Getting the Message Out:
Media Context and Global Changes in Attitudes toward Homosexuality

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Abstract: Global attitudes involving homosexuality are changing rapidly. Tolerance towards lesbian and gay relationships has increased on almost every continent. More often than not, younger people have been at the forefront of this change. In this article, we explore explanations for this cross-national phenomenon. Specifically, we test to see if contextual factors, those which allow lesbian women and gay men to freely express themselves or to gain cultural representation in the media, have driven this transformation. The results show that inter-cohort effects, or more liberal attitudes among younger people, are related to the pervasiveness of a nation's mass media and to the presence of press freedom. This research suggests a strong link between increasing mass support for minority rights and the factors that encourage and allow minorities to express their viewpoints to others. These findings have broad implications, in that they help us understand the growing global polarization around gay rights.

"The rise in support for same-sex marriage over the past decade is among the largest changes in opinion on any policy issue… [M]uch of the shift is attributable to the arrival of a large cohort of young adults who are far more open to gay rights than previous generations." – *PEW, 2013*

"[A]ttitudes got steadily better, coinciding with greater visibility of lesbian and gay people in the media" – *Scottish gay rights activist, 2011*

In the United States and beyond, few shifts in public opinion have been as durable, or shown such magnitude of change, as attitudes involving lesbian women and gay men[1]. One of the most prominent and consistent factors found to contribute to this change is the entry of a younger, more socially liberal cohort into the public arena (Lewis and Gosset 2008; Loftus 2001). Other prominent causes of more liberal attitudes include increased contact with gay people (Herek 2003; Lewis 2011), a rise in the portrayal of gay people in news and fictional media (Riggle, Ellis, and Crawford 1996; Schiappa, Greg, and Hewes 2006; Garretson 2014a and 2014b), the proliferation of the idea that homosexuality has its roots in biology instead of lifestyle choice (Haider-Markel and Joslyn 2008), and favorable shifts toward gay people in the positions taken by political elites (Reynolds 2013; Ayoub 2014a). While many studies have been rooted in the American experience, countries across the globe have experienced similarly impressive changes in attitudes towards homosexuality, notably in Latin America, Australia,

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[1] This article explores attitudes toward gay men, lesbian women, and bisexual men and women. When we write "gay people" or "gay rights" we always refer to both men and women.

Western Europe, and parts of Asia (Smith 2011).[2] The trend toward attitudinal change, despite the active resistance it can provoke, has continued unabated in several unexpected areas—from Catholic countries like Argentina, to newer democracies like the Czech Republic—marking this a truly global phenomena (Asal, Sommer, and Harwood 2013; Sommer, Asal, Zuber and Parent 2013; Frank et al. 2010; Kollman 2007).

In this paper we explore the causes of this global sea change in individual attitudes towards gay people. The fact that it has extended—and also originated—in contexts far outside the borders of the United States (U.S.) raises new questions for attitudinal research on sexuality, a literature that has focused most of its attention within the American domestic context. The global trends we chart require rethinking what we know, and exploring the transnational factors that tie societies together and allow for interactions that ultimately lead to simultaneous change across multiple contexts.

Within the scope of this study, we think of transnational interactions as the diffusion of ideas and images across borders. In this regard we see a strong role for the soft power that the media can play transnationally in shaping political attitudes towards sexuality and minorities in general, especially among more impressionable, younger individuals. There can be several pathways by which such issues enter the domestic debate. Here we focus specifically on the media since it carries with it the types of transnational information flows that are important for encouraging contact and communication between groups, the same contact that has been shown to be crucial in the American context (Schiappa, Greg, and Hewes 2006). Domestic media,

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[2] The same holds true for changes in the legal status of homosexuality (Frank, Boutcher, and Camp 2010) and same-sex relationships (Paternotte and Kollman 2013).

which also often takes its inspiration from, or includes, foreign imports, tends to incorporate issues of popular culture that have captured the world's attention (Chan 1994, Jensen and Oster 2009).

An unparalleled increase in the representation of gay people in news, television and movies occurred in the 1990s (Gross 2002); possibly most prominently exemplified by Ellen DeGeneres's high-profile coming out on mainstream American television (as Ellen Morgen in the ABC-sitcom, *Ellen*). This trend in lesbian and gay portrayals has continued unabated over the two decades since as a key subject of popular shows like *Will and Grace* and *Modern Family,* and has more recently extended to shows geared at teenage audiences, like *Glee* and *Teen Wolf.* Beyond entertainment, the news media has increasingly covered gay rights topics as the issue has become politicized. Most recently, networks, from *Russia Today* to *Al Jazeera*, have extensively covered the gay rights debate surrounding the "anti-gay Sochi Olympics". While this shift in media visibility was pronounced in the United States and Western Europe, our data suggest that the influence of the media—an understudied dimension of norm diffusion—may not be contained within national borders and may transmit ideas about, and images of, gay people transnationally. While more optimistic accounts linking media socialization to shifts in attitudes concerning minorities have come to dominate the American public opinion literature, little systematic evidence exists cross-nationally, which is what we wish to explore here.

As such, the central question driving our study is, does the specific nature and context of a nation's media influence the liberalization of attitudes towards homosexuality? In an increasingly interconnected world, we hypothesize that the effect of media exposure should hold cross-nationally, depending on the propensity for a nation's media to facilitate that contact. We expect its effect to vary by age cohort, since younger audiences, those in their 'impressionable

years' (Dinas 2013) are less likely to have formed firm opinions towards gay people and are thus more likely to respond to new information transmitted through post-1990s media (Garretson 2014a, 2014b). We develop a social theory that allows for positive attitudinal change via the transmission of new ideas and images in a process of norm diffusion, and test it using the combined World Values and European Values Surveys. The cumulative file allows for a multilevel analysis of over 200 different surveys, taken over 70 nations from the early 1980s to 2010, and asks a common question measuring the justifiability of homosexuality. We draw on a second dataset based on a survey of lesbian, gay, bisexual and transgender (LGBT) rights organizations in 47 countries to contextualize the central findings.

The quantitative results show that inter-cohort differences are strongly associated with both the infrastructure of national media and the national political context (in terms of the level of freedom of the press). This suggests that access to ideas and images concerning gay and lesbian people does influence more liberal attitudes across multiple contexts, and does so much more strongly among the young. Our inquiry adds to our understanding of global shifts in public opinion, the diffusion of new norms, and the adoption of post-material values by highlighting their transnational nature and emphasizing the socializing power of mediated intergroup exposure.

Mapping International Change in Attitudes on Homosexuality

Before developing our argument on attitudinal change towards homosexuality, we would like to give a broad outline of the geographical breadth of the shift from the 1980s to today. This change in global attitudes is illustrated by Figure 1. As noted above, the World Values Survey and European Values (WVS and EVS) have both asked a standard question since the early 1980s, one that measures the justifiability of homosexuality. The question asks respondents to

rate whether homosexuality is never or always justifiable on a scale from 1 to 10, with "1" representing more negative attitudes toward homosexuality and "10" representing more positive attitudes. The top panel of Figure 1 displays the average response in each nation in the 1980s, while the bottom panel displays surveys taken from 2005 to 2014. The different shades of grey represent average national responses in categories of 1 to 1.5 (lightest shade), 1.5 to 3, 3 to 4.5, 4.5 to 6, 6 to 7.5, and 7.5 to 10 (darkest shade).[3] The areas in white represent cases that were not included in the study, depending on the survey wave.

In the 1980s, only the Netherlands had average responses over 5.5—the midpoint of the scale, although Denmark was close at 5.48. Indeed the Netherlands and Denmark, which were the first to adopt gay marriage and civil unions, respectively, are two states with longstanding homophile and gay rights movements.[4] No countries outside of Europe rated the justifiability over the midpoint. Contrast this with surveys from the past decade. Fifteen countries now have average responses over 5.5 and much of Western Europe has average responses over 7. With the

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[3] We make the smallest category slightly smaller since few nations, especially in the earlier years of the surveys, have high means values on the justifiability questions. Only Iceland and Sweden fit into our highest category on the most recent rounds. Furthermore, a score of 3 was the closest to the average mean rating in the most recent round of the WVS that allowed for a comparison of countries falling above and below this threshold.

[4] The European homophile movement—a precursor of gay liberation—that emerged after the Second World War was well established in both of these states, particularly in the Netherlands. Founded in 1946, the Dutch group COC is also the longest running LGBT organization in the world.

exception of Africa and Asia, at least one nation on every continent has a society that rates the justifiability of homosexuality over the midpoint and Japan is rapidly approaching that value with a mean rating of 5.1 in the most recent round. Relatedly, our research on the usage rates of words in five languages suggests that issues of homosexuality have entered the popular discourse of many languages since the 1990s (see Appendix I). Changing attitudes toward gay people are not just an American or Western European phenomenon, but one that has broad reach—albeit at different rates—in various parts of the globe.

Age Cohort, Contact and Public Opinion on Homosexuality

Much of the political science literature on public opinion related to sexuality is rooted in the American experience, where multiple factors have been found to correlate with attitudes towards gay people and their rights. Many of these findings relate to basic demographics. Most prominently, women (Wilcox and Wolpert 2000) and the young (Lewis and Gosset 2008; Loftus 2001; Andersen and Fetner 2008a) tend to be more liberal in their attitudes. Scholars have pointed to changes in popular culture in the 1990s as a cause of the liberalization of attitudes within the United States, especially among younger individuals (Tropiano 2002; Gross 2002). Furthermore, interpersonal contact with gay people, usually in the form of a gay or lesbian friend, family member, or co-worker has a particularly strong influence on support for gay rights and same-sex marriage (Herek 2003; Lewis 2011).

These two factors—year of birth and mediated contact—are central to this study, because they might explain the transnational interactions that tie individuals to each other in various domestic contexts. First, younger individuals have consistently been shown to have more liberal attitudes on issues involving homosexuality. In our data, we also note that the prominent gaps in attitudes towards homosexuality, across various contexts, tend to be between younger and older

cohorts. Figure 2 shows the differences between cohorts, according to each group's average score on the justifiability scale and broken down by Gross Domestic Product per capita (GDP) using waves of the WVS and EVS since 2003. For those born before 1930, attitudes are universally negative, regardless of GDP. However, among younger cohorts, a sharp divergence occurs, with younger people in high GDP countries being much more tolerant.

