to inform us about how to create indices that maximize variation while at the same time avoiding testing highly correlated indices against each other. The particular attraction with PCA is that the number components and the separation of variables into indices are entirely driven by the data structure and thus free of any theoretical or normative priors. While Factor Analysis (FA) could have been used as the main method, it is more suitable if one wishes to test a theoretical model of latent factors causing observed variables, while our interest lies in reducing a set of correlated observed variables to a smaller set of independent composite variables, which is done through the PCA. The choice of PCA is also supported by Cronbach's Alpha (see Tables 1a,b). Yet, our experience is that the use of related types of analysis in general provides support for the same division of the variables. Other similar techniques such as FA that do not necessarily generate orthogonal solutions nevertheless tend to result in similar solutions as those we find here using PCA. And we have, as a result of this comment, run a FA as well, which reassuringly gives very similar results; not least, both PCA and FA suggest that the original GHI sub-index of public behavior hides several dimensions, which is why we use the three new indices reflecting public behavior.

– are all far below 1, indicating that we are not throwing out systematic information by restricting the number of factors. The variation that is explained by the next factors of the PCA (which we exclude from our solution) is also negligible in all cases, providing a further indication that our preferred solution is unlikely to ignore information subsumed by one or more of the variables that we aggregate into indices.

In the following, we therefore use a set of six indices along the lines that follow the robust factor solutions and that capture separate aspects of perceptions and satisfaction among gay men around the world. These indices are created by first linearly recoding all questions on a 0–10 scale. Second, we distribute the single questions to indices following the way the PCA separates the questions, giving each question equal weights in the creation of the indices.<sup>13</sup> Finally, we rescale the average of these indices to an easily interpretable 0–10 scale. All indices are measured from a positive point of view for gay men, such that the higher the number, the more gay-friendly is the country, and we thus use the terminology *favorable opinion*, *absence of discrimination*, *absence of threats*, *absence of bad behavior*, *life satisfaction* and *desire not to move* for the six indicators.<sup>14</sup> This being said, we also provide estimates using the original GHI for comparison.<sup>15</sup>

Fig. 3 provides a first insight to the extent to which our two main outcome variables, life satisfaction and the desire not to move, capture only partially similar phenomena. The correlation between the two indices is .72, and as visualized in the figure, the correspondence between the measures is high. Yet, this

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<sup>13</sup> Although one might criticize the choice of equal weights of variables in the indices, since the loadings in some cases seem different, a full set of tests suggests that no loadings differ significantly within each index. We therefore prefer a choice of equal weights in order to provide maximally transparent indices and results.

<sup>14</sup> We note that while we use the term *favorable opinion*, the opinions of the surrounding society need not be favorable in an *absolute* sense. We merely require that they are not less favorable than the opinions of other citizens with different sexual preferences. As such, we treat normative neutrality as representing a favorable opinion.

<sup>15</sup> The original GHI contains 25 components organized into three sub-indices. However, we only use 24 of the components – component 8 of the public opinion sub-index (which covers respondents’ ratings of their environment more gay-friendly than anti-gay based on the “Perception of Stigma Scale”) has been excluded. The reason is that this question is hard to interpret on the basis of being an average of nine underlying questions and that preliminary statistical analysis indicates that the three separate replies (friendly, un-friendly and neutral) load onto different dimensions, which is not the case for other components of the GHI. Moreover, a formal Chi-squared test speaks in favor of excluding the component – it can be shown to add noise. However, it bears noting that when we use the original sub-indices of the GHI in the regressions reported in Online Appendix-Table 5 (OA, p. 10), including this component, the results are very similar for the GHI public opinion sub-index compared to those found for our favorable opinion sub-index, which excludes the component, as reported in Table 3.

association mainly seems to be driven by high-income countries. The correlation between the indices is .32 in less developed countries, where mobility is arguably more restricted.<sup>16</sup>

Since there is a certain discrepancy, this motivates looking at both types of outcome indicators of the quality of life. In addition, we also note that there is some discrepancy between the life satisfaction of gay men in the measures we use and more general life satisfaction measures of entire populations. For example, the correlation between our life satisfaction indicator and the Gallup satisfaction measure presented in, e.g., Helliwell et al. (2015) is .77, and its correlation with our measure of the desire not to move is .62. This provides further justification for focusing on gay men as a group that is arguably not represented in general surveys. Moreover, in the half of our sample with relatively poor assessments of life satisfaction, the correlation is only .29, and most of the association between the life satisfaction of gay men and the general population appears driven by rich and highly satisfied countries.

[Fig. 3 about here]

Figs. 4a and 4b provide a first glimpse of the structure of the data. The former plots the life satisfaction in the two halves of the sample with low versus high levels of a favorable public opinion, absence of discrimination, absence of threats and absence of bad behavior, while the latter plots the desire not to move in the same sample halves. The plots suggest that life satisfaction is higher and the desire not to move away stronger if gays live in countries where opinion about them is more positive and if they are treated better.

[Fig. 4a about here]

[Fig. 4b about here]

### 3.2 Control Variables

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<sup>16</sup> Mobility restrictions may be of a legal kind or follow from either poverty or cultural or family values. Thus, if mobility is not an option, gay men probably do not even entertain the idea of moving. But even when mobility is an option, gay men may have no desire to move, e.g., if the actual or perceived opportunities to lead a good life elsewhere are not any better.



With respect to our set of control variables, we follow the theoretical framework in section 2 and the general literature on subjective well-being (Bjørnskov et al. 2008; Dolan et al. 2008); we summarize all data in Table 2. We include three measures of formal institutions: electoral democracy, rule of law and a measure of rights pertaining to gay and lesbian citizens. We employ the dichotomous democracy indicator from Cheibub et al. (2010), the much-used rule of law indicator from the World Governance Indicators (Kaufman et al., 2009) and the index of the legal standing of gays from ILGA (2015). The latter index covers three areas: persecution – whether there is death penalty or imprisonment for gay sex; recognition – whether gays can marry and adopt children; and protection – whether there are anti-discrimination laws. All elements thus reflect legislation ensuring *equal* treatment.

[Table 2 about here]

We supplement these indicators with three economic measures. We control for overall economic development by adding the logarithm to PPP adjusted GDP per capita, and government expenditures as a share of GDP; both measures are from Heston et al. (2012). In addition, we add the flows part of the economic globalization measure from the KOF dataset, which measures actual flows of trade, portfolio investments and foreign direct investments (Dreher 2006; KOF 2015). Related to economic development, we furthermore add the standard measure of urbanization – the share of the population that lives in urban areas – from the World Bank (2015), as well as a dummy for post-communist countries.

We then add a standard set of informal institutions often found to be central to life satisfaction (Bjørnskov and Tsai 2015). We first add social trust, measured as the share of respondents stating that most people can be trusted; these data are compiled from a set of surveys and derive from Bjørnskov and Méon (2013). Second, our specification includes the shares of populations that declare themselves Protestant, Catholic, Orthodox or Muslim; the comparison category is therefore Eastern religions, Jews and non-religious citizens, and the data derive from CIA (2015). Third, we control for the salience of religion by including the religiosity scores from Gallup (2014), measured as the share of respondents stating that religion is important in their everyday life.

Finally, we add a set of standard regional dummies (Asia, Latin America and the Caribbean, North African and the Middle East, and Sub-Saharan Africa), to account for possible inter-regional differences across parts of the world not captured by economic and institutional measures.

## 4 Results

In this Section, we begin by presenting our main regression results, with the six indicators of the quality of life of gay men as our dependent variables. We then continue to look at some robustness checks and lastly at separate results for rich and poor countries.

### 4.1 Main Results

In deriving our main results, we separate between the first four indicators of the quality of life of gay men – a favorable opinion, absence of discrimination, absence of threats and absence of bad behavior – and the last two – life satisfaction and a desire not to move. While all are modelled as a function of our society-level explanatory variables, we consider the first four indicators “intermediary” and the last two “ultimate” – it is, in the end, life satisfaction and the desire not to move that we think matter the most – and we regard them as a function of the intermediary variables. We hypothesize that life is more satisfactory, and that you have a weaker incentive to move, if you think others think well of you, and if they do not discriminate, threaten or treat you badly. As long as our assumption that the four intermediate variables measures capture phenomena that are conceptually prior to either life satisfaction or the desire to move is approximately true, this allows us to estimate the *transmission mechanisms* through which institutional and other forces operate in affecting our ultimate two outcome variables. Hence, we use the four intermediary indicators as explanatory variables in the last two regressions.

We use a structural model estimated by seemingly unrelated regressions (Zellner 1962). As for the data, we use the logarithm to the number of observations relative to the total population as weights in order to alleviate a potential problem. As can be seen in Online Appendix-Table 1 (OA, pp. 4–6), the survey covers relatively few respondents in some countries: 34 of the 110 countries in the present paper include fewer than 100 observations and 21 include fewer than 50. With such small samples, it is unlikely that the respondents that are either reached or chose to answer a survey are approximately random or representative for the gay community. Weighting observations to some extent alleviates this problem.

[Table 3 about here]

Table 3 reports our baseline results. Starting with public opinion, we find that ILGA rights and globalization are associated with more favorable attitudes towards gays, as perceived by the GHI respondents. Conversely, post-communist countries, societies with large public expenditures and predominantly Orthodox and Muslim countries appear to have worse attitudes towards gays.

In contrast, GDP per capita turns out to be strongly related to perceived discrimination against gay men – the richer the country, the less discrimination. Globalization and ILGA rights also appear strongly significant and positive, while social trust is weakly significant. We find evidence of more discrimination in predominantly Muslim societies, but do not find any difference for post-communist countries. While opinion may be worse in societies with a communist past, it does not seem to translate into discrimination.<sup>17</sup>

In column 3, we note positive associations between absence of threats and GDP per capita, ILGA rights and democracy. When instead focusing on absence of bad behavior in column 4, we find ILGA rights to matter the most. We also observe less bad behavior in societies with higher trust levels. More bad behavior is related to higher government expenditures and a post-communist legacy.

We report the most central findings in columns 5 and 6 of Table 3, where we relate the four measures of opinion and behavior (as well as additional control variables) on life satisfaction and the desire not to move. The results for our society-level variables should hence be interpreted as the direct relationships between them and our two outcomes measures – there are also indirect relationships (transmission mechanisms) working through the four indicators favorable opinion, absence of discrimination, absence of threats and absence of bad behavior. We first note that a favorable opinion and absence of discrimination both relate positively to life satisfaction, the former with a marginal effect that is approximately four times larger than the latter. Neither absence of threats nor absence of bad behavior is associated in a significant way with the life satisfaction of gay men. In addition, looking at the “direct effects” of the other explanatory variables, the results provide some evidence of GDP per capita being

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<sup>17</sup> There are two basic types of discrimination: taste-based and statistical (Becker 1957; Phelps 1972). The former is the result of a personal dislike of a particular person for some characteristic; the latter stems from imperfect information and the negative evaluation of a person for belonging to a group that *on average* is thought to possess negative qualities. In the case of gay men, a dislike may, e.g., be based on prejudice (Herek 2000), disgust (Olatunji 2008) or self-hatred (Weinstein et al. 2012). Our findings suggest that society-level factors influence the degree to which personal (taste-based or statistical) discriminatory motives turn into actually perceived discrimination.

positively and living in a predominantly Muslim country being negatively related to our outcome variable. The same sign appears for ILGA rights, which may seem like a puzzling result. However, it is arguably not as puzzling as it seems, for at least two reasons. First, what matters is the full effect including indirect effects through all transmission mechanisms – column 5 only reports the direct effect. ILGA rights also work through the four intermediate indicators of the quality of life of gay men, and in fact, the *full* effect of ILGA rights through all transmission mechanisms is clearly positive (as is illustrated in Fig. 5 below). Second, even taking the negative sign at face value, it bears noting that it seems to stem from outliers. For example, when removing the 13 countries in the sample with a GDP per capita of less than 1,500 USD, significance entirely disappears. These very poor countries thus drive this result and may very well have implemented de jure ILGA rights but either without enforcing them, which could explain the negative sign, or enforcing them with a resulting negative backlash from the general population against gays, which could also explain the sign.<sup>18</sup>

Turning to the factors related to a desire not to move, we find that the less threats and the less discrimination gay men experience, the less inclined they are to want to move. As for the society-level variables, three factors are negatively related to a desire not to move: living in a post-communist country, social trust and living in a mostly Orthodox country. The negative trust result is puzzling, given the consensus in the life satisfaction literature that trust is beneficial (e.g. Helliwell and Wang 2011). We therefore delve a bit deeper into the question why we observe the negative sign for trust.

First, it is important to note that this is a direct effect, and trust also works indirectly through absence of discrimination and absence of bad behavior, with a positive sign, so as to make *the full* effect, summing the direct and indirect effects of trust, positive but very small. Second, taking the negative sign at face value, it could be that people who trust people in general are more inclined to want to move away, as they have an open attitude towards strangers in new places (as we discuss in the theoretical section above). Third, the trust estimate is only weakly significant here and not particularly robust, as clarified below.

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<sup>18</sup> It could also be that the survey responses from these countries are not very representative, since there is an average of 54 replies per country, and that the relationship is therefore not reflecting real general circumstances. As described above we use weights to alleviate the potential small sample problem. In the sensitivity analysis we also present results when excluding countries with less than 100 observations.

## 4.2 Robustness Checks

How robust are the baseline results reported in the preceding section to various alterations? We have tested the effects of changes to the model specification and to the sample.