With respect to the academic literature, the finding on age has been counter-intuitive. Generally, most political attitudes are transmitted from parent to child (Jennings and Niemi 1968), which has explained why intergenerational differences in public attitudes are quite rare across policy issues (MacManus 1996). Scholarship has taken note of this "intergenerational discontinuity" and generally attributes it to critical junctures and political changes within the nation-state (Mannheim 1952; Mishler and Rose 2007). Although the markedly liberal attitudes among younger respondents are usually given as a cause of changes in mass opinion in the popular press, political science scholarship has rarely tried to explain why younger people hold more liberal views in a cross-national perspective. This oversight becomes more interesting if we take into consideration that younger people in strikingly different political and cultural contexts show similarly pronounced generational gaps when it comes to the acceptance of sexual minorities.

We draw on the contact hypothesis, which posits that perceptions of out-groups become increasingly more favorable through interaction (Allport 1954). In line with this research, findings show that 'imagined', 'parasocial', or 'vicarious' contact, transmitted via the media, has a similar effect on lowering prejudices and improving attitudes towards gay people in various contexts (Schiappa et al., 2006; Riggle et al. 1996). Below, after surveying the comparative

literature for clues as to the origins of these attitudinal differences, we discuss how mediated

contact with gay people may give rise to intercohort differences on gay rights.

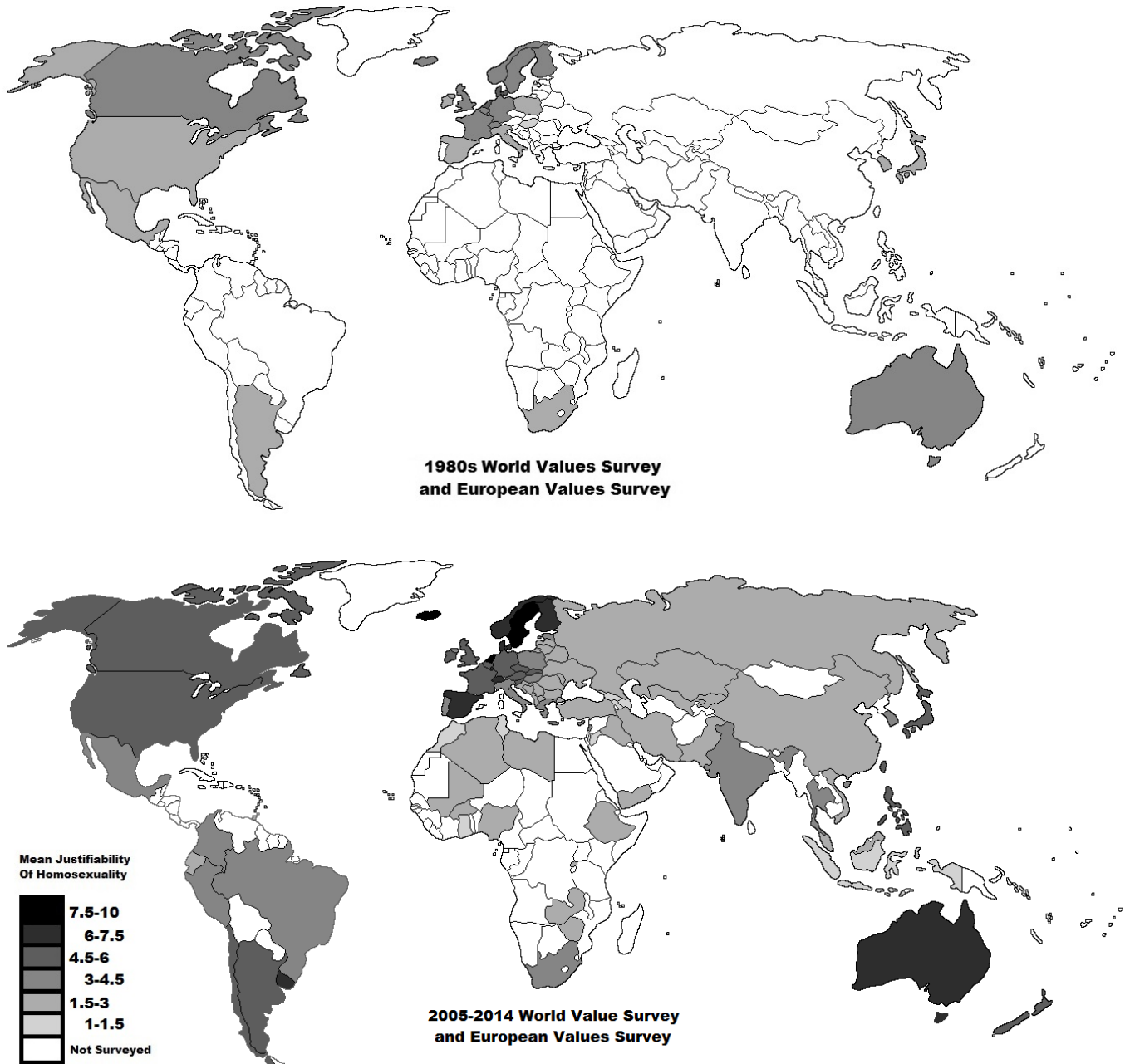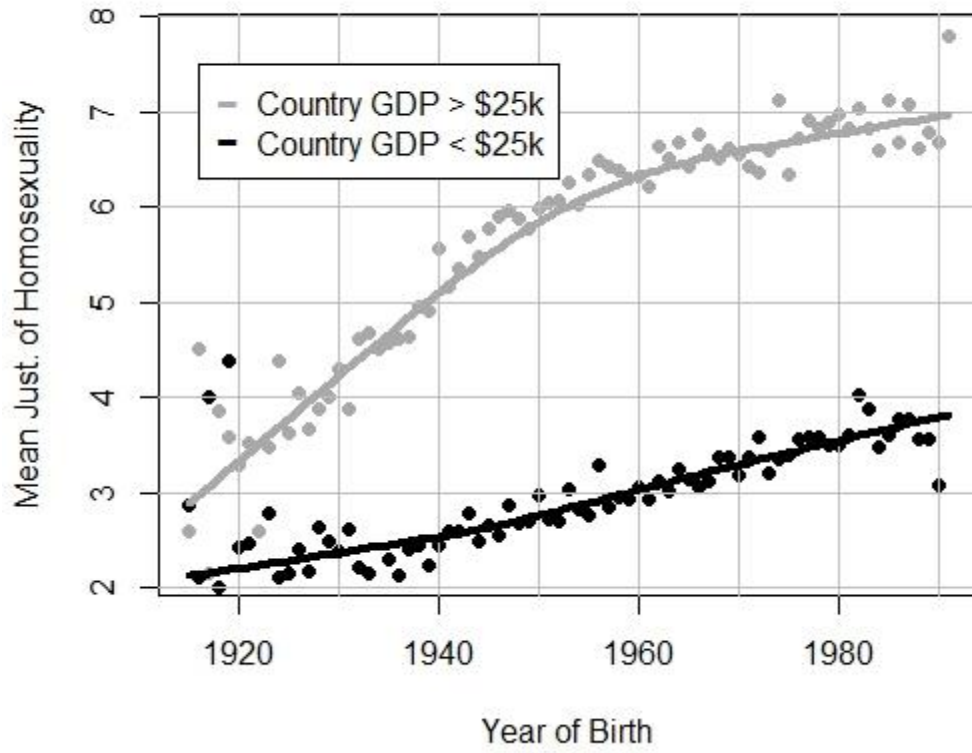Figure 1: Average National Responses to the Justifiability of Homosexuality Question

Figure 2: Youth Liberalism on Homosexuality by GDP

Transnational Interaction and Socialization

The findings we cite on age cohort and context—mainly derived from studies on the American context—are illustrative, but they leave us with little analytic leverage to explain why attitudinal change has occurred across multiple domestic contexts. A shift to a transnational perspective, by providing more variation in political and cultural contexts, should allow for stronger evidence of what factors contributed to positive attitudinal change. In this vein, the extant literature on cross-national attitudes toward homosexuality, taking inspiration from Inglehart's post-materialist thesis, has often focused on national development and the economic context (Inglehart 1990; Andersen and Fetner 2008b; Hadler 2012; Lottes and Alkula 2011).

According to Inglehart's thesis, as more people in a country have their material needs met, they move from a politics that is primarily concerned with (re)distributive issues to a politics that involves conflict over individualistic values, morality, and self-actualization. This later, post-materialist phase, allows for political conflict over—and more liberal positions on—gay rights. Inglehart's framework has inspired studies related to issues of sexuality. For instance, Andersen and Fetner (2008b) found that higher national values of GDP are associated with more liberal responses towards homosexuality among those who describe themselves as managers, professionals, and non-manual workers, and that higher values of a nation's GINI coefficient were associated with lower levels of liberal responses among all respondents.[5] Hadler (2012) and

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[5] The inequality finding was not supported by Hadler (2012), using a different model and slightly different data.

Gerhards (2010) also showed that a higher GDP was associated with more positive feelings toward homosexuality nationally.

While these perspectives offer many valuable insights on the conditions under which attitudinal change can take place in a cross-national perspective, they do little with respect to understanding the transnational mechanisms through which change occurs. For one, the studies only partially explain the finding that younger cohorts change their attitudes much more quickly than their parents' generation. Aside from the fact that these cohorts are often born into more affluent societies, the transnational channels that have led younger cohorts to embrace gay rights have not been explored. Here we shift the focus to the transnational factors related to cultural contact with gay and lesbian people, which we predict to be heavily influenced by the media and, we theorize below, may lead to inter-cohort differences in opinion.