First, we have included a number of other, potentially significant explanatory variables: monetary stability, regulatory burden, corruption, education, income inequality, quality of the legal system, business climate and other (economic, political and cultural) dimensions of globalization. They all turn out to be insignificant throughout; and importantly, their inclusion does not alter the reported results in a qualitative sense. We also include a measure of how masculine national culture is (Hofstede 2001), which does not turn out significant, but in this case the sample is substantially reduced. These results are available upon request. Another test consisting in separating the ILGA rights index into three parts as indicated by ILGA (2015) – protection, prosecution and recognition – provides slightly more detail but also leaves all main findings unchanged.<sup>19</sup> The descriptive statistics can be found in Online Appendix-Table 2 (OA, p. 7), and the results are reported in Online Appendix-Table 3 (OA, p. 8).

Second, we have done three things with the sample: used unweighted data; deleted countries with fewer than 100 observations; and conducted a full jackknife exercise. As for using unweighted data, the disadvantage, as noted above, is that observations from countries with small samples risk being unrepresentative. Still, applying weights necessarily involves an element of arbitrariness (as to the cutoff and the particular weighting scheme), so for reference, we present estimates without weights in Online Appendix-Table 4 (OA, p. 9). Comparing these estimates with those in Table 3, we find only small differences in terms of sign and statistical significance for the explanatory variables absence of discrimination, absence of threats, absence of bad behavior and the desire not to move. Mainly, more religious variables turn significant in the unweighted case – while virtually no differences can be found for the explanatory variables of favorable opinion and life satisfaction. Next, we deleted the 34 countries with fewer than 100 observations and re-ran the regressions of Table 3 for the remaining sample. Reassuringly,

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<sup>19</sup> Specifically, all three areas matter for the quality of life of gay men, but for different outcomes. ILGA persecution is related to favorable opinion, absence of discrimination, absence of threats and absence of bad behavior; ILGA protection to the absence of discrimination (not surprising) and absence of threats; and ILGA recognition to favorable opinion, absence of discrimination and the absence of bad behavior. Section 2 of the Online Appendix (OA, p. 3) provides information on the specific coding of these sub-indices.

differences turn out to be small: While all effects of religion now turn out to be related to our two ultimate outcome variables in a direct way and not through the transmission channels, the only other substantial difference is that social trust is significant and positive in the life satisfaction regression, thereby reflecting the findings in the more general satisfaction literature (cf. Helliwell and Wang 2011).

We have also conducted a systematic outlier check in the form of a jackknife exercise, re-testing the results of Table 3 by removing one country at a time. For the dependent variables favorable opinion, absence of discrimination, absence of threats and absence of bad behavior, results are quite stable, except for the religious variables and social trust. The estimates for the explanatory variables of life satisfaction remain virtually identical to those of Table 3 throughout. One particular finding that we nevertheless want to point out is a robust positive estimate for the dummy for Latin America, which accords well with many studies on subjective well-being (e.g., Bjørnskov et al. 2008). However, for the explanatory variables of a desire not to move, the jackknife only delivers statistical significance for absence of discrimination and absence of threats – hence no direct relation seems to exist between our other explanatory variables and this outcome variable. To summarize, most findings – most clearly those pertaining to determinants of life satisfaction – are not sensitive to the sample-variation exercises that we have undertaken but remain stable.

Lastly, while not a robustness check in the narrow sense, if one does not approve of our PCA approach we have also produced estimates using the original parts of the in Online Appendix-Table 5 (OA, p. 10). These estimates using the original GHI in the main corroborate our baseline findings. Notably, most of the variables related to life satisfaction work through the intermediate transmission variables – e.g., ILGA rights are associated with more favorable opinions and behavior, but are not significant in their direct association with life satisfaction. The only such direct associations that attain significance are GDP per capita (positive) and living in a mostly Orthodox country (negative).

### **4.3 Results Conditional on GDP Per Capita**

Do the findings identified thus far mainly occur in relatively rich or poor countries? We ask this as recent cross-country studies on overall well-being find that the effects of key determinants, and in particular those of institutions and policies, vary significantly between rich and poor countries. Helliwell and Huang (2008) for example find that good governance in terms of the rule of law and bureaucratic accountability is relatively more important in low-income countries, whereas democracy is more important in high-income

countries. Bjørnskov and Tsai (2015) confirm the larger effects of democracy in rich countries but also find differential effects of social trust and religiosity.

We follow this literature and produce separate estimates for poor and rich countries by interacting a dummy capturing the median GDP per capita with the seven factors from our main analysis in Table 2 that have previously been shown to vary between rich and poor countries. Fig. 5 illustrates how a one standard-deviation change in six of the factors relates to our outcome variables in each of the two country groups; the seventh factor, democracy, is a dummy variable, and so we can only identify what happens when one goes from non-democracy to democracy. A dark color denotes statistical significance.

[Fig. 5 about here]

The figure is based on Appendix-Tables 1a,b, which present the central estimates (while the full set of estimates, in accordance with the models of Table 3, are not reported for reasons of space). For the relatively poor half, the marginal effect is the reported point estimate for the explanatory variable in question (in italics in Appendix-Tables 1a,b); for the relatively rich half it is the reported point estimate *plus* the interaction term (also in italics). We evaluate these interacted effects including correct conditional standard errors through the delta method (Brambor et al., 2006).<sup>20</sup>

Turning to Fig. 5, we first find three factors significant in their relationship to a favorable opinion: globalization (positive), government expenditure (negative) and ILGA rights (positive). While the relationship appears stronger for globalization in poor countries, and stronger for ILGA rights in rich countries, the government expenditure variable only significantly relates to opinion in rich countries. Continuing on to absence of discrimination, three variables matter: social trust, globalization and ILGA rights. Trust only matters significantly in rich countries, and while the other two matter in both country groups, the difference between the two groups is significant only for globalization. As in the case of a favorable opinion, ILGA rights relates to the outcome more strongly than the other factors. When looking

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<sup>20</sup> Readers should note that while the interaction term *per se* cannot be interpreted on its own – one has to interpret the conditional effects when gauging the size and significance of the results – its significance informs about whether the difference between the estimates in the low- and high-GDP subsamples is significant. As such, the subsample estimates can differ in two ways: 1) either by being significantly different, such that one is clearly larger than the other; or 2) by *not* being significantly different but where one estimate is substantially more precise when one conditional estimate is significant and the other is not.

at absence of threats, three factors play a significant role: social trust, democracy and ILGA rights. The first and last of these are only significant in poor countries, while democracy matters in both. The last “intermediate” outcome, absence of bad behavior, relates to ILGA rights, and equally so in rich and poor countries, and to globalization (positively) and government expenditures (negatively) in poor countries (but the two latter associations are small in size).

Finally looking at the two ultimate outcome variables, the bars express full effects: indirect ones, through the transmission channels (as illustrated in the preceding four diagrams), plus direct ones.<sup>21</sup> Life satisfaction relates to three factors: globalization (in rich countries only, with a small impact), government expenditure (in both country groups, likewise a small impact) and ILGA rights (in both country groups, a relatively large impact). It is especially interesting to note the positive full impact of ILGA rights on life satisfaction – unlike in Table 3, we here take into account not only the direct effect but also the indirect effect, working through the intermediate outcome variables favorable opinion and absence of discrimination. The desire not to move is a positive function of democracy (in both country groups but more strongly in rich countries) and ILGA rights (in both country groups, somewhat more strongly in poor countries). This exercise shows that some explanatory variables vary, in the association with the outcome variables, depending on the level of economic development, but overall, differences are rather limited. As such, the most consistently important factor for the quality of life of gay men is ILGA rights.

## 5 Discussion and Conclusions

In what type of societies do people fare well? This significant question has been on the minds of scholars for decades. The research on happiness and well-being generally focuses on the average population, despite the well-known fact that averages may hide important variation, and that what matters for an average person’s well-being may not necessarily matter in a similar way to a typical member of a minority. By combining two literatures – the one on the general country-level determinants of well-being and the one on

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<sup>21</sup> We calculate the size of the full effects by, for example, multiplying the estimates of ILGA rights on opinion and discrimination with the effects of opinion and discrimination on life satisfaction and adding the two effects. In the case there is a direct effect, this is added to the sum of the indirect effects to get the full effect.



the well-being of gay men – this article is a first exploratory study on what features of a society are related to a satisfied life for a particular minority: gay men across the globe.

In several aspects, this study provides important insights and broadens the general well-being literature. First, it does so by explicitly examining the situation for a minority, with new knowledge about what features of society that are related to the well-being of gays. In other words, we implicitly ask the question if it is sufficient to look at general life satisfaction considering the presence of minority groups. In that way, it may be particularly useful for those who wish to base public policy on Rawlsian grounds. Second, because we are able to take advantage of a novel and unique data set with information from very different contexts (110 countries on six continents), we can employ econometric modeling to identify results that are likely to be more generalizable than the findings of the existing but small literature on gays' well-being with selective, limited samples representing only one country or context. Third, the rich data allow for an analysis of the role of important transmission channels in the relationship between economic, institutional, legal and cultural factors and well-being. Thus, the study allows us to delve deeper into the main question and gives unique insights as to how the effects of societal factors on well-being and happiness are mediated.

The empirical analysis suggests that democracy, globalization, equal legal rights for gay citizens (the ILGA rights index) and GDP per capita play an important and positive role for the quality of life of gay men. In contrast, certain religions and living in a post-communist country stand in a negative relation to our outcome variables. The key transmission channels through which these factors affect the life satisfaction of and incentives not to move for gay men are a favorable public opinion and absence of discrimination, in the case of life satisfaction, and absence of threats and absence of discrimination, in the case of a desire not to move. For example, the index of ILGA rights appears to be the most important contributor to life satisfaction, mostly by affecting the opinion about gays and the absence of discrimination in a positive direction.

These findings are in line with recent evidence that indicate that institutions and internationalization processes shape social attitudes and tolerance, which in turn affect, in an important way, the quality of life of minorities such as gays. If people accept gay men and their lives, including relationships, in the same way as straight ones, and treat everyone the same, this provides for a more satisfactory life.

Interestingly, our findings turn out to be well in line with the existing literature using population averages, which finds that economic, legal, political and cultural factors are important determinants of life-satisfaction (cf. Helliwell and Huang 2008, Bjørnskov et al. 2010). Yet, it was not known beforehand that

these factors were important for gay men's quality of life as well and, certainly not, which ones that mattered most and how much.<sup>22</sup> For example, a one standard deviation change in ILGA rights is related to a third of a standard deviation increase in gay life satisfaction (considering the full effect). The total effect of a similar change in the central factors GDP per capita and democracy on the desire to move (proxying a revealed preference) is approximately a change of 30 % and 20 % of a standard deviation, respectively. Consequently, societal features that make the general population fare well also make gay men fare well and might even be of greater importance for this minority.

When looking at rich and poor countries separately, most estimates are relatively similar. The factor that is most clearly related to our six indicators of the quality of life of gay men is ILGA rights for both country groups; only in one case (absence of threats) is that factor significant for only one of the country groups (the poor one). In the cases where globalization matters (favorable opinion and absence of discrimination), the estimate is significant for both country groups but the size is much greater in poor countries. Social trust is negatively related to discrimination in rich countries only and negatively related to threats in poor countries only. Democracy, where there is significance (for absence of threats and the desire not to move), comes with a higher estimate in rich countries.

Our finding that most factors that are important for the well-being of people in general are important for gay men as well may be taken to imply a “generality” approach to policy and institutional design (Buchanan and Congleton 1998). Gays do not seem to need “special rights” to any great degree to experience well-being but general conditions of fairness, citizen participation and prosperity. The factor most strongly associated with life satisfaction for gay men, ILGA rights, is, in line with this reasoning, about securing *equal* treatment – to not be punished for being gay and to be allowed to marry and adopt on an equal footing with heterosexual individuals. As such, the results emphasize the case for what Mukand and Rodrik (2015) term “liberal democracy”, i.e., a set of political institutions enforcing democratic rights, property protection and extensive self-determination rights equally for all individuals in society.

However, the empirical analysis is not without limitations. Even though reverse causality is unlikely – with the exception of ILGA rights it is difficult to see how the well-being of a rather small minority could influence society-level factors – the samples are not necessarily representative of the gay community in

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<sup>22</sup> Since the unique data only includes responses from gay men, we cannot estimate the magnitude of the effects on life satisfaction in comparison to the average population. Moreover, the GHI is not measured in exactly the same way as traditional life-satisfaction indicators, which further complicates direct comparisons of magnitudes.

general. We try to carefully, albeit partially, handle this problem by using a weighting method to downplay countries with small samples. It would also be desirable to conduct panel-data analysis, but with only cross-sectional data available this will have to be a future undertaking.

## Appendix

[Appendix-Table 1a about here]

[Appendix-Table 1b about here]

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**Table 1a** Principal components analysis, public opinion (GHI) and satisfaction (GHI)

	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
Your country's laws, gov. and gov. decisions	.90			.92		
People in your country	.99			.99		
People at work / school	.97			.98		
Public event	.98			.99		
Holding hands with man	.89			.94		
Kissing man	.98			.98		
Approaching for date / sex	.93			.93		
Homosexuality is accepted	.98			.98		
Life satisfaction		.85			.88	
Acceptance		.85			.88	
Move within country			.74			.75
Move out of country			.81			.87
Change job / school			.92			.91
Observations	110	110	110	71	71	71
Eigenvalue	7.25	1.46	2.07	7.40	1.55	2.14
Var. expl.	.97	1.12	1.06	.97	1.09	1.08
KMO test	.92	.50	.64	.90	.50	.71
Cronbach's Alpha	.55	.89	.87	.56	.91	.88

The table displays normalized loadings. The eigenvalues and variance explained of the second factors, i.e., the first factor of each PCA (which always yields as many factors as there are variables) not included in the table and not used to compose the final indices, in the three analyses are .23 / .03, -.16 / -.12, and .04 / .02 in the full sample and .22 / .03, -.13 / -.09, -.04 / -.02 in the reduced sample (without the countries with fewer respondents than 100). The gray areas indicate the block separation of variables that we use to build new indices based on this PCA. KOM test refers to the Kaiser-Meyer-Olkin sampling adequacy test, showing whether the partial correlations among items are small.