Scholarship in international relations has long theorized explanations for the political salience of new identities, ranging from international human rights institutions (Risse, Ropp, and Sikkink 1999) to international security communities (Deutsch 1957), that take into account the effect of social transaction flows and cultural communication. Interaction also explains the internalization of new political identities at the individual level, for example the cross-border social transactions that contribute to the support of European integration (Lijphart 1964). These interactions, including those that are "symbolic, economic, material, political, [and] technological" (Adler and Barnett 1998, 41) can lead to socialization processes of learning (Deutsch 1957) that can "change beliefs or alter our confidence in those beliefs because of new observations, interpretations, or repertoires of practice" (Brake and Katzenstein 2013, 747; Ayoub 2013).

In the research on transnational dynamics that change the political conditions for gay people in their respective domestic contexts, Kollman's (2007) work has shown that the globalization of the idea of same-sex unions has become strengthened as an international norm that shapes—albeit in different ways, according to the domestic context—the politics of partnership rights in various states. A core premise of this line of constructivist research is that international norms can spread ideas from areas where they are more accepted to areas where they are not (Finnemore and Sikkink 1998); this is related to the world society approach (Meyer et al. 1997; Frank et al. 2010), which holds that "a network of governmental and nongovernmental institutions propels ideas at a global level, and these ideas influence social organizations and actors within any given nation" (Hadler 2012, 211). This approach emphasizes international factors that influence public attitudes within the nation, or potentially influence elites and other media gatekeepers who, in turn, influence public attitudes.

We see a role for the media in building channels that lead to such interactions in societies and ultimately the diffusion of new norms. Access to mass media, including televisions and newspapers, has been used in several studies as a mechanism of diffusion, since it allows for cross-border interaction, the exchange of ideas, and cultural contact (Kopstein and Reilly 2000, 14; Koopmans 1993, Soule 1994). While they are less concerned with diffusion, Norris and Inglehart (2009) conducted one of the rare projects to seriously consider the influence of media consumption on liberal attitudes. Rooted in the post-materialist tradition, their findings show a correlation between media consumption and more liberal social and moral values, in general. They draw on cultivation theory (Gerbner et al. 2002), to argue that individuals internalize media messages and ultimately shift their world views in ways that are distinguishable from their lived reality. While we build upon the theoretical framework of Norris and Inglehart (2009), we differ

significantly from them by exploring the transnational nature of media images and their differing effects on various age cohorts.

Theory: How Media Contact Influences Social Tolerance Among the Young

Few existing explanations of change in attitudes have explored the interconnectedness of states and the various transnational channels that diffuse popular culture—a culture that has increasingly come to include discussions of gay issues and portrayals of gay people. Furthermore, explanations based on single case studies (most prominently in the U.S. context) overlook the simultaneous changes that occur among other very different states and societies, and they place too much emphasis on demographic variables of change. The few studies that do compare multiple contexts have focused on domestic economic modernity, instead of the media variables that capture transnational socialization processes, which we find inherent to explaining the irrefutable global shifts that we chart. We thus bring together two rich parallel literatures that are rarely in dialogue—one on contact and one on transnational socialization. In making our case we do not refute the important findings of previous research, but instead maintain that our focus on transnational media contact is a compelling and authoritative lens with which to understand the concurrent changes that occur in a multitude of contexts.

Based on the evidence that the media carries vastly larger amounts of lesbian and gay imagery than ever before, we expect it to serve as an avenue for mediated cultural contact, and ultimately socialization among the young. Theoretically, the changes in popular culture that media currents make visible may be responsible for the increased social tolerance of gay people cross-nationally. If so, part of the prior increase in more tolerant attitudes, traditionally associated with development and higher levels of GDP, may be due to higher amounts of television, film, radio, and internet media, all of which convey political and social information

and mass culture. Furthermore, media exposure is more likely to be responsive to new social, cultural, and political developments if freedom of the press and speech are sacrosanct in the domestic context.

We argue that the effect of the media, because it transmits popular culture across borders, is a likely cause for the more positive perceptions younger cohorts have of sexual minorities.[6] The clear shift in the portrayal of gay people in the popular media, a group that was almost invisible in the media prior to the early 1990s, provides a platform with which to isolate this effect methodologically. Since then, more positive information on, and portrayals of, gay people have become common in the western television industry (Gross 2002; Tropiano 2002), especially in countries with global positions of power in terms of their capacity to disseminate culture across borders.[7] This is not to say that we expect such dissemination to be localized without contestation in many contexts (Rohn 2010). The introduction of these images can clash with domestic norms in several countries within this study, countries where sexuality has only recently entered the domestic discourse. Yet, as we develop in the discussion, younger cohorts

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[6] Younger people do report slightly more contact with lesbians and gays, but the differences are not large enough to explain the wide gulf between young and old on gay rights in surveys when controlling for contact (Lewis 2011).

[7] This process is far from unproblematic, as it introduces categories of sexuality that often lack rootedness in many domestic contexts, requiring local interpretation. For the purposes of our analysis, however, we simply wish to make the point that those countries that actively portray gay people in their own media generally also happen to have the cultural hegemony necessary to dispense these portrayals transnationally (Brooks and Wohlforth 2008).

are in a unique position (as opposed to earlier generations) to evaluate homosexuality according to several sources of information during their formative years. Not only are they exposed to these portrayals and a discourse on gay rights through electronic media and film, but they are also generally less exposed to past models of the etiology of homosexuality that stressed sickness, poor mental health, criminality, and poor parenting—the frames that dominated both psychiatry and mass culture in the 1950s and early 1960s, and in many respects persisted through the 1980s HIV/AIDS crisis.

Our argument concerning younger cohorts is thus linked to two primary ideas: we expect that younger people are both more impressionable (Dinas 2013) and that they have access to more diverse—including positive—information on homosexuality. We expect that mediated contact via the media will be particularly impactful on younger people. This is because the effects of contact have been found to be mediated through group-based affect that tends to stabilize the more an individual is exposed to information on a specific group (Lodge and Taber 2013), including information gained through various forms of intergroup mediated contact. Indeed, Garretson (2014) found that mediated contact with a gay person changed attitudes on gay rights, though only among younger people, using quasi-experimental data from the mid-1990s. Since younger individuals had less exposure to negative information on homosexuality, their affect was less stable, resulting in much larger increases in positive affect as compared to older individuals in the presence of mediated contact.

Thus, according to our explanation, the fact that younger people in various national contexts are particularly prone to more liberal attitudes is due in part to the exposure of younger cohorts to more diverse international images and ideas about gay people, and also to a greater

receptiveness to changing their attitudes based on these new ideas.[8] These images are increasingly more accessible across borders. Specifically, we expand upon and test two key theories: 1) that more liberal attitudes towards homosexuality transnationally are caused in a large part by popular culture transmitted via free, electronic media, and 2) that the effect of this contact with popular culture (as measured by living in an area with a media system conducive to such exposure) should vary according to age cohort, with attitudinal change more likely to take place among the young. We expect these trends to hold across multiple domestic contexts. This leads to our two core hypotheses, which are prefaced on a general permeability of younger cohorts to new norms on homosexuality transmitted by media cross-nationally.

H1: The higher the level of media pervasiveness in a country, the more likely that an individual will be more tolerant of homosexuality, especially in younger cohorts.

H2: The more free a society is in terms of speech and the press, the more likely that a country's citizens will be more tolerant of homosexuality, especially in younger cohorts.

Data

Individual Level

In order to test these hypotheses, we draw on the combined cumulative World Values Survey and European Values Survey (World Values Survey 2014). Over seventy countries were surveyed, with many nations being surveyed in four or five waves. As mentioned above, these surveys have regularly asked a question involving the justifiability of homosexuality. The text (in English) reads "Please tell me for each of the following statements whether you think it can

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[8] Linguistic barriers may limit the diffusion of liberal ideas relating to homosexuality, yet as the data in Appendix I demonstrate, the issue has been engaged in multiple languages.

always be justified, never be justified, or something in between, using this card: Homosexuality."
The response options range from 1 (Never Justified) to 10 (Always Justified). This question
forms our dependent variable and was asked of 378,926 respondents in total, although fewer are
used in the analyses below because of missing data, mostly at the aggregate level. We left this
variable in its original coding with higher levels representing more tolerance. It should be noted
that this question has been found to be a valid measure of prejudice towards homosexuals in
multiple studies (Andersen and Fetner 2008b; Hadler 2012; Reynolds 2013). For good measure,
we created an index that combines responses to the justifiability question with an attitudinal item
concerning openness towards having homosexual neighbors. While we do not report those
analyses here, we used this measure to test our findings and generated nearly identical results.

The key independent variable at the individual level is birth year. Birth year is coded as
the year of birth minus 1920 and divided by 100.[9] This variable ranges mostly from about -.2 to
.7, with most values between .0 and .6. Higher values represent younger cohorts. We also
include a series of control variables at the individual level based on the findings of previous
research, described in Appendix II.

Aggregate Level

Gathering uniform data cross-nationally on the prevalence of electronic media, like film,
radio, television, and computers is generally difficult. We do, however, have access to the Banks

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[9] We decided to use reported year of birth to measure birth cohort directly, rather than a set of
dummy variables representing various generations, to allow for ease of interpretation and
because various bivariate analyses revealed that the effect of year of birth on the justification of
homosexuality was either linear or close to linear (for instance, such as is displayed in Figure 2).