**Table 1b** Principal components analysis, public behavior (GHI)

	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2	Factor 3
No discr. in family	-.51	.21	.75	-.54	.31	.70
No discr. at work	-.47	.45	.71	-.51	.38	.75
No discr. in educ. / health	-.36	.51	.66	-.39	.39	.73
No verbal insults	-.36	.56	-.09	-.27	.54	-.09
No violent threats	-.30	.86	.21	-.23	.90	.19
No minor assaults	-.31	.84	.29	-.26	.87	.31
No serious assaults	-.23	.83	.36	-.18	.87	.34
No statements at work	.89	-.21	-.31	.93	-.11	-.29
No statements at school	.86	-.32	-.34	.91	-.22	-.30
No statements among friends	.80	-.24	-.48	.84	-.27	-.40
No statements in public	.88	-.33	-.16	.89	-.28	-.15
Observations	110	110	110	71	71	71
Eigenvalue	3.91	3.27	2.23	4.09	3.22	2.20
Var. expl.	.41	.34	.23	.41	.33	.22
KOM test	.87	.76	.70	.83	.74	.67
Cronbach's Alpha	.97	.91	.94	.97	.91	.95

The table displays normalized loadings. The eigenvalues and variance explained of the second factors, i.e. the first factor of each PCA (which always yields as many factors as there are variables) not included in the table and not used to compose the final indices) are .35 and .04 in the full sample and .43 and .04 in the reduced sample (without the countries with fewer respondents than 100). The gray areas indicate the block separation of variables that we use to build new indices based on this PCA. KOM test refers to the Kaiser-Meyer-Olkin sampling adequacy test, showing whether the partial correlations among items are small.

**Table 2** Descriptive statistics

	Mean	Std. deviation	Minimum	Maximum	Observations
<i>The three subindices of the Gay Happiness Index (Lemke et al., 2015)</i>					
Public opinion (GHI)	29.14	22.46	4	87	110
Public behavior (GHI)	52.30	10.58	23	74	110
Life satisfaction (GHI)	56.27	12.83	27	80	110
<i>The six indices based on PCA</i>					
Favorable opinion (based on PCA)	3.60	2.65	0	10	110
Absence of discrimination (based on PCA)	6.16	1.98	0	10	110
Absence of threats (based on PCA)	6.42	1.77	0	10	110
Absence of bad behavior (based on PCA)	6.23	1.81	0	10	110
Life satisfaction (based on PCA)	6.13	2.12	0	10	110
Desire not to move (based on PCA)	6.64	1.81	0	10	110
Log GDP per capita	8.79	1.26	5.97	11.08	110
Government exp.	8.93	4.09	3.68	26.36	110
Democracy	.67	.42	0	1	110
Rule of law	.17	1.01	-1.75	1.96	110
ILGA rights	3.29	1.92	0	7	110
Urban population	60.19	21.72	12.26	100	110
Post-communist	.24	.43	0	1	110
Globalization flows	64.02	18.36	16.59	99.88	108
Social trust	25.93	13.01	5.77	68.08	110
Religiosity	.68	.25	.16	1	110
Orthodox	11.84	29.80	0	98	110
Catholic	29.53	36.76	0	98	110
Protestant	13.78	23.19	0	95	110
Muslim	21.21	32.90	0	100	110

ILGA (2015) does not provide a coding of the various rights; hence we have put together and coded the three indicators ILGA persecution (covering whether same-sex activity is legal or illegal, whether the age of consent is the same as for heterosexual activity, whether there is death penalty for homosexuality, if the country has laws against propaganda), ILGA protection (covering whether there are laws against discrimination based on sexual orientation, if there are laws against hate crime and incitement to hatred) and ILGA recognition (covering if same-sex marriage or civil unions are allowed, and if joint adoption is legal) ourselves, using the facts of the report.

**Table 3** Determinants of the quality of life of gay men, seemingly unrelated regressions, weighted estimates

<i>Measure</i>	(1)	(2)	(3)	(4)	(5)	(6)
	Favorable opinion	Absence of discrimination	Absence of threats	Absence of bad behavior	Life satisfaction	Desire not to move
Log GDP per capita	.12 (.21)	.57*** (.22)	.74*** (.23)	.11 (.17)	.41*** (.12)	.22 (.18)
Government expenditures	-.07*** (.03)	-.02 (.03)	-.00 (.03)	-.06*** (.02)	.01 (.02)	-.03 (.02)
Democracy	.42 (.35)	.40 (.37)	1.05*** (.40)	.44 (.29)	-.18 (.21)	.12 (.30)
Rule of law	.05 (.22)	-.27 (.23)	.12 (.25)	.21 (.18)	-.02 (.13)	-.10 (.19)
ILGA rights	.57*** (.08)	.42*** (.09)	.22** (.09)	.36*** (.076)	-.11** (.057)	.13 (.08)
Urban population	-.00 (.01)	-.00 (.01)	-.01 (.01)	.01 (.01)	-.00 (.01)	-.01 (.01)
Post-communist	-2.38*** (.35)	.05 (.37)	-.24 (.40)	-.72** (.29)	.37 (.25)	-.73** (.36)
Globalization flows	.02*** (.01)	.02*** (.01)	.01 (.01)	.01 (.01)	.00 (.00)	-.00 (.01)
Social trust	.01 (.01)	.02* (.01)	-.00 (.01)	.02** (.01)	.01 (.01)	-.02** (.01)
Religiosity	-.83 (.76)	.33 (.80)	.62 (.86)	-.04 (.63)	.54 (.44)	-.90 (.63)
Orthodox	-.01** (.01)	-.01 (.01)	.00 (.01)	-.01 (.00)	-.00 (.00)	-.01* (.00)
Catholic	-.00 (.01)	-.01 (.00)	-.01 (.01)	-.01 (.00)	-.00 (.00)	-.00 (.00)
Protestant	.01 (.01)	-.01 (.01)	-.01 (.01)	-.01 (.01)	-.00 (.00)	-.01 (.01)
Muslim	-.01* (.01)	-.02*** (.01)	-.01 (.01)	-.00 (.01)	-.01*** (.00)	-.01 (.01)
Favorable opinion					.60*** (.07)	.06 (.10)
Absence of discrimination					.18*** (.07)	.23** (.10)
Absence of threats					-.03 (.055)	.371*** (.08)
Absence of bad behavior					-.05 (.09)	.03 (.13)
Regional fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	107	107	107	107	107	107
R squared	.89	.74	.56	.82	.94	.81

Chi squared	889.24	302.86	134.63	483.32	1700.51	447.26
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Standard errors in parentheses. \*\*\* (\*\*) [\*] denote significance at  $p < .01$  ( $p < .05$ ) [ $p < .10$ ]. The analytic weights applied are the logarithm to the number of respondents in each country sample as a ratio to overall population size.

**Appendix-Table 1a** Effects of institutional factors, conditional on GDP per capita

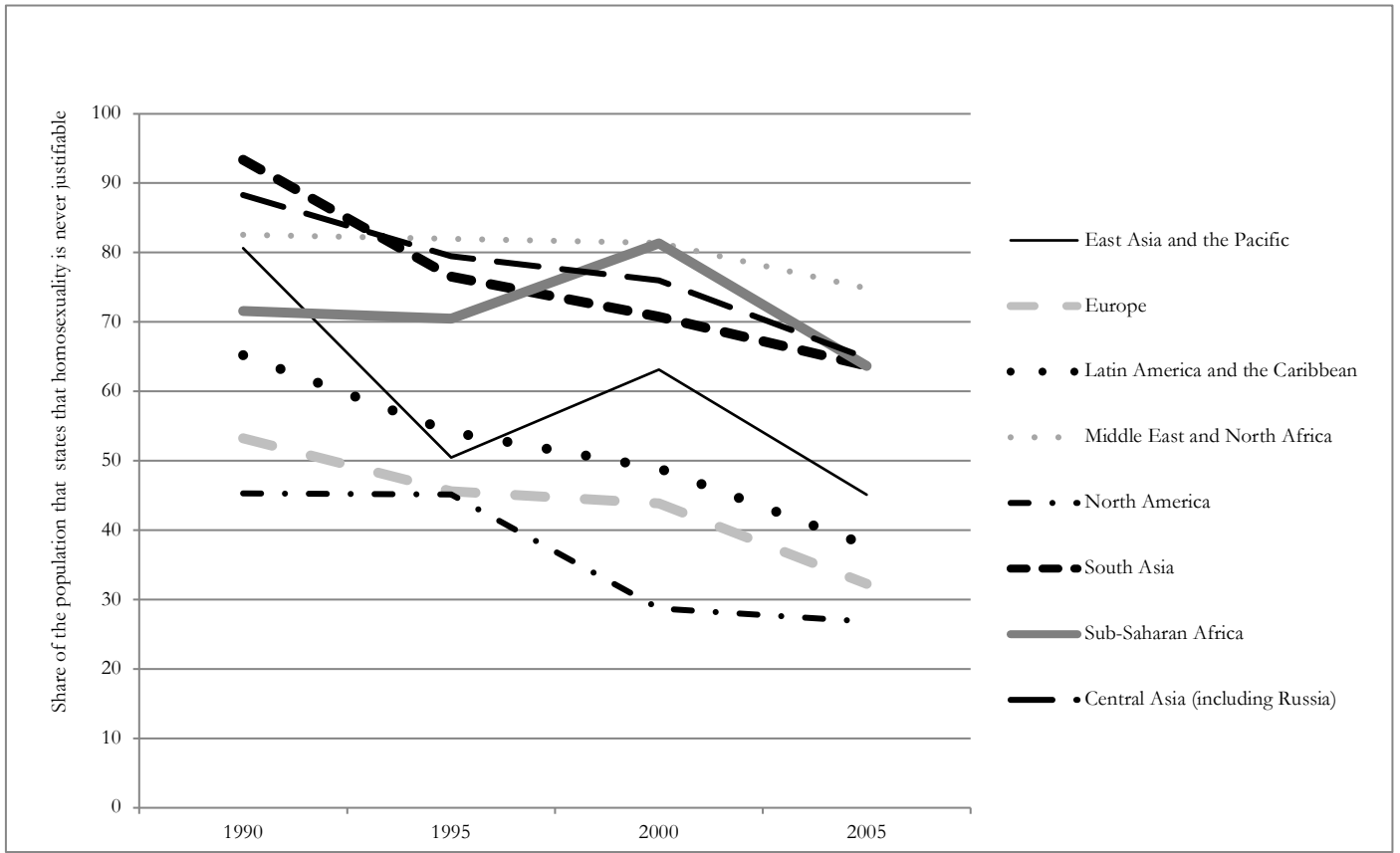
<i>Measure</i>	(1)	(2)	(3)	(4)	(5)	(6)
	Favorable opinion	Absence of discrimination	Absence of threats	Absence of bad behavior	Life satisfaction	Desire not to move
GDP median	-.58 (1.11)	2.03* (1.19)	-1.29 (1.39)	-.09 (1.03)	1.72** (.73)	.17 (1.04)
Median * religiosity	.75 (1.34)	-1.76 (1.44)	1.95 (1.68)	.13 (1.25)	-2.35** (.87)	-.30 (1.26)
Religiosity below median GDP	<i>-1.38</i> (1.31)	<i>1.46</i> (1.41)	<i>-1.18</i> (1.64)	<i>-.08</i> (1.22)	<i>2.55***</i> (.85)	<i>-.55</i> (1.23)
Religiosity above median GDP	<i>-.63</i> (.92)	<i>-.31</i> (.99)	<i>.77</i> (1.15)	<i>.05</i> (.85)	<i>.21</i> (.52)	<i>-.85</i> (.76)
GDP median	-.33 (.64)	-.01 (.65)	1.86** (.74)	.16 (.56)	-.60 (.41)	-.69 (.57)
Median * trust	.02 (.02)	.03 (.02)	<i>-.08***</i> (.03)	-.01 (.02)	.02 (.02)	.03 (.02)
Trust below median GDP	<i>-.00</i> (.00)	<i>-.01</i> (.02)	<i>.06**</i> (.03)	<i>.03</i> (.02)	<i>-.01</i> (.01)	<i>-.05**</i> (.02)
Trust above median GDP	<i>.01</i> (.01)	<i>.03*</i> (.01)	<i>-.02</i> (.02)	<i>.02</i> (.01)	<i>.01</i> (.01)	<i>-.02</i> (.01)
GDP median	-.05 (.50)	.66 (.54)	.08 (.63)	.16 (.47)	-.406 (.33)	.72 (.45)
Median * democracy	.08 (.56)	.01 (.61)	.25 (.71)	-.27 (.52)	.43 (.36)	-1.29** (.50)
Democracy below median GDP	<i>.16</i> (.45)	<i>.35</i> (.49)	<i>1.06*</i> (.57)	<i>-.30</i> (.42)	<i>-.54*</i> (.30)	<i>1.12***</i> (.41)
Democracy above median GDP	<i>.25</i> (.42)	<i>.35</i> (.45)	<i>1.31**</i> (.52)	<i>.57</i> (.39)	<i>-.10</i> (.28)	<i>-.17</i> (.38)

Standard errors in parentheses. \*\*\* (\*\*) [\*] denote significance at  $p < .01$  ( $p < .05$ ) [ $p < .10$ ]. GDP is short for GDP per capita. Each regression uses the full set of control variables including regional fixed effects as in Table 2, which are not reported to save space. Marginal effects in italics provide effects below and above the median, with conditional standard errors for the latter calculated by the Delta method (Brambor et al. 2006).