Media Scale (BMS), which is a combined measure of four components: 1) radios per capita, 2) televisions per capita, 3) newspaper circulation per capita, and 4) internet penetration (Banks and Wilson 2014). These four subcomponents of the scale were also generally available and we use them in subsequent analyses below. Access to such media taps into a core understanding of diffusion; it allows for interaction with ideas that are more present in other contexts (Kopstein and Reilly 2000, 14). The distribution of this variable was non-uniform, with many lesser developed countries clustering at lower values and relatively few countries taking on very high values. Second, Freedom House's rating for the freedom of the press was gathered in order to have an aggregate measure for each country and year on how free the press (and other aspects of mediated culture) are to respond to global developments, including increased portrayals of gay people and discussions of gay issues. This variable was coded to range between 0 and 1, with 1 representing more freedom of speech in the press. Importantly, the freedom of press variable taps into the idea that citizens in contexts with greater access to flows of information—since they are less prone to state censorship—should be richer in transnational images of homosexuality, as well as there being an increased likelihood that domestic sources have the space to present more balanced descriptions of homosexuality. This variable was only available from 1994 onward, meaning a reduction in the number of aggregate cases that can be used in an analysis. Thus, surveys prior to that year were eliminated from some of the subsequent analyses. Taken together, the freedom of the press and the BMS, with its four components, should be a theoretically sound measure allowing for the direct test of media effects. We also use GDP per capita and an index of a country's political, economic and social globalization as control variables for a country's economic development and its integration into the international system. GDP is coded as 1,000s of U.S. dollars. The KOF globalization index, collected by Axel Dreher and colleagues (2008),

was rescaled to range from 0 to 1, with high values representing greater international integration. In Appendix III, we include histograms of our key independent variables in order to more clearly convey their range and distribution.

Methods

We use a set of multi-level models to test for media effects. As this is a multi-level model, our unit of analysis is both the individual country survey and the individual respondent. Starting from the basic model of Andersen and Fetner (2008b), we include variables measuring religion, children, population of the place of residence, marital status, education, occupation, and year of birth in all the models. We include the aggregate measures of GDP, our measures for media, and, in keeping with Andersen and Fetner (2008b) and the post-materialist thesis, we include interactions between GDP and occupation. In the 1st model, we also include interactions between the year of birth and GDP, and the year of birth and the BMS in order to test the interaction portion of hypothesis H1. In the 2nd and 3rd model, we replace the BMS with variables derived from its components in order to more accurately determine exactly what sectors of the media correlate with the emergence of liberal views on homosexuality among young people. In model 4, we test hypothesis 2 by adding our measure of the freedom of the press and its interaction with the year of birth to our base model. Finally, in model 5, we include both variables measuring media pervasiveness and freedom of the press. In the models reported below, we allow the intercept and the coefficient on the year of birth to vary by survey. This controls for correlated errors at the aggregate-survey level. Although some of these variables are closely related, we show in Appendix IV that multicolinearity should not affect our results.

Our key theoretical expectations are that the effect of media pervasiveness and press freedom will be positively related to tolerance of homosexuality through the interaction between

these variables and year of birth. Another way of interpreting our hypothesis is that the effect of year of birth on attitudes is contingent on higher levels of media pervasiveness and freedom. These findings would provide evidence that media pervasiveness and a free culture are key factors in explaining the relative liberalism of younger individuals toward homosexuality globally. For our control variables, we expect negative effects for adherents of religion, especially practicing adherents, and number of children (which typically raises concern about the exposure of children to homosexuality and lowers levels of tolerance). In keeping with prior research, we expect positive effects on the variables that measure education, GDP, the occupational dummies (and their interactions), year of birth, living in cities and urban areas, and the status of never having been married.

Table 1: Media and the Cross-National Activation of Youth Liberalism on Homosexuality														
	Model 1			**Model 2**			**Model 3**			**Model 4**			**Model 5**		
	Est.	*S.E*		**Est.**	*S.E*		**Est.**	*S.E*		**Est.**	*S.E.*		**Est.**	*S.E.*	
Intercept	**1.600**	*0.233*	***	**2.636**	*0.389*	***	**1.595**	*0.290*	***	**1.130**	*0.300*	***	**2.307**	*0.489*	***
Male	**-0.504**	*0.015*	***	**-0.512**	*0.015*	***	**-0.581**	*0.018*	***	**-0.479**	*0.014*	***	**-0.511**	*0.018*	***
Education	**0.034**	*0.001*	***	**0.034**	*0.001*	***	**0.038**	*0.002*	***	**0.032**	*0.001*	***	**0.031**	*0.002*	***
Never Married	**0.132**	*0.022*	***	**0.136**	*0.023*	***	**0.109**	*0.028*	***	**0.088**	*0.020*	***	**0.155**	*0.026*	***
Divorced or Widowed	**-0.065**	0.032	*	**-0.071**	0.032	*	**-0.100**	0.037	**	**-0.112**	0.031	***	**-0.054**	0.040	
Residence: Medium Town	**0.117**	*0.026*	***	**0.115**	*0.026*	***	**0.089**	*0.030*	**	**0.197**	*0.025*	***	**0.163**	*0.032*	***
Residence: Medium City	**0.384**	*0.028*	***	**0.385**	*0.028*	***	**0.379**	*0.033*	***	**0.398**	*0.027*	***	**0.393**	*0.034*	***
Residence: Big City	**0.489**	*0.031*	***	**0.497**	*0.031*	***	**0.494**	*0.036*	***	**0.560**	*0.029*	***	**0.558**	*0.037*	***
Protestant	**-0.407**	*0.033*	***	**-0.403**	*0.033*	***	**-0.402**	*0.038*	***	**-0.441**	*0.033*	***	**-0.323**	*0.042*	***
Catholic	**-0.434**	*0.025*	***	**-0.433**	*0.026*	***	**-0.480**	*0.029*	***	**-0.375**	*0.029*	***	**-0.342**	*0.032*	***
Other Religion	**-0.675**	*0.031*	***	**-0.673**	*0.032*	***	**-0.716**	*0.040*	***	**-0.548**	*0.030*	***	**-0.613**	*0.036*	***
Practicing Protestant	**-1.052**	*0.043*	***	**-1.058**	*0.043*	***	**-1.322**	*0.055*	***	**-0.954**	*0.035*	***	**-1.047**	*0.051*	***
Practicing Catholic	**-0.566**	*0.025*	***	**-0.592**	*0.025*	***	**-0.626**	*0.028*	***	**-0.513**	*0.026*	***	**-0.518**	*0.032*	***
Children	**-0.063**	*0.006*	***	**-0.065**	*0.006*	***	**-0.075**	*0.007*	***	**-0.066**	*0.005*	***	**-0.064**	*0.007*	***
Non-Manual	**0.117**	*0.034*	***	**0.118**	*0.034*	***	**0.128**	*0.042*	**	**0.124**	*0.033*	***	**0.103**	*0.040*	**
Manager	**0.119**	*0.035*	***	**0.123**	*0.036*	***	**0.097**	*0.047*	*	**0.118**	*0.030*	***	**0.115**	*0.039*	***
Professional	**0.174**	*0.035*	***	**0.179**	*0.036*	***	**0.274**	*0.047*	***	**0.181**	*0.030*	***	**0.155**	*0.038*	***
Year of Birth	**0.644**	*0.300*	*	**-2.126**	*0.736*	**	**1.320**	*0.350*	***	**-0.897**	*0.451*	*	**-3.362**	*0.846*	***
GDP per capita (in $1,000s)	**0.018**	*0.012*		**0.025**	*0.010*	**	**0.017**	*0.012*		**0.015**	*0.009*		**0.026**	*0.013*	*
Globalization Index	**2.421**	*0.490*	***	**2.812**	*0.509*	***	**2.849**	*0.537*	***	**1.976**	*0.503*	***	**1.925**	*0.735*	**
Banks Media Scale (BMS)	**-0.005**	*0.007*													
Log (Televisions per capita)				**-0.429**	*0.141*	**							**-0.472**	*0.173*	**
Paper Circulation per capita							**-0.008**	*0.007*							
Freedom of the Press										**1.049**	*0.529*	*	**1.361**	*0.659*	*
GDP * Non-Manual	**0.022**	*0.002*	***	**0.022**	*0.002*	***	**0.023**	*0.002*	***	**0.017**	*0.002*	***	**0.018**	*0.002*	***
GDP * Manager	**0.013**	*0.002*	***	**0.013**	*0.002*	***	**0.016**	*0.002*	***	**0.013**	*0.001*	***	**0.013**	*0.002*	***
GDP * Professional	**0.039**	*0.002*	***	**0.039**	*0.002*	***	**0.037**	*0.003*	***	**0.028**	*0.001*	***	**0.036**	*0.002*	***
GDP * Year of Birth	**0.081**	*0.022*	***	**0.076**	*0.016*	***	**0.085**	*0.019*	***	**0.043**	*0.014*	**	**0.032**	*0.021*	
BMS * Year of Birth	**0.030**	*0.013*	*												
Log (TVpc) * Year of Birth				**1.073**	*0.237*	***							**1.018**	*0.266*	***
Paper Circ. * Year of Birth							**0.014**	*0.014*							
Free Press * Year of Birth										**4.221**	*0.221*	***	**3.139**	*1.075*	**
N (Surveys)	**119**			**117**			**89**			**127**			**75**		
N (Respondents)	**129,588**			**127,595**			**96,755**			**144,196**			**85,028**		
σ (Respondents)	**2.541**			**2.540**			**2.679**			**2.514**			**2.486**		
σ (Intercept|Survey)	**0.895**			**0.847**			**0.885**			**1.018**			**0.911**		
σ (Year of Birth|Survey)	**1.692**			**1.580**			**1.662**			**1.696**			**1.563**		
AIC	**610,550**			**600,959**			**466,076**			**676,251**			**396,858**		
Log Likelihood	**-305,163**			**-300,373**			**-232,930**			**-338,019**			**-198,326**		