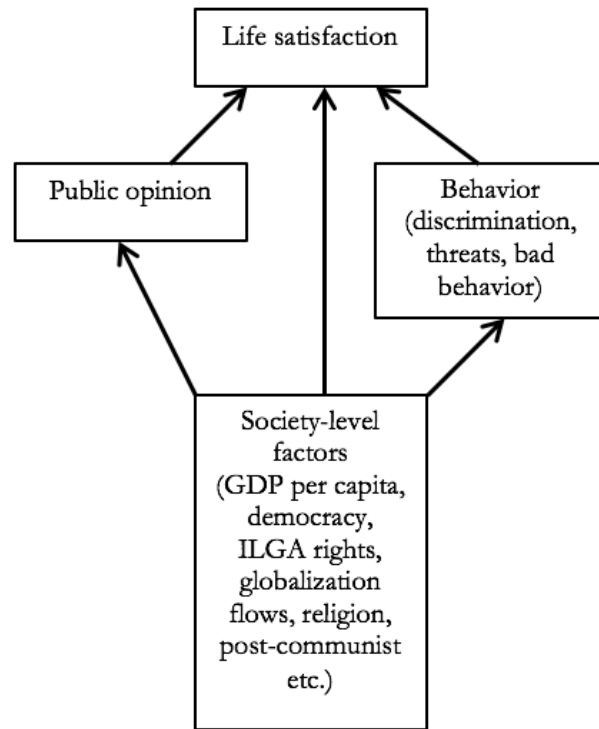
**Appendix-Table 1b** Effects of economic and judicial factors, conditional on GDP per capita

<i>Measure</i>	(1)	(2)	(3)	(4)	(5)	(6)
	Favorable opinion	Absence of discrimination	Absence of threats	Absence of bad behavior	Life satisfaction	Desire not to move
GDP median	1.2 (.93)	2.38** (.99)	.43 (1.17)	1.60* (.85)	-1.16 (.62)	.33 (.88)
Median * globalization	-.02 (.01)	-.03* (.02)	-.003 (.02)	.03** (.01)	.02* (.01)	-.01 (.01)
Globalization below median GDP	.03*** (.01)	.05*** (.01)	.01 (.02)	-.03** (.01)	-.01 (.01)	.01 (.01)
Globalization above median GDP	.02* (.01)	.02* (.01)	.01 (.01)	.00 (.01)	.01 (.01)	.00 (.01)
GDP median	.23 (.56)	.36 (.61)	-.30 (.70)	-.36 (.52)	-.60 (.36)	.85* (.50)
Median * gov. expenditures	-.03 (.05)	.04 (.06)	.06 (.07)	.05 (.05)	.06 (.03)	-.11** (.05)
Gov. expenditures below median GDP	-.05 (.04)	-.03 (.04)	-.03 (.04)	-.07** (.03)	-.02 (.02)	.05 (.03)
Gov. expenditures above median GDP	-.08** (.04)	.00 (.04)	.04 (.05)	-.03 (.04)	.04 (.03)	-.06* (.03)
GDP median	-.37 (.62)	1.12* (.67)	1.21 (.77)	.05 (.57)	-1.19*** (.39)	.20 (.58)
Median * ILGA rights	.15 (.20)	-.19 (.21)	-.40 (.25)	-.02 (.18)	.42 (.12)	-.10 (.18)
ILGA rights below median GDP	.46*** (.17)	.59*** (.19)	.58*** (.22)	.41*** (.16)	-.47*** (.11)	.20 (.17)
ILGA rights above median GDP	.61*** (.91)	.40*** (.10)	.18 (.11)	.40*** (.09)	-.05 (.07)	.10 (.10)
GDP median	.15 (.45)	1.06 (.49)	.27 (.57)	.08 (.42)	-.06 (.30)	.19 (.42)
Median * rule of law	.27 (.49)	.75 (.53)	.04 (.58)	.15 (.46)	.14 (.32)	.46 (.45)
Rule of law below median GDP	-.18 (.46)	-.94 (.49)	.08 (.62)	.04 (.43)	-.05 (.31)	-.62 (.43)
Rule of law above median GDP	.10 (.22)	-.19 (.24)	.11 (.28)	.19 (.21)	.09 (.15)	-.16 (.21)

Standard errors in parentheses. \*\*\* (\*\*) [\*] denote significance at  $p < .01$  ( $p < .05$ ) [ $p < .10$ ]. GDP is short for GDP per capita. Each regression uses the full set of control variables including regional fixed effects as in Table 2, which are not reported to save space. Marginal effects in italics provide effects below and above the median, with conditional standard errors for the latter calculated by the Delta method (Brambor et al. 2006).



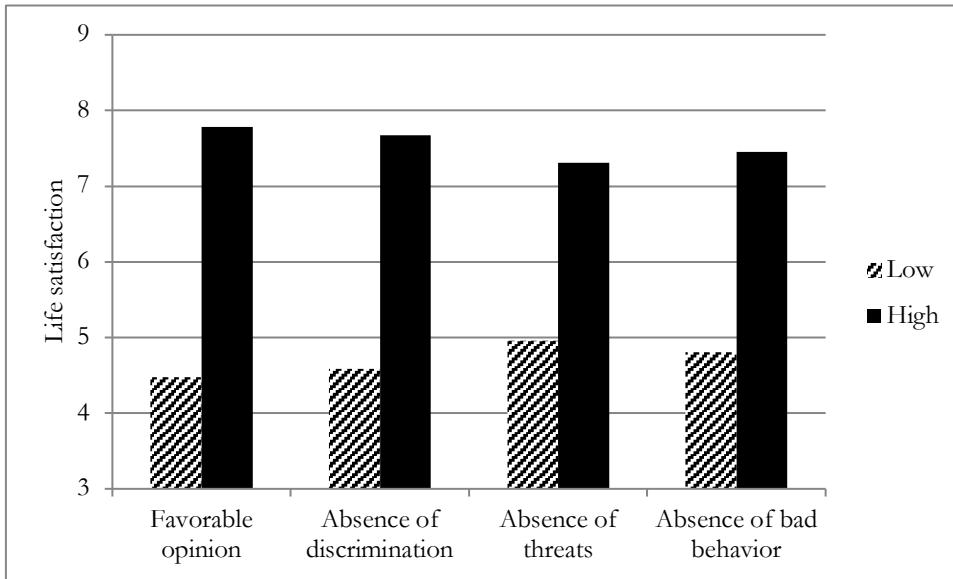
**Fig. 1** Share of the population that states that homosexuality is never justifiable. Source: World Values Survey (2015).