Notes: * p<.05, ** p<.01, *** p<.001

Figure 3: Media, GDP, and the Activation of Youth Liberalism on Homosexuality (Based on Table 1 Results)
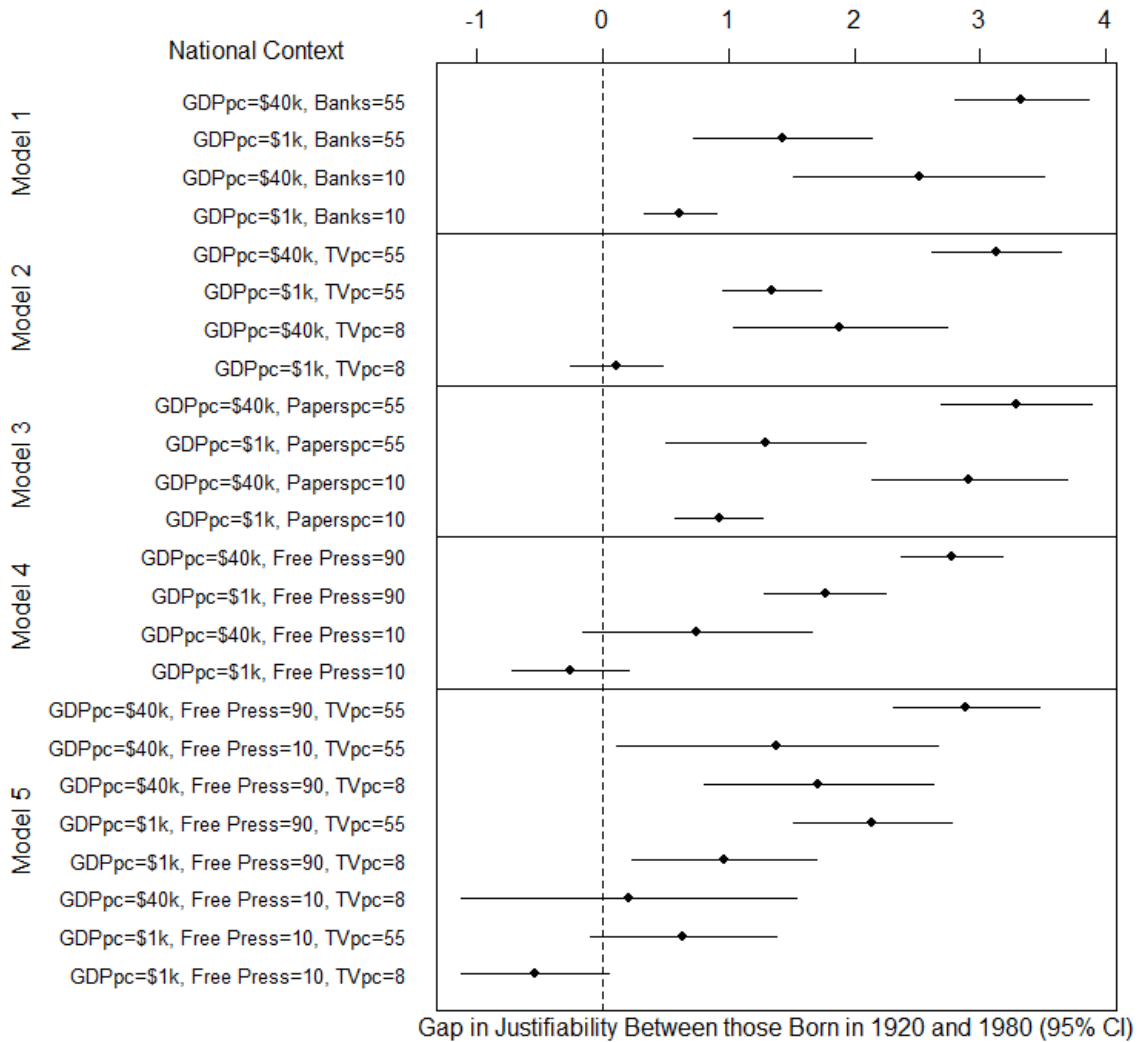
Results

The results for all models are displayed in Table 1. Beginning with model 1, we see a clear correlation between media density (BMS) and more liberal attitudes towards the justifiability of homosexuality for younger respondents. The direct effect of the BMS (i.e. the effect for the oldest individuals surveyed) is insignificant, while the interactive effect of the BMS with year of birth is both highly significant statistically and substantively. GDP and its interaction with the year of birth are also significant predictors of more liberal attitudes.

In order to ease the substantive interpretation of the interaction, Figure 3 presents the predicted marginal effect of year of birth given the different values of the key contextual variables for each model. The figure is standardized to represent the estimated effect of 60 years of age in the justifiability of homosexuality given various values of the aggregate variables. One can think of this as the gap difference between a respondent born in 1920 and in 1980, two values that occur with some frequency in the dataset. These values are only given as an example to ease the interpretation of the effect sizes in the graphic. The aggregate variables on the left side of the figure show differences between national context, based on economic wealth and the levels of media pervasiveness or press freedom. For example, a context with a per capita GDP of $40,000 and BMS of 55 would be an affluent state with high media pervasiveness. Confidence intervals for the marginal effects were calculated according to Kam and Franzese (2007). Model 1 predicts an average gap of slightly over one half of a point for countries low in both GDP (=$1000) and the BMS (=10). Countries high in one of these two measures, but low in the other, average a gap of between 1 and 3 points. Countries high in both are estimated to have an inter-cohort gap of over 3 points. Thus, roughly one-third of the nine point scale is explained by the year of birth in countries high in both GDP and media density.

Exactly what aspect of the media predicts the emergence of inter-cohort differences in opinion? In order to determine this, we estimated a series of models (not shown due to limitations of space but available upon request) using the components of the BMS. We also used the log of these components, since the number of devices (radios, TVs) per capita may experience diminishing marginal returns on attitudes at higher levels. For instance, there might be a larger effect in moving from countries with 5 TVs per capita to 15 TVs per capita than moving between countries with 55 and 65 respectively. Higher numbers are more likely to represent devices that are no longer in regular use in a household. The best fitting variable that emerged from this exercise was the log of TVs per capita. This model is displayed in model 2 of Table 1 and Figure 3. This finding makes theoretical sense. Images of gay people and discussion of lesbian and gay issues have become commonplace not only in hard news, but also in soft news and fictional programs. We also display model 3, which uses the newspaper circulation per capita component as a variable. This is of interest as newspaper circulation may come the closest to representing pure news effects divorced from any effect of entertainment media. Unfortunately newspaper circulation is not a significant predictor of age cohort gaps in attitudes. The radio and internet components also had little predictive capacity and were generally statistically insignificant. Considering this, television may better measure the disparate types of programming in which individuals can learn about lesbians, gays, and their issues. That said, as revealed by Figure 3, GDP differences appear to do a slightly better substantive job of predicting inter-cohort gaps than the log of TVs. All other variables in these models perform as expected.

In model 4, we test for the effect of freedom of the press: H2. Freedom of the press emerges as a powerful predictor of the justifiability of homosexuality. Not only is there a significant interaction between the year of birth and the measure of press freedom, suggesting a

relationship between this measure and the attitudes of younger respondents, but its direct effect is also statistically significant, meaning that it retains a small, but statistically significant effect for the oldest respondents. Furthermore, the substantive effect size of GDP is roughly half that compared to previous models. This suggests that a large portion of the previously reported effect of GDP is because nations with a higher GDP tend to have freer media. Figure 3 reveals that the substantive effect of press freedom in terms of its correlation with an inter-cohort gap is slightly larger than the effect of GDP. Controlling for press freedom, differences between low and high GDP result in a change of about one scale point. At constant levels of GDP, the same effect for press freedom is about two points.

In the last model of Table 1, we include both the log of TVs per capita and press freedom to establish that neither of the media related effects found above are due solely to the omission of the other as a control. The results show that both effects survive in a more expansive model. Using the BMS instead of TVs gives similar results. As illustrated in Figure 3, press freedom appears to be a slightly stronger predictor, while TVs rank second and GDP last (although these differences lack statistical significance). The difference in the intercohort gap between a nation low in all three and high in all three is about three and half points. We also tested several additional control variables. Regional dummy variables, time trends, and interactions between a time trend and year of birth were generally either insignificant statistically or in the wrong direction and did not affect the findings of our key hypothesis. Furthermore, our findings are unaffected when an interaction between the globalization index and year of birth is included in our model testing media-based origins of these generational effects.

In addition to the models included here, we tested various theories involving the effects of party system dynamics on attitude change.[10] Although we were able to find some models with significant results on these variables, the findings were highly contingent on how these variables measuring party system differences were coded and model specification used. We do not report the results of these models for this reason. However, the results on media pervasiveness and media freedom were highly robust to these additional variables.

Discussion

The research findings we have described above have important implications. In cross-national comparison, our results have shown that measures of media consumption and freedom of the press—both of which allow for an increase in news stories on, and portrayals of, gay people in popular culture—predict more positive attitudes towards homosexuality among younger cohorts. In order to contextualize these quantitative findings and reflect on the mechanisms behind them, we draw on a survey of LGBT organizations in 47 countries.[11] The

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[10] Specifically, we experimented with a variable tapping the number of effective parties, the electoral cut-off threshold for winning seats in a parliament, and interactions of these two aggregate variables with both the respondent's year of birth and self-placement on a left-right ideological continuum. Two-party systems may encourage the liberalization of left-wing voters if the left-wing party takes a pro-gay position. Likewise, low electoral thresholds may encourage center-left parties to adopt pro-gay positions in order to avoid the defection of gay voters to other parties, potentially leading to subsequent attitude change among left-wing voters.

[11] We draw on an original online survey conducted as part of a separate project, which serves as a descriptive supplement to the systematic quantitative test presented above. One survey was sent

prominent theme in these responses mimicked the theoretical expectations we formulated above: that media is a conduit for information concerning LGBT people that cross borders, and that it exposes younger cohorts to more multifaceted information with which to develop positions on homosexuality during their formative years.

In the survey, organizational representatives were asked to reflect (in an open text field) on the various factors that contribute to more positive (or negative) attitudes towards gay people in their respective countries.[12] A reoccurring theme in the responses of national experts was that changes in societal attitudes to the introduction of gay visibility had much to do with portrayals in the mass media. This was recognizable, despite the fact that respondents were not prompted to address the role of the media, and came from contexts that vary substantially in terms of political rights for LGBT people. According to an Austrian LGBT organization, having a "presence in the media had the strongest effect towards a general acceptance of LGBT individuals" (survey no. 126). In large part, the mechanism is attributed to the type of contact that the media can facilitate, in that it familiarizes and personalizes the issue for large segments of the population. In Germany, for example, a representative focused on the personal element of media contact:

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to each of the 291 transnational LGBT organizations identified in the 47 Council of Europe countries. 180 responded, bringing the response rate to 62%, a high average yield for organizational surveys (Baruch and Holtom 2008).

[12] Survey question: "Please briefly comment on your perception of the process of change in societal attitudes toward LGBT individuals. For example, did attitudes improve/worsen immediately after LGBT issues became visible? Or did improved attitudes follow an initial backlash in attitudes when the issue was first introduced?"

>...societal attitudes improved because LGBTIs were more visible than before and the media in Germany reported about their normal lives, their families and experiences (also about the experiences of homophobic discrimination). All that together made LGBTIs more personal...that changed a lot for the better (survey no. 63).

It was also noted that media images of openly gay people function as role models, not only encouraging a domestic debate, but also helping more gay people to be open about their sexuality within their social networks and, in turn, with other members of the public. Thus, the effects of gay people in the media may be magnified through associated increases in interpersonal contact.

While there was an optimism associated with the socializing potential of media contact on changing attitudes, responses also reflect our findings that this effect is more prominent among younger cohorts: "TV series, movies and artists [in Portugal] sending a strong message of tolerance [played] an important role, especially *in young people*" (survey no. 127). The same was true for Ireland, another Catholic country that has recently improved on the front of gay recognition:

>Ireland has come late to progressive socio-political change, but the country has also leap-frogged our neighbours in some ways. We have very progressive Equality Legislation … and our media is by and large LGBT friendly. In 2010 a TV documentary series called 'Growing Up Gay', which told the stories of eight LGBT young people growing up in Ireland, was one of the most viewed TV programmes of the year … which I think is very telling of how far Ireland has come in recent years (survey no. 110).

Even in the domain of highly stigmatized transgender rights, a Dutch organization attributed changes in young people's attitudes to the media, since it "started to report on the lives of (adult) trans [people]. ... Over the years the coverage became wider and there has been a lot of

sympathy, especially [among] young people" (survey no. 87). Those that oppose liberalizing

attitudes towards gay people also recognize the strong, if not inevitable, socializing potential of

the media on younger cohorts. While critiquing the European Union on social issues when

justifying accession, Polish Archbishop Józef Życiński argued, "even if Poland remained outside

EU structures the *younger generations* will seek patterns of living foreign to Christianity,

following a life-style taken from *the media* or learned abroad".[13]

     The finding that younger audiences are more influenced by the media may have its

explanation in the types of media that the young watch—which is increasingly composed of

international sources—but also in the fact that they have been socialized in periods when more

positive information on homosexuality was present. The situation was different for previous

generations, whose ideas formed during a time when few positive arguments on homosexuality

were available to compete with negative ones. Many of the survey responses suggest this

dynamic, arguing that the media plays a role in alleviating the conservative backlashes that often

coincide with the visibility of gay rights, but primarily among younger populations. Backlashes

had more disparaging effects in the earlier period when older generations were socialized, and

during which positive media portrayals of gay people were absent:

    Attitudes got better from the 1950s to 1970s, but then got worse again in the 1980s,

    thanks partly to a national conservative backlash, including a backlash to the greater

    visibility of lesbian and gay issues and people in the 1970s, and partly to HIV/AIDS.

    Then from 1988 attitudes got steadily better, coinciding with the greater visibility of

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[13] Emphasis added, and translated from the Polish. 'Nie Lękajcie Się Europy!' - Przesłanie Przed

Kongresem Kultury Chrześcijańskiej." 2000. *Katolicka Agencja Informacyjna*, August 8.

lesbian and gay people in the media, soap operas, etc. The law 'section 28', introduced in

1988, banning local public bodies and education authorities from 'promoting

homosexuality', caused a resurgence in lesbian and gay activism, and since 1994 onwards

there have been many improvements … in societal attitudes (survey no. 107, Scotland).

Different generations thus experienced starkly different portrayals of homosexuality,

depending on the political debates of the time. The media has only recently offered a dominant

counter frame to compete with the negative portrayal of homosexuality prevalent in the popular

culture of previous decades, which may explain the null finding of media effects among older

populations who were socialized prior to the 1990s and who may have more deeply engrained

views on social roles. This is not to say that the attitudes of older cohorts are fixed, but simply

that they are less malleable and much less likely to shift their position than younger cohorts, who

formed their initial political opinions in times with more diverse portrayals of homosexuality.

Since domestic socio-political responses during times of backlash are more in line with what

older cohorts learned in earlier years, they may naturally be less receptive to mediated contact

with the new contested portrayals of homosexuality that the media offers. If this is true, our

findings support the "primacy and structural principles" put forth by Searing, Schwartz and Lind

(1973), who argued that early life socialization shapes processes of learning and interpreting new

information acquired later in life, in a process that substantiates their earlier attitudes.

Despite the backlashes that the visibility of homosexuality provokes (Weiss and Bosia

2013)—especially in societies that previously had little exposure to gay visibility—the media

becomes a vehicle for making the contest surrounding this debate far more active than ever

before. This debate can play out favorably for younger cohorts who are forming their initial

positions on the issue. The media has even been effective in repressive cases like Russia, which

in 2013 passed draconian anti-gay propaganda legislation that attempted to remove the discourse on homosexuality from the public sphere. Because of subsequent international condemnation, the discourse on, and salience of, the gay rights issue has paradoxically been heightened to unprecedented levels. With prominent politicians, athletes, and pop stars—from Wentworth Miller to Madonna—taking a stand for LGBT people within the Russian domestic context, the domestic and international media is obliged to confront the issue. Despite political repression, young Russians have access to competing frames on homosexuality that did not exist before and can evaluate these claims in the light of new information and an active debate.

It is in repressive contexts, in which gay people find it difficult to show themselves openly, that the media provides one of the few—even if imperfect—avenues for contact with gay people. According to an organization in the Ukraine, few people are personally acquainted with openly gay persons, meaning people have to rely on images of LGBT people that appear in the media (survey no. 144). However distorted those images may be in comparison to the actual lived experiences of gay people in that country, they provide an avenue for cultural contact. In sum, we posit that the media dissemination of images related to gay people is effectual via a mechanism of cultural contact, yet how it is received varies according to the period that individuals were socialized in. These complex processes described by experts in multiple domestic contexts support the general trends we chart in our quantitative analysis.

Conclusion

In a recent article, Reynolds (2013) claims that liberalizing attitudes increase the likelihood of the election of LGBT representatives in national governments across the globe—and consequently lead to more LGBT friendly legislation in many countries—but we knew little about why attitudes in all of these countries have changed in the first place. Furthermore, if it is

indeed the young that are responsible for this liberalizing trend, then it is imperative that we come to understand how their opinions on this issue are shaped. In this article, we have tried to contribute to our understating of how political attitudes are shaped by highlighting that one important mechanism of that change is media contact, a mechanism that may operate both domestically and transnationally. In a cross-national multi-level analysis of individual attitudes, we demonstrated that both media pervasiveness and press freedom influences more liberal attitudes among the young. We believe that this coincides with the cultural contact that younger people come to have with gay and lesbian issues via channels of socialization. However imperfect media portrayals of gay people may be (and they may be a poor substitute for personal contact) the media does introduce a debate and new frames of reference on homosexuality in multiple domestic contexts.

These findings have implications for our understanding of socialization through contact by suggesting that we should think of contact in more multifaceted ways that take into account the effect of mediated cultural contact across borders. The findings also reflect on the mechanism of the theorized shift from materialist to post-materialist values in Inglehart's framework. The media may transmit certain values in the transition to a post-materialist culture. Television, film, radio, and the internet can reinforce values concerned with individual self-attainment, tolerance of individual differences, happiness, and personal development while downplaying redistributive (or materialist) concerns. The media remains a powerful socializing mechanism through which younger generations come into contact with previously invisible minorities. In making our case we do not refute the important findings related to previous research, but instead maintain that our perspective is a compelling lens with which to understand the simultaneous changes that occur among a certain demographic in a multitude of contexts. We also do not wish to minimize the

importance of direct, interpersonal contact to the process of attitude change. Indeed, it may be prominently interrelated to other factors we have presented here.

It is important to note that we do not argue that the visibility generated by the media always improves the lived experiences of gay people in any given context. The media can highlight either more sensational or more palatable depictions of gay life, but often neglects the broad array of issues inherent to a diverse community. Activists have warned that the success gay people have found in the media since the 1990s does not mean the battle has been won, "there is this idea that 'we can see LGBT people in movies, in TV shows, so there is no more discrimination'", yet discrimination remains (survey no. 164, France). Furthermore, as we have pointed out, backlashes against LGBT rights, when they become visible, are common and can lead certain segments of society to mobilize in resistance (Langlois and Wilkinson forthcoming, Ayoub 2014b). Future research needs to explore the resistance to gay rights that the media visibility of LGBT people can provoke, as well as how the quality of domestic media portrayals shapes attitudes. A Cypriot activist organization emphasized that, "The attitudes are still improving…gradually, depend[ing] on *how the issue* is covered in the media" (survey no. 11).

In concluding this study, we would like to draw attention to the similarity in measured attitudes toward the justifiability of homosexuality in the United States in the 1980s and the contemporary attitudes of countries, such as Russia and India, which have recently made the international news for enacting anti-gay legislation. This research suggests that part of what has encouraged the attitudinal transformation change in the West and elsewhere since the 1980s is a national climate allowing for the free transmission of minority viewpoints. The Russian law, which purports to ban only 'anti-gay propaganda', may do substantial harm to gay people in the long run, by limiting the ability of citizens to encounter information about homosexuality that

may lead them to reconsider anti-gay positions. While some have suggested boycotting or cutting international aid to countries that violate LGBT rights, our findings show that programs encouraging these nations to grant free access to the media without retaliation may benefit gay people more in the long run by facilitating the type of norm diffusion and cultural contact that this study has found crucial in leading to increased tolerance. They also suggest that the growing polarization around gay rights—such as the backlash described in Russia—is tied to the free expression of minority viewpoints. Indian actress Sonam Kapoor recently noted the need for gay stories in Bollywood films as an avenue for "exposure" that could introduce new understandings of gay and lesbian people—our findings support that general idea.[14] Encouraging the telling of accurate stories on lesbians and gays may be the key to closing the gap in tolerance that has opened between freer countries and those which restrict the ability of minority viewpoints to get their message out.