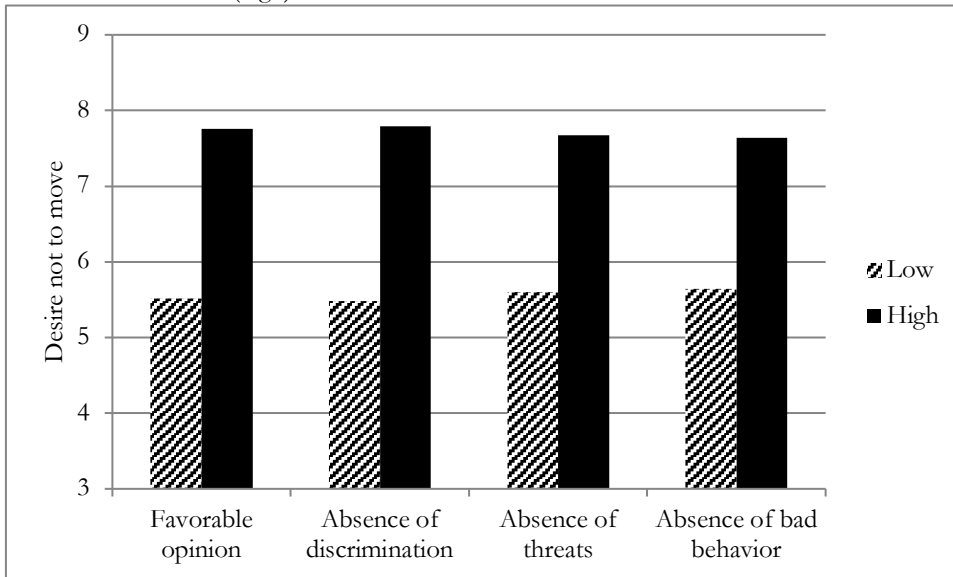
**Fig. 2** Determinants of the quality of life.



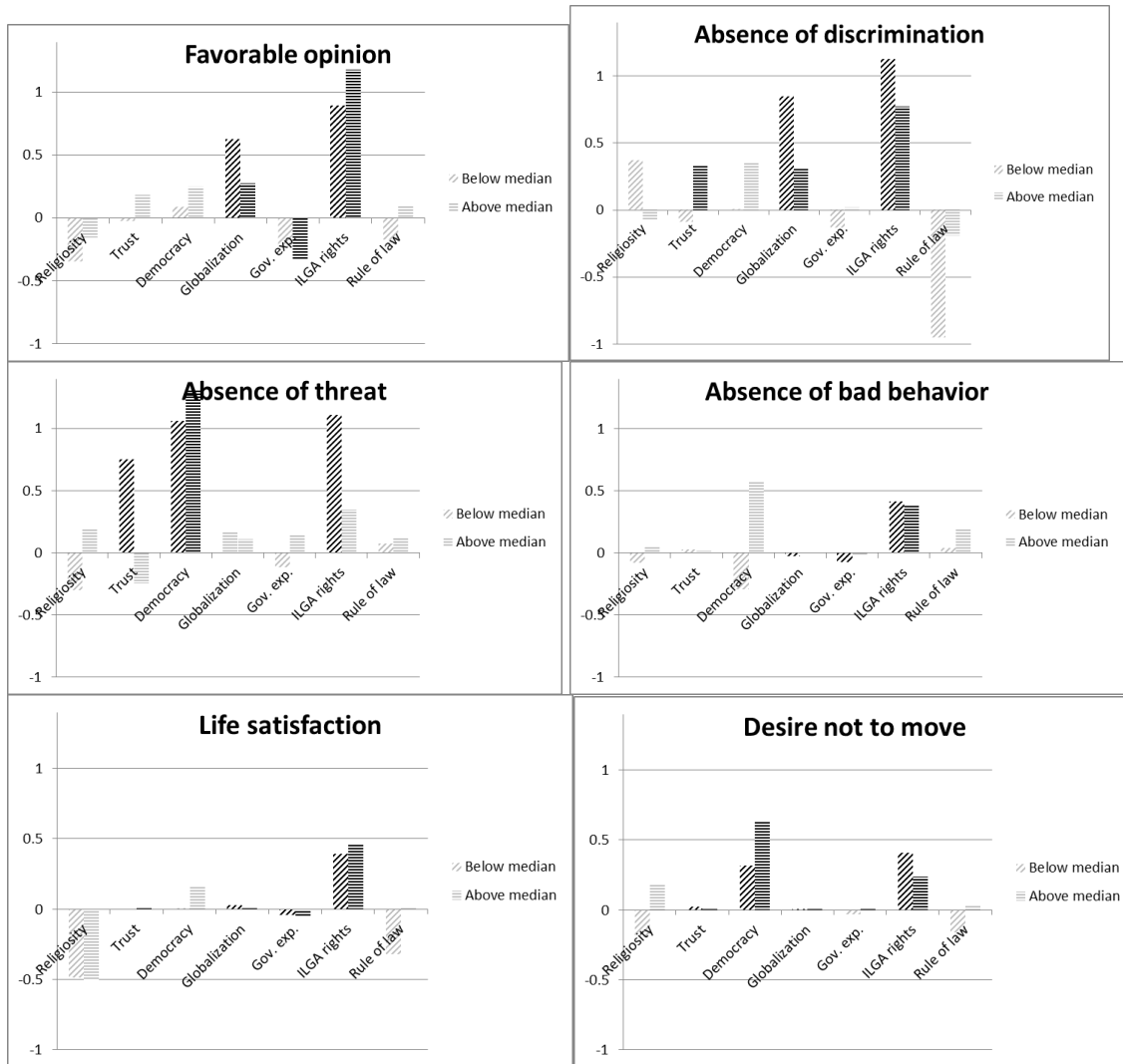




**Fig. 4a** How life satisfaction varies with opinions and treatment of gay men. Note: Low (high) refers to the 50 % of the countries with low (high) values for each of the four variables listed on the horizontal axis. All measures are based on PCA.



**Fig. 4b** How a desire not to move varies with four indicators of opinions and treatment of gay men. Note: Low (high) refers to the 50 % of the countries with low (high) values for each of the four variables listed on the horizontal axis. All measures are based on PCA.



**Fig. 5** Estimates for rich and poor countries. Note: All countries belong to one of two groups depending on whether their GDP per capita is below or above the median. The bars are based on Appendix-Tables 1a,b and show the change in the six dependent variables (in the last two cases with the full – direct plus indirect – effects) when the seven variables, one at a time, are increased by one standard deviation.