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[14] http://www.huffingtonpost.com/2014/05/20/bollywood-gay-love-story-_n_5360441.html (June 24, 2014).

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Appendix I:

The Cross-Linguistic Emergence of Lesbian and Gay Issues

To visually demonstrate the global reach of new discourses on homosexuality, we use the Google Ngrams viewer (GNV) to track changes in word usage rates for several common words that translate to lesbian, gay, or homosexual in five languages (US and UK English, Spanish, French, German and Russian) from 1965 to 2005. Google digitally scans several million books across multiple languages and allows individuals to track word usage rates over time. Each panel in Figure A1 represents searches of the GNV for various forms of the words 'gay', 'lesbian', and 'homosexual'. The GNV returns word usage rates across various scanned texts across time (1965-2005). From top left to bottom right the panels represent 1) American English, 2) British English, 3) French, 4) German, 5) Spanish, and 6) Russian. This figure demonstrates that, to a greater or lesser extent, mass discussion of homosexuality penetrates linguistic barriers. Most languages show an increase in the use of these words in the 1990s, although the magnitude of the shift is largest in English. The rise in attention to homosexuality in mass culture in the 1990s appears not to be restricted by language and to be partially diffused across linguistic barriers.

Figure A1: The Emergence of Lesbians and Gays in US and UK English, Spanish, French, German and Russian
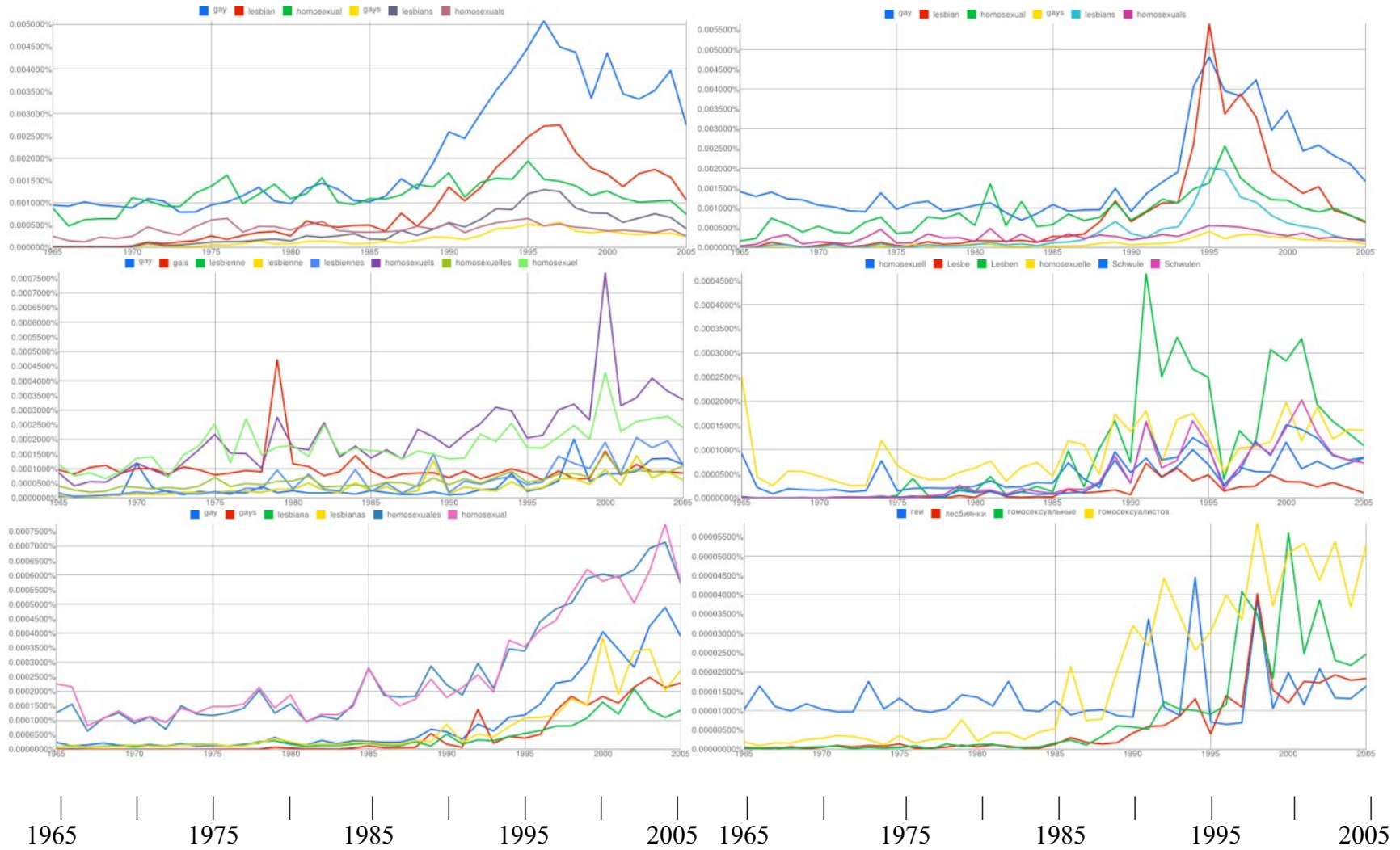
Appendix II: Variable Coding

Control variables include occupation, which is coded as a set of dummy variables for those that identify as managers (=1, 0 otherwise), professionals (=1, 0 otherwise), and non-manual workers (=1, 0 otherwise); religion, which is coded as a set of dummy variable for practicing Catholics (=1, 0 otherwise), practicing Protestants (=1, 0 otherwise), non-practicing Catholics (=1, 0 otherwise), non-practicing Protestants (=1, 0 otherwise), and those with another religion (=1, 0 otherwise); and a set of dummy variables for those living in towns or cities with populations between 5,000 and 49,999 (=1, 0 otherwise), between 50,000 and 499,999 (=1, 0 otherwise), and over 500,000 (=1, 0 otherwise). Also included are dummy variables for those who were never married (=1, 0 otherwise) and are divorced or widowed (=1, 0 otherwise). The excluded categories are those with other manual occupations, no religion, those from rural areas and towns below 5,000 people, and those who are married or separated. Other control variables include the number of children reported by the respondent, the age at which the respondent reported completing their formal education.

Appendix III: Distributions of Key Variables

Below, we present a figure of the distributions of our key independent variables used in the Table 1 analyses (Figure A2). This includes any rescaling in the case of year of birth and the log of the number of televisions per capita. We hope this aids in the interpretation of our analyses.

Figure A2: Key Independent Variable Distributions
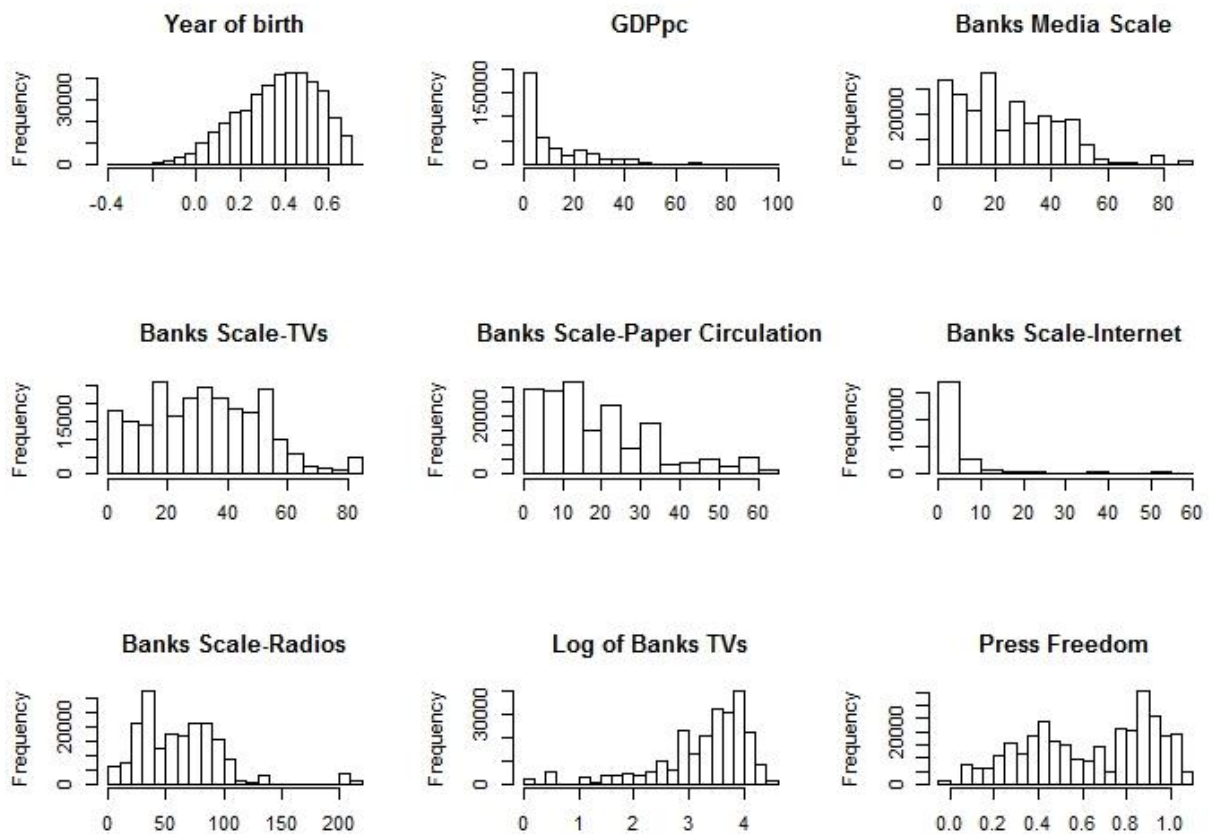
Appendix IV: Variable Colinearity Analysis

A number of our key variables are interrelated suggesting that our analyses may suffer from some degree of multicolinearity. Multicolinearity tends to inflate standard errors, which in turn, makes it harder to statistically resolve effects. Although our large individual level N suggests our models are well powered and that we should be able to resolve effects regardless of some inflation in our standard errors, we thought it prudent to investigate whether colinearity may be affecting our conclusions.

In order to do so, we computed the multi-level equivalent of the variance inflation factor (VIF) for each variable in Table 1. These VIFs are reported in Table A1. Table A1 suggests that some of our key variables, principally year of birth and some of its interactions, are indeed highly collinear, as indicated by a VIF higher than 8. The presence of multicolinearity on the interaction terms suggests that centering year of birth and the variables year of birth is interacted with may resolve this colinearity at the expense of losing some of the interpretability of the model.

In Table A2, we report the results of Table 1, but with the variables measuring freedom of the press, media density, and year of birth mean centered. The values of the main (uninteracted) effects of these variables now represent the effect of that variable when the variable it is interacted with is at its mean level, rather than zero (as in Table 1). The VIFs for Table A2 are reported in Table A3 and show that multicolinearity is no longer a serious issue. The results in Table A2 are substantively identical to the results in Table 1, suggesting that colinearity did not affect our results more than superficially.

Table A1: Variance Inflation Factors for Table 1					
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
	Est.	Est.	Est.	Est.	Est.
Male	1.076	1.076	1.076	1.067	1.073
Education	1.123	1.124	1.114	1.122	1.125
Never Married	1.243	1.245	1.227	1.259	1.284
Divorced or Widowed	1.040	1.042	1.044	1.035	1.039
Residence: Medium Town	2.167	2.157	2.147	2.127	2.213
Residence: Medium City	2.115	2.103	2.127	2.062	2.151
Residence: Big City	1.901	1.884	1.875	1.902	1.997
Protestant	1.720	1.686	1.577	2.211	1.830
Catholic	1.511	1.489	1.446	1.999	1.537
Other Religion	1.221	1.216	1.172	1.782	1.231
Practicing Protestant	1.440	1.411	1.318	1.537	1.557
Practicing Catholic	1.231	1.224	1.182	1.292	1.258
Children	1.268	1.273	1.244	1.283	1.313
Non-Manual	2.900	2.916	3.321	2.500	2.438
Manager	2.372	2.394	2.917	2.094	2.155
Professional	2.144	2.153	2.460	2.854	1.925
Year of Birth	3.316	**22.187**	3.455	**8.106**	**19.472**
GDP per capita (in $1,000s)	2.764	1.904	2.301	2.425	2.363
Globalization Index	1.986	2.308	1.794	2.120	
Banks Media Scale (BMS)	2.275				
Log (Televisions per capita)		1.950			2.221
Paper Circulation per capita			1.551		
Freedom of the Press				1.546	2.559
GDP * Non-Manual	2.958	2.973	3.375	2.553	2.497
GDP * Manager	2.372	2.435	2.972	2.163	2.202
GDP * Professional	2.076	2.084	2.405	2.817	1.844
GDP * Year of Birth	4.875	3.061	3.508	3.507	3.932
BMS * Year of Birth	7.620				
Log (TVpc) * Year of Birth		**28.295**			**23.092**
Paper Circ. * Year of Birth			4.590		
Free Press * Year of Birth				**12.742**	**14.641**

Table A2: Table 1 with Mean Adjusted Key IVs														
	Model 1			Model 2			Model 3			Model 4			Model 5		
	Est.	S.E		Est.	S.E		Est.	S.E		Est.	S.E.		Est.	S.E.	
Intercept	2.003	0.276	***	1.749	0.268	***	2.032	0.283	***	2.345	0.284	***	2.247	0.411	***
Male	-0.504	0.015	***	-0.512	0.015	***	-0.581	0.018	***	-0.479	0.014	***	-0.511	0.018	***
Education	0.034	0.001	***	0.034	0.001	***	0.038	0.002	***	0.032	0.001	***	0.031	0.002	***
Never Married	0.132	0.022	***	0.136	0.023	***	0.109	0.028	***	0.088	0.020	***	0.155	0.026	***
Divorced or Widowed	-0.065	0.032	*	-0.071	0.032	*	-0.100	0.037	**	-0.112	0.031	***	-0.054	0.040	
Residence: Medium Town	0.117	0.026	***	0.115	0.026	***	0.089	0.030	**	0.197	0.025	***	0.163	0.032	***
Residence: Medium City	0.384	0.028	***	0.385	0.028	***	0.379	0.033	***	0.398	0.027	***	0.393	0.034	***
Residence: Big City	0.489	0.031	***	0.497	0.031	***	0.494	0.036	***	0.560	0.029	***	0.558	0.037	***
Protestant	-0.407	0.033	***	-0.403	0.033	***	-0.402	0.038	***	-0.441	0.033	***	-0.323	0.042	***
Catholic	-0.434	0.025	***	-0.433	0.026	***	-0.480	0.029	***	-0.375	0.029	***	-0.342	0.032	***
Other Religion	-0.675	0.031	***	-0.673	0.032	***	-0.716	0.040	***	-0.548	0.030	***	-0.613	0.036	***
Practicing Protestant	-1.052	0.043	***	-1.058	0.043	***	-1.322	0.055	***	-0.954	0.035	***	-1.046	0.051	***
Practicing Catholic	-0.566	0.025	***	-0.592	0.025	***	-0.626	0.028	***	-0.513	0.026	***	-0.518	0.032	***
Children	-0.063	0.006	***	-0.065	0.006	***	-0.075	0.007	***	-0.066	0.005	***	-0.064	0.007	***
Non-Manual	0.117	0.034	***	0.118	0.034	***	0.128	0.042	**	0.124	0.033	***	0.103	0.040	**
Manager	0.119	0.035	***	0.123	0.036	***	0.097	0.047	*	0.118	0.030	***	0.115	0.039	***
Professional	0.174	0.035	***	0.179	0.036	***	0.274	0.047	***	0.181	0.030	***	0.155	0.038	***
Year of Birth	1.385	0.282	***	1.363	0.240	***	1.586	0.310	***	1.594	0.236	***	1.800	0.299	***
GDP per capita (in $1,000s)	0.048	0.013	***	0.053	0.015	***	0.048	0.013	**	0.031	0.008	***	0.038	0.013	**
Globalization Index	2.421	0.490	***	2.812	0.509	***	2.849	0.537	***	1.976	0.503	***	1.925	0.735	**
Banks Media Scale (BMS)	0.007	0.008													
Log (Televisions per capita)				-0.028	0.157								-0.092	0.177	
Paper Circulation per capita							-0.003	0.008							
Freedom of the Press										2.626	0.494	***	2.534	0.674	***
GDP * Non-Manual	0.022	0.002	***	0.022	0.002	***	0.023	0.002	***	0.017	0.002	***	0.018	0.002	***
GDP * Manager	0.013	0.002	***	0.013	0.002	***	0.016	0.002	***	0.013	0.001	***	0.013	0.002	***
GDP * Professional	0.039	0.002	***	0.039	0.002	***	0.037	0.003	***	0.028	0.001	***	0.036	0.002	***
GDP * Year of Birth	0.081	0.022	***	0.076	0.016	***	0.085	0.019	***	0.043	0.014	**	0.032	0.021	
BMS * Year of Birth	0.030	0.013	**												
Log (TVpc) * Year of Birth				1.073	0.237	***							1.018	0.266	***
Paper Circ. * Year of Birth							0.014	0.014							
Free Press * Year of Birth										4.221	0.221	***	3.139	1.075	**
N (Surveys)	119			117			89			127			75		
N (Respondents)	129,588			127,595			96,755			144,196			85,028		
σ (Respondents)	2.541			2.540			2.679			2.514			2.486		
σ (Intercept|Survey)	1.029			1.020			0.968			0.968			0.973		
σ (Year of Birth|Survey)	1.692			1.580			1.662			1.696			1.563		
AIC	610,550			600,959			466,076			676,251			396,858		
Log Likelihood	-305,163			-300,373			-232,930			-338,019			-198,326		

Notes: * p<.05, ** p<.01, *** p<.001

	Table A3: Variance Inflation Factors for Table A2				
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 5**
	Est.	**Est.**	**Est.**	**Est.**	**Est.**
Male	1.075	1.076	1.076	1.067	1.073
Education	1.123	1.124	1.114	1.122	1.125
Never Married	1.243	1.245	1.227	1.259	1.284
Divorced or Widowed	1.040	1.042	1.044	1.035	1.039
Residence: Medium Town	2.167	2.158	2.147	2.127	2.213
Residence: Medium City	2.115	2.103	2.127	2.062	2.151
Residence: Big City	1.901	1.884	1.875	1.902	1.997
Protestant	1.720	1.686	1.577	2.211	1.830
Catholic	1.511	1.686	1.446	1.999	1.537
Other Religion	1.222	1.216	1.172	1.782	1.231
Practicing Protestant	1.440	1.411	1.318	1.537	1.557
Practicing Catholic	1.231	1.224	1.182	1.292	1.258
Children	1.268	1.273	1.244	1.283	1.313
Non-Manual	2.900	2.916	3.321	2.501	2.438
Manager	2.372	2.394	2.917	2.094	2.155
Professional	2.144	2.153	2.460	2.854	1.925
Year of Birth	2.920	2.358	2.706	2.209	2.433
GDP per capita (in $1,000s)	3.439	3.475	2.547	2.141	2.564
Globalization Index	1.986	2.308	1.795	2.120	3.037
Banks Media Scale (BMS)	3.367				
Log (Televisions per capita)		2.973			2.313
Paper Circulation per capita			1.782		
Freedom of the Press				2.216	2.676
GDP * Non-Manual	2.959	2.973	3.375	2.553	2.497
GDP * Manager	2.413	2.435	2.972	2.163	2.202
GDP * Professional	2.077	2.084	2.405	2.817	1.844
GDP * Year of Birth	5.570	3.664	3.753	3.252	4.173
BMS * Year of Birth	3.146				
Log (TVpc) * Year of Birth		2.053			1.791
Paper Circ. * Year of Birth			1.821		
Free Press * Year of Birth				1.880	2.